Net Zero Wales: Carbon Budget 2 (2021–2025) Sustainability Appraisal (SA) Report

Report for

Welsh Government
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1.   Introduction

1.1   Background

1.1.1   The Environment (Wales) Act 2016 (as amended) places a duty on the Welsh Ministers to reduce greenhouse gas (GHG) emissions in Wales by at least 100% in 2050[1]. The target of net zero emissions (rather than 80% as originally stated in the Act) reflects Welsh Government's acceptance of the independent Climate Change Committee's (CCC) recommendation[2] that Wales could achieve a net zero reduction in emissions, a target which had previously been considered unfeasible.

1.1.2   The Environment (Wales) Act 2016 requires Ministers to set a series of interim targets and five-year carbon budgets to achieve the 2050 target. The Act also requires the publication of a report setting out policies and proposals for each carbon budget period. *Net Zero Wales: Carbon Budget 2 (2021–2025)* (referred to as NZW or 'the plan' from here on) will fulfil this requirement by setting out Welsh Government's policies and proposals for meeting the second carbon budget covering the period 2021-2025 and for setting the framework to achieve net zero in 2050. NZW follows on from the publication of Welsh Government's first low carbon delivery plan covering the first carbon budget period 2016 to 2020 set out within *Prosperity for All: A Low Carbon Wales* (PFA: LCW) published in 2019[3].

1.1.3   Although not formally required as part of its development, the Welsh Government decided to commission a Sustainability Appraisal (SA) to provide an independent appraisal of NZW to help better understand the collective well-being impacts of the plan, evidencing how it meets the Well-being of Future Generations Act (WFG Act) commitments, and to help inform future policy development for subsequent plans. SA is a systematic process that identifies, describes and evaluates the economic, social, environmental and cultural sustainability effects of the policies in NZW. In so doing, the SA helps to ensure that NZW meets the well-being goals under the WFG Act which are, to achieve:

- A prosperous Wales;

- A resilient Wales;

- A healthier Wales;

- A more equal Wales;

- A Wales of cohesive communities;

- A Wales of vibrant culture and thriving Welsh language; and

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[1] The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021 changed the statutory target within the Environment Act from 80% to 100% and came into force on 12 March 2021.
[2] Climate Change Committee's (2020) The path to Net Zero and progress on reducing emissions in Wales. Available via: The ccc publication
[3] Available via: Prosperity-all-low-carbon-wales [Accessed 1 March 2021]

- A globally responsible Wales.

1.1.4   The SA identifies measures to avoid, minimise or mitigate any potential negative effects that may arise from the plan's implementation and identify opportunities to strengthen its positive contribution towards the economic, social, environmental and cultural well-being of Wales. The SA draws on the method and assessment set out in the SA Report[4] which accompanied PFA: LCW to ensure a consistent approach to the appraisal of Welsh Government's low carbon delivery plans.

1.1.5   This SA has been undertaken by Wood Group UK Limited (Wood) on behalf of Welsh Government to provide an independent and objective appraisal. The report is structured as follows:

- **Section 1** provides an overview of NZW, the SA process and requirements under the WFG Act;

- **Section 2** sets out a review of the relevant plans, programmes and policies;

- **Section 3** sets out the baseline evidence;

- **Section 4** sets out the approach applied to the assessment including the set of SA Objectives and guide questions;

- **Section 5** sets out the appraisal of the NZW, including an assessment of cumulative effects;

- **Section 6** sets out the conclusion.

1.2   Overview of Net Zero Wales: Carbon Budget 2 (2021-2025) (NZW)

1.2.1   Net Zero Wales: Carbon Budget 2 (2021-2025) (NZW) is the report for the second carbon budget period (2021-25). It describes the policies and proposals to meet Wales's second carbon budget (CB2) but looks beyond to start building the foundations for carbon budget three (CB3, 2026-30), and to achieve net zero in 2050. NZW builds on the policies and proposals contained within PFA: LCW published in 2019, which covered the first carbon budget (2016-2020) to ensure progress on the journey to net zero and a greener, stronger, fairer Wales.

1.2.2   PFA: LCW set out policies to achieve an average 23% reduction against the baseline GHG emissions over the initial carbon budget period, contributing towards an overall target of achieving at least an 80% reduction in GHG emissions in 2050. NZW is being prepared within the context of the recent changes in the legal requirement which requires a reduction of GHG emissions of at least 100% in 2050[5]. NZW brings forward some policies identified in PFA: LCW, but also introduces a large number of new policies and proposals to ensure that Wales meets the required average reduction of 37%[6] in GHG emissions

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[4] Available via: Low-carbon-delivery-plan-sustainability-appraisal [Accessed 1 March 2021]

[5] The Environment (Wales) Act 2016 (Amendment of 2050 Emissions Target) Regulations 2021 which change the statutory target within the Environment Act from 80% to 100% came into force on 19 March 2021.

[6] The Climate Change (Carbon Budgets) (Wales) (Amendment) Regulations 2021 amending the 2021-2025 carbon budget from an average reduction of 33% to 37% lower than the baseline came into force on 19 March 2021. The regulations set the carbon budget for the 2026-2030 period and limit to an average of 58% lower than the baseline.

against the baseline for CB2. The Welsh Government will continue to develop their evidence base throughout CB2 to develop policies and proposals for CB3 and beyond.

1.2.3   The NZW sets out:

- The policies that Welsh Government expect will enable Wales to remain within or 'outperform' the budget across cross-cutting themes and by eight emissions sector pathways (electricity and heat generation, transport, residential buildings, industry and business, agriculture, land use, waste management, public sector);

- Proposals (which require further development) which will allow Wales to continue to decarbonise further on the pathway to net zero in 2050; and

- A Team Wales Approach to achieving a reduction in emissions, recognising the role of people and businesses from across Wales.

1.2.4   The Welsh Government recognise that everyone needs to contribute to combat climate change. The NZW is an All Wales Plan, reflecting the importance of actions and investments by others as well as Welsh Government. Welsh Government published an approach to engagement[7] to ensure meaningful engagement with stakeholders in line with the WFG Act.

1.3   Sustainability Appraisal

1.3.1   Sustainability Appraisal (SA) is a systematic process that aims to promote the achievement of sustainable development through assessing the extent to which an emerging plan or project will help to achieve relevant objectives. Within Wales and in accordance with Section 2 of the WFG Act, sustainable development is the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle[8], that is aimed at achieving the seven well-being goals.

1.3.2   There is no legislative requirement to undertake a SA of NZW. The Welsh Government has chosen to undertake a SA, framed around the WFG Act, in order to strengthen the quality of the NZW and improve its contribution to achievement of the seven well-being goals and towards the overall well-being of Wales. In this context, the purpose of the SA is to improve, and where possible, optimise the contribution of NZW to environmental, social, economic and cultural outcomes, and the well-being goals, as required by the WFG Act.

1.3.3   Strategic Environment Assessment (SEA) is a statutory process that is intended to provide high level environmental protection. An SEA is not required for the preparation of NZW. However, the Welsh Government has chosen to undertake a SA that reflects the principles and approach of the SEA process, to provide an appraisal process that is structured, iterative and evidence based.

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[7] Welsh Government (2020) Engagement Approach for Low Carbon Delivery Plan. Available via: Engagement-approach-for-low-carbon-delivery-plan-2
[8] Section 5 of the WFG Act defines the sustainable development principle as meaning that a public body "*must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs.*"

1.3.4   The SA process has therefore been informed by SEA requirements, the WFG Act and the preparation stages of NZW. **Table 1.1** sets out the approach to the preparation of the SA. This is aligned with the stages (A to D) identified in the UK Government SEA guidance[9] and NZW preparation programme.

Table 1.1   SA preparation stages

SEA Stage	SEA Requirement	NZW SA approach	NZW Approach
A	Setting the context and objectives, establishing the baseline and deciding on the scope	• Review of other relevant policies, plans, programmes and strategies (hereafter referred to as 'plans and programmes'). • Collation and analysis of baseline information. • Identification of the key sustainability issues. • Development of the SA Framework, taking into account the key messages from plans and programmes, key sustainability issues, the well-being goals and ways of working.	Stakeholder engagement and initial development of policies
B	Developing and refining alternatives and assessing effects	• Application of the SA Framework to assess NZW policies using professional judgement. • Appraisal of alternatives as the preparation of NZW develops and final policies are put in place.	Further development of policies and proposals and refinement
C-D	Preparing the Environmental Report Consultation and decision-making	• Preparation of the SA Report setting out the methods used for appraising NZW, an assessment of the effects of the policies (and any alternatives), and mitigation/enhancement. • Publication of the SA Report alongside the final NZW.	Launch and publication of NZW

1.3.5   This SA Report is the final stage of the SA process detailed in **Table 1.1**. It presents the contextual information (the review of plans and programmes, baseline evidence and key sustainability issues), the methodology (SA Framework) used to complete the appraisal of effects, and the appraisal outcomes.

1.3.6   For this SA, along with the range of contextual information considered and the WFG Act requirements set out below, the appraisal objectives (SA Framework) reflect those used in the SA undertaken for PFA: LCW to ensure that there is continuity in the appraisal of effects of Welsh Government's emission reduction plans and the monitoring of performance.

The Well-being of Future Generations Act requirements

1.3.7   The WFG Act places a duty on all public bodies to carry out sustainable development. This includes improving the economic, social, environmental and cultural well-being of Wales

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[9] Available via: Strategic-environmental-assessment-directive-guidance [Accessed 9 March 2021]

by taking action aimed at achieving the well-being goals (see below). Welsh Ministers are identified in Section 6 of the WFG Act as being a public body.

1.3.8   SA is a process for appraising the social, economic and environmental impacts of a plan and aims to ensure that sustainable development is at the heart of the plan-making process. Within Wales the SA process can also be used to capture and explicitly address cultural impacts of a plan.

1.3.9   The approach to this SA is therefore consistent with the requirements under the WFG Act. It explicitly considers the extent to which NZW will be compatible with the requirement to promote the economic, social, environmental and cultural well-being of Wales, taking into account the well-being goals. In developing the approach, it has been intentionally aligned with the WFG Act requirements and well-being goals.

The seven well-being goals

1.3.10   The WFG Act sets out seven well-being goals (underpinned by five 'Ways of Working') that all public bodies must work towards:

- A prosperous Wales;

- A resilient Wales;

- A healthier Wales;

- A more equal Wales;

- A Wales of cohesive communities;

- A Wales of vibrant culture and thriving Welsh language; and

- A globally responsible Wales.

1.3.11 The seven well-being goals are at the heart of the Welsh Government's long-term commitment to ensuring that all decisions taken contribute to the achievement of sustainable development.

1.3.12 The SA Framework (**Section 4**), which was finalised following consideration by the Future Generations Commissioner for Wales, demonstrates how the approach to SA is aligned to the well-being goals. The process of appraising the emerging policies helps to identify and strengthen the performance of NZW against the requirements of the well-being goals.

1.3.13 Achievement of the well-being goals is embedded through five ways of working which are necessary to shape and inform the decision-making process and the development, and delivery, of plans and policies to ensure that the impact on the people of Wales in the future and the present is accounted for.

Programme for Government

1.3.14 The Welsh Government's *Programme for Government* (June 2021)[10] seeks to ensure that tackling the climate and nature emergencies is at the heart of Welsh Government activity. It sets out ten well-being objectives that the Government will use to maximise its contribution to the seven well-being goals set out in the WFG Act and the steps it will take to deliver them over this Senedd term (2021 to 2026). The objectives are to:

- Provide effective, high quality and sustainable healthcare.

- Protect, re-build and develop our services for vulnerable people.

- Build an economy based on the principles of fair work, sustainability and the industries and services of the future.

- Build a stronger, greener economy as we make maximum progress towards decarbonisation.

- Embed our response to the climate and nature emergency in everything we do.

- Continue our long-term programme of education reform, and ensure educational inequalities narrow and standards rise.

- Celebrate diversity and move to eliminate inequality in all of its forms.

- Push towards a million Welsh speakers, and enable our tourism, sports and arts industries to thrive.

- Make our cities, towns and villages even better places in which to live and work.

- Lead Wales in a national civic conversation about our constitutional future, and give our country the strongest possible presence on the world stage.

1.3.15 The SA Framework (**Section 4**) was initially informed by the previous Programme for Government (covering 2016-2021) and its well-being objectives. It was reviewed and refined in light of the new Programme for Government published in June 2021.

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[10] Available via: https://gov.wales/sites/default/files/publications/2021-06/programme-for-government-2021-to-2026.pdf [Accessed July 2021]

Relationship to statutory impact assessments and Integrated Impact Assessment

1.3.16   NZW is an aggregation of policies and proposals from across Welsh Government, each of which is subject to the usual requirements around impact assessment. This SA Report therefore does not present an Integrated Impact Assessment (IIA) covering these assessments or explicitly set out how NZW meets the legal requirements associated with each impact assessment. However, the overarching elements of the statutory impact assessments are embedded within the SA process through the SA Objectives and guide questions, so that the effects against the themes underpinning the statutory impact assessments can be broadly determined and appraised. Commentary has therefore been provided on the effects on the NZW on the statutory assessments in **Section 5**.

1.4   Embedding the five ways of working

1.4.1   Section 5 of the WFG Act identifies the sustainable development principle, which public bodes must act in accordance with. Public bodies must act:

- In the long term;

- In an integrated way:

- Involving other stakeholders;

- Collaboratively; and

- To take preventative actions.

1.4.2   The five ways of working are embedded into decision making to ensure that the short and longer term impacts are considered as part of the plan preparation. The policies in NZW, although focused on meeting the requirements of CB2, need to also demonstrate that Wales is on a path to achieve net zero in 2050. Additionally, it is vital that policies and proposals introduced now or in the future not only reduce emissions but improve the well-being of the people of Wales.

1.4.3   Throughout the preparation of the NZW and the accompanying SA, the five ways of working have been embedded into the process. **Table 1.2** sets out how each way of working has been reflected in the approach to preparation.

Table 1.2   Embedding the ways working into the preparation of NZW and SA

Way of working	Development of the NZW	Development of the SA
Long term	The NZW addresses the carbon budget requirements for 2021-2025. In that respect it is a short-term plan to support the next five-year period. However, NZW also plays a key role in making sure that Wales is on a clear pathway to meet the interim targets and net zero target for 2050, helping to secure long term benefits for Wales and	The SA sets out the current economic, social, environmental and cultural baseline and the key sustainability issues affecting Wales in the short, medium and long term. The SA assesses the short, medium and long-term effects of the NZW against the baseline in line with the SA Objectives.

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Way of working	Development of the NZW	Development of the SA
	the wider world. Therefore, the plan also considers the long term beyond the five-year budget period.	Additionally, the SA will reflect the Welsh Government's work in Future Trends.
Integration	The NZW has been developed through extensive and collaborative working across Welsh Government departments to ensure links to other policy areas and objectives. As the NZW is accumulation of cross Government policies it has also been informed by engagement with stakeholders from a range of partner organisations across various policy areas and sectors. This approach has been informed by recognition of the need to address the seven well-being goals as integrated elements of achieving the shared vision.	The SA enables assessment of the effects of NZW across economic, social, environmental and cultural factors. The SA Framework provides for an integrated approach to appraisal against various cross cutting themes to enable cumulative and synergistic effects to be identified. The SA also builds on the approach used to appraise PFA: LCW enabling continuity in how Welsh Government's emission reduction plans are appraised and monitored.
Involvement	The development of NZW was supported by an Engagement plan[11] which sets out a range of engagement activities during its preparation. Through application of the plan, stakeholders have been given the opportunity to actively shape and inform preparation of the NZW and any new policies or proposals through consultations across sectors as well as other activities.	The SA Scoping Report was made available to the Future Generations Commissioner for comment prior to being finalised. Initial assessments of policies were then undertaken which were fed into, and support, the development of policies to help meet the carbon budget for 2021-2025. This SA Report sets out the appraisal of the NZW and will be published alongside the NZW.
Collaboration	Welsh Government intends the NZW to be an All Wales Plan reflecting that everyone in Wales needs to contribute to the challenge of combatting climate change and reducing greenhouse gas emissions. NZW will set out a range of polices that cut across sectors and require input and collaboration to achieve its aims.	The SA is informed by a review of plans and programmes, and review of baseline evidence, prepared by a variety of Welsh Government departments and other organisations. This has informed the SA Framework which will be used to appraise the NZW. The appraisal itself has also been informed by, and reflects, this evidence.
Prevention	NZW introduces policies that seek to enhance existing positive measures required to reduce GHG emissions and address areas where there are recognised issues that need to be overcome. It also identifies the importance of climate justice issues.	The SA's role is ensure that potential significant negative effects are identified and where they are identified that the plan either avoids these or mitigation is incorporated into the plan. The SA will also contribute to preventing future issues that could happen after CB2 (if not addressed now) by appraising (and strengthening,

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[11] Available via: Engagement-approach-for-low-carbon-delivery-plan-2 [accessed 26 February 2021]

Way of working	Development of the NZW	Development of the SA
		where possible) the policy actions and proposals within CB2.

2. Review of relevant plans, programmes and policies

2.1 Introduction

2.1.1 The review of relevant plans and programmes aims to identify the relationships between NZW and these other documents i.e., how the NZW could be affected by the other plans and programmes' aims, objectives and/or targets, or how it could contribute to the achievement of their sustainability objectives. The review also ensures that the relevant environmental protection and sustainability objectives are integrated into the SA through the SA Framework.

2.1.2 The completed review of plans and programmes will be used to provide the policy context for the subsequent appraisal process and help to inform the development of objectives and guide questions that comprise the SA framework (**Section 4**).

2.2 Review of plans and programmes

2.2.1 The documents reviewed are listed in **Table 2.1** and their relevance is considered in the same order within the review provided in **Appendix A**.

Table 2.1 Plans and programmes reviewed for the SA of NZW

Documents reviewed (Welsh Government documents unless otherwise stated)
• Agriculture (Wales) White Paper (2020)   • An Active Travel Action Plan for Wales (2016)   • Beyond Recycling (2021)   • Child Poverty Strategy (2015)   • Cymraeg 2050: A million Welsh speakers (2017)   • Digital Strategy for Wales (2021)   • Economic Strategy for Wales (2021) Economic Contract   • Energy Wales: A Low Carbon Transition (2012)   • Energy Wales: A Low Carbon Transition Delivery Plan (2014, updated 2019)   • Energy Efficiency in Wales: A Strategy for the next 10 years 2016-2026 (2016)   • Education in Wales: Our national mission 2017-21 (2020 update)   • Electric Vehicle (EV) Charging Strategy for Wales (2021)   • Future Landscapes: Delivering for Wales (2017)   • Future Wales: The National Plan 2040 (2021)   • Improving Public Transport (2019)   • Llwybr Newydd – the Wales Transport Strategy (2021)   • Light Springs through the Dark: A Vision for Culture in Wales (2016)   • National Strategy for Flood and Coastal Erosion Risk Management in Wales (2020)   • Natural Resources Policy (NRP) (2017)   • The Nature Recovery Action Plan for Wales 2020 – 21 (2020)   • Our Economic Resilience & Reconstruction Mission (2021)   • Planning Policy Wales Edition 11 (2021)

Documents reviewed (Welsh Government documents unless otherwise stated)
• Programme for Government 2021-2026 (2021) • Prosperity for All: Economic Action Plan (2017) • Policy Statement: Local Ownership of Energy Generation in Wales – Benefitting Wales Today and for Future Generations (2020) • Strategic Equality Plan 2020-2024 (2020) • Tackling Fuel Poverty 2021-2035 (2021) • Welsh language strategy: annual report 2019 to 2020 (2020) • Welsh National Marine Plan (2019) • Woodlands for Wales: The Welsh Government's Strategy for Woodlands and Trees (2018) • Arts Council Wales - For the benefit of all. Arts Council of Wales Corporate Plan 2018–2023 (2018) • Cardiff Airport – Cardiff Airport 2040 Masterplan (2019) • Children's Commissioner for Wales - A Plan for all Children and Young People 2016-2019 (2016) • Climate Change Committee - The path to Net Zero and progress on reducing emissions in Wales (2020) • Future Generations Commissioner for Wales – The Future Generations Report 2020 (2020) • HM Government - UK Clean Growth Strategy: Leading the way to a low carbon future (2017, updated 2019) • HM Government – Industrial Decarbonisation and Energy Efficiency Action Plans (2017) • HM Government – Energy White Paper: Powering our Net Zero Future (2020) Natural Resources Wales - Western Wales and Dee River Basin Management Plans (RBMPs) 2015-2021 • Public Health Wales - Creating a Healthier, Happier and Fairer Wales (2017)

2.3   Key messages

2.3.1   The review of plans and programmes presented in **Appendix A** has identified a number of objectives and policy messages relevant to the scope of the SA across a range of topics within the four dimensions of sustainable development defined in the WFG Act (economic, social, environmental and cultural).

2.3.2   These messages are summarised in **Table 2.2** together with the key sources and implications for the SA Framework. Only the key sources are identified; however, it is acknowledged that many other plans and programmes could also be included.

Table 2.2   Key messages arising from the review of plans and programmes

Key objectives and policy messages (organised by the four dimensions of sustainable development)	Key source	Implications for the SA Framework
Economic • To grow the Welsh economy and move towards greener, more sustainable technologies and jobs; • Develop a prosperous, greener and more equal economy; • Continue to transform the Welsh economy and support investment in low carbon and renewable sectors; • Ensure sufficient land is made available for new jobs to be created to meet the needs of Wales; • Ensure the Welsh economy provides benefits to everyone; • Ensure the Welsh economy is versatile and ready to face the future; • Invest in skills and employability; • Ensure that addressing the climate emergency is at the core of decision making; • Support greater public and local ownership of energy generation; • Ensure Wales is connected to the wider world; and	Programme for Government 2021-2026 (2021); HM Government – Energy White Paper: Powering our Net Zero Future (2020); UK Clean Growth Strategy: Leading the way to a low carbon future (2017, updated 2019); HM Government – Industrial Decarbonisation and Energy Efficiency Action Plans (2017); Energy Wales: A Low Carbon Transition (2012); Climate Change Committee - The path to Net Zero and progress on reducing emissions in Wales (2020); Agriculture (Wales) White Paper (2020); Future Wales: The National Plan 2040 (2021); Planning Policy Wales Edition 11 (2021); Policy Statement: Local Ownership of Energy Generation in Wales – Benefitting Wales Today and for Future Generations (2020); Electric Vehicle (EV) Charging Strategy for Wales (2021); Cardiff Airport – Cardiff Airport 2040 Masterplan (2019); Our Economic Resilience & Reconstruction Mission (2021); Future Generations Commissioner for Wales – The Future Generations Report 2020 (2020)	The SA Framework should include objectives and/or guide questions that relate to: • Supporting sustainable economic development and a well-being economy; • Supporting achievement of prosperous, greener and more equal economy; • Provision of employment opportunities; • Addressing economic inequality; • Improving skills and employability; • Encouraging education/skills attainment and educational opportunities for all; • Encouraging a reduction in greenhouse gas (GHG) emissions across all economic sectors; • Supporting growth in low-carbon and renewable energy sectors; • Supporting investment in clean/green technologies; • The provision of EV infrastructure; • Aiding the rural economy in becoming more de-carbonised; • Supporting a Wales that is connected to the wider world; and • Encouraging sustainable tourism and the rural economy of Wales.

Key objectives and policy messages (organised by the four dimensions of sustainable development)	Key source	Implications for the SA Framework
• Promote the provision of electric vehicle (EV) infrastructure.		
Social • Encourage healthier lifestyles and address physical and mental health and well-being; • Improve mental health provision and focus on prevention; • Address deprivation, inequality and poverty; • Celebrate the diversity of Wales's population; • Protect and develop services for vulnerable people; • Reduce levels of child poverty; • Reduce fuel poverty; • Ensure places are accessible for everyone; • Create safe places for work and for recreation; • Support the provision of infrastructure to support walking, cycling and sustainable public transport options; • Deliver open spaces and other facilities that encourage a healthier lifestyle; • Provide high quality services and community facilities that can support the population of Wales;	Programme for Government 2021-2026 (2021); Prosperity for All: Economic Action Plan (2017); Future Wales: The National Plan 2040 (2021); Improving Public Transport (2019); Llwybr Newydd – the Wales Transport Strategy (2021); Future Wales: The National Plan 2040 (2021); Planning Policy Wales Edition 11 (2021); Digital Strategy for Wales (2021); An Active Travel Action Plan for Wales (2016); Strategic Equality Plan 2020-2024 (2020); Public Health Wales - Creating a Healthier, Happier and Fairer Wales (2017); Tackling Fuel Poverty 2021-2035 (2021); Education in Wales: Our national mission 2017-21 (2020 update); Future Generations Commissioner for Wales – The Future Generations Report 2020 (2020)	The SA Framework should include objectives and/or guide questions that relate to: • Supporting mental and physical health and well-being; • Encouraging and promoting healthy lifestyles; • Addressing deprivation and reducing regional and local inequality; • Support diversity; • Supporting investment in education; • Ensuring there are safe and welcoming community and open spaces to encourage community cohesion; • Improving telecommunication/internet infrastructure; • Promoting active travel and sustainable transport options that reduce the need to travel by private car and reduce attendant carbon emissions.

Key objectives and policy messages (organised by the four dimensions of sustainable development)	Key source	Implications for the SA Framework
• Provide high quality, low carbon homes in sustainable locations; • Address the education attainment and aspiration gap.		
Environmental • Maintain and enhance biodiversity; • Maintain and enhance ecosystem resilience and the capacity to adapt to climate change; • Align the responses to the climate emergency with the biodiversity crisis; • Promote high quality design and sustainable development; • Support placemaking; • Protect the distinctive character and landscapes of Wales including the Areas of Outstanding Natural Beauty (AONB) and National Parks; • Protect the water environment and marine environment of Wales from harm; • Improve the flood resilience of Wales and address the impacts of climate change on flood risk; • Ensure the sustainable use of Wales' wealth of natural resources; • Increase recycling, phase out plastic and invest in clean waste technologies; and	Programme for Government 2021-2026 (2021); UK Clean Growth Strategy: Leading the way to a low carbon future (2017, updated 2019); HM Government – Industrial Decarbonisation and Energy Efficiency Action Plans (2017); Energy Wales: A Low Carbon Transition (2012); Climate Change Committee - The path to Net Zero and progress on reducing emissions in Wales (2020); Future Wales: The National Plan 2040 (2021); National Strategy for Flood and Coastal Erosion Risk Management in Wales (2020); Welsh National Marine Plan (2019); Natural Resources Policy (NRP) (2017); Nature Recovery Action Plan NRAP (2020); Future Wales: The National Plan 2040 (2021); Planning Policy Wales Edition 10 (2018); Future Landscapes: Delivering for Wales (2017); Beyond Recycling (2021)Agriculture (Wales) White Paper (2020); Future Generations Commissioner for Wales – The Future Generations Report 2020 (2020)	The SA Framework should include objectives and/or guide questions that relate to: • Protecting and enhancing Wales' biodiversity and the natural environment; • Maintain and enhance ecological resilience and the capacity to adapt to climate change; • Conserve and enhance valued landscapes, including Wales' National Parks and AONBs, and their character and setting; • Protecting and enhancing water quality and resources; • Flooding, flood resilience and addressing the effects of climate change; • Encouraging a reduction in greenhouse gas (GHG) emissions, minimising the effects of climate change on natural assets and promoting climate resilience; • Improving air quality; • Protecting the important resources of Wales, especially agricultural land; • Encouraging the use of previously developed land; • Promoting high quality design; • Supporting the principles of placemaking; and • Reducing waste, supporting recycling and investing in clean waste technologies.

Key objectives and policy messages (organised by the four dimensions of sustainable development)	Key source	Implications for the SA Framework
• Reduce carbon emissions and minimise the effects of climate change on all environmental assets.		
Cultural • Promote the distinctive culture of Wales; • Continue to grow the number of people speaking Welsh; • Strengthen and increase Welsh language education provision; • Protect the historic environment and the historic assets of Wales; • Encourage the creation of art and encourage the provision of public art within Wales; and • Support participation in the arts, music, sport, literature and heritage.	Programme for Government 2021-2026 (2021); Arts Council Wales - For the benefit of all. Arts Council of Wales Corporate Plan 2018–2023 (2018); Cymraeg 2050: A million Welsh speakers (2017); Light Springs through the Dark: A Vision for Culture in Wales (2016); Future Wales: The National Plan 2040 (2021); Planning Policy Wales Edition 11 (2021); Future Generations Commissioner for Wales – The Future Generations Report 2020 (2020)	The SA Framework should include objectives and/or guide questions that relate to: • Promoting the importance of the Welsh language and increasing the number of people who can speak Welsh; • Conserving and enhancing the historic environment and the setting of assets; • Protecting and promoting the distinctive culture of Wales; • Encouraging recreation, and engagement with Wales' cultural assets; • Encouraging the creation of public art and participation in the arts; and • Encouraging participation in sport, music, literature and heritage activities.

3. Baseline analysis

3.1 Introduction

3.1.1 An essential part of the SA scoping process is the identification of the current baseline conditions and their likely evolution. It is only with a knowledge of relevant existing conditions, and a consideration of their likely evolution, that the effects of NZW can be identified and appraised. This baseline analysis is also used to determine the key sustainability issues that should be taken forward in the SA, through the SA objectives and guide questions (SA Framework).

3.1.2 This section identifies and characterises current economic, social, environmental and cultural baseline conditions, along with how these are likely to change in the future. The review is presented under the four dimensions of sustainable development identified in the WFG Act. Information has been compiled from a range of sources including:

- State of Natural Resources Report (SoNaRR) for Wales (2016 and 2020);

- Office for National Statistics, Welsh Government statistics and research[12];

- Future Trends Report (2017);

- Wellbeing of Wales: 2020; and

- National Survey for Wales[13] and Annual Population Survey[14].

3.1.3 The key sustainability issues arising from the review of baseline conditions are summarised at the end of each section.

3.2 Economic

Economy, employment and income

Economic output

3.2.1 The performance of the Welsh economy is closely aligned with the rest of the United Kingdom. Gross valued added (GVA) is the total output of the economy. The latest data from 2018 shows that Wales' GVA was £65bn which equates to £20,738 per person[15]. The GVA per person has increased year on year since 2011 but is the lowest of the four constituent countries of the UK (England – £29,356; Scotland – £26,134; Northern Ireland – £22,428). GVA per head is highest in Cardiff (£32,310), Newport (£26,647), Wrexham (£23,192), Flintshire (£23,086) and Monmouthshire (£22,307) but significantly lower across much of the rest of Wales, in part reflecting the rural nature of many local authority areas.

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[12] Available via: Statistics-and-research and Statswales [accessed 26 February 2021]
[13] Available via: National Survey for Wales
[14] Available via: Annual Population Survey
[15] StatsWales. Available via: Statswales Business-Economy-and-Labour-Market/Regional-Accounts/Gross-Value-Added-GDP [Accessed 26 February 2021]

wood.

3.2.2   Wales has joined the Wellbeing Economy Alliance (WEGo) which shares an ambition to improve well-being through their economic approach.[16] The Covid-19 pandemic has had an impact on economic activity with severe contraction in output and an expected impact on real wages[17]. The Welsh Government has recently published *Our Economic Resilience & Reconstruction Mission*[18] which seeks to support achievement of a well-being economy that leads to a prosperous, greener and more equal economic recovery.

Employment

3.2.3   Employment rates for the three months to December 2020 show that Wales had a slightly lower percentage of economically active people in employment (72.2%) than the rest of the UK (75.0%)[19]. This reflects historic trends where Wales has generally had a slightly lower of people employed than the UK as a whole. Wales experienced the highest percentage of people in employment since 1992 in the last quarter of 2018 where 76.2% of the economically active population were employed. This was also higher than the UK average of 75.8%.

3.2.4   Unemployment rates amongst the economically active population have declined in Wales and the UK since 2012 but have increased in the second half of 2020. In the three months to December 2020 Wales had 4.4% unemployed compared to the UK figure of 5.1%[20]. The decline in the percentage in employment and increase in rates of unemployment for both Wales and UK in the second half of 2020, will largely reflect the impacts of the Covid-19 pandemic.

Income

3.2.5   Gross weekly average (median) earnings in April 2020 stood at £537.80 within Wales compared to the UK figure of £585.50. The weekly earnings in Wales are slightly higher than in 2019 (£534.80) and have steadily increased year on year since 2011 when the figure was £451.30[21].

Low Carbon and Renewable Energy Economy

3.2.6   The Low Carbon and Renewable Energy Economy (LCREE) is an important financial sector in Wales. Total turnover for LCREE businesses was estimated as £2.15 billion in 2018 up from £1.8 billion in 2017; equivalent to 4.6% of total UK turnover in the LCRE economy[22]. Total employment in LCREE was estimated at 11,400 FTE jobs, an increase from 10,100 FTE jobs in 2017. There is potential for growth in the LCREE sector, both in economic output and jobs.

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[16] Wellbeingeconomy [Accessed 11 March 2021]
[17] Wellbeing of Wales: 2020 Available via: Wellbeing-wales-2020 [Accessed 8 March 2021]
[18] Available via: Economic-resilience-reconstruction-mission [Accessed 19 March 2021]
[19] Nomisweb (2021) Labour Market Profile. Available via: Nomisweb [accessed 26 February 2021]
[20] Ibid.
[21] Available via: Statswales Business-Economy-and-Labour-Market/People-and-Work/Earnings [accessed 26 February]
[22] ONS (2021) Low carbon and renewable energy economy estimates. Available via: ONS lowcarbonandrenewableenergyeconomy [accessed 26 February]

Tourism

3.2.7   Tourism is an important economic sector with the landscape and heritage of Wales providing key tourism assets. In 2019, across all measures (except day visits from Great Britain residents) tourism trips and spend had increased from the previous year.[23] Recent surveys show that 97% of tourism businesses were closed in March 2020[24]. However, the full impact of Covid-19 pandemic is not yet known.

Education

3.2.8   Educational attainment in Wales is slightly below the UK average. The proportion of working age adults with Higher Education or equivalent level qualifications (NQF level 4 or above) in 2019 was 36.3% (UK 40.2%), although this has increased from 27.9% in 2008[25]. Wales performs similarly to Northern Ireland (36.2%) and other UK regions with the exception of London, Scotland, South East and South West that are markedly higher. 79.1% of adults were qualified to NQF level 2 (4-5 GCSEs) or above in 2019.[26] This is also similar to other UK regions except for those named above which are markedly higher.

3.2.9   There are regional differences in attainment across Wales with Mid Wales having the highest percentage of adults with NQF level 2 or higher and the South East Wales the lowest. Mid Wales has the lowest percentage of adults with no qualifications (6.4%) whilst South West Wales (8.5%) and South East Wales (8.5%) have the highest[27]. Provisional data for 2019 shows that 11.1% of 16–18-year-olds and 15.7% of 19–24-year-olds were not in education, employment or training[28]. The figures for 16–18-year-olds have been similar since 2004. For 19–24-year-olds the figures have declined steadily since 2010. There are clear links between deprivation and educational attainment.

3.2.10   Welsh Government seeks to improve standards, reduce the attainment gap and deliver an education system that is a source of pride.[29] Additionally, supporting apprenticeships and STEM (Science, Technology, Engineering and Maths) subjects is recognised as important for supporting LCREE industries.

Energy consumption

3.2.11   Wales is a net exporter of electricity having generated approximately 27.9 TWh yet consumed approximately 14.7 TWh of electricity in 2019 (~53% of energy generated in Wales is exported). Since 2005, electricity consumption has fallen by 16%[30]. Energy generation is from fossil fuel (including gas and diesel) and renewable sources (including onshore wind, offshore winds, solar PV and others). There are no operational nuclear

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[23] Welsh Government (2020) [Wales tourism performance: 2019. Available via: Wales-tourism-performance-2019 [accessed 3 March 2021]

[24] Ibid.

[25] ONS (2021) Labour Market Profile. Available via: Nomisweb [Accessed 1 March]

[26] Available via: Statswales Post-16-Education-and-Training [Accessed 1 March 2021]

[27] Ibid.

[28] Available via: Statswales Post-16-Education-and-Training [accessed 1 March]

[29] Welsh Government (2017) Our Action Plan for Education in Wales 2017-2021

[30] Welsh Government, (2020) Energy Generation in Wales 2019 [online], available at: Energy-generation-in-wales-2019 [Accessed 2 March 2021]

power stations. Gas fuelled power stations generate the greatest proportion of electricity produced in Wales although this has been declining since 2018.

3.2.12   Renewable sources contribute approximately 27% of electricity generation[30] which is lower than the UK average of 37%[31]. Since 2005, renewable electricity generation has increased by over 500%, this is predominantly due to large-scale onshore and offshore wind. In 2017, the Welsh Government introduced a target of meeting the equivalent of 70% of Wales' electricity consumption from renewable sources by 2030. It is recognised that progress towards this target has slowed in recent years but could increase due to emerging market conditions, national policies and offshore wind opportunities.

3.2.13   Coal fired electricity generation represented just 2% of all electricity generated in 2019 but it is not expected to continue contributing to the future electricity mix with the closure of the last operational coal-fired power station, Aberthaw, in March 2020.

3.2.14   The three sectors with the greatest energy use are industry (32.3%), buildings (29.6%) and transport (22.1%) in 2017[32]. There has been a steady decline in energy use in all these sectors since 2005. Nearly two thirds of the energy used provides heat to homes, businesses and industry (~61%)[32].

Greenhouse gas emissions

3.2.15   Greenhouse gas (GHG) emissions are typically described as carbon dioxide equivalent (CO_2e), which describes different greenhouse gases in a common unit. For any quantity and type of GHG, CO_2e represents the amount of CO_2 which would have the equivalent global warming impact. Total GHG emissions in 2019 were 38,488 ktCO_2e[33]. Since 1990, GHG emissions in Wales have reduced by 31%, although there have been fluctuations in annual emission reduction, as shown in **Figure 3.1**.

[31] BEIS, (2020), Energy Trends: December 2020, special feature article - Electricity generation and supply in Scotland, Wales, Northern Ireland and England, 2016 to 2019, [online] available at: Energy-trends-december-2020 [Accessed 2 March2021].
[32] Welsh Government, (2020), Energy Use in Wales 2018, [online] Energy-use-in-wales-2018 [accessed 2 March]
[33] National Atmospheric Emissions Inventory (2021), Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019, [online], available at: BEIS Report [accessed July]

Figure 3.1   GHG emissions from 1990 to 2019
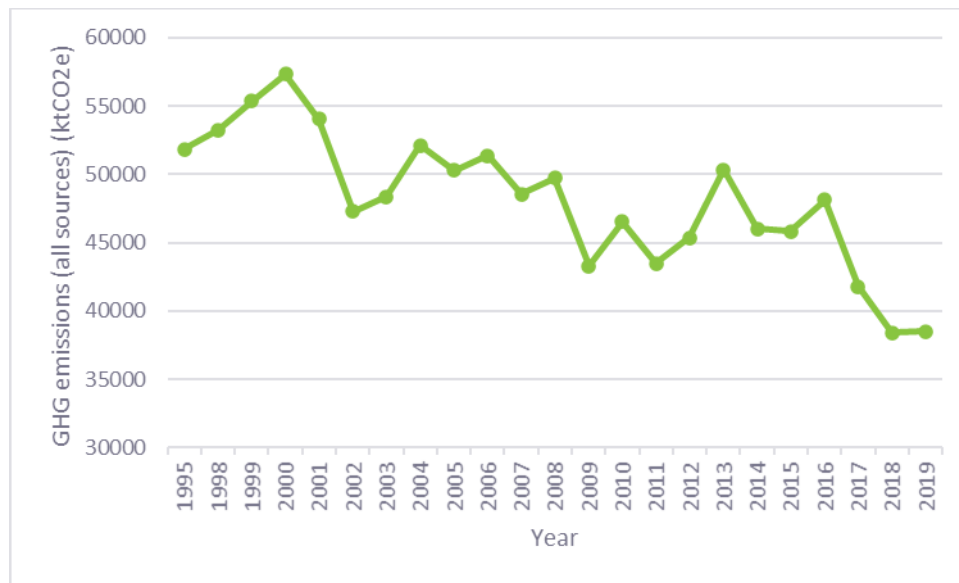
Source: BEIS National Atmospheric Emissions Inventory (2021)

3.2.16   Energy supply is the largest emitting sector of Wales' 2019 GHG emission inventory, accounting for 29% of emissions. This sector has shown a 36% decrease in emissions since 1990 baseline, primarily due to a reduction in the use of coal. The other largest sectors contributing to Wales' GHG footprint are business (24%), transport (16%) and agriculture (14%) (see **Figure 3.2**).

Figure 3.2   GHG emissions in 2019 by sector

- Energy Supply
- Business
- Transport
- Agriculture
- Residential
- Industrial processes
- Waste Management
- Public
- Land use, land use change and forestry
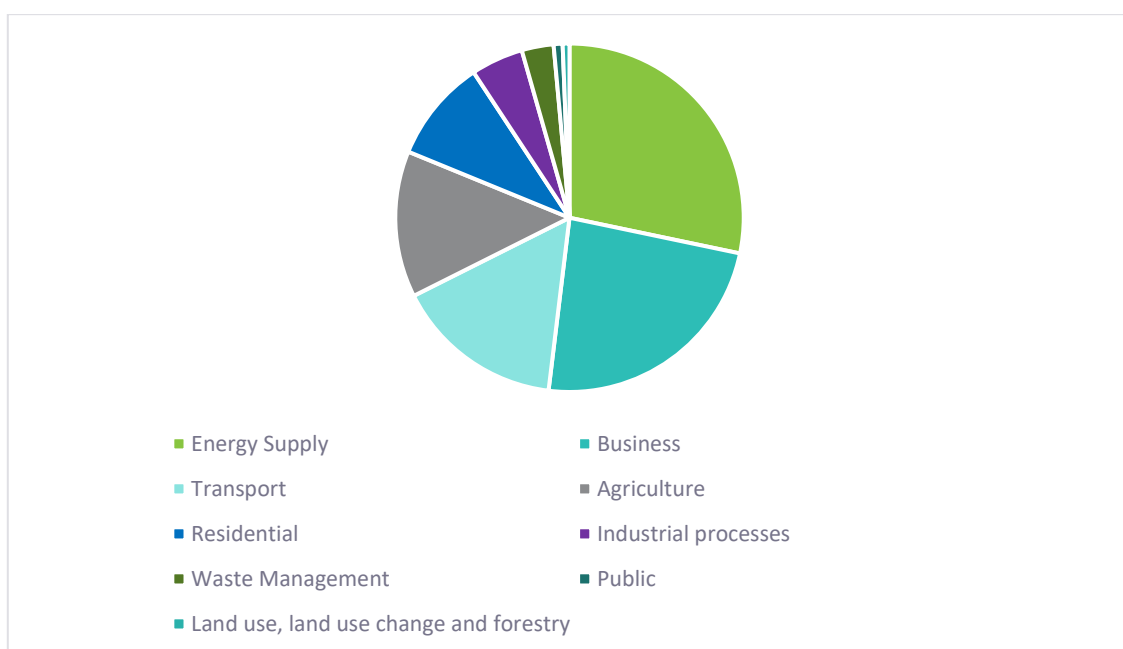
Source: BEIS National Atmospheric Emissions Inventory (2021)

3.2.17 Wales had the largest CO_2 per capita emissions in 2019 compared to other UK regions (7.6 tCO_2/capita). This is due to Wales having the highest CO_2 per capita emissions from the Industrial and Commercial sector reflecting its higher level of industrial installations[34], and the fact Wales produces electricity that is consumed by homes and businesses across the UK.

3.2.18 Historic GHG emissions have committed the Earth to some degree of climate change. For Wales, climate change is projected to lead to increasing temperatures, changing rainfall patterns, increasing flood risk and more extreme weather events[35]. This is likely to result in increased risks to infrastructure, public water supplies, land management practices, and ecosystems and agriculture businesses. These risks are addressed in Welsh Government's *Prosperity for All: A Climate Conscious Wales* (2019)[36] which sets out how Wales will adapt to climate change from 2016-2020.

Key sustainability issues

- The need to support achievement of a sustainable and well-being economy that is prosperous, greener and more equal.

- The need to address levels of unemployment and low incomes.

- The need to support local initiatives and local production.

- The need to move away from carbon intensive industries and start a transition towards only supporting low carbon industries and technology, in a way that reduces rather than perpetuates inequalities and ensures a just transition for everyone.

- The need to provide educational opportunities for all and address inequalities in educational attainment.

- The need to support STEM education to help support growth in low carbon and renewable energy industries and support a just transition to new low carbon technologies within all existing sectors.

- The need to drive GHG emission reduction in all sectors, thus supporting the global effort to mitigate climate change, whilst maintaining development and economic growth.

- The need for investment in and support for the tourism sector.

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[34] BEIS (2021), UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2019, [online], available at: Uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-20199 [accessed July 2021].

[35] Met Office (2019), UK Climate Projections: Headline Findings, [online], available at: Metoffice ukcp-headline-findings [Accessed 2 March 2021].

[36] Available via: Prosperity-for-all-a-climate-conscious-wales [Accessed 2 March 2021]

3.3   Social

Demographics

3.3.1   The population of Wales is projected to increase by 2.7% to 3.22 million by 2028, and by 3.7% to 3.26 million by 2043. Between 2018 and 2028 the number of people aged 65 and over is projected to increase by 16.3% to 758,600 and the number of people aged 75 and over is expected to rise by 29.3% to 378,100. The percentage of people aged 16-64 is likely to increase by around 0.2% but the number of children under 16 is projected to decrease by 4.7% to 536,300 between 2018 and 2028.[37]

Health and well-being

3.3.2   Overall, life expectancy and healthy life expectancies are increasing. However, the growing, ageing population is considered likely to increase the number of dementia sufferers and increase the occurrences of cancer. There are also significant differences between the most and least deprived. For overall life expectancy, there is a difference of around 8 years between the most and least deprived areas, while the difference in healthy life expectancy is around 18 years. However, illnesses such as heart conditions and arthritis have decreased in recent years.[38]

3.3.3   Loneliness can contribute to mental health issues. The latest *National Survey for Wales* (2020)[39] found that 15% of people were considered lonely. People in material deprivation were more likely to be lonely (41% considered lonely as opposed 12% of people not in deprivation). However, participation in sporting activities was fairly high with 59% of people having reported taking part in physical activity in the past 4 weeks. Around 11% of adults reported participating in sporting or physical activity around once a week.

Deprivation

3.3.4   The *Welsh Index of Multiple Deprivation (WIMD)* (2019)[40] measured relative deprivation in all local authority Lower Super Output Areas (LSOA) areas. The WIMD 2019 showed that there was a similar picture to deprivation across Wales as identified in the 2014 study. The WIMD 2019 identified pockets of high relative deprivation in the South Wales cities and valleys, and in some North Wales coastal and border towns. The local authority with the most deprived areas in its locality was Newport as 24.2% of its LSOA were considered to be in the top 10% most deprived areas of Wales. Blaenau Gwent had the highest percentage of areas in the most deprived 50% of Wales (85.1%). Analysis shows that 26 LSOA across ten local authority areas are in deep rooted deprivation due to being in the top 50 most deprived areas over the last 15 years.

3.3.5   The percentage of individuals living in relative income poverty for the period 2016-17 to 2018-19 stood at 23%. This was higher than all of the other UK countries and the UK average of 22%. However, this percentage has been stable since 2000-01 and is lower than

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[37] National population projections: 2018-based Available via: National-population-projections-2018-based [Accessed 1 March]

[38] Welsh Government (2017) Future Trends Report

[39] Available via: National-survey-wales-headline-results-april-2019-march-2020 [Accessed 1 March 2021]

[40] Available via: Welsh-index-multiple-deprivation-full-index-update-ranks-2019 [Accessed 1 March 2021]

the two previous reporting periods where it was 24%.[41] 155,000 households were estimated as living in fuel poverty in 2018. This is equivalent to 12% of all households. Households living in the private rented sector were more likely to be fuel poor with 20% of these households living in fuel poverty.[42] The percentage of households in fuel poverty has decreased substantially from 26% in 2008 due to increased incomes and energy efficiency improvement measures. It is important that the vulnerable in society are safeguarded from the effects of climate change and benefit from efforts to address it.

Crime

3.3.6   The total number of police recorded crimes in the year to September 2020 in England and Wales stood at approximate 5.7 million offences. This was 6% down on the previous year. The lower number of crimes was driven largely by Covid-19 related lock downs from April to June 2020. The period July to September 2020 saw an increase in police recorded crime but they were still below the previous year.[43] The most recent data on fear in crime in the *National Survey for Wales*[44] shows that most respondents (80%) felt very or fairly safe in their local area after dark and 79% felt very or fairly safe on public transport after dark. These findings are similar to previous years. Overall, 71% of respondents felt safe at home, walking in the local area and travelling whereas 29% did not. There is a slight reduction in those who felt safe compared to 2016-17.

Connectivity

Transport

3.3.7   Transport contributes to GHG emissions and air quality issues whilst active travel such as walking and cycling can support physical wellbeing and social wellbeing. Road traffic reached the highest ever recorded level in 2018, at 29.4 billion vehicle kilometres[45]. The number of rail passenger journeys has also increased steadily in recent years and stood at 21.6 million 2019[46] but private vehicles are expected to provide the dominant mode of transport over the short and medium term[47]. However, the Covid-19 pandemic has impacted on travel, substantially reducing road and rail usage in 2020. *Llwybr Newydd – A new Wales Transport Strategy Consultation Draft* (2020) seeks to ensure that active travel and sustainable transport choices inform travel options following the pandemic.

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[41] DWP Household Below Average Income (HBAI) via StatsWales. Available via: Statswales-household-belowaverage-income-by-year [accessed 1 March 2021]

[42] Fuel poverty estimates for Wales: 2018 Available via: Fuel-poverty-estimates-wales-2018 [accessed 1 March 2021]

[43] ONS (2021) Crime in England and Wales: year ending September 2020. Available via: ONS crime September 2020 [accessed 1 March 2021]

[44] Available via: National-survey-wales-results-viewer [accessed 1 March 2021]

[45] Welsh Government (2020) Llwybr Newydd - A New Wales Transport Strategy Consultation Draft Supporting information - Transport data and trends. Available via Supporting-information-transport-data-and-trends

[46] StatsWales. Available via: Statswales rail passenger journeys [accessed 3 March 2021]

[47] Welsh Government (2017) Future Trends Report

Digital Infrastructure

3.3.8   Broadband quality and coverage are improving but is generally behind the UK as a whole on a number of measures.[48] Full-fibre coverage increased to 19% from 12% in 2019 which is higher than the UK average of 18%. Superfast broadband coverage increased to 94% of homes in 2020 up from 93% in 2019, against a UK average of 96%. Ultrafast coverage remains behind the UK at 37% (as opposed to the UK wide figure of 59%). The percentage of those unable to get decent broadband (considered to be 10 Mbit/s download and 1 Mbit/s upload or above) stood at 1.2% compared to the UK average of 0.6%.

Key sustainability issues

- The need to adapt to a growing and ageing population with attendant increases in health issues such as dementia.

- The need to address inequalities in life expectancy.

- The need to reduce poverty levels and address inequalities between the most deprived and least deprived areas of society.

- The need to address fuel poverty and support improvements to the housing stock to ensure good quality housing for all.

- The need to ensure a just transition and support those most vulnerable to the impacts of climate.

- The need to support a reduction in actual crime and the fear of crime.

- The need to promote cohesive and well-connected communities.

- The need to promote active travel choices and sustainable transport, reducing the reliance on the private car and attendant GHG emissions.

- The need to support the roll out of digital infrastructure to ensure communities throughout Wales have the required access to the fastest broadband.

3.4   Environmental

Biodiversity

3.4.1   Wales is home to an estimated 25,000 to 50,000 different species of animals, plants and other organisms. *The Second State of Natural Resources Report for Wales*[49] (SoNaRR2020) updates the work undertaken for the initial 2016 report. The 2019 *State of Natural Resources Interim Report*[50] identifies that nature and climate emergencies are interlinked and highlights the following issues:

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[48] Ofcom (2020) Connected Nations 2020: Wales Report. Available via: OFCOM connected-nations-2020 [accessed 1 March 2021]

[49] Natural Resources Wales (2020) State of Natural Resources Report for Wales Report. Available via Natural-resources-wales SONARR [Accessed 02 March 2021]

[50] Natural Resources Wales (2019) State of Natural Resources Interim Report. Available via Natural-resources-wales-interim-report-2019 [Accessed 04 March 21]

wood.

- climate change is driving species to move location;

- Arctic-alpine species within mountain habitats could disappear from Wales as their habitats are lost;

- where coastal plants and wildlife cannot move inland, sea-level rise and increased land erosion could lead to widespread loss;

- the ecosystem services these habitats provide - like flood defence and carbon dioxide removal - will also be lost; and

- the number and range of invasive non-native species is likely to increase with the changing climate.

3.4.2   The *Nature Recovery Action Plan for Wales 2020-21*[51] sets out a series of actions to address the growing evidence about the scale of loss of biodiversity, the escalating ecological crisis and the need to respond to that alongside the response to the climate emergency.

Habitats of Principal Importance

3.4.3   There are 55 habitats of principal importance[52]. These habitats cover terrestrial, freshwater and marine environments. Terrestrial habitats of principal importance extend over a total area of 387,300 ha. The most extensive include upland heathland, blanket bog, upland oak woodland, purple moor-grass and rush pasture, lowland dry acid grassland and coastal and floodplain grazing marsh. However, some key habitats are scarce, small in extent and highly vulnerable. Marine intertidal BAP habitats extend over 15,000 ha. The most extensive intertidal habitat, mudflats, covers over 14,000 ha and is found all around the coast. Honeycomb worm reefs cover 476 ha and are mainly found in South and West Wales.

Ancient Woodland

3.4.4   Ancient woodlands are areas of woodland that have persisted since 1600. They are relatively undisturbed by human development and include unique and complex communities of plants, fungi, insects and other microorganisms. The Ancient Woodland Inventory (AWI) (AWI 2011) indicates that there are around 95,000ha of ancient woodland (AW) in Wales, compared to the 62,000ha identified in the AWI 2004.[53] SoNaRR2016 identifies a range of threats to woodland: changing weather patterns; air pollution; built development and infrastructure; competing land use; insufficient management; pests and diseases; and herbivore pressure.

European and UK Protected Sites

3.4.5   There are 20 Special Protection Areas (SPAs) that have been designated to conserve rare and vulnerable wild birds such as red kite, merlin, osprey and golden plover and Manx Shearwater. They include the coastline between Burry Port and Saundersfoot, sections of

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[51] Available via: Nature-recovery-action-plan-wales-2020-2021 [Accessed 22 March]

[52] Interim Section 7 List Wales. Available via: Biodiversity-and-Ecosystem-Resilience-Forward-Plan [Accessed 4 March 2021]

[53] NRW Ancient Woodland Inventory. Available via: Natural-resources-wales-ancient-woodland-inventory [Accessed 8 March 2021]

the Pembrokeshire coast and the coastline from Penarth to the Severn Bridge. They also include the area between Llandrindod Wells and Tregaron and the South Gwynedd area and Northern coastline.

3.4.6 A Special Area of Conservation (or SAC) is a site designated under the Habitats Regulations as important for threatened habitats and species. There are 95 SACs, including the coastline between Burry Port and St. Davids; sections of the Pembrokeshire coast; and the coastline from Penarth to the Severn Bridge. Large sections of the coastline between Cardigan up to Caernarfon and the coast between Bangor and Conwy are also protected under this designation.

3.4.7 Ramsar sites are wetlands of international importance designated under the Ramsar Convention. Wetland sites can be areas of marsh, fen, peatland or water. They can be natural or artificial and either permanent or temporary, with water that is static or flowing, fresh, brackish or salt. They can also include shallow sea areas. Wales currently has 10 Ramsar sites include The Dee Estuary, Llyn Idwal, Llyn Tegid and Corsydd Mon a Llyn in the north, Cors Caron, Cors Fochno and Midland Meres and Mosses in Mid Wales/Midlands and Burry Inlet, Crymlyn Bog and Severn Estuary in the south.

3.4.8 The majority of SAC and SPA habitats are reported to be in unfavourable condition (75 per cent) in 2016 with the exception of caves (100 per cent in favourable condition). The condition of SAC and SPA species on sites is mostly unfavourable (55%), with the exception of birds and mammals of which 86% and 68% were in favourable condition, respectively.[54]

Sites of Special Scientific Interest (SSSI)

3.4.9 Site of Special Scientific Interest (SSSI) status gives legal protection to important wildlife and geology sites. SSSIs in Wales include coastline, freshwater, upland and lowland sites and range from small fens or sand dunes to woodlands and vast reaches of mountain. They contain important types of land, plants and wildlife. Geological sites range from quarries to rocky outcrops and sea-cliffs. The SSSIs in Wales are geographically spread across the country with a slight cluster in the rural areas North Powys and South Gwynedd. As of 2019 there were 1,078 SSSIs within Wales. A 2006 Rapid Review[55] recorded the condition of SSSIs reported in Wales in 2006. Approximately 47 per cent of SSSIs were assessed to high confidence levels and the results showed that 32 per cent of sites were in favourable condition and 68 per cent were in unfavourable condition.

National Nature Reserves and Local Wildlife Sites

3.4.10 Wales has 76 National Nature Reserves that help protect a wide range of wildlife and landscapes. These sites include:

- The high mountain summits of Snowdon, home to some of the UK's most ancient plant species;

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[54] Welsh Government (2016) State of Natural Resources Report for Wales 2016
[55]

- The sweeping sand dunes of Morfa Harlech and Morfa Dyffryn, including mud flats and salt marshes that are important feeding grounds for winter wildfowl; and

- The ancient oak woodlands of Maentwrog in the Vale of Ffestiniog, home to some 170 species of lichen.

3.4.11   There are numerous sites of local importance, such as Local Wildlife and Geological Sites (LWGSs) and Local Nature Reserves (LNRs). Locally designated sites, although not of the same status as international or national sites, have an important role to play in contributing to overall biodiversity targets and to the quality of life and well-being of communities. They offer people special opportunities to study or learn about nature or simply to enjoy it recreationally.

Marine Conservation Zones

3.4.12   Marine conservation zones (MCZs) are designated under the UK Marine and Coastal Access Act 2009. MCZs are designed to protect marine habitats and species typical of UK marine features. In 2014, the first MCZ in Welsh waters was established. Skomer MCZ[56] is situated around the island of Skomer and the Marloes Peninsula in Pembrokeshire.

Landscape

3.4.13   The SoNaRR2016 notes that Wales has a varied and generally high-quality landscape with over 50% of the land area being nationally valued for its scenic quality and character. Many landscapes are iconic with a clear sense of place and recognisable identity. The country is predominantly rural in character with 60% of the landscape defined as Field Pattern/Mosaic and 20% is categorised as Open Land.

3.4.14   Climate change over time is likely to have significant impacts on landscape character, local distinctiveness and quality, directly through changing land cover (migrating habitat and species ranges) and indirectly by influencing land use decisions. Landscape changes may also be evident from mitigation measures, such as renewable energy generation, water resource management and adaptation through the planned expansion of woodland. Climate change also poses a risk to landscapes from pests, pathogens and invasive species and from changes in frequency and/or magnitude of extreme weather and wildfire events.

National Parks and Areas of Outstanding Natural Beauty

3.4.15   There are three National Parks within Wales:

- Brecon Beacons: The National Park covers 520 square miles and lies between rural Mid Wales and the industrial South Wales Valleys. It is a diverse landscape, where sweeping uplands contrast with green valleys, with dramatic waterfalls, ancient woodland, caves, forests and reservoirs.

- Pembrokeshire Coast: The National Park covers around 243 square miles. It has a varied and diverse landscape with rugged cliffs, sandy beaches, wooded estuaries, wild

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[56] Skomer MCZ. Available via Natural-resources-wales-skomer-marine-conservation-zone [Accessed 04/03/21]

inland hills, the moorland of the Preseli Hills and the wooded Gwaun valley. It is the only National Park in the UK that is primarily designated for its coastal landscape.

- Snowdonia: The Snowdonia National Park is rich in landscape and townscape and has 60km of coastline. Snowdonia has extensive areas of woodlands and over 96,000 hectares of moorland. The interaction between people and nature has shaped the landscape of the National Park and there are strong cultural associations between people and place. The traditional rural character of settlements is distinct to the National Park and forms part of its historic landscape character.

3.4.16   There are five Areas of Outstanding Natural Beauty (AONBs) in Wales: Anglesey, Gower, Llŷn, the Clwydian Range and Dee Valley and Wye Valley[57]. The AONBs each have their unique landscape character which often also encompass a range of cultural heritage assets. 25% of Wales is designated as either a National Park or an Area of Outstanding Natural Beauty.

Landscape Character Areas and Special Landscape Areas

3.4.17   Landscape Character Areas (LCAs) are identified at both a local planning authority level and at a national level, with 48 National LCA identifying distinct regional landscapes. Special Landscape Areas (SLAs) identify areas of high landscape importance, often linked to LCAs. There are many SLAs spread across Wales, each one of high landscape importance for differing reasons.

Marine Character Areas

3.4.18   70% of Wales' coastline is designated or registered as part of a National Park, AONB, Heritage Coast or Historic Landscape. Seascape information complements available landscape information and together the two types of information provide an understanding of the cultural benefits. There are 29 national Marine Character Areas (MCAs) and the local Seascape Character Assessments (SCA) of Pembrokeshire, Snowdonia and Ynys Mon provide comprehensive seascape information for Wales as a whole.

Landscapes of Historic Importance

3.4.19   To recognise the value of historic landscapes, and raise awareness of their importance, Cadw, in partnership with NRW and the ICOMOS UK compiled a Register[58] of Landscape of Historic Interest in Wales. The Register identifies 58 landscapes of outstanding or special historic interest, which are considered to be the best examples of different types of historic landscapes. The Register provides information to decision makers and landscape

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[57] Each AONB have websites setting out the date of designation and main features that led to their designation:
Anglesey AONB. Available via: Anglesey-Area-of-Outstanding-Natural-Beauty-AONB [Accessed 8 March 2021]
Gower AONB. Available via Swansea-aonb [Accessed 3 March 2021]
Llŷn AONB. Available via Ahne-llyn-aonb [Accessed 3 March 2021]
Clwydian Range and Dee Valley AONB. Available via Clwydian-range-and-dee-valley-aonb [Accessed 03/03/21]
Wye Valley AONB. Available via: Wye-valley-aonb [Accessed 4 March 2021]
[58] Cadw Register of Historic Landscape Interest. Available via Cadw-conservation-areas-and-other-historic-assets/other-historic-assets [Accessed 4 March 21]

managers, to help ensure that the historic character of the landscape is sustained, and that where change is contemplated, it is well-informed.

Water environment and flood risk

Flood risk

3.4.20 Flood risk is a significant issue. In 2019, 7,689 properties were at medium or high risk of tidal flooding and 34,813 properties at medium or high risk of flooding from rivers. [59] In total there are 245,000 properties at risk.[60] The cost of providing and maintaining flood risk infrastructure is substantial whilst the cost of dealing with flood events is also very high. Flooding also affects environmental and historic assets.

3.4.21 NRW have produced three flood risk management plans (FRMPs) to help manage flood risk from main rivers, reservoirs and the sea at the river basin district scale, covering: the Severn; the Dee; and Western Wales[61]. Additionally, there are four Shoreline Management Plans (SMPs) in Wales which provide a large-scale assessment of the risks associated with coastal processes that result in both erosion and flooding and present a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner.

3.4.22 Climate change is anticipated to exacerbate flooding issues in the future. There is a predicted increase in mean winter precipitation of 14% and decrease in mean summer precipitation of 17% under a medium emissions scenario[62]. The UK Climate Projections 2018[63] (UKCP18) project future increases in the intensity of heavy summer rainfall events, impacting on the frequency and severity of surface water flooding and a change in the seasonality of extremes with an extension of the convective season from summer into autumn, with significant increases in heavy hourly rainfall intensity in the autumn.

Quality and resource

3.4.23 The Western Wales and the Dee River Basins Management Plans identify a number of water bodies that have failed to meet good or better ecological status[64]. NRW propose to improve compliance with good status by delivering measures locally in an integrated way. This will involve targeting 21 water bodies in the Western Wales River Basin District[65] and 7 water bodies in the Dee River Basin District.[66] Physical modification is the single biggest factor in this, with pollution from abandoned mines, agriculture and wastewater being significant factors. Many rivers are vulnerable to climate change as flows tend to rise and fall quickly in response to rainfall. Increased flows experienced during winter, and after

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[59] StatsWales data. Available via: Well-being-wales-national-indicators [Accessed 8 March 2021]

[60] SoNaRR2020: Assessment of the Achievement of SMNR Aim 3: Wales has Healthy Places for People, Protected from Environmental Risks. NRW data. Available via: Sonarr-2020 [Accessed 8 March 2021]

[61] Available via: Natural-resources-wales-flood-risk-management-plan [Accessed 8 March 2021]. The Severn and Dee FRMP were produced jointly with Environment Agency as they cover parts of England.

[62] Welsh Government (2017) Future Trends Report

[63] Met Office (2018) UK Climate Projections. Available via: Met-office-ukcp-headline-findings [Accessed 4 March 2021]

[64] River Basin Management Plans Published 2015 – 2021 are available via: Natural-resources-wales-river-basin-management-plans [Accessed 8 March 2021]

[65] Ibid.

[66] Ibid.

significant rainfall events, may also increase pressure upon sewerage and drainage systems and see increased diffuse pollution.[67]

3.4.24   Welsh Water's Water Resources Management Plan (WRMP) (2019) identifies that two of the 24 Water Resource Zones (WRZs) are forecast to have a supply demand deficit up to 2050 unless management interventions such as demand management measures or new resources are implemented.

Soils, minerals and waste

Soils

3.4.25   Wales' geodiversity is significant. There are more than 1,000 SSSIs, covering about 12% of the country's surface area. Two UNESCO Global Geoparks, Geo Môn and Fforest Fawr, cover 1,483 km2 and are also designated for the primary purpose of promoting geo-tourism.

3.4.26   SoNaRR2016 highlights that Wales' soil and agricultural land quality is reflective of its topography and geology. The majority of Wales is either Agricultural Land Classification (ALC) Grade 4 or 5, which is poor, or very poor, quality agricultural land, largely due to the predominantly upland nature of Wales. This strongly influences the types of agriculture with a prevalence of livestock farming. ALC Grade 1 to 3a soils (the best and most versatile) are a scarce and finite resource accounting for around 7% of Wales' land area. The 2016 report also highlights that soil quality has deteriorated over time across all habitats apart from woodlands where there has been some improvement. Most of the peatland resource is in poor condition, reducing the ability to mitigate climate change and benefit from the many regulating services that peatlands in good condition can provide[68].

Minerals

3.4.27   Following a long history, metal mining has ceased and there is only localised coal mining and slate quarrying. The aggregates industry is now the main mineral extraction industry, including marine and terrestrially derived aggregates. In total, some 17,352,000 tonnes of mineral were extracted in 2014 with limestone and dolomite (8,934,000 tonnes) the largest contributor[69]. The future trend in minerals extraction will be influenced by the national economy and confidence in the construction industry and transition to a low carbon economy.

Waste

3.4.28   Wales aims to become a high recycling nation by 2025 and a zero-waste nation by 2050[70]. Substantial progress has been made on the management of waste. The latest data for 2019/20[71] shows that 65.1% of waste Local Authority waste was

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[67] Welsh Government (2016) *State of Natural Resources Report for Wales* 2016
[68] NRW (2020) The Second State of Natural Resources Report (SoNaRR2020) Available online: Sonarr-2020 [Accessed July 2021]
[69] Welsh Government (2016) *State of Natural Resources Report for Wales* 2016
[70] Welsh Government (2020) Beyond Recycling
[71] Available via: Local-authority-municipal-waste-management

recycled/reused/composted (up from 54.3% in 2013/14). 7.5% was sent to landfill compared to 37.5% in 2013/14.

Air quality

3.4.29 Air quality in general is good, largely due to Wales' predominantly rural nature and the decline in heavy industry which has resulted in a reduction in emission of some pollutants. However, there are highly elevated levels of localised pollution, notably due to road traffic. Air pollution contributes to around 2,000 (6% of total) deaths per year and is considered to disproportionately affect those in deprived areas[72]. Poor air quality, particularly from nitrogen deposition, can also affect certain habitats and species.

3.4.30 There are currently 40 designated Air Quality Management Areas (AQMAs)[73] all of which are focused within the urban centres of Cardiff, Newport and Swansea and relate to vehicle emissions. Nine designated AQMAs have been revoked, the most recent in January 2021 in Vale of Glamorgan. There were also recent revocations for two AQMAs in Newport in 2018[74]. Welsh Government's *Clean Air Plan for Wales*[75] seeks to improve air quality to benefit health.

Key sustainability issues

- The need to maintain and enhance biodiversity and the resilience of ecosystems, including sites designated for their nature conservation value.

- The need to address the climate emergency and nature emergencies together.

- The need to protect, conserve and enhance important landscapes for their intrinsic value and importance to Welsh identity.

- The need to support the protection and provision of accessible green space close to where people live.

- The need to protect the best and most versatile agricultural land.

- The need to plan for and secure a resilient and sustainable response to the effects of climate change on the natural and built environment.

- The need to ensure the timely provision of flood defence/management infrastructure, including nature based solutions, that deliver resilience to the threats of climate change.

- The need to minimise waste arisings, encourage reuse and recycling, and support energy efficient waste processing.

- The need to promote the efficient use of mineral resources to ensure that there is a sufficient supply to provide for the infrastructure, buildings and energy that the

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[72] SoNaRR2020: Wales has healthy places for people, protected from environmental risks. Public Health Wales data. Available via: Sonarr-2020 [Accessed 8 March 2021]

[73] Wales Air Quality Management Areas. Available via Air-quality-management-areas [Accessed 2 March 2021]

[74] Figures from Defra-aqma [Accessed 2 March 2021]

[75] Available via: Clean-air-plan-wales-healthy-air-healthy-wales [Accessed 8 March 2021]

country needs whilst making the best use of them to secure their long-term conservation.

- The need to minimise the emission of pollutants into the air and secure improvements in air quality.

- The need to support efforts to reduce the number of AQMAs.

3.5 Cultural

Welsh language

3.5.1 The Welsh language is an important component of Welsh identity and culture. The historic trend in the decline in the use of the Welsh language has been reversed since the early 1990s with a general upward trend now being seen. This reflects, in part, Welsh being made a compulsory subject in schools. *Cymraeg 2050: A million Welsh speakers* is an integral part of the Welsh Government's approach to supporting the Welsh language and aims to increase the number of Welsh speakers to one million and the percentage of the population that speak Welsh daily, and can speak more than a few words, to 20% by 2050.

3.5.2 The latest Annual Population Survey found that the number of people aged over 3 who can speak Welsh was 872,200 (28.8%)[76]. The Local Authority areas with the highest percentages of Welsh speakers are found in north-west Wales (Isle of Anglesey 65.6%; Gwynedd 75.5%) and west Wales (Ceredigion 60.9%; Carmarthenshire 50.5%). The areas with the lowest percentages are found in south Wales (Bridgend 17.5%; Blaenau Gwent 17.6%; Torfaen 17.7%; Monmouthshire 18.3%).

3.5.3 In 2020, the percentage of adults aged 16 and over who reported an ability to speak Welsh fluently or speak a fair amount of Welsh was 14%.[77] 10% of the population say that they use Welsh every day[78]. The most recent information on confidence in the use of the Welsh language shows that 68% of Welsh speakers were confident and 36% were worried about being judged[79]. There is a clear correlation between ability and confidence in using Welsh.

3.5.4 The latest data on attitudes to the language show that 62% of those who could not speak Welsh would like to be able to speak it. 86% of people said that that Welsh was something to be proud of.[80]

Heritage and cultural assets

3.5.5 Heritage assets vary from archaeological remains, to buildings, structures and relic landscapes. Wales has an abundance of heritage assets that contribute to its cultural identity. Many of these assets provide places for active participation, interaction and

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[76] Stats Wales (2020) Annual Population Survey - Ability to speak Welsh by local authority and year. Available via: Statswales-Annual-Population-Survey-Welsh-Language [accessed 25 February 2021]
[77] Welsh Government (2020) National Survey for Wales: Headline results, April 2019 – March 2020 Available via: National-survey-wales-headline-results-april-2019-March-2020
[78] National-survey-wales-results-viewer [accessed 26 February]
[79] Ibid.
[80] Ibid.

learning. Many also act as key tourism assets. World Heritage Sites (WHS) are regarded as universally important assets. There are three WHS:

- The Castles and Town Walls of Edward I in Gwynedd at Caernarfon, Conwy, Beaumaris and Harlech in North-West Wales;

- Blaenavon Industrial Landscape in South-East Wales; and

- Pontcysyllte Aqueduct and Canal in North-East Wales.

3.5.6   There are over 4,000 scheduled monuments[81], over 30,000 buildings listed for their historic significance,[82] over 700 battlefields[83] and around 350 historic parks and gardens of national importance[84]. Cadw maintain a record of these heritage assets and are working towards identifying all those that are at risk from decay, neglect or development pressure. The latest data from 2015 suggests that some 8.54% of listed buildings are at risk which is a slight decrease from 8.92% identified in 2013[85]. There are also numerous non-designated heritage assets (such as buildings important to local area) that contribute to the character of areas and are important to support local cultural identity. Additionally, there are over 500 conservation areas that have been identified by local planning authorities due to their importance for the historic character of the area.

3.5.7   In addition to threats from neglect and insensitive development, climate change may present physical, economic and/or cultural challenges for the historic environment. Historic assets may be susceptible to high winds, storm surges and erosion whilst hotter summers, which could increase tourism and support the economy, could also harm fragile assets.[86]

Participation in art, heritage, sports and recreational activities

3.5.8   Participation in a range of art, heritage, sport and recreational activities helps to support cultural well-being. The latest National Survey for Wales[87] showed that in the last 12 months 61% of people visited a historic site at least 3-4 times; 43% attended a museum; 19% attended arts activities; and 32% had attended a public library. These figures are similar to those for 2017-18 (historic site visits - 59%; museum attendance – 40%; arts activities attendance – 29%; library attendance 34%).

3.5.9   Overall, 71% of people attended or participated in arts, culture or heritage activities at least 3 times in 2019-20. This is only slightly down on the 2017-18 figure of 75%. 68% of people participated in sporting activities three or more times a week in 2019-20, which was the same at 2017-18 and 2018-19. 50% of people said that they participated in a sporting activity other than walking in 2019-20. This was similar to previous years. The

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[81] Cadw-scheduled-monuments [accessed 25 February 2021]

[82] Cadw-listed-buildings [accessed 25 February 2021]

[83]83 Cadw-historic-battlefields-wales [accessed 25 February 2021]

[84] Cadw-registered-historic-parks-and-gardens [accessed 25 February 2021]

[85] Cadw-condition-of-listed-buildings-in-wales [accessed 25 February 2021]

[86] Historic Environment Group (HEG) (2020) Historic Environment and Climate Change in Wales. Available via: Cadw-adapting-to-climate-change [9 March 2021]

[87] National-survey-wales-results-viewer [accessed 26 February]

Covid-19 pandemic has had an effect on the ability for face-to-face participation in many events, but the most recent survey data suggests that participation remains high.

Key sustainability issues

- The need to promote the Welsh language and Welsh culture, supporting the recent general trend upwards in the number of people with the ability to speak Welsh.

- The need to protect, conserve and enhance Wales' historic environment including cultural heritage resources, historic buildings and archaeological features and their settings.

- The need to promote access to Wales' cultural heritage assets.

- The need to recognise the contribution made by the historic environment to the character of landscapes and townscapes as part of Wales' cultural heritage.

- The need to promote participation in art, heritage, sport, and recreational activities.

- The need to promote the role of culture as a powerful tool in supporting wider behavioural change that can help address climate change.

3.6 Key sustainability issues

3.6.1 The key sustainability issues identified in the previous sections are set out in **Table 3.1**.

Table 3.1 Key sustainability issues

Dimension of sustainable development	Key sustainability issue
Economic	• The need to support achievement of a sustainable and well-being economy that is prosperous, greener and more equal. • The need to address levels of unemployment and low incomes. • The need to support local initiatives and local production. • The need to move away from carbon intensive industries and start a transition towards only supporting low carbon industries and technology, in a way that reduces rather than perpetuates inequalities and ensures a just transition for everyone. • The need to provide educational opportunities for all and address inequalities in educational attainment. • The need to support STEM education to help support growth in low carbon and renewable energy industries and support a just transition to new low carbon technologies within all existing sectors. • The need to drive GHG emission reduction in all sectors, thus supporting the global effort to mitigate climate change, whilst maintaining development and economic growth. • The need for investment in and support for the tourism sector.

Dimension of sustainable development	Key sustainability issue
Social	• The need to adapt to a growing and ageing population with attendant increases in health issues such as dementia. • The need to address inequalities in life expectancy. • The need to reduce poverty levels and address inequalities between the most deprived and least deprived areas of society. • The need to address fuel poverty and support improvements to the housing stock to ensure good quality housing for all. • The need to ensure a just transition and support those most vulnerable to the impacts of climate. • The need to support a reduction in actual crime and the fear of crime. • The need to promote cohesive and well-connected communities. • The need to promote active travel choices and sustainable transport, reducing the reliance on the private car and attendant GHG emissions. • The need to support the roll out of digital infrastructure to ensure communities throughout Wales have the required access to the fastest broadband.
Environmental	• The need to maintain and enhance biodiversity and the resilience of ecosystems, including sites designated for their nature conservation value. • The need to address the climate emergency and nature emergencies together. • The need to protect, conserve and enhance important landscapes for their intrinsic value and importance to Welsh identity. • The need to support the protection and provision of accessible green space close to where people live. • The need to protect the best and most versatile agricultural land. • The need to plan for and secure a resilient and sustainable response to the effects of climate change on the natural and built environment. • The need to ensure the timely provision of flood defence/management infrastructure, including nature based solutions that deliver resilience to the threats of climate change. • The need to minimise waste arising, encourage reuse and recycling, and support energy efficient waste processing. • The need to promote the efficient use of mineral resources to ensure that there is a sufficient supply to provide for the infrastructure, buildings and energy that the country needs whilst making the best use of them to secure their long-term conservation. • The need to minimise the emission of pollutants into the air and secure improvements in air quality. • The need to support efforts to reduce the number of AQMAs.
Cultural	• The need to promote the Welsh language and Welsh culture, supporting the recent general trend upwards in the number of people with the ability to speak Welsh. • The need to protect, conserve and enhance Wales' historic environment including cultural heritage resources, historic buildings and archaeological features and their settings.

Dimension of sustainable development	Key sustainability issue
	• The need to promote access to Wales' cultural heritage assets. • The need to recognise the contribution made by the historic environment to the character of landscapes and townscapes as part of Wales' cultural heritage. • The need to promote participation in art, heritage, sport, and recreational activities. • The need to promote the role of culture as a powerful tool in supporting wider behavioural change that can help address climate change.

3.6.2 The information used has been sourced, so far as is possible, from recent datasets utilising a wide range of authoritative and official sources. However, there are variable time lags between data collection and publication. Consequently, at the time of this report's publication, the baseline or predicted future trends may have varied from those described above.

3.6.3 The data gathered to complete this baseline largely pre-dates the Covid-19 pandemic. Data relating to these changes is only becoming available periodically and it may well be a number of years before the effects can be determined, along with whether changes in the baseline have been short-term or sustained. This is an additional uncertainty within the assessment, and where relevant, some qualitative commentary has been provided.

4.   SA Methodology

4.1   Introduction

4.1.1   This section describes the approach to the SA of NZW. It sets out the appraisal framework (SA Framework) and how this has been used to appraise the key components of the NZW.

4.2   SA Framework

4.2.1   Establishing appropriate SA objectives and guide questions is central to appraising the sustainability effects of NZW. The 2019 SA Report[88] which accompanied *Prosperity for All: A Low carbon Wales (PFA: LCW)*, included a set of 10 SA objectives against which PFA: LCW was appraised. To ensure consistency with the approach of the first SA and to inform ongoing monitoring of Welsh Government's emission reduction plans, these SA objectives provided the starting point for the SA Framework and guide questions for the SA of NZW.

4.2.2   Following the review of plans and programmes and the baseline analysis carried out in **Sections 2 and 3** the SA Objectives and guide questions were agreed. The original SA Objectives (agreed in March 2021) were refined in light of the new Programme for Government published in June 2021 and an up-to-date review of plans, programmes and baseline evidence.

4.2.3   **Table 4.1** presents the agreed SA Objectives and guide questions and maps these to the seven well-being goals and the SEA directive topics. A 'principal' well-being goal has been identified for each SA Objective. This should not be read that the other relationships identified are less or unimportant, but to ensure that any findings of the SA, if presented in this way, are not duplicated and as a consequence, that any benefits or adverse effects are over or understated.

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[88] Available via: Low-carbon-delivery-plan-sustainability-appraisal [accessed 3 March 2021]

wood.

Table 4.1   SA Objectives and guide questions

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
1. To achieve a strong and sustainable net zero economy	Will the policy/option: • Support achievement of prosperous, greener and more equal economy? • Support enhanced economic activity associated with the low carbon and renewable energy sectors? • Encourage public/local ownership of energy generation? • Support job security and the number of jobs through improved productivity, increase earnings and reduced costs? • Create opportunities for all sectors to flourish and thrive within a low carbon economy? • Support improvement to the productivity of businesses as part of a well-being economy approach? • Support sustainable tourism and recreation businesses? • Support the decarbonisation of rural businesses? • Help to reduce the costs of energy for businesses?	**A prosperous Wales** A Wales of cohesive communities A globally responsible Wales	Population
2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	Will the policy/option: • Help to provide a range of employment opportunities? • Help to support those of all ages and backgrounds get into work? • Support the provision of employment opportunities in low carbon renewable energy for people of all backgrounds? • Support reductions in fuel poverty through the provision of well-paid jobs? • Help to support parents into employment to help combat child poverty? • Help to address gender and skills pay gap?	**A prosperous Wales** A more equal Wales	Population

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
	• Sustain and support opportunities for enhancements to the rural economy, including SMEs, micro-businesses and digital connectivity? • Help to ensure the costs of the low carbon economy on households and people's earnings are considered in decision making?		
3. To address climate change	Will the policy/option: • Support achievement of Welsh/UK commitments for the reduction in Greenhouse Gas (GHG) emissions across all sectors? • Create, encourage and support opportunities to improve energy generation from renewables? • Improve the resilience of people, environment and infrastructure to impacts of climate change? • Help improve the security of Wales' energy supply? • Create opportunities to increase the resource efficiency (e.g., energy, water use etc.) of residential, industrial and commercial properties and reduce the demand for energy? • Promote a shift towards uptake of lower carbon behaviours (e.g., transport choices, consumer choices, diet choices etc.)? • Support investment in cleaner/greener technologies? • Help protect and enhance land and assets from the impacts of climate change (crop yields, forestry, buildings)? • Support an ecosystem approach to biodiversity and services – air, water and soils qualities and resources, carbon sequestration and storage?	A prosperous Wales **A resilient Wales** A globally responsible Wales	Climatic Factors Material Assets
4. To improve the physical and	Will the policy/option:	**A healthier Wales**	Population

wood.

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
mental health and well-being of everyone	• Help to meet the needs of a growing, ageing population? • Support improvements to the mental and physical well-being of the people of Wales? • Contribute towards a reduction in health inequalities, especially for vulnerable people? • Support provision and access to high quality housing/workplaces/community/healthcare buildings? • Help people gain access to green space/recreational areas with 300m of their home? • Promote active travel through access to green infrastructure (GI)? • Help support well-being through improved physical and virtual connectivity? • Contribute to reductions in levels of child poverty by helping to reduce fuel poverty? • Contribute to improvements in mental and physical health by sustaining job security and business survival through the net zero transition? • Improve physical health through improvements to air quality and reductions in respiratory illnesses? • Support reductions in light and noise pollution and maintain existing areas of tranquility? • Help to manage risks to physical and mental health posed by climate change (e.g., extreme weather, flooding, heat)?	A more equal Wales A Wales of cohesive communities	Human Health
5. To improve social cohesion and equality	Will the policy/option: • Support the provision of, and access, to community and recreational facilities, and open/green space? • Support the viability of local amenities? • Support local decision making? • Help to deliver safe, attractive and welcoming public spaces for all members of the community? • Promote a sense of place, belonging and identity?	A healthier Wales A more equal Wales **A Wales of cohesive communities**	Population Human Health Cultural Heritage

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
	• Help to celebrate diversity? • Help to address crime and the fear of crime? • Support accessibility to good quality housing for all, regardless of location? • Create opportunities and support accessibility to appropriately skilled employment to promote a sense of identity and belonging for all? • Create opportunities to reduce the vulnerability of communities during the net zero transition and increase community cohesion by increasing belonging and a sense of identity? • Help to ensure climate justice? • Protect and enhance buildings, heritage and cultural assets to improve identity and belonging?	A Wales of vibrant culture and thriving Welsh language	
6. To improve natural and built environments	Will the policy/option: • Maintain and enhance Wales' Protected Sites (SACs, SPAs and Ramsar, NNRs and SSSIs)? • Develop resilient ecological networks across Wales with protected sites at their core? • Maintain and enhance Wales' marine environment? • Maintain and enhance biodiversity, priority species and habitats? • Help to address the nature crisis? • Contribute to the protection and enhancement of landscape/seascape character and quality? • Help support the principles of placemaking outlined in Planning Policy Wales and the Placemaking Charter? • Manage the risks of climate change to Wales' natural and built environment? • Improve air quality? • Support a reduction in the number of AQMAs?	**A resilient Wales** A healthier Wales A Wales of cohesive communities A globally responsible Wales	Air Biodiversity Climatic Factors Fauna and Flora Landscape Cultural Heritage Material Assets

wood.

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
	• Help promote the sustainable use of water resources and promote improvements in water quality? • Contribute to effective and sustainable flood risk management? • Help to minimise the demand for raw materials and reduce minerals that are extracted and imported? • Reduce the demand for energy, especially within the minerals, water and waste sectors? • Reduce the amount of waste generated or support the sustainable management of waste produced? • Contribute to improved soil quality and the more sustainable management of land resources, including crop yields and forestry? • Improve the resilience and adaptability of ecosystems, including carbon sequestration and storage?		Water
7. To encourage learning for life and help to equip everyone with the skills required for a changing world	Will the policy/option: • Help to tackle the attainment and aspiration gap within education? • Contribute to opportunities for children and young people to realise their potential? • Support investment in further and higher education? • Help to support investment in education in STEM? • Reduce the number of 16–24-year-olds not in education, employment or training? • Create and support development of skills, opportunities and pathways to support a green and just recovery? • Create opportunities and support skills development in low carbon and net zero technology? • Support businesses through access to appropriately skilled employment and support networks (know-how)?	A prosperous Wales **A more equal Wales**	Population

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
	• Support investment in Research and Development (R&D) to promote an innovative and leading-edge low carbon economy?		
8. To help build resilient communities, culture and language	Will the policy/option: • Help drive an increase in the number of people who can speak Welsh? • Contribute to the future well-being of the Welsh language? • Support the use of Welsh in the home? • Support and enhance traditions and culture by helping to protect heritage, identity and a sense of belonging, and landscape? • Promote access to heritage sites? • Support opportunities for sport and recreation? • Contribute to family and community cohesion? • Support local decision making and increased involvement of communities in decisions?	A Wales of cohesive communities **A Wales of vibrant culture and thriving Welsh language**	Cultural Heritage Population
9. To help delivery of modern, connected, and resilient infrastructure	Will the policy/option: • Support the improvement and provision of sustainable and integrated transport infrastructure? • Create opportunities to support the delivery of green infrastructure (GI)? • Support enhanced opportunities for walking and cycling? • Encourage the provision of low carbon and zero carbon public transport? • Support the provision of digital/broadband infrastructure to enable access for all communities regardless of location? • Contribute to the management of risks to infrastructure from the effects of climate change?	A Prosperous Wales **A Wales of cohesive communities**	Climatic Factors Human Health Population

SA Objectives	Guide Questions	Mapping to Well-being Goals (principal goal identified in bold)	Mapping to SEA Directive Topic
	• Help to deliver infrastructure that supports skills development, involvement in local decisions and the Welsh language? • Promote the provision of electric vehicle (EV) infrastructure?		
10. To ensure Wales is a globally responsible nation	Will the policy/option: • Encourage and support low carbon and net zero 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, particularly following the departure of the UK from the European Union? • Help build and strengthen global relationships, including promotion of traditions and culture; use of the Welsh language; and recreation and tourism? • Support provision of the required infrastructure to promote international connectivity? • Support Wales' preparedness to support future climate refugees.	A Prosperous Wales **A globally responsible Wales**	Climatic Factors Population

4.3 How the SA Framework has been applied to NZW

4.3.1 The NZW policies and proposals have been appraised using the SA Framework and the qualitative scoring system in **Table 4.2**.

Table 4.2   SA scoring system

Score	Description	Symbol
Significant Positive Effect	The proposed option/policy contributes significantly to the achievement of the objective and/or enables resolution of existing issues.	++
Minor Positive Effect	The proposed option/policy contributes to the achievement of the objective but not significantly.	+
Neutral	The proposed option/policy does not have any effect on the achievement of the objective	0
Minor Negative Effect	The proposed option/policy detracts from the achievement of the objective but not significantly.	-
Significant Negative Effect	The proposed option/policy detracts significantly from the achievement of the objective.	--
No Relationship	There is no clear relationship between the proposed option/policy and the achievement of the objective or the relationship is negligible.	~
Uncertain	The proposed option/policy has an uncertain relationship to the objective or the relationship is dependent on the way in which the aspect is managed. In addition, insufficient information may be available to enable an appraisal to be made.	?

NZW policies and proposals

4.3.2 The NZW policies and proposals (actions) have been appraised against the SA Objectives by emissions sector chapter with a score awarded for each constituent action and for the cumulative effect of each emission sector chapter. The same approach was applied to NZW Section 2, which provides cross-cutting actions. A matrix has been used to record the findings of the appraisal, as shown in **Table 4.3**, adopting the qualitative scoring system set out in **Table 4.2**. The appraisal matrices are presented at **Appendix B.**

Table 4.3   Example matrix for appraisal of policies and proposals

SA Objective 1. To achieve a strong, sustainable, and low carbon economy

Policy/Proposal	Policy 1	Policy 2	Policy 3	Cumulative
Score	++	0	+	+

<u>Likely significant effects</u>
Any identified likely significant effects summarised here.

<u>Cumulative effects</u>
Cumulative effects summarised here.

<u>Mitigation/enhancements</u>
Any suggestions for mitigation or enhancement identified here

<u>Assumptions and uncertainties</u>
Any assumptions and uncertainties noted here.

Cumulative effects

4.3.3   As noted above, the appraisal of NZW policies and proposals has been undertaken by emission sector chapter in order to determine the cumulative effects of each sector. In addition, a cumulative effects assessment has been undertaken in order to clearly identify areas where policies work together. This is presented in **Section 5.3**.

Compatibility assessment

4.3.4   An additional compatibility assessment has been made to demonstrate compatibility or tensions between Emission Sector Chapters which the Welsh Government should consider when implementing or developing future policies. A matrix has been used to record the findings of the appraisal, as shown in **Table 4.4**. The assessment is presented in **Section 5.3**.

Table 4.4   Example of compatibility assessment of each section of NZW

Electricity & heat generation		+	+
Transport	+		+/-
Residential buildings	+	+/-	
Emissions sector	Electricity & heat generation	Transport	Residential buildings

Key:

+	Compatible
0	Neutral
?	Uncertain
-	Incompatible

5. Appraisal of NZW

5.1 Introduction

5.1.1 The SA has been undertaken in the spirit of the 'five of ways of working'. Through the preparation of NZW, Wood has worked with the Welsh Government and sought to provide advice regarding the likely effects of the policies/proposals to informally support the iterative development of NZW from the earliest stages. The following section sets out a summary of the appraisal findings of NZW as published.

5.2 Appraisal of NZW policies and proposals

5.2.1 For each section of the plan (known as emission sector chapters), a table showing the scoring for each policy/proposal is included with supporting commentary which presents the findings focusing on the significance of effects. The full appraisal is contained in **Appendix B**. The appraisal is presented in the order of the NZW:

- Section 2 – setting the conditions;
- Electricity and heat generation;
- Transport;
- Residential buildings;
- Industry and business;
- Agriculture;
- Land use, land use change and forestry (LULUCF);
- Waste management;
- Public sector.

Section 2 - Setting the conditions

Table 5.1   Summary appraisal of 'Setting the conditions'

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 1 – Just transition	+	++	++	+	++	+	+	+	0	+
Policy 2 - Nature Emergency	+/-	+/-	++	++	++	++	0	+	0	++
Policy 3 -The Clean Air Plan	+/-	+/-	+	++	++	++	0	0	0	+
Policy 4 - Building climate resilience	+/-	+/-	++	++	++	++	0	+	+	++
Policy 5 - A Circular Economy	+	+	++	+	0	+	+	+	+	++
Policy 6 - A place based approach – Planning Policy Wales	+	+	+	0	+	+	0	+	+	0
Policy 7 - Regional Economic Frameworks	++	++	++	0	++	+/-	+	+	+	0

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 8 - Budget improvement plan	+	+	++	0	0	+	0	0	0	0
Policy 9 - Infrastructure Investment Strategy	++/?	++	++/?	0	0	++/?	+	0	++	?
Policy 10 - Carbon Pricing	-	-	++	0	0	+	0	0	0	+
Policy 11 - Development of a Net Zero Wales Skills Action Plan	+	++/?	++/?	0	++	0	++/?	0	0	?
Policy 12 - Innovation	++/?	++/?	++/?	0	0	0	++/?	0	0	?
Policy 13 - Digital	++	++/-	+/?	0	0	0	+	0	++	+
Policy 14 - International action	+	0	++	0	0	0	0	0	0	++
Policy 15 - Public Engagement on Societal Change	0	0	+	+	++	0	+	+	0	+
Policy 16 - Consult on Public	0	0	+	+	++	0	0	+	0	+

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Engagement Strategy										
Proposal 1 - Develop a long-term strategy to promote a dietary shift to a healthier and suitable diet	+	0	+	++/?	+	++/?	0	+	0	+
CUMULATIVE	++/-	++/-	++	++	++	++	++/?	+	++	++

5.2.2 NZW Section 2 - Setting the conditions seeks to join up action and generate robust, sustainable solutions to meet the challenges posed by climate change. **Given the cross-cutting nature of these policies, positive effects have been assessed across the range of SA Objectives**.

5.2.3 **Significant positive effects have been identified for climate change (SA Objective 3).** The policies will support the Welsh Government's efforts to achieve the required reduction in GHG emissions in CB2 and set Wales on the pathway to net zero in 2050. This section sets the context for achieving a just transition and for addressing the nature and climate emergencies together, in line with the Programme for Government, enabling investment in required infrastructure and promoting a 'circular economy'.

5.2.4 **Significant positive effects have been assessed for health and well-being, social cohesion and environment (SA Objectives 4, 5 and 6).** The section will help to address air quality issues and health inequalities and support improvements to the natural environment, including putting reversing the decline in biodiversity at the heart of Welsh Government policy. Delivering effective public engagement on the transition is also considered likely to support mental health, and help to address anxiety about climate change, whilst supporting more sustainable and less carbon intensive diets is likely to help support healthier lifestyles, cohesion and the environment.

5.2.5 The development of a net zero skills action plan will support new training opportunities in the transition, whilst investment in digital infrastructure and innovation will likely support investment in skills enabling new employment and training opportunities. **Significant positive effects are therefore likely for SA Objective 7 and 9.** However, there is some uncertainty on the development of skills, dependent on the outcome of strategy development during CB2.

5.2.6 NZW recognises that Wales's businesses operate in UK and international markets. Policy support for action on decarbonisation through international networks, seeking to promote the well-being of future generations approach, seeking to pursue trade agreements that take the lead in tackling climate change (at UK government level), and withdrawing support for fossil fuel sectors overseas is considered to have significant positive effects on promoting Wales's place in the world and its role in supporting the global decarbonisation process. This is supported by enhanced efforts to promote exports into the clean energy/renewables sector. **Significant positive effects are assessed for SA Objective 10.**

5.2.7 **A mix of significant positive effects and minor effects have been assessed for economy and employment (SA Objective 1 and 2).** Supporting a low resource economy, addressing the nature emergency and air quality issues, whilst building climate resilience, will support the transition to net zero in the long term. However, **there is potential for negative effects if such policies limit economic growth in the short term.**

Electricity and heat generation

Table 5.2   Summary appraisal of the electricity and heat generation sector

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 17 – Reducing Emissions from the Combustion of Fuels for Electricity Generation	+/-	+/-	++	+/-	+/-	+	+/-	+/-	+	+
Policy 18 - Planning frameworks to restrict fossil fuel extraction	+/-	+/-	++	+/-	+/-	+	+/-	+/-	+	+
Proposal 2 – Making New Thermal Power Generation Ready for Net Zero	?	0	+	0	0	+	0	0	0	+
Policy 19 – Reducing emission growth from new Energy from Waste plants in Wales	+	-	+	+	+	+	0	0	0	+
Policy 20 - De-risking and Integrating	++	++	++	0	+	+	0	+	+	0

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Investment in Wales through Energy Planning										
Policy 21 – Planning the delivery of the electricity and gas grid we need for Wales	+	+	+	0	+	+/-	+	0	++	+
Policy 22 – Increasing renewable energy developments on land through our planning regime	++	++	++	0	0	+/-	0	+	+	+
Policy 23 - Consenting storage projects to support a flexible and responsive energy system	++	++	++	0	0	+/-	0	+	+	+
Policy 24 - Marine evidence, planning and licencing: supporting offshore and marine renewable energy deployment	+	+	+	0	0	+	0	+	0	+

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 25 - Innovation in new renewable energy technology to drive faster and deeper decarbonisation and support the green economy	++	+	++	+	0	+/-	+	+	+	+
Proposal 3 – Updated targets For Renewable Energy Developments to Support our Net Zero Pathway	++	+	++/?	+	0	0	0	0	0	+
Policy 26 – Locally Owned Energy Developments to Secure an Economic Return for Wales	++	+	+	+	+	0	+	+	0	0
Policy 27 - Maximising Welsh benefit from Commercially Operated	++	++	+	+	+	0	+	+	0	0

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
infrastructure projects in Wales										
Policy 28 - Scope out the challenges and opportunities around low-carbon heat	+	+	+	0	0	0	0	0	+	0
Policy 29 - Increase the use of Waste Heat and low carbon heat sources	+	+	++	+	0	+/-	+	+	+	+
CUMULATIVE	++	++/-	++	+	+/-	+/-	+	+	+	+

5.2.8 **Positive or significant positive effects were assessed for all SA Objectives reflecting that broadly this section supports the achievement of the well-being goals. The section is particularly strong in achieving the well-being goals of 'A prosperous Wales' and 'A resilient Wales' but broadly supports all the well-being goals.**

5.2.9 Electricity and heat generation cuts across all sectors in the NZW, heavily influencing the transition to net zero in 2050. Energy supply accounted for around 29% of Welsh GHG emissions in 2019. The ambition of the policies to deliver more renewable energy, and reduce fossil fuels, will enable further cuts in GHG emissions and therefore reduce energy-related impacts on climate change. Support for hydrogen generation is also likely to offer multiple positive outcomes in meeting future energy needs not only for power, but also heat and transport. **Combined with support for improved grid infrastructure and an improved consenting regime, the electricity and heat generation sector is considered to have significant positive effect on addressing climate change (SA Objective 3).**

5.2.10 **Significant positive effects are assessed for the economy and employment (SA Objective 1 and 2)** recognising the substantial long-term benefits of the policies, the contribution towards Wales's energy security, and the de-risking of the consenting regime to support investment decisions. The decentralisation of power generation and associated opportunities for community ownership, and ensuring maximum benefit for Wales's communities, can drive multi-faceted benefits for communities across Wales. This relies on effective planning policy and consenting regimes and associated spatial planning levers such as Local Area Energy Plans. **This section (emission sector chapter) therefore supports a range of SA objectives including employment, social cohesion and resilience of Welsh culture (SA Objectives 2, 5, 7 and 9).**

5.2.11 **Some negative effects are assessed in relation to employment and social cohesion (SA Objective 2 and 5) due to the potential impact on employment from the transition away from the use of fossil fuels**. However, it is considered that this could be mitigated through the development of renewables, decarbonised power and implementation of carbon capture and storage. Mitigation will be required to ensure that those affected are supported with re-training and skills development to offset the loss of any jobs. Continued regulation of large scale GHG emitters, and wider UK Government taxation rates on fossil fuel use in transport and power, will also likely put upward pressure on the costs of use for consumers. Therefore, finding routes to market for renewable technologies and investment in the system networks for power (and heat), as proposed in the policies and proposals, are important in enabling positive wellbeing outcomes and ensuring that there is just transition that supports social cohesion. **There may be short term negative impacts, as costs of energy are likely to rise for consumers, which may affect the poorest in society and therefore lead to inequality (SA Objective 5).**

5.2.12 **A mix of positive and negative effects were assessed for the natural and built environment (SA Objective 6)** reflecting that there will be positive effects for the environment associated with reduced emissions, there are also likely to be a variety of impacts from new development of renewable energy and grid infrastructure. However, it is expected that mitigation would be captured through the land use planning system to some extent.

Transport

Table 5.3   Summary appraisal of transport

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Proposal 4 – A pause and review of existing road proposals and a new methodology for assessing the appropriateness of future road schemes	+/-	-	++	+	+/-	+	~	?	++/-	?
Policy 30 - Enable people to work at or near to home	+	+/?	++/?	+/-/?	+	+	~	+/?	?	0
Policy 31 - Increase trip mode share of Active Travel from a current estimated proportion of 27% to 33% by 2030 and 35% by 2040	+	+/?	+	++	+/-	+	~	+/?	++/-	0

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 32 - increase trip mode share of public transport from a current estimated proportion of 5% to 7% by 2030 and 13% by 2040	+	+/?	+	+	+/-	+	~	+/?	++/-	0
Policy 33 - Reduce emissions from freight and logistics	+	0	+	+	0	+	~	+	+	0
Policy 34 – land use planning	+	+	++	+	+	+	~	+	+	0
Policy 35 – Accelerate the uptake of zero emission cars and vans	+/-/?	+/-/?	++/?	++	+	+	0/?	0	0	0
Policy 36 - Plan for and invest in EV charging infrastructure**^	+/-/?	+/-/?	++/?	+	+/-	+/-/?	0/?	0/?	++/-/?	?
Policy 37 – Zero emission bus fleet	+/-/?	+/-/?	+	++	+	+	0/?	0	+/-	?

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 38 - All taxis and private hire vehicles to be zero emission by 2028	+/-/?	+/-/?	+	+	+	+	0/?	0	0	?
Policy 39 – Decarbonise the Rail network	+	+	+	+	+	+/-/?	0/?	0/?	+	0
Policy 40 – Zero emission HGVs	+	+/-/?	+	+	+	+/-/?	0/?	0/?	+/-	?
Policy 41 – Reduce emissions from aviation	+/?	+/?	+	+	0	+	~	~	+	?
Policy 42 – Reduce emissions from shipping	+/?	+/?	+	+	0	+	~	~	+	?
CUMULATIVE	+/-	+/-	++/?	++	+/-	+/-/?	0/?	+/?	++/-/?	0/?

5.2.13   **Overall, the section is considered to positively support achievement of a variety of SA Objectives with significant positive effects assessed against climate change, health and delivering modern, connected infrastructure (SA Objective 3, 4 and 9).**

5.2.14   Transport is a cross-cutting theme that influences the emissions incurred by many other sectors, to varying degrees. Transport accounted for around 16% of GHG emissions in 2019 with approximately 92% emitted from road traffic. Delivering low and zero carbon transport options are central to the Welsh Government's aim to be net zero in 2050. The policies in this section have the potential to make a substantial contribution to a reduction in Wales's GHG emissions and energy consumption during the second carbon budget (CB2) and beyond, even with the application of relatively minor policy levers.

5.2.15   **Reducing the need to travel, increasing the modal share of active/public transport, delivery of electric vehicle (EV) infrastructure and support for the take up of EV are considered to cumulatively have a significant positive affect on addressing climate change (SA Objective 3).**

5.2.16   The policies in this section/chapter encourage walking and cycling which will reduce the need for transport. Support for zero emission vehicles and improvements to active travel and public transport provision will also improve air quality. **Overall, significant positive effects have also been identified for health and wellbeing (SA Objective 4).**

5.2.17   **Significant positive effects have also been assessed with regards to the provision of modern, connected infrastructure (SA Objective 9).** The policies cumulatively lead to investment in infrastructure that supports active travel and sustainable, public transport and EV infrastructure to support Wales's transition to net zero. However, it is recognised that investment opportunities may not be present or achievable for delivery in rural areas. **Therefore, minor negative effects have also been assessed for the objective.**

5.2.18   The effect of the COVID-19 pandemic has not been fully realised as yet but there is potential for changes in travel demand. For example, commuting patterns may change as more flexible options for working at home take hold in the longer term. The pandemic has demonstrated the viability of maintaining delivery of many businesses by home working as opposed to office-based working. This recent experience could accelerate the trend towards home and hybrid working. Indeed, the Welsh Government aims to achieve 30% or more of workers to work at home or close to home following the pandemic. However, the aim to increase working at or close to home is reliant on access to high quality, fast and stable broadband infrastructure. Wales is currently slightly behind the rest of the UK on superfast and ultrafast broadband roll out, and some uncertainty on delivery remains. **Such uncertainty cuts across objectives relating to employment, climate change and infrastructure (SA Objectives 2, 3 and 9). Additionally, there is uncertainty between the emissions saved from transport use compared to the emissions that may be increased related to work in residential buildings or other locations.**

5.2.19   **With regards to the economy and employment (SA Objectives 1 and 2) a mix of minor positive and negative effects have been assessed.** Although the section would positively support investment in new technologies, and see transport infrastructure delivered, there is potential for urban areas to be the focus for investment and rural areas may not experience the benefits. **Additionally, although there is likely to be investment in new technologies with new employment opportunities created, there**

will be likely be negative impacts on industries related to diesel/petrol/hybrid vehicle manufacturing and servicing. These industries will need to be supported through the transition to retain and reskill as appropriate.

5.2.20   **However, potential negative effects are also identified for some SA Objectives, particularly in relation to economy and employment (SA Objectives 1 and 2), social cohesion (SA Objective 5) and the delivery of resilient infrastructure (SA Objective 9).** The negative effects identified reflect concerns over the delivery of infrastructure within rural communities and the extent to which any new economic and employment opportunities will mitigate the potential adverse effects on the loss of existing business in manufacture and servicing. **There are also concerns that demand side interventions, such as road charging, may disproportionately affect the most economically disadvantaged affecting equality and social cohesion (SA Objective 5). The possibility of negative effects has also been identified related to the potential for impacts on landscape/townscapes (SA Objective 6) but it is expected that land use planning would mitigate these effects.**

5.2.21   The policies in the Transport section reflect and complement Llwybr Newydd: the Wales Transport Strategy 2021, PPW11 and Future Wales in seeking to reduce the need to travel and increase the modal share of active travel and public transport. **The policies are considered to broadly support achievement of the well-being goals but there is potential for further consideration of the policies particularly in relation to the well-being goal of 'A Wales of cohesive communities'.**

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Residential buildings

Table 5.4 Summary appraisal of residential buildings sector

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 43 - The Optimised Retrofit Programme (ORP)	+	++	++	++/?	++/?	++	+	+	++	+
Policy 44 - Welsh Housing Quality Standard (WHQS) – Improving energy efficiency for existing social homes	++	++	++/?	++/?	++/?	++	0	+	++	+
Proposal 5 – Supporting PRS landlords to improve energy efficiency	+/?	+/?	++/?	+/?	+/-/?	+/?	+	0	+	+
Proposal 6 – Supporting the owner-occupied sector to improve energy efficiency and shift to low carbon heat	+/?	0	++/?	+/?	+/-/?	++	0	+	?	+
Proposal 7 – Bringing empty homes back into use and helping owners	++	+	+/?	+/?	+	++	0	+	?	+

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
to start their journey to net zero										
Proposal 8 - Water Efficiency and Water Labelling *Late contribution to the plan – Was not assessed as part of the SA*										
Policy 45 – Part L Building Regulations	++	0	++	++	++	++	0	0	+	+
Policy 46 - Social Homes will lead by example being built to standards in excess of Part L	++	0	+/?	+/?	++	+/?	0	+	+	+
Policy 47 - Developing Innovative construction techniques to reduce and meet the energy demand within buildings and increasing the use of sustainable materials	++	0	++	+/?	+/?	+/?	+/?	0	+	+/?
Policy 48 - Incentivising energy efficiency of	++	++/?	++/?	++	++	+/?	0	+	0	0

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
homes through our Help to Buy – Wales										
Policy 49 - Piloting Smart Flexible and Digitalised Systems to [maximise use of assets] and help reduce demand	++/?	+/?	++/?	++	++/-/?	++	+/?	+	++	+
Policy 50 – Develop behaviour change interventions alongside our wider programmes	0	+/?	+/?	+/?	+/?	+/?	+	+	0	+/?
CUMULATIVE	++/?	+	++/?	++/+	++/-/?	++	+	+	++/?	+

5.2.22 **Overall, the section is considered to positively support achievement of the SA Objectives with significant positive effects assessed against economy, climate change, health, cohesion, environment and connected infrastructure (SA Objective 1, 3, 4, 5, 6 and 9).**

5.2.23 The actions seek to address the energy performance of the residential buildings sector (which accounted for 10% of Welsh GHG emissions in 2019). The policies and proposals recognise the need to retrofit the older housing stock (with significant numbers of pre-1919 buildings) and employ new technologies to assist with achieving the transition to a zero-carbon future. **This is considered to have significant positive effects on climate change (SA Objective 3). Delivering more resilient buildings and innovative technology to help reduce energy demand would also significant support resilient infrastructure (SA Objective 9).**

5.2.24 **The efforts to construct or retrofit energy efficient buildings would in turn significantly contribute to achieving a net zero economy in the long term (SA Objectives 1)**. Implicit in the transition to greater energy efficiency will be the creation of opportunities for **new training and employment, particularly amongst target groups such as young people within vulnerable communities which will have positive effects on employment (SA Objective 2).**

5.2.25 The assessment demonstrates that the policies and proposals are supportive of the SA Objectives aimed at securing more responsible energy use, blending national standards such as Building Regulations and technological measures, with **targeted support schemes to drive investment in change, particularly amongst specific sectors such as social homes, likely to have significant positive effects on social cohesion (SA Objective 5).**

5.2.26 **Delivering high quality housing, and addressing fuel poverty, is also likely to support significant positive effects on health and wellbeing generally (SA Objective 4). Decarbonisation will also lead to improvements to the natural environment with significant positive effects assessed for SA Objective 6.**

5.2.27 **However, potential negative effects have been identified in respect of the financial burden which could be placed on households in securing the required energy efficiency measures (SA Objective 5)**, particularly amongst owners of the older housing stock and those in privately rented accommodation. Need and demand is likely to have to be balanced against grant schemes promoting change.

5.2.28 The scale and novelty of the required and proposed changes present uncertainties over the speed and penetration of the transition. Consequently, many of the likely positive effects associated with policy implementation will need to be monitored to judge their effectiveness against targets and value for money. More broadly, the suite of policies and proposals in respect of building energy efficiency complement wider policy areas, such as transport and industrial emissions, aimed at reducing Wales's carbon footprint (SA Objectives 1, 3, and 10) and as such are an important contribution to physical, technological and behavioural change.

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Industry and business

Table 5.5   Summary appraisal of industry and business sector

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Proposal 9 - Develop Evidence and Analysis of the Industry and Business sector – Welsh Government	+	+	+	+	+	++	+	+	+	++
Proposal 10 - Prioritise financial, and other, support for clean and green jobs	++	++/?	+/?	+	+	0	++/?	+	0	++
Policy 51 – Drive Decarbonisation through the Manufacturing Sector	++	+/-	++/?	0	0	+	0	0	0	+
Proposal 11 -Develop a Decarbonisation Action Plan for the food & drink manufacturing Sector by 2026	+/?	+	+	0	0	0	0	0	+	+

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Proposal 12 - Fishing and fish supply chain decarbonisation	+/?	+	+	0	0	0	0	0	+	+
Policy 52 – Increased resource efficiency in business and industry through regulation and funding	++/?	?	++/?	0	0	0	0	0	+	++
Policy 53 - Implement a new regime for pollution control Best Available Techniques (BAT) for industry	+/-	?	++/?	0	0	++	0	0	+	++
Policy 54 - Business Wales	+	+/?	+/?	0	0	0	+	0	+	+
Proposal 13 - Review and development of Business Wales	+/?	+/?	+/?	0	0	0	0	0	+	+
Proposal 14 - Build on our Foundational Economy	+	+	+/?	+	+	0	+	+	+	+
Policy 55 - Climate Change Levy (CCL) and Climate Change	++	+/?	+	0	0	++	0	0	0	++

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Agreements – UK Government										
Policy 56 - Energy Saving Opportunity Scheme (ESOS)	+/-	+	+/?	+	+	+	+	+	+	++
Policy 57 - Streamlined Energy and Carbon Reporting (SECR)	++	+	+	0	0	+	0	0	0	++
Proposal 15 – Industrial Clusters – fuel switching	++	+/-/?	++/?	0	0	+/?	0	0	+	++
Proposal 16 – Engage with the UK Government on their policies in support of fuel switching	+	+	?	0	0	+/?	0	0	+	+
Proposal 17 – Continue to build our evidence base on Carbon Capture Utilisation & Storage over carbon budget 2	+	+	+	0	0	0	0	0	0	++
Proposal 18 – Industrial Clusters - Carbon Capture Utilisation & Storage –	++	+/?	++/?	0	0	+	0	0	++/?	++

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Proposal 19 - Greenhouse gas removals	+/-	0	?	0	0	+	0	0	0	++
Proposal 20 – Property Delivery Plan	+/?	0	+	0	+	0	+	0	+/?	+/?
Proposal 21 – Property Energy Efficiency Rating Scheme (PEERS)	+	0	+/?	+	+	+	+	+	+	++
Policy 58 – Development Bank of Wales	+/?	+/?	+/?	0	0	0	0	0	+	+
Proposal 22 – Develop new support mechanisms to encourage and support innovation in Industrial Decarbonisation	++	++/?	+/?	+	+/?	+/?	+/?	+/?	0	++
Policy 59 - Economy Futures Fund	++	+	+	+	+/?	+/?	+/?	+/?	+	++
Policy 60 - UK Government Funding Streams for Industrial Decarbonisation and Energy Efficiency	++	++/?	++/?	+	0	+/?	0	0	+	++
	++	++/-	++/?	+	+	+	+	+	+	++

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
CUMULATIVE										

5.2.29 **Overall, the section is considered to positively support achievement of all SA Objectives with significant positive effects assessed against economy, employment, climate change, and global responsibility (SA Objective 1, 2, 3 and 10).**

5.2.30 The policies and proposals in this section provide the basis for delivering positive sustainability outcomes for industry and business, noting that many outside factors such as the global economy and investment can be powerful influences over the way in which the private sector will respond to the challenge of moving towards net zero. Nevertheless, the range of 'stick and carrot' policy measures create the framework for positive change, reflected in the generally positive scores against the SA Objectives. The energy intensive nature of many industrial processes means that ongoing support will be important in enabling cost effective operation, consistent with environmental management requirements, to maintain competitiveness.

5.2.31 The need to address GHG is apparent as industry and business together accounted for around 29% of Welsh GHG emissions in 2019. **Achieving a net zero carbon economy (SA Objective 1), supporting sustainable employment (SA Objective 2) and addressing climate change (Objective 3) is identified as a significant positive effect of these policies**, although accompanied by uncertainty as precisely how effective the overall contribution will be, what business sectors may need additional encouragement and unforeseen issues (such as the pace of technological change to help secure decarbonisation), will influence the success of policy implementation in CB2 and on the pathway to net zero in 2050.

5.2.32 The scale and complexity of the transition to low carbon industrial and business operations presents a significant challenge and whilst the likely effects are assessed as positive overall, there are uncertainties as to speed and degree of change. Consequently, the monitoring and evaluation of policy interventions based on a sound evidence base is critical, complemented by a wider range of regulatory and incentive-based interventions for sectors such as those identified for food and drink and fishing industries and schemes such as the Energy Saving Opportunity Scheme (ESOS) and UK government funding for decarbonisation. **The opportunities for training and skills enhancement (SA Objective 7) and the associated benefits for health and well-being and the community development (SA Objective 8) associated with decarbonisation of industry and business are likely to be positive**, although the overall effects on social cohesion and equality (SA Objective 5) are more difficult to judge given the complexity of this policy area.

5.2.33 Overall, the positive intent of the policies is likely to yield positive results against the suite of sustainability objectives, reflecting the recognition of a clear direction of travel and the employment of a wide range of interventions to achieve the goals set. **This is reflected in performance of the policies against Objective 10 (Wales as a globally responsible nation) which is significantly positive.**

5.2.34 Driving decarbonisation and fuel switching whilst positive in principle, could have unintended consequences in the form of high costs and consequent impacts on employment opportunities amongst businesses making the transition. **Therefore, some minor negative effects are also assessed for SA Objective 2.**

Agriculture

Table 5.6   Summary appraisal of agriculture sector

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 61 -Regulations to reduce agricultural pollution	0	+	+	+	+	+ +	0	0	~	0
Policy 62 – Glastir	+/?	+/?	+/?	+/?	+/?	+ +/?	0	+/?	~	0
Policy 63 - Farm Business Grant (FBG)	+/?	+/?	+/?	+/?	+/?	+	+ +/?	0	~	0
Policy 64 - Sustainable Production Grant (SPG)	+/?	+/?	+/?	+/?	+/?	+ +/?	+ +/?	+/?	~	0
Policy 65 - Animal Health and Welfare Framework (AHWF)	+ +	+	+	+	+	+	+ +	+	~	0
Policy 66 - Red Meat Development Programme	+ +	+	+/-	+	+	+	+ +	+	~	0

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 67 - Dairy Improvement Programme (DIP)	++	+	+/-	+	+	+	++	+	~	0
Policy 68 - Farming Connect	+	+	+	+	+	+	++	+/?	~	0
Policy 69 - Agriculture Bill	+	+	0	+	+	+	0	+	~	0
Proposal 23 - Sustainable Farming Scheme (SFS)	+	+	+	+	+	++	+	+	~	0
Proposal 24 – Work with farmers and the waste sector to improve resource efficiency and increase circularity on farms	+	+	+	+	+	+	+	+	~	0
Proposal 25 – Fuel Efficiency (Welsh Government)	+	+	+	+	+	+	++	+	~	0
Proposal 26 – Support innovation in renewable energy/technology	+	+	+	+	+	+	++	+	~	0

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Proposal 27 – Organic conversion	+	+	+	+	+	+ +	+	+	~	0
Proposal 28 – Precision Farming	+	+	+	+	+/?	+	+	+	~	0
Proposal 29 - Land Sharing	+	0	+	+	+	+	0	+	~	0
Proposal 30 - Explore the potential to support Horticulture	+	+	+	+	+	+/-/?	+	+	~	0
CUMULATIVE	+ +	+	+/-	+	+	+ +	+ +	+	~	0

5.2.35 **Overall, the section would generally provide a range of well-being benefits. It scored positively against most SA Objectives with significant positive effects assessed against the economy, environment and lifelong learning (SA Objectives 1, 6 and 7). The section is therefore considered to particularly support achievement of well-being goals of 'A prosperous Wales' and 'A resilient Wales'.**

5.2.36 This section seeks to support the agricultural sector through the transition to net zero. The section seeks to achieve reductions in carbon emissions without compromising the economic competitiveness of the Welsh agricultural sector, through the provision of grants/funding and support. **Overall, significant positive effects are assessed for the economy (SA Objective 1) in recognition of the central importance to the economy of rural Wales**.

5.2.37 The policies seek to create a more sustainable agricultural sector, reducing emissions produced from farming activities and reducing the amount of air, water and soil pollution associated with the sector. There would also be a range of biodiversity improvements, though, for example, new woodland planting, habitat improvements and nutrient management. Increased agricultural efficiencies could also be expected to support the conservation of the rural landscape. **The policies are therefore considered to have significant positive effects on the natural environment (SA Objective 6).**

5.2.38 The section also includes a number of policies that seek to implement new technologies and/or embed new sustainable working practices for managing livestock. This will aid the sector in the transition to net zero, enabling new skills to be developed to meet the challenges it poses. **Therefore, the section is considered to have significant positive effects on lifelong learning (SA Objective 7).** However, it is important that skills development can be accessed by all those in the agricultural sector regardless of age.

5.2.39 The agricultural sector is largely focused on livestock, which produces a range of GHG emissions (carbon dioxide and methane) and the sector accounted for around 14% of Welsh GHG emissions in 2019. The delivery of the policies and proposals would support investment in agricultural practices to reduce emissions, woodland creation and soil management (aiding carbon sequestration) thereby supporting the sector's efforts to address the effects on climate change. However, continuing with meat production and dairy, even with improvements to efficiency, would have some negative effects on the SA Objective, given the carbon intensity associated with production. This is also likely to reinforce more carbon intensive diets. **Mixed minor positive and negative effects are therefore assessed for climate change (SA Objective 3).**

5.2.40 Agriculture plays an important role for the identity of rural Wales, through farming practices, the interconnectivity with rural communities and through the landscapes shaped by the sector. The policies and proposals in this section would cumulatively support agriculture through the transition to net zero, further contributing to the creation of a sense of place, belonging and identity and the Welsh language. Therefore, **positive effects have been assessed with regards to community and social cohesion and Welsh culture and language (SA Objective 5 and 8).**

5.2.41 There are some uncertainties, particularly in relation to grant/funding schemes. Funding for Glastir Small Grants, Farm Business Grant, Sustainable Production Grant funding is subject to the 2021 comprehensive spending review. This may affect a range of well-being

benefits identified. There is also some uncertainty in relation to funding for the Farming Connect, Red Meat Development Programme and Dairy Improvement Programme during CB2 which may impact on positive effects in the medium and long term if not continued or replaced.

Land use, land use change and forestry (LULUCF)

Table 5.7   Summary appraisal of LULUCF sector

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 70 – Create a National Forest for Wales	+ +	+	+ +	+ +	+ +	+ +	+/?	+ +	~	~
Policy 71 – Woodland Creation Scheme	+ +	+	+ +	+ +	+ +	+ +	+/?	+ +	~	~
Proposal 31 – Attracting private sector investment into Woodland Creation	+ +	+	+ +	+ +	+ +	+ +	+/?	+ +	~	~
Proposal 32 - New Sustainable Farming Scheme (woodland strand)	+	+	+	+/?	+/?	+	+/?	+/?	~	~
Proposal 33 – Supporting tree planting by families and communities	+	0	+	+/?	+/?	+	+/?	+ +	~	~

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Proposal 34 – Develop a new Timber Industrial Strategy for Wales	++	+	++/-	+/-/?	+/?	+/-	+/?	+/?	~	+/-
Policy 72 - Implementing a Peatland Restoration Programme	+	+	++	++	++	++	+/?	++	~	~
Proposal 35 - The ban of the sale of peat in compost	0	0	+/?	+/?	+/?	+	~	~	~	+/?
Proposal 36 - Investigating the potential contribution of blue carbon to achieve net zero	+/?	+/?	++/?	+/?	~	++/?	~	~	~	~
CUMULATIVE	++	+	++	++/?	++/?	++	+/?	++	~	+/-

5.2.42 **Overall, the section would generally provide a range of well-being benefits. It scored positively against the majority of SA Objectives with significant positive effects assessed against the economy, climate change, health, cohesion, environment and culture (SA Objectives 1, 3, 4, 5, 6 and 8).**

5.2.43 This section seeks to support the LULUCF sector through the transition towards net zero 2050. There are economic benefits and opportunities present within the LULUCF sector, primarily through the expansion of the timber industry, and potential for economic activity resulting from the better management of woodlands, peatlands, and blue carbon assets. **Such economic activity would be primarily green and low carbon in nature and significantly contribute towards a more sustainable Welsh economy that potentially uses more sustainable resources (timber) (SA Objective 1).**

5.2.44 The LULUCF sector is an emissions sink and in 2019 it was estimated that it managed to capture 250 MtCO2 emissions. Wales completed its first carbon-funded peatland restoration in 2021 at Bwlch y Groes, which comprised 66 hectares of peatland restoration that is expected to store 2,335 tons of carbon emissions over the next 35 years (Forest Carbon). Blue carbon resources are currently estimated to store 26,100 tonnes of carbon per year and already store at least 113 million tonnes of carbon. **Therefore, the protection and expansion of such resources is necessary for Wales to meet its wider sustainability goals and provides significant positive effects with regard to climate change (SA Objective 3).**

5.2.45 The policies and proposals have the potential to provide job opportunities that are primarily green in nature. Expanding woodlands and ensuring the proper management, alongside the proposed management of peat resources would not only create jobs but also has the potential to provide training/educational opportunities for the population of Wales to learn green skills that are needed for the future economy (SA Objective 2 and SA Objective 7).

5.2.46 The significant benefits of these policies and proposals are not limited to the economy, job creation or addressing climate change. Woodlands and peatlands are often extremely important places to enjoy recreational activities away from the built environment. **The physical and mental health benefits of woodlands are considerable and enable people to take up healthier lifestyles significantly contributing to achievement of SA Objective 4 and SA Objective 8**. Woodlands can also act as important community spaces though opportunities for private woodlands to be made available to the public should be explored. **Significant positive effects are assessed for SA Objective 5**.

5.2.47 Woodlands, peatlands and blue carbon environments are important for the natural environments and to act as a juxtaposition to the built environments. **These natural assets act as habitats of a large number of flora and fauna and their expansion would provide significant positive effects for SA Objective 6.** The restoration of peatlands especially has the potential to provide significant benefits as peatlands comprise a mixture of green and blue habitats and if they are lost, cannot be easily replaced.

5.2.48 Expanding Wales's timber industry has the potential to aid other countries' ability to be more sustainable through using sustainable Welsh timber, as not all countries can efficiently/sustainably produce their own timber. The section also references the possible

exploration of ways in which the Welsh Government could apply pressure on other countries to ensure they do not compromise their own peat resources by using it in compost. **This would all see positive effects in supporting Wales's place in the world (SA Objective 10).**

5.2.49 Given the nature of the policies and proposals, the effects identified are primarily a mixture of significant to minor positive effects. Some minor negative effects have been assessed in relation to the expansion of the timber industry due to the emissions/pollution that would be created from the expansion of the Welsh timber industry through the harvesting, processing and shipping of timber. However, **when considered against the policies own benefits through woodland creation, economic growth and through providing a sustainable resource (timber) no cumulative negative effects have been assessed**. There is also potential for this policy to be self-mitigating within the final Timber Industrial Strategy.

wood.

Waste Management

Table 5.8   Summary appraisal of waste management

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 73 - Reduce waste sent to landfill	+	+/?	++	++	~	++	~	~	~	+
Proposal 37 – Further increase CH4 Capture and utilisation in Welsh landfill sites by 2030	+	+/?	++	++	~	++	~	~	~	+
Policy 74 - Further increase recycling	+	+/?	++	++	~	++	~	~	+	+
Policy 75 – Be Mighty Campaign	+	0/?	+	+	+	0	~	+	~	0
CUMULATIVE	+	+/?	++	++	+	++	~	+	+	+

5.2.50   **Overall, the section would generally provide a range of well-being benefits. It scored positively against the majority of SA Objectives with significant positive effects assessed against climate change, health and environment (SA Objectives 3, 4, and 6).**

5.2.51   The proper management of waste forms an integral part of transitioning Wales towards a zero waste and net zero economy by 2050. It is estimated that waste accounted for 3% of emissions in 2019 with a trend of continued GHG reduction over recent years. Further reductions can be achieved, and this section would continue to ensure emissions from waste are minimised. Emissions from waste storage and processing can have considerable and long-term effects on the local and wider environment. The policies and proposals would provide significant positive effects through the application of the waste management hierarchy and ensure less landfill is required, therefore resulting in less land lost (likely permanently) to waste disposal. Recycling further reduces the need for landfill and ensures Wales does not over consume resources or goods, further resulting in less waste produced. **Significant positive effects are identified against climate change (SA Objective 3). A reduction in waste provides many health benefits as the residents of Wales in terms of reduced emissions, and reduced odour leading to significant positive effects on SA Objective 4.**

5.2.52   As a result of these policies and proposal, the built and natural environments of Wales would be less impacted in the future as less waste will be produced and will be better managed and recycled, **providing significant positive effects against SA Objective 6.**

5.2.53   **Positive effects have been identified with regards to the economy and employment (SA Objective 1 and 2)** as the section would reduce waste generation, leading to efficiencies for businesses, and support modest employment growth. Jobs created by these policies would aid the Welsh job market in the transition to more environmentally sustainable forms of employment.

5.2.54   In order to enact the aims of these policies and proposals, new waste infrastructure would be needed in order to better collect and sort waste in order to meet the need for greater recycling. Therefore, **a positive effect has been assessed with regard to providing modern, connected, and resilient infrastructure (SA Objective 9)**. **The policies and proposals are bold and position Wales as a world leader for waste management supporting SA Objective 10.**

5.2.55   Recycling is steadily becoming a core part of the Welsh culture as the population continues to recycle more. Through continued policy support, this trend would continue as recycling becomes easier to accomplish and as the infrastructure expands to meet the ambitions of the Welsh Government and the population of Wales (SA Objective 5).

5.2.56   **No cumulative negative effects have been identified as a result of the assessment** against the SA Objectives as this section would generally provide a wide range of significant and minor positive effects. The only uncertainty identified relates to job creation as it is difficult to predict in a quantifiable manner how many jobs would be created (SA Objective 2).

Public sector

Table 5.9   Summary appraisal of the public sector

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 76 - All public sector organisations should use the Routemap and Reporting Guide to develop and publish plans by March 2023 to achieve a collective Net Zero public sector by 2030.	+	+	++	+	++	+	+	+	+	+
Policy 77 - The Welsh Government's plan to achieve net zero as an organisation by 2030 will be published before March 2023.	+	+/?	++/?	~	+	+	+	+	+	+
Policy 78 - The Welsh Government to include Net Zero Wales commitments in our remit letters and	+	+	+	~	+	~	+	~	~	+

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
sponsor arrangements with public bodies in Wales										
Proposal 38 - UK Government organisations who have a significant presence in Wales to develop and publish plans setting out how they will support Wales's ambition for a net zero public sector by 2030	+	+	+	~	+	~	+	~	~	+
Policy 79 - Sustainable Procurement	+	++	+	+	0	~	+	~	~	+
Proposal 39- All future public sector properties being built or refurbished achieve a net zero standard by 2030 (Policy)	++	++	++	+	++	+/-/?	++	+	++	~
Policy 80 - All new public sector cars and light goods vehicles should be zero/ultra-low emission by	++	++	++	+	~	+	++	~	++	~

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
2025 and heavy goods by 2030										
Policy 81 - All public sector organisations should understand the sequestration potential of land in their ownership by March 2023 and commit to taking action to realise this potential by March 2030	0	0	++	+	0	+	0	~	~	~
Policy 82 - NHS Wales is committed to the collective net zero ambition by 2030 delivering through the NHS Decarbonisation Strategic Delivery Plan	++	++	++	+	+	+/-/?	++	+	++	+
Policy 83 - A joint NHS Wales and LG Social Care Decarbonisation Plan should be created to support the achievement of a collective net zero by 2030	+	+	+/?	+	+	~	0	+	+	+

wood.

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Policy 84 - The Local Government Decarbonisation Strategy Panel and WLGA will support the commitments made by Local Government organisations to meet the collective net zero ambition by 2030	++	++	++	+	+	+/-/?	++	+	++	+
CUMULATIVE	++	++	++	+	++	+	++	+	++	+

5.2.57 **The section would generally provide a range of well-being benefits. It scored positively against all SA Objectives with significant positive effects assessed against economy, employment, climate change, cohesion, lifelong learning and resilient infrastructure (SA Objectives 1,2, 3, 5, 7 and 9).**

5.2.58 **Significant positive effects are assessed for climate change (SA Objective 3).** The range of interventions required – in buildings, transport, procurement and land use – across the Welsh economy and society presents an unprecedented challenge which can only be addressed through wide-ranging and integrated measures as contained in NZW.

5.2.59 **Significant positive effects have been assessed with regards to the economy and employment (SA Objectives 1 and 2).** The policies work together as a means of demonstrating how the public sector can ensure that Wales is at the forefront of securing the transition to a net zero future through investment in communities and by leading by example in the reconfiguration of public assets to meet the socio-economic and environmental challenges posed by climate change. The clear pathway to net zero public sector in 2030 will present an important and visible standard of good practice which the wider economy can follow. Policies relating to achieving zero/low emission public sector vehicles, net zero buildings, and decarbonised NHS Wales and local government can all help to ensure that skills development can be a fundamental part of the change as new technologies and approaches to development will need to be employed. **Significant positive effects on SA Objective 7 are therefore assessed.**

5.2.60 **Significant positive effects are also assessed for social cohesion (SA Objective 5)** reflecting the role of the public in delivering localised and community specific actions, including the community ownership of renewable infrastructure, as part of the public sector transition to net zero in 2030. **Given the wider ranging potential for investment in local authority and NHS Wales infrastructure significant positive effects have also been assessed for SA Objective 9,** reflecting the section will support investment support infrastructure resilience for CB2 and beyond.

5.3 Cumulative effects

Cumulative effects

5.3.1 An assessment of the cumulative effects of the sections of the NZW has been undertaken as shown in **Table 5.10**. **Table 5.10** shows the cumulative score assessed for each section of NZW against each SA objective (based on the appraisal of each policy in that section against each SA objective). The bottom row provides a score for the cumulative effects of the plan as a whole against each SA objective. The cumulative scoring is derived from a judgement of the overall performance of NZW against the SA objectives (as informed by each section's cumulative score).

Table 5.10 Summary appraisal of cumulative effects

Principal wellbeing goal	A prosperous Wales	A prosperous Wales	A resilient Wales	A healthier Wales	A Wales of cohesive communities	A resilient Wales	A more equal Wales	A Wales of vibrant culture and thriving Welsh language	A Wales of cohesive communities	A globally responsible Wales
SA Objective	1. To achieve a strong and sustainable net zero economy	2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition	3. To address climate change	4. To improve the physical and mental health and well-being of everyone	5. To improve social cohesion and equality	6. To improve natural and built environments	7. To encourage learning for life and help to equip everyone with the skills required for a changing world	8. To help build resilient communities, culture and language	9. To help delivery of modern, connected, and resilient infrastructure	10. To ensure Wales is a globally responsible nation
Setting the conditions	++/-	++/-	++	++	++	++	++/?	+	++	++
Electricity and heat generation	++	++/-	++	+	+/-	+/-	+	+	+	+
Transport	+/-	+/-	++/?	++	+/-	+/-/?	0/?	+/?	++/-/?	0/?
Residential buildings	++/?	+	++/?	++/+	++/-/?	++	+	+	++/?	+
Industry and business	++	++/-	++/?	+	+	+	+	+	+	++
Agriculture	++	+	+/-	+	+	++	++	+	~	0
Land Use, Land Use Change and Forestry (LULUCF)	++	+	++	++/?	++/?	++	+/?	++	~	+/-
Waste management	+	+/?	++	++	+	++	~	+	+	+
Public sector	++	++	++	+	++	+	++	+	++	+
CUMULATIVE	++	++/-	++	++	++/-	++/-	+	+	++	+

5.3.2 **The cumulative assessment shows that the NZW will make a positive contribution to the achievement of the SA Objectives and therefore towards achievement of the wellbeing goals set out in the WFG Act.**

5.3.3 **Significant positive effects are assessed for economy and employment (SA Objective 1 and 2) reflecting the overarching positive effect that the NZW will have on moving Wales towards a net zero economy in 2050**, enabling investment in innovation and infrastructure that will support economic wellbeing. This will also support the development of new skills required for the transition with **minor positive effects identified for SA Objective 7.**

5.3.4 **Cumulatively, the plan will make a significant impact on addressing climate change (SA Objective 3) setting out the emissions reductions in CB2 and setting Wales on the pathway to net zero in 2050.** NZW seeks to embed the need to address climate change across all sectors supported by all stakeholders. NZW also supports behaviour change, where possible, to embed decarbonisation into everyday practices. Overall, significant positive effects are assessed. **This also supports Wales's role as a globally responsible nation (SA Objective 10).**

5.3.5 **Significant positive effects are assessed for health and well-being (SA Objective 4)** reflecting the contribution the plan will make to reducing emissions to air, supporting broader natural and built environmental improvements and for helping to address health inequalities.

5.3.1 **With regards to the resilience of the environment (SA Objective 6), NZW's approach to addressing the climate and nature emergences together and to support reversing the decline in biodiversity are particularly significant.** However, there are tensions when developing and implementing a national policy framework that has far reaching and pervasive effects, and which is realised by future infrastructure, some of which will have direct environmental effects. However, in this regard, it is acknowledged that other policies (such as Future Wales, Planning Policy Wales 11 and local planning policy) will help avoid or minimise adverse effects. **NZW's support for the development, provision and delivery of infrastructure, to meet the challenges posed by climate, has led to the identification of significant positive effects on SA Objective 9 (SA Objective 9).**

5.3.2 **NZW will help to support resilient communities (SA Objective 8)** through for example, the community ownership of renewable energy infrastructure and supporting the rural agricultural economy through the transition and in supporting the environment and access to forestry.

5.3.3 **Some potential negative effects have been assessed for employment (SA Objective 2) reflecting that the transition to net zero may affect jobs and employment**, but in the long term, the plan will enable future employment and opportunities in renewable energy technologies, construction and fabrication etc. **With regards to social cohesion and equality (SA Objective 5) some negative effects reflect the potential for disproportionate effects of the transition to fall on those least able to afford it through increased housing, power and transportation costs and the potential for rural areas to be left behind in the drive to reduce transport emissions**. Many of these effects would be expected in the short term and overall, significant positive effects are also assessed.

Sector level compatibility appraisal

5.3.4   A sector-by-sector compatibility assessment has also been to demonstrate compatibility or tensions between Emission Sector Chapters. The Welsh Government should consider this when implementing or developing future policies. See **Table 5.11**.

Table 5.11   Sector level compatibility appraisal

Emissions sector	Electricity & heat generation	Transport	Residential buildings	Industry & business	Agriculture	LULUCF	Waste management	Public sector
Electricity & heat generation		+	+	+/-	+/-	+	+/-	+
Transport	+		+/-	+	+/-	+	+	+
Residential buildings	+	+/-		+	+	+	+	+
Industry & business	+/-	+	+		+	+	+/-	+
Agriculture	+/-	+/-	+	+		+	+	+
LULUCF	+	+	+	+	+		+	+
Waste management	+/-	+	+	+/-	+	+		+/-
Public sector	+	+	+	+	+	+	+/-	

Summary of compatibility appraisal

5.3.5   The compatibility assessment shows that the emissions sectors are largely compatible with each other, reflecting the overall approach in NZW to reduce emissions in CB2 and set the pathway to achieve net zero in 2050.

5.3.6   There are strong synergies between electricity and heat generation, industry and business and transport. The decarbonisation of the power sector cuts across these sectors and will influence the success of all sections in NZW to varying degrees. Additionally, there are strong synergies between land use and forestry and agriculture, reflecting those measures to support enhanced environmental management through agriculture and forestry often go hand-in-hand.

5.3.7   However, there are some incompatibilities identified. These incompatibilities largely reflect specific measures set out in individual policies and proposals rather than an overriding incompatibility in the aims to achieve reduced emissions. For example, efforts to support working from home in the transport section may increase pressure on the emissions generated in the residential buildings sector. Additionally, reducing emissions from

incineration of non-recyclable waste may increase pressures on public sector waste management services, affecting the ability to support increased recycling, and other services for residents. Similarly, supporting increased recycling may place additional pressures on industry and businesses.

5.3.8 Reducing the emissions associated with agricultural production may be incompatible with delivering transportation improvements, reflecting that the agricultural sector is largely based in rural areas, where opportunities for greater connectivity are more limited than within urban areas. However, there are compatibilities, for example, in supporting zero emission HGVs.

5.3.9 Allied to these incompatibilities is uncertainty related to the untested nature of some actions in NZW, with a full understanding of effects not fully clear at this stage.

5.3.10 Overall, the policies and proposals in the emissions sectors are working together to support the reduction in GHG required in CB2 and to set Wales on the pathway to achieving net zero in 2050. Through CB2 and as part of the development of actions in the next emission reduction plan, it is considered that many of the incompatibilities and tensions between sectors can be addressed. As evidence continues to be developed and progress monitored, some of the uncertainties associated with implementation can also be resolved.

5.4 Consideration of statutory impact assessments (IAs)

5.4.1 As stated in **Section 1.3**, this SA Report is not a statutory impact assessment (IA). However, through the application of the SA objectives and guide questions, the main elements of the statutory assessments can be broadly appraised. These considerations are set out below.

Equalities Impact Assessment

5.4.2 Under the Equality Act 2010, the Welsh Government must have 'due regard' to the need to eliminate unlawful discrimination, harassment and victimisation, advance equality of opportunity, and foster good relations between people who share a protected characteristic (including age, disability, gender reassignment, race, religion or belief, sex, sexual orientation, marriage and civil partnership and pregnancy and maternity) and those who do not. An Equalities Impact Assessment (EqIA) supports this assessment. The effects on equalities are predominantly considered in SA Objectives 2, 4, 5 and 7 related employment, health, social cohesion and encouraging learning for life.

5.4.3 Overall, the NZW has been found to support achievement of a healthy population, promote cohesive communities and support access to training and skills development. With regards to vulnerable groups, health related improvements, particularly in relation to improvements in air quality and lower carbon emissions – which may particularly support those in denser urban areas, and those with pre-existing health conditions or disability – have been identified.

5.4.4 However, the assessment has found that there are some potential negative effects. With regards to social cohesion, as part of the transition it is important that any increased costs of energy supply, or addressing poorer quality housing, do not disproportionately fall on

the poorest in society, exacerbating the effects of fuel poverty. Additionally, access to renewable and low carbon technologies, such as EVs, will be require financial support. Although some negative effects were assessed, no significant negative effects have been appraised for the relevant SA objectives and no specific issues for people with protected characteristics have been identified.

Welsh Language Impact Assessment

5.4.5   The Welsh Government must seek opportunities to promote the Welsh language, facilitate its use to safeguard its future to enable the language to thrive. A Welsh Language Impact Assessment (WLIA) is the process undertaken to ensure these duties are fulfilled. The effects on Welsh language are predominately captured in the appraisal of NZW against SA Objective 8 which seeks to ensure resilient communities, culture and language.

5.4.6   Overall, NZW is considered to have largely positive effects for the use of Welsh. Seeking to enable greater working at or close to home could secure effects in promoting Welsh language use.

5.4.7   Efforts to support increased community ownership of energy infrastructure and embedding Local Area Energy Planning can help support community resilience, thereby supporting the Welsh language. Additionally, policies that will support the farming industry's transition towards net zero would be likely to support the culture and sense of place in rural areas, which generally have a higher proportion of Welsh speakers than urban areas. However, it is important that through the transition to net zero, the Welsh language is supported to ensure that it thrives.

Children's Rights Impact Assessment

5.4.8   Welsh Ministers must have due regard to the United Nations Convention on the Rights of the Child (UNCRC) when exercising any of their functions with impacts on children assessed through a Children's Rights Impact Assessment (CRIA). The effects on children are predominantly captured through SA Objectives 2, 4, 5, 7, 8 which cover employment, training, health, social inclusion and culture.

5.4.9   There are likely to be positive effects on children's health associated with improved air quality and support for active and public transport, which can support greater opportunities for children to access sporting, cultural and recreational activities, and travel to school. There can be expected to be a variety of training and education opportunities associated with new technologies as the transition progresses. It is important those of post school age are able to access these opportunities. However, it is important that the transition does not exacerbate fuel poverty, which can adversely affect children leading to greater risk of both physical and mental health problems.

5.4.10   Additionally, NZW recognises the need to engage with children as part of the cross-cutting approach to engagement which is likely to support positive outcomes for children's wellbeing, given that anxiety of climate change risks and challenges is increasing. Overall, the assessment has not found significant negative effects in relation the SA Objectives. NZW is not considered to impact on children's rights.

5.5   Mitigation and enhancements

5.5.1   A range of specific mitigation and enhancements are set out in the appraisal matrix in **Appendix B**.

5.5.2   As noted above, largely positive effects against the range of SA objectives have been assessed. However, three broad recommendations for developing the policies and proposals through CB2 and on the pathway to net zero in 2050 are set out below:

- **Resolving uncertainties:** The appraisal has highlighted a number of uncertainties with regards to the probability of effects occurring and their magnitude which in part reflects the unknown outcomes of implementation and often the need for further refinement through CB2. Uncertainty often reflects the untested character of some policy areas and the need to monitor and adjust implementation accordingly. The development of the third carbon budget (CB3) plan will present an opportunity to resolve some of these uncertainties on the pathway to net zero in 2050.

- **Reviewing policy effectiveness on the pathway to net zero:** Judgment on the long-term effectiveness of policies and proposals to achieve net zero in 2050 will need to be underpinned by evidence development, research and monitoring through CB2. This will be critical in developing the plan to meet the requirements of the third carbon budget (CB3) and beyond.

- **Co-ordination and partnership working:** Without co-ordination and partnership working between Welsh Government, regulators, and UK Government, cost effective opportunities to secure a net zero transition across emissions sectors maybe missed. Further reflections on the interrelationship between all sectors will be required through CB2 and in developing the approach to the plan for CB3.

5.6   Monitoring

5.6.1   Part 4 of NZW sets out the approach to monitoring of the implementation of the plan. This involves the implementation of a Monitoring, Reporting and Verification (MRV) system consisting of a suite of quantitative performance indicators within a tiered structure, to track progress from the national level down to the policy level. The approach will measure the implementation and effectiveness of NZW. This is supported by the ongoing measuring of national progress against 46 national well-being indicators[89] as required under the WFG Act.

5.6.2   It is considered that the proposed specific monitoring of NZW, alongside ongoing monitoring against the national indicators, provides a robust basis to assess the effects of NZW. The SA has primarily identified cumulative positive effects across the range of SA Objectives. No significant negative effects were assessed in the SA and further, specific monitoring regarding the predicted effects is not required.

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[89] See: National indicators

6. Conclusion and next steps

6.1 Findings

6.1.1   Overall, the assessment found largely positive effects in relation to the ten SA objectives and therefore it is considered that NZW supports achievement of the seven well-being goals. Significant positive effects have been identified for economy and employment, for addressing climate change, improving the environment, improving social cohesion and health, and in delivering resilient infrastructure with positive effects for lifelong learning, Welsh language and culture, and in supporting Wales's global role in the world.

6.1.2   However, some possible minor negative effects were also found for employment, social cohesion and environment reflecting potential impacts on jobs, the potential impacts on the poorest in terms of housing, power and transportation costs, and the potential for rural areas to be left behind in the decarbonisation of transportation. Minor negative effects also relate to the impacts of new infrastructure on the natural and built environment.

6.1.3   Overall, NZW is expected to contribute to Wales's economic, social, environmental, and cultural well-being.

6.2 Next steps

6.2.1   This SA Report will be published alongside the NZW in October 2021.

6.2.2   The Welsh Government will continue to review the actions set out in NZW, update and refine the evidence, and investigate options for development of new policies and proposals to accompany the third carbon budget.

6.2.3   In so doing, the Welsh Government should consider the outcomes of this SA, specifically:

- The appraisal in **Section 5.2** and **Section 5.3**, including the detailed appraisal and mitigation/enhancements identified in **Appendix B**;

- The compatibility assessment (**Section 5.3)**; and

- The three broad recommendations in **Section 5.5**.

wood.

Appendix A: Review of plans and programmes

Document	Summary of content, objectives and targets	Implications for the SA of NZW
Agriculture (Wales) White Paper (2020)	This document outlines the importance of farming to the Welsh economy whilst also being a source of locally grown food. It highlights the difficulties of Brexit and trade barriers with the EU, whilst also establishing a need to de-carbonise the farming industry as much as possible but not in a way that compromises it.	The SA should have objectives relating to sustainable rural economic growth and diversification. NZW should seek to ensure the long-term sustainable management of the agricultural sector through the net zero transition.
An Active Travel Action Plan for Wales (2016)	This document seeks to encourage active travel within the population of Wales. The documents aims are encompassed by its vision: *"For people in Wales, we want walking and cycling to become the preferred ways of getting around over shorter distances."*	The SA should have objectives relating to health and encouraging active travel. NZW should ensure that it encourages active travel and supports provision of the required infrastructure, where possible.
Beyond Recycling (2021)	Beyond Recycling sets a target to achieve zero waste by 2050 "where all waste that is produced is re-used or recycled as a resource, without the need for any landfill or energy recovery". The document outlines the following eight headline actions for Welsh Government: • We will support businesses in Wales to reduce their carbon footprint by becoming more resource efficient. • We will provide the tools to enable community action. • We will phase out unnecessary single-use items, especially plastic. • We will eradicate avoidable food waste. • We will procure on a basis which prioritises goods and products which are	The SA should have objectives related to reducing waste and reducing the environmental impact of waste generated. NZW should be made with the eight actions this document creates in mind. It should support achievement of these actions.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	made from remanufactured, refurbished, and recycled materials or come from low carbon and sustainable materials like wood. • We will strive to achieve the highest rates of recycling in the world. • We will reduce the environmental impact of the waste collection from our homes and businesses. • We will take full responsibility for our waste.	
Child Poverty Strategy (2015)	This document establishes the Welsh Government's aim to ensure that no child is living in poverty by 2020. The document acknowledges the need to provide job opportunities and training opportunities to allow parents to find employment. A large barrier to tackling poverty is the "Poverty Premium" and the document seeks to put in place advisory services to help tackle this at it often locks people in poverty within an economic downward spiral.	The SA should have objectives relating to economic growth, improving health and providing community services. NZW should seek to maximise economic growth whilst ensuring the benefits of such economic growth are felt by those most in need.
Cymraeg 2050: A million Welsh speakers (2017)	This seeks to encourage and manage the continued growth in the number of people that can speak and understand the Welsh language. The document seeks to increase the number of Welsh speakers to one million by 2050, and the percentage of the population that speak Welsh daily, and can speak more than a few words, to 20% by 2050.	The SA should have objectives relating to the protection of cultural and historical heritage. NZW should place importance on ways it can contribute to the growth in the number of people speaking the Welsh language.
Digital Strategy for Wales (2021)	The Digital Strategy for Wales focuses on "*improving the lives of everyone through collaboration, innovation and better public services.*" It recognises the importance of modern digital services, inclusion, digital skills, the digital economy, connectivity, and data and collaboration.	The SA should have objectives relating to digital infrastructure improvements and development of skills. NZW should help to support improvements to digital skills, infrastructure and connectivity.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
Economic Strategy for Wales (2021 refresh) Economic Contract	The Economic Contract seeks to strengthen the relationship between Welsh Government and businesses to help drive inclusive growth and responsible behaviours, including increasing the availability of fair work, the promotion of health, skills and learning in the workplace, and decarbonisation of the economy.	The SA should include objectives relating to achieving sustainable economic growth, the development of skills, and decarbonisation.

NZW should contribute to the achievement of the aims by supporting sustainable economic development and partnership working across sectors. |
| **Energy Wales: A Low Carbon Transition (2012)** | This document seeks to create a stronger, more resilient Wales that has sustainability at its core. The document states that Wales has many opportunities to do this, including through delivering renewable energy. | The SA should have objectives relating to sustainable development, protecting the natural environment and economic growth.

NZW should seek ways to continue to grow the economy of Wales in a sustainable manner, taking ambitious steps to encourage a green revolution. |
| **Energy Wales: A Low Carbon Transition Delivery Plan (2014, updated 2019)** | This document provides the following three key priorities for the future of Wales:
• providing leadership to ensure that Wales has a clear and consistent framework for investors, regulators and decision makers, and the infrastructure, coordination and stability needed to ensure that Wales is a great place to do business;
• maximising benefit for Wales in terms of jobs and wider economic benefit at every stage of development and operation whilst also ensuring that our communities derive long term benefits; and
• acting now for Wales' long term energy future through support for innovation, research, development, and commercialisation in the areas that offer the greatest potential for long-term benefit for Wales. | The SA should have objectives related to transitioning to a low carbon future.

NZW should support economic growth in low carbon sectors and innovation and research. |

Document	Summary of content, objectives and targets	Implications for the SA of NZW
Energy Efficiency in Wales: A Strategy for the next 10 years 2016-2026 (2016)	This outlines the plan for energy efficiency. Green growth is predicted to be increasingly important to the Welsh economy and this document encourages growth. Energy efficiency also often has many economic benefits through reducing energy bills.	The SA should have objectives relating to energy efficient, sustainable development and high-quality design.

NZW should support energy efficiency. |
| **Education in Wales: Our national mission 2017-21 (2020 update)** | This outlines how the Welsh Government will continue to improve education by training new teachers, tackling examples of low expectations/tackle potential "coasting" schools, tackling the attainment and aspiration gap and expanding the curriculum to ensure more potential learners are captured. | The SA should have objectives relating to educational attainment/improving skills.

NZW should seek to support educational achievement and promote education within the low carbon sector. |
| **Electric Vehicle (EV) Charging Strategy for Wales (2021)** | This strategy seeks to ensure electric vehicles become a mainstay in the transportation sector. Ensuring there are adequate charging stations across Wales is paramount to ensuring the benefits of electric vehicles are properly utilised. | The SA should have an objective related to transport infrastructure, making specific reference to EV.

NZW should ensure it supports the provision of EV infrastructure. |
| **Future Landscapes: Delivering for Wales (2017)** | This report contains a review of all the Areas of Outstanding Natural Beauty and National Parks within Wales. The report highlights the importance of these landscapes to shaping identity. The report seeks to improve the governance of these important natural assets. The report highlights how much of Wales falls within either designation and how many of these designations are at risk. | The SA should have objectives relating to the protection of important natural assets.

NZW should seek to ensure that these important natural designations have their resilience improved. |
| **Future Wales: The National Plan 2040 (2021)** | This document outlines the future of development and change within Wales for the next two decades. Core to the plan are the ideas of delivering sustainable living, using resources efficiently and maximising mixed uses. The document contains development policies | The SA should have objectives relating to economic growth, rural economy, sustainable development, high quality design and protecting the historic and natural environment. |

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	that all new developments within Wales are required to adhere to. The emerging and ongoing climate emergency is also core to the plan, with a need to reduce carbon emissions recognised within the plan.	NZW should ensure it is in accordance with Future Wales and supports a strong, sustainable economy whilst ensuring that addressing the climate emergency is at its core.
Improving Public Transport (2019)	This document seeks to encourage the use of public transport, which is considerably more sustainable than private car use. It also makes reference to the need for active travel. Of crucial importance is for the continued decline in bus use to be stopped and reversed as quickly as possible.	The SA should have objectives related to sustainable travel and health. NZW should ensure that it finds ways to encourage the use of public transport and active travel.
Llwybr Newydd – the Wales Transport Strategy (2021)	This document sets out a need for transport to produce fewer greenhouse gas emissions and seeks to manage the evolving ways people travel around Wales, especially in light of the Covid-19 pandemic. Homeworking is highlighted as being a growing norm.	The SA should have objectives relating to transportation and the creation of new infrastructure, including infrastructure related to homeworking (such as fast broadband). NZW should seek to encourage the use of sustainable forms of transportation. The NZW could also consider the potential for growth in homeworking.
Light Springs through the Dark: A Vision for Culture in Wales (2016)	This seeks to ensure the important and distinctive Welsh culture continues to grow. The arts, music, literature and heritage are paramount to culture and to societal cohesion. It is also highlights the importance of ensuring people within Wales have a sense of place.	The SA should have objectives relating to protecting important cultural and historical assets, and promoting participation in cultural activities. The NZW should seek to encourage development that would support the culture of Wales and its growth, especially protecting historical assets and seeking the creation of new avenues to access the arts, music and literature.

wood.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
National Strategy for Flood and Coastal Erosion Risk Management in Wales (2020)	This reaffirms the Welsh Governments desire to mitigate and manage flood risk within Wales. Flood risk and coastal erosion are extremely important issues and sustainable developments by their nature are expected to ensure they address any flood risk issues.	The SA should have objectives associated with flooding, flood risk and coastal erosion. The NZW should consider the importance of flood risk, flood resilience and coastal erosion.
Natural Resources Policy (NRP) (2017)	This document seeks to quantify the important natural resources of Wales. The natural resources of Wales often provides the following benefits: • Provisioning services: such as crops, livestock, fish and timber; and natural fluxes of energy • Regulating services: such as water and air purification, noise regulation, carbon sequestration, flood risk management, waste assimilation and pollination • Cultural services: such as recreation and associated health and wellbeing benefits; our historic environment and appreciation of our beautiful places, landscapes and nature, and • Supporting systems and services: such as soil formation and nutrient cycling necessary for the production of all other ecosystem services. These systems and services are underpinned by biodiversity.	The SA should have objectives relating to the protection and enhancement of natural resources through sustainable management. The NZW should seek ways to continue to utilise the natural resources of Wales in a sustainable manner for the benefit of its population.
The Nature Recovery Action Plan for Wales 2020 – 21 (2020) (NRAP)	This refreshes the original plan published in 2015. The Plan sets out five themes for action: Spatial action: • Maintaining and enhancing resilient ecological networks Transformative: • Increasing Knowledge and Knowledge Transfer; • Realising new Investment and funding; • Upskilling and capacity for delivery;	The SA should have objectives relating to maintaining and enhancing resilient ecological networks and protecting sites designated for their biodiversity value. The NZW should support the aims of NRAP and ensure that its policies help towards maintaining and enhancing resilient ecological networks.

wood.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	• Mainstreaming, Governance and Reporting our Progress Five immediate priorities are identified for further action: • Aligning the responses to the climate emergency with the biodiversity crisis • Addressing the post EU exit funding gap for agri-environment measures • Providing spatial direction for targeting action for biodiversity • Improving the condition of the Protected Sites Network • Exploring new and sustainable funding mechanisms for biodiversity action	
Our Economic Resilience & Reconstruction Mission (2021)	Sets out a visions of a 'well-being economy which drives prosperity, is environmentally sound, and helps everyone realise their potential." The document sets out three outcomes that underpin the vision: A prosperous economy; A greener economy; A more equal economy. The plan sets out activity around five beacons for overcoming COVID-19, and delivering medium and longer term recovery: • Strengthening the Foundational Economy • COVID Commitment to protecting and enabling skills and employment • Accelerating adaptation for recovery and future prosperity • Magnetising investment in a green recovery • Fortifying the pursuit of social value	The SA should have objectives related to achieving a well-being economy. The NZW should support achievement of the three outcomes.
Planning Policy Wales Edition 11 (2021)	This places sustainable development at the heart of planning policy in Wales. Key to this are the following Key Planning Principles: • Growing our economy in a sustainable manner; • Making best use of resources;	The SA should have objectives relating to sustainable development, economic growth, accessibility, health and environmental protection.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	• Facilitating accessible and healthy environments; • Creating & sustaining communities; and • Maximising environmental protection and limiting environmental impact.	The NZW is required to ensure that sustainable development is at its core. The NZW should ensure that includes policies that benefit current and future generations.
Programme for Government 2021-2025	Sets the agenda for the Welsh Government's 2021-206 Senedd term to: • Provide effective, high quality and sustainable healthcare • Protect, re-build and develop our services for vulnerable people • Build an economy based on the principles of fair work, sustainability and the industries and services of the future • Build a stronger, greener economy as we make maximum progress towards decarbonisation • Embed our response to the climate and nature emergency in everything we do • Continue our long-term programme of education reform, and ensure educational inequalities narrow and standards rise • Celebrate diversity and move to eliminate inequality in all of its forms • Push forward towards a million Welsh speakers, and enable our tourism, sports and arts industries to thrive • Make our cities, towns and villages even better places in which to live and work • Lead Wales in a national civic conversation about our constitutional future, and give our country the strongest possible presence on the world stage This is supported by 10 wellbeing objectives.	The SA should ensure that the 10 commitments and wellbeing objectives are embedded within the SA objectives. The NZW should ensure it is aligned to, and helps deliver against, the priorities grouped under the key themes.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
Prosperity for All: Economic Action Plan (2017)	As part of Prosperity for All, this document is focused upon achieving economic growth whilst ensuring this growth delivers benefits for all. The document provides detail on how the Welsh government will achieve this through reducing economic inactivity, new technologies, decarbonising the employment sector, efficiencies and financing to name a few.	The SA should have objectives relating to economic growth and sustainable development. The NZW should look to achieve ambitious economic growth that is managed in a way that ensures the benefits of economic growth are experienced by the population of Wales.
Policy Statement: Local Ownership of Energy Generation in Wales – Benefitting Wales Today and for Future Generations (2020)	This places considerable importance on moving from polluting energy generating technologies to cleaner renewables. It also identifies that Wales has made considerable and impressive gains in ensuring energy generating facilities have some form of public ownership, contributing to local economies considerably more than traditional ownership methods.	The SA should have objectives relating to renewable energy, energy efficiency and local ownership. NZW should support more renewable energy generating developments. It should also try to ensure partial public ownership if such schemes continue.
Strategic Equality Plan 2020-2024 (2020)	This seeks to tackle inequality within Wales through improving the accessibility of services, seeking fairer outcomes for citizens and being pro-active in tackling all kinds of inequality.	The SA should have objectives relating to cohesion, accessibility, and high-quality design. NZW should encourage economic growth that would benefit the population of Wales at all levels. It should also seek to create a range of accessible jobs.
Tackling Fuel Poverty 2021-2035 (2021)	This sets out the actions that Welsh Government have taken to date to tackle fuel poverty and sets an objective for the people of Wales, as far as practicable, to be not be living in fuel poverty by 2035. It sets out four policy goals to achieve further a reduction in fuel poverty: 1. Identify 2. Prioritise and protect 3. Decarbonise 4. Influence	The SA should include objectives that support a reduction in fuel poverty and supports actions that can reduce fuel poverty. NZW should support actions to reduce fuel poverty.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	The four goals are supported by a draft action plan for short term delivery between 2021 and 2023.	
Welsh language strategy: annual report 2019 to 2020 (2020)	This is a monitoring report of the Cymraeg 2050: A million Welsh speakers (2017) document. It states that more people are speaking Welsh than were in 2017, showing the strategies employed are working.	The SA should have objectives relating to the protection and enhancement of the Welsh language, culture and heritage. NZW should place importance on ways it can continue to encourage the growth in the number of people speaking Welsh.
Welsh National Marine Plan (2019)	This plan outlines the next 20 years of marine management in Wales. It seeks to protect Wales's important marine resources, which are crucial to the landscapes of Wales and have many jobs associated with them.	The SA should have objectives relating to the protection of the marine environment. The NZW should ensure it protects the marine environment and the industries that rely upon it.
Woodlands for Wales: The Welsh Government's Strategy for Woodlands and Trees (2018)	This affords protection to the woodlands and trees of Wales, which are identified as being important natural resources. The document stresses the importance that such resources play in maintaining and enhancing the natural environment of Wales.	The SA should have an objective related to protecting the natural environment and make mention to the protection of trees. NZW should manage its economic ambitions to ensure Wales's important tree resources are protected.
Arts Council Wales - For the benefit of all. Arts Council of Wales Corporate Plan 2018–2023 (2018)	This seeks to encourage the arts within Wales through encouraging people to take up careers within this field and for new public art projects to be undertaken.	The SA should have objectives relating to high quality design.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
		NZW should give consideration to how it can encourage the arts and culture.
Cardiff Airport – Cardiff Airport 2040 Masterplan (2019)	This outlines the masterplan for Cardiff Airport. It seeks to continue to keep Cardiff Airport as a functioning airport that meets the needs of Wales.	The SA objectives should include the importance of a connected and integrated Wales with the rest of the world. NZW should ensure that it utilises the benefits Cardiff Airport brings to Wales and ensure this important employment and economic facility.
Children's Commissioner for Wales - A Plan for all Children and Young People 2016-2019 (2016)	This seeks to protect children and young adults in Wales. It recognises that young people can face many difficulties such as bullying, social inequality, poor access to safe play areas and more general safe places. The document also seeks to raise awareness of the importance of adoption.	The SA should have objectives relating to access and creating well designed places that are safe, such as play areas. NZW should consider ways it could contribute to ensuring that more young people are protected and cared for.
Climate Change Committee - The path to Net Zero and progress on reducing emissions in Wales (2020)	These documents are a series of reports on Wales's net zero GHG target and ways in which Wales will achieve these targets. The December 2020 *Advice Report: The path to a net zero Wales* recommends that the Welsh Government revise targets and seek to reduce all greenhouse gas emissions to net zero by 2050. One of the reports looks at Wales' progress against previous requirements to reduce its carbon footprint. Key to achieving these targets is: • Adopting low-carbon solutions; • Expanding low-carbon energy supplies;	The SA should have an objective relating to sustainable development that references the need to reduce greenhouse gas emissions. NZW should ensure Wales develops in a manner consistent with its net zero target.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	• Reduce demand for high-carbon activities; and • Transforming land away from agriculture.	
Future Generations Commissioner for Wales – The Future Generations Report 2020	This sets out the progress made by public bodies towards meeting their duties and the Commissioner's expectations under the Well-being of Future Generations Act. The Report details the vision set out in the seven well-being goals and sets out seven areas of focus: Land use planning and placemaking, transport, housing, decarbonisation, skills, adverse childhood experiences, and the health and wellness system. With regards to decarbonisation chapter the Report states that the "Welsh Government should set out a long-term investment plan of how they will fund the climate emergency and support more ambitious commitments and targets for sectors within their control." In addition, the Report sets out five recommendations for all public bodies to focus on: • Understanding our emissions and where to prioritise action; • Tackle the climate and nature crises through a holistic approach, capitalising on the role of young people; • Deliver a just transition; • Implement solutions at scale to achieve multiple benefits; • Invest more in tackling the Climate Emergency.	The SA should include objectives that support achievement of the seven well-being goals. With regards to decarbonisation, the SA should reflect the five recommendations set out in the Report. NZW should reflect the five recommendations related to decarbonisation set out in the Report.
HM Government - UK Clean Growth Strategy: Leading the way to a low carbon future (2017, updated 2019)	This affirms the UK's need to pursue de-carbonisation and provides information on how the UK is performing against its targets to become carbon neutral. The document highlights that continued emission reduction needs to continue in the fields of: • Power Sector;	The SA should have an objective that references the need to reduce carbon emissions across all sectors. NZW should ensure any growth created is low-carbon in nature and that developments are designed and

Document	Summary of content, objectives and targets	Implications for the SA of NZW
	• Buildings; • Industry; • Natural Resources; • Transport; and • Devolved Administrations.	carried out in a manner that reduces the amount of carbon produced.
HM Government – Industrial Decarbonisation and Energy Efficiency Action Plans (2017)	These documents provide action plans for the following industries on their need to reduce their carbon emissions, increase their energy efficiency and to be more sustainable: • Industry; • Cement; • Ceramics; • Chemicals; • Food and Drink; • Glass; • Oil and Refining; and • Pulp and Paper.	The SA should have objectives relating to sustainable development, energy efficiency and reducing emissions. NZW should seek ways to incorporate these actions into the plan. It is crucial for the continued economy of Wales that these industries are cultivated but also managed in a sustainable manner.
HM Government – Energy White Paper: Powering our Net Zero Future (2020)	This seeks to ensure the UK progresses towards a net zero economy. It places considerable importance on renewable energy technology such as on-shore and off-shore wind. The document is also clear that the reduction in UK emissions needs to be continued.	The SA should have objectives relating to renewable energy, energy efficiency and sustainable development. NZW should encourage new renewable energy generating developments and ensure it encourages sustainable development.
Natural Resources Wales - Western Wales and Dee River Basin Management Plans (RBMPs) 2015-2021	These management plans seek to conserve and enhance water assets. The plans include a summary of the Programme of Measures needed to achieve the objectives of the Water Framework Directive together with the predicted environmental outcomes to 2021.	The SA should have objectives relating to the protection of the water environment that also affords protection to important water designations.

wood.

Document	Summary of content, objectives and targets	Implications for the SA of NZW
		NZW should ensure it protects important water resources within Wales.
Public Health Wales - Creating a Healthier, Happier and Fairer Wales (2017)	This document creates the following commitments: • Improve health and wellbeing and reduce health inequalities; • Improve the quality, equity and effectiveness of healthcare services; and • Protect people from infectious and environmental hazards.	The SA should have objectives relating to improving health. NZW should seek ways to improve health and encourage more active lifestyles.

Appendix B: Appraisal of Net Zero Wales: Carbon Budget 2 (2021–2025)

Table 0.1   Scoring

Score	Description	Symbol
Significant Positive Effect	The proposed option/policy contributes significantly to the achievement of the objective and/or enables resolution of existing issues.	++
Minor Positive Effect	The proposed option/policy contributes to the achievement of the objective but not significantly.	+
Neutral	The proposed option/policy does not have any effect on the achievement of the objective	0
Minor Negative Effect	The proposed option/policy detracts from the achievement of the objective but not significantly.	-
Significant Negative Effect	The proposed option/policy detracts significantly from the achievement of the objective.	--
No Relationship	There is no clear relationship between the proposed option/policy and the achievement of the objective or the relationship is negligible.	~
Uncertain	The proposed option/policy has an uncertain relationship to the objective or the relationship is dependent on the way in which the aspect is managed. In addition, insufficient information may be available to enable an appraisal to be made.	?

Setting the conditions

Key to numbering:

Policy 1 – Just transition

Policy 2 - Nature Emergency

Policy 3 -The Clean Air Plan

Policy 4 - Building climate resilience

Policy 5 - A Circular Economy

Policy 6 - A place based approach – Planning Policy Wales

Policy 7 - Regional Economic Frameworks

Policy 8 - Budget improvement plan

Policy 9 - Infrastructure Investment Strategy

Policy 10 - Carbon Pricing

Policy 11 - Development of a Net Zero Wales Skills Action Plan, which we intend to publish in Spring 2022.

Policy 12 - Innovation

Policy 13 - Digital

Policy 14 - International action

Policy 15 - Public Engagement on Societal Change

Policy 16 - Consult on Public Engagement Strategy – Summer 2022

Proposal 1 - Develop a long-term strategy to promote a dietary shift to a healthier and suitable diet

SA Objective 1: To achieve a strong and sustainable net zero economy

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	+	+/-	+/-	+/-	+	+	++	+	++/?
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	-	+	++/?	++	+	0	0	+	++/-

Likely significant effects

The promotion of Regional Economic Frameworks and growth deals (7) and supporting investment in infrastructure delivery (9) is considered to significantly support a strong and sustainable economy on the transition to net zero. Supporting development of innovation strategy (12) could also be significant dependent on the outcomes of the process.

Supporting a low resource economy (2) to address the nature emergency and addressing air quality (3) and building climate resilience (4) could support the transition to net zero in the long term. However, there is potential for negative effects if such policies limit economic growth in the short term. In the long term, on the transition to net zero, there are considered to be positive effects. The UK Emissions Trading Scheme (10) could affect the economy negatively in the short term and drive further costs onto the supply chain. Minor negative effects are assessed in the short term. However, through the transition it is expected that such effects will be minimised and may not be apparent beyond CB2.

Cumulative effects
Overall, mixed significant positive and minor negative effects are assessed.

Mitigation/enhancements
Mitigation is expected through the implementation of other sections of NZW (such as financial and other support in Proposals 10, 22 and Policies 52, 60). However, there may be some residual negative economic effects in the short term that may not be able to be fully mitigated.

Assumptions and uncertainties
The outcomes associated with the Innovation and infrastructure strategies (9, 12) are uncertain to some extent.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	++	+/-	+/-	+/-	+	+	++	+	++
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	-	++/?	++/?	++/-	0	0	0	0	++/-

Likely significant effects

Similar effects are assessed for this objective as SA Objective 1. City and Growth Deals (7) offer Wales and the regions can create opportunities for a more strategic approach to progressing the low carbon economy with likely positive effects for reducing inequalities in work.

The development of a net zero skills action plan (11) will support new training opportunities in the transition to net zero. Investment in digital infrastructure and practices (13) will likely support investment in skills which will likely support new employment and training opportunities. An innovation strategy (12) will also explicitly support skills development. Ensuring a just transition by addressing inequalities (1) will also support achievement of the objective. However, it is recognised that all people will be able to engage with digital work (13) in particular and so some minor negative effects are also assessed for this policy.

Carbon pricing (10) may adversely affect supply chain and job opportunities in the short term, with Welsh participants experiencing a greater per capita proportion of its costs. Minor negative effects are assessed for this policy.

Cumulative effects
Overall, mixed significant positive and minor negative effects are assessed.

Mitigation/enhancements
Prioritising financial and other support (Proposal 10, 22, Policy 52, 60) will provide important mitigation for businesses in the transition.

Assumptions and uncertainties
The extent of positive outcomes associated with the skills development (11) and Innovation Strategy (12) are uncertain to some extent.

SA Objective 3. To address climate change

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	++	++	+	++	++	+	++	++	++/?
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative

Score	++	++/?	++/?	+/?	++	+	+	+	++

Likely significant effects

The policies will support the Welsh Government's efforts to achieve the required reduction in GHG emissions in CB2 and set Wales on the pathway to net zero in 2050. A range of policies in this section are considered to have significant positive effects, through for example supporting a just transition (1), addressing the climate and nature emergencies as central to the Welsh Government Programme for Government (3), supporting the emissions associated with waste through the 'circular economy' (5) and enabling investment to achieve net zero in 2050 through regional frameworks (7). Policies on increasing education and awareness of the need for action (15, 16) are considered to support achievement of the objective.

Cumulative effects
Significant positive effects are assessed for this objective.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
There are some uncertainties associated with strategy development (9, 11, 12) and the outcomes for carbon reductions.
The Digital strategy (13) may support improvements to enable home or remote working but there may be an uncertain relationship between carbon emissions lost from transport versus potential increases experienced in residential or other properties.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	+	++	++	++	+	0	0	0	0
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative

Score	0	0	0	0	0	+	+	++/?	++

Likely significant effects

The policies in this section will contribute to achievement of health and wellbeing. Addressing air quality issues (3) will particularly help to support the health of those with pre-existing conditions, whilst addressing climate and nature emergencies and addressing health inequalities (2) will provide improvements to the natural environment that can also support health and wellbeing.

Ensuring engagement with the public on the transition to net zero (15, 16) is also considered to support the mental wellbeing of the people of Wales as the effects and likely changes required can be shared and explained through effective communication, which may address issues of anxiety and public concerns about climate change and how this is being addressed. Additionally, supporting more sustainable and less carbon intensive diets (Proposal 1) is likely to help support healthier lifestyles.

Cumulative effects
Overall, significant positive effects are assessed for these policies.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
The impact of more sustainable diets could be significant in the long term although there is some uncertainty at this stage.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	++	++	++	++	0	+	++	0	0

Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	0	++	0	0	0	++	++	+	++

Likely significant effects

Ensuring a just transition to net zero will ensure that as far as possible inequalities will be addressed. Policies that seek to address the climate and nature emergencies and address health inequalities (2, 3), help to address fuel poverty and promote access to employment and training (11) will help to support community cohesion. The promotion of City and Regional growth deals (7) presents an opportunity to address inequality and support access for all to jobs and training and to address fuel poverty at the regional scale (as evidenced in the Cardiff Capital Region City Deal (CCR) Energy Vision and Strategy). Fulfilment of these goals will support cohesion and contribute to community wellbeing across Wales.

Policies (15, 16) recognise the need to engage with children as part of the cross-cutting approach to engagement which is likely to support positive outcomes for children's wellbeing, given that anxiety of climate change risks and challenges is increasing.

Cumulative effects
Overall significant positive effects are assessed.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
None identified.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9

wood.

Score	0	++	++	++	+	+	+/-	+	++/?
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	+	0	0	0	0	0	0	++/?	++

Likely significant effects

Wales has a varied natural and built environment including a range of internationally and locally designated conservation assets, three national parks, five AONBs and a variety of designated and non-designated heritage assets including three World Heritage Sites. These environments are susceptible to the effects of emissions to air and the effects of climate change. Additionally, SoNaRR also identifies a decline in biodiversity in Wales in recent years. Overarching policies to address the nature emergency and tackle biodiversity loss (2) and improve air quality (3) are therefore particularly important in supporting this objective. In the long-term securing a dietary shift to more sustainable and less carbon intensive food (Proposal 1) could also be expected to support environmental improvements although there is some uncertainty.

The infrastructure strategy (9) has been designed specifically to support the delivery of a net zero carbon economy and is expected to link tackling the climate emergency with tackling biodiversity decline and promoting resilience. There is some uncertainty with regards to the exact effects subject to the preparation of the strategy in 2022, although at this stage they could be significant. City and Growth Deals (7) offer opportunities to instil biodiversity net gain but may lead to delivery of infrastructure which may have localised effects on natural and build environments. These will need to be considered and mitigated through land use planning.

Cumulative effects
Overall, significant positive effects are assessed.

Mitigation/enhancements
The need to mitigate and where possible offset any impacts from infrastructure delivery (primarily through the existing consenting regime and land use planning). Consideration should be given to requiring biodiversity net gain in new development (in England the Environment Bill is due to bring this into law).

Assumptions and uncertainties
There is some uncertainty related to the infrastructure strategy (9) although there are commitments to tackle the decline in biodiversity.
The impact of more sustainable diets (Proposal 1) on the environment could be significant in the long term although there is some uncertainty at this stage.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	+	0	0	0	+	0	+	0	+
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	0	++/?	++/?	+	0	+	0	0	++/?

Likely significant effects

Developing the skills to help everyone in the transition to net zero is vital to wellbeing. The development of a net zero skills action plan (11) will support new training opportunities in the transition to net zero. Investment in digital infrastructure and practices (13) will likely support investment in skills which will likely support new employment and training opportunities. An innovation strategy (12) will also explicitly support skills development. Embedding a circular economy approach (5) is likely to generate skills in the long-term whilst supporting City and Regional growth (deals 7) is considered to support the objective as the focus will partly fall on skills development.

Cumulative effects
Overall, significant positive effects with some uncertainties are assessed.

Mitigation/enhancements
None.

Assumptions and uncertainties
The extent of positive outcomes associated with the skills development (11) and Innovation Strategy (12) are uncertain to some extent.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	+	+	0	+	+	+	+	0	0
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	0	0	0	0	0	+	+	+	+

Likely significant effects

By supporting a just transition, embedding the circular economy (5) this section will support the wellbeing of communities of Wales in the long term, by supporting environmental improvement and improving resilience to the effects of climate change. By ensuring a place based approach through the planning system (6) and regional funding (7) this will also support specifically focused action in local communities.

Cumulative effects
Overall, positive effects have been assessed.

Mitigation/enhancements
None.

Assumptions and uncertainties
None.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	0	0	0	+	+	+	+	0	+ +

wood.

Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative
Score	0	0	0	++	0	0	0	0	++

Likely significant effects

By delivering modern infrastructure that takes into account the climate and nature emergencies and by supporting EV infrastructure and railway electrification (9) and enhancing Wales's digital capabilities (13) there is potential for significant positive effects on this objective through improvements to the connectivity and resilience of Wales. Effective delivery will be supported by a place-based approach in the planning system and city and regional growth deals (6, 7) enhanced climate resilience (4) and circular economy investment (5).

Cumulative effects
Overall, significant positive effects are assessed.

Mitigation/enhancements
Policy 13 could be enhanced by including reference to explicitly supporting the roll out of super and ultrafast broadband in Wales, which is currently behind roll out across the UK as a whole.

Assumptions and uncertainties
None.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Policy 1	Policy 2	Policy 3	Policy 4	Policy 5	Policy 6	Policy 7	Policy 8	Policy 9
Score	+	++	+	++	++	0	0	0	?
Policy / Proposal	Policy 10	Policy 11	Policy 12	Policy 13	Policy 14	Policy 15	Policy 16	Proposal 1	Cumulative

Score		+	?	?	+	+ +	+	+	+	+ +

Likely significant effects

NZW recognises that Wales's businesses operate in UK and international markets. Policy support for action on decarbonisation (14) through international networks, seeking to promote the well-being of future generations approach, seeking to pursue trade agreements that take the lead in tackling climate change (at UK government level), and withdrawing support for fossil fuel sectors overseas is considered to have significant positive effects on promoting Wales's place in the world and role in supporting the global decarbonisation process. This is supported by enhanced efforts to promote exports into the clean energy/renewables sector.

Further significant positive effects on demonstrating Wales's approach to global responsibility are likely in relation to addressing climate and nature emergencies (2), building climate resilience (4) and reducing waste as part of a circular economy approach (5).

Cumulative effects
Overall, significant positive effects are assessed.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
It is uncertain whether new strategies for skills, infrastructure, and innovation (9, 11, 12) will support aims to support enhanced efforts to promote decarbonisation internationally.

Electricity and Heat Generation

Key to numbering:

Policy 17 – Reducing Emissions from the Combustion of Fuels for Electricity Generation
Policy 18 - Planning frameworks to restrict fossil fuel extraction
Proposal 2 – Making New Thermal Power Generation Ready for Net Zero
Policy 19 – Reducing emission growth from new Energy from Waste plants in Wales
Policy 20 - De-risking and Integrating Investment in Wales through Energy Planning
Policy 21 – Planning the delivery of the electricity and gas grid we need for Wales
Policy 22 – Increasing renewable energy developments on land through our planning regime
Policy 23 - Consenting storage projects to support a flexible and responsive energy system
Policy 24 - Marine evidence, planning and licencing: supporting offshore and marine renewable energy deployment
Policy 25 - Innovation in new renewable energy technology to drive faster and deeper decarbonisation and support the green economy
Proposal 3 – Updated targets For Renewable Energy Developments to Support our Net Zero Pathway
Policy 26 – Locally Owned Energy Developments to Secure an Economic Return for Wales
Policy 27 - Maximising Welsh benefit from Commercially Operated infrastructure projects in Wales
Policy 28 - Scope out the challenges and opportunities around low-carbon heat
Policy 29 - Increase the use of Waste Heat and low carbon heat sources

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+/-	+/-	?	+	++	+	++	++	+	++	++/?	++	++	+	+	++

Likely significant effects

Decarbonisation of the power sector is increasingly linked to meeting heat and transport needs and for securing future energy security to support a net zero economy. This reflects a shift in electrification of heating, allied with the phasing out of internal combustion engine vehicles in favour of electric vehicle (EV) alternatives. A continued drive towards the Welsh Government targets for renewable energy generation will mean increasing opportunity for community-led systems that integrate with larger generation to deliver efficient spatial energy systems (meeting power, heat and transport requirements). Wider gas transmission network changes implementing a blended or full hydrogen supply network may see some power plant upgrading supporting the transition of the economy to net

zero. Progress towards hydrogen power (25) is considered to potentially have a significant positive effect in the long-term enabling industry and transport to perform economically.

Maximising benefit to Welsh communities from infrastructure projects and increasing local ownership of renewables (26, 27), supporting changes to the planning system to deliver renewables and de-risk consenting (21 - 23) are assessed as having significant positive effects.

Reducing combustion of fuels (17) and seeking to prevent further extraction of fossil fuels (18) may have impacts on the economy and jobs in the long term (beyond CB2). However, the implementation of new decarbonised source infrastructure and the implementation of funding to support potential decarbonisation will help to mitigate these effects.

Cumulative effects
Overall, significant positive effects on the economy have been assessed.

Mitigation/enhancements
Proposals 16 and 17 could help to support technological advances in carbon capture to mitigate any job losses. Additionally the net zero skills plan (11) may support skills development.

Assumptions and uncertainties
Biomethane generated via anaerobic digestion is not available in sufficient quantity to offer a viable feedstock for large-scale power generation.

There is uncertainty about the impacts of thermal generation (Proposal 2) on the economy and it requires further development.

2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+/-	+/-	0	-	++	+	++	++	+	+	+	+	++	+	+	++/-

Likely significant effects

Continuing development of renewable energy generation provides employment opportunities in the associated green jobs market with construction/fabrication and potentially research and design. This aligns with opportunities that will arise in the evolving management of electricity and gas grids in Wales, increasing

localisation of energy systems and the emerging role for hydrogen. The de-risking of the planning and consenting regimes (20, 22, 23) is likely to secure jobs and growth in the sector.

An effective use of regional development strategies and Local Area Energy Planning (LEAP) (20), community ownership (26) and supporting the Welsh supply chain (27) can deliver an increase in community-led energy systems that can support a just transition. This is particularly important in the case of smart network management for optimising use of renewable generation so as to avoid unnecessary infrastructure reinforcement costs and associated impacts on end user energy pricing.

However, reducing combustion of fuels (17) and seeking to prevent further extraction of fossil fuels (18) may have impacts on the economy and jobs. The moratorium on large scale energy from waste plants (19) may have minor negative impact on future employment opportunities but this is considered to be very minor.

Cumulative effects
Overall, a significant positive and minor negative has been assessed against this objective.

Mitigation/enhancements
Policy 11 (net zero skills plan) will help support transition from jobs within fossil fuel extraction and electricity generation to a decarbonised economy.

Assumptions and uncertainties
Sufficient local generation can be developed to bring local benefit to Welsh end users rather than the majority of power being exported to the national grid.

3. To address climate change

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	++	++	+	+	++	+	++	++	+	++	++/?	+	+	+	++	++

Likely significant effects

The most recent data for 2019, shows Wales has a total of 3.37GW of renewable energy installed capacity. The continued ambition to deliver more renewable energy and reduced fossil fuel use (17, 18) will enable further cuts in GHG emissions and therefore reduce energy-related impacts on climate change. Decarbonisation of industrial heat requirements, and alternative operating modes for natural gas fed power stations will be more challenging. The need to deploy carbon capture storage as a retrofit to existing power assets, as well as enabling CCS on any new build plant, will be critical.

Hydrogen may have a significant role, primarily in large vehicle transport (HGV/bus) and multi-modal (bus, rail, ferry, light aircraft) and in heating (reducing scale of electrification) but also as a storage medium to enable (relatively small scale) dispatchable power.

Increasing renewable energy and consenting regimes for supporting infrastructure (22, 23), energy planning (20) and providing a pathway for hydrogen development (25) are considered to have significant positive effects. Additionally, revising renewable energy targets (currently to achieve 70% of consumption by 2030) on a pathway to net zero (Proposal 3) would support achievement of the objective although there is some uncertainty dependent on the ongoing re-evaluation.

Cumulative effects
Overall, this section has been assessed as having significant positive effects on achievement of this objective.

Mitigation/enhancements
Deep decarbonisation efforts need a whole system approach to energy needs looking at the tri-vectors of power, heat, and transport. NZW could reflect further on this interrelationship within this section by providing enhanced cross references to transport and industry & business sections.
Exploration of opportunities to develop bioenergy with carbon capture (BECCS) using existing (or planned) biomass-fuelled plant offers potential for GHG sinks (negative emissions technology).

Assumptions and uncertainties
There is some uncertainty related to the renewable energy targets as they are to be reviewed in 2022.
There is uncertainty about the positive effects of thermal generation (Proposal 2) as it requires further development.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+/-	+/-	0	+	0	0	0	0	0	+	+	+	+	0	+	+

Likely significant effects

A move away from fossil fuels will enhance local air quality (reduced particulate emissions) and the changing mix of generation sources for power can reinforce wider decarbonisation efforts in transport. This would be expected to support improvements to health. Support for locally owned energy infrastructure and supply chain benefits (26, 27) could also support mental wellbeing and 'buy-in' to the transition.

Additionally, the moratorium on large scale energy from waste plants (19) may support positive mental health and ensure perceived physical health impacts are not apparent in communities where these developments may have taken place. The phasing out of fossil fuels (17, 18) may also lead to some employment loss, which may have a limited impact on mental health of those affected, but in the long term positive physical health impacts may be experienced.

Cumulative effects

Overall, minor positive effects have been identified for this section.

Mitigation/enhancements

Policy 11 (net zero skills plan) will help support transition from jobs within fossil fuel extraction and electricity generation to decarbonised economy.

Assumptions and uncertainties

Further work on the indirect impacts of changes in the power sector, particularly the projected price of energy and link with fuel poverty impacts on physical and mental health could provide more evidence to enhance the appraisal.

5. To improve social cohesion and equality

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+/-	+/-	0	+	+	+	0	0	0	0	0	+	+	0	0	+/-

Likely significant effects

Extending renewable energy generation, with associated reduction in fossil fuel dependence, can offer long term energy price stability at a level that ensures equity of access. However, as part of the transition, it is important that any increased costs of energy supply do not disproportionately fall on the poorest in society.

It is estimated that 825 MW of installed renewable energy capacity is locally owned in Wales. Promotion of local ownership of energy generation to 1 GW in 2030 (26) and ensuring the economic and other benefits to Wales's communities are maximised (27), LEAP (20) can support thriving local communities with associated benefits for social cohesion.

However, reducing the use of the combustion of fuels for electricity generation (17) and seeking to prevent further extraction of fossil fuels (18) may have some limited impacts on the economy and jobs in some communities, which may impact on social cohesion in these localities.

Cumulative effects
Overall, minor positive and negative effects have been assessed.

Mitigation/enhancements
Policy 11 (net zero skills plan) will help support transition from jobs within fossil fuel extraction and electricity generation to a decarbonised economy.

Assumptions and uncertainties
Regulatory and fiscal efforts at UK level can put upward pressure on fossil fuel costs to consumers.

6. To improve natural and built environments

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+	+	+	+	+	+/-	+/-	+/-	+	+/-	0	0	0	0	+/-	+/-

Likely significant effects
The inter-connected nature of policies relating to energy consent and planning mean that many of the policies will support a positive impact on the natural and built environment, especially in the long term. This is predominantly seen in reducing use and associated impacts of fossil fuels (17, 18); promotion and development of carbon capture (Proposal 2) and support for renewables (20, 21, 22); and reducing emissions from energy from waste (19). A move away from fossil fuels will enhance local air quality (reduced particulate emissions) and the changing mix of generation sources for power can reinforce wider decarbonisation efforts in transport. Within the marine environment (24), further consideration of effects on marine ecosystems would also support achievement of this objective.

However, new renewable energy installations and grid infrastructure (21 – 23, 25, 29) may have impacts on landscape/townscape and negative effects are also assessed for these policies. However, it is expected that mitigation would be captured through the land use planning system to some extent.

Cumulative effects
Overall, mixed minor positive and minor negative effects have been assessed for this section.

Mitigation/enhancements
New renewable energy installations and grid infrastructure (21 – 23, 25, 29) may have impacts on landscape/townscape and negative effects are also assessed. However, it is expected that mitigation would be captured through the land use planning system.

Assumptions and uncertainties
There is some uncertainty about the presence and extent of negative effects on landscape.

7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+/-	+/-	0	0	0	+	0	0	0	+	0	+	+	0	+	+

Likely significant effects
The direct impacts on learning for life and skills development are difficult to assess for broad policies on electricity and heat generation.

Policies promoting local energy generation ownership and new approaches to energy investment (26, 27), as well as the development of hydrogen related infrastructure (25), and grid development (21) are likely to offer opportunities for skills development and learning although this is likely to be minor. Supporting programmes for technological innovation, such as the FLEXIS consortium, (25) are also likely to support the development of new skills.

Regarding phasing out of combustion and fossil fuel extraction (17, 18), those employed in these sectors will require some re-training and skill development to ensure that they are able to fully participate in the transition to net zero in the long term.

Cumulative effects
Overall, neutral effects for this section have been identified.

Mitigation/enhancements
Policy 11 (net zero skills plan) will help support transition from jobs within fossil fuel extraction and electricity generation to a decarbonised economy.

Assumptions and uncertainties
None identified.

8. To help build resilient communities, culture and language

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+/-	+/-	0	0	+	0	+	+	+	+	0	+	+	0	+	+

Likely significant effects

There is limited evidence to enable a full evaluation of the impact of policies in terms of community resilience, culture and language. However, local ownership of energy generation (26) and maximising benefits from infrastructure projects, such as supply chain benefits (27), are likely to offer positive benefits which can support community resilience. These can be enhanced through LEAP (20) and development of the hydrogen economy in Wales (25).

However, reducing fossil fuels and combustion of electricity (17, 18) may have some negative impacts on the economy and jobs in some communities, which may impact on their resilience.

Cumulative effects

Overall, minor positive effects have been identified for this section.

Mitigation/enhancements

Proposals 16 and 17 could help to support technological advances in carbon capture to mitigate any job losses. Additionally net zero skills plan (11) may support skills development.

Assumptions and uncertainties

None.

9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+	+	0	0	+	++	+	+	0	+	0	0	0	+	+	+

Likely significant effects

A continuing evolution of the power sector in Wales to one that uses decentralised renewable energy will offer a modern and resilient means of meeting Wales' energy needs. Critical grid infrastructure (21), new renewable energy infrastructure (22, 23) and distribution models for hydrogen generation and supply (25) are likely to feature at the heart of a modernised energy system. This will be supported by low carbon heat infrastructure (28).

Future system resilience relies not only on the generation mix but also the capacity to manage power flows. The development of LEAP (20) to explore a range of different local energy scenarios, identifying what needs to happen, where and by when, and supporting integrated network planning, is therefore important to ensuring a resilient power network.

Cumulative effects

Overall, the polices are assessed as having minor positive effects on achievement of this objective.

Mitigation/enhancements

Integration of internet access alongside power system development will ensure adequate bandwidth to support smart control systems and underpin resilience in communities. Explicit cross references could be included to the transport section, and more broadly to the industry and business section. This would show the integrated approach to NZW.

Assumptions and uncertainties

Wider efforts to enable high-speed broadband access for all will continue to support resilient infrastructure development.

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10. To ensure Wales is a globally responsible nation

Policy / Proposal	Policy 17	Policy 18	Proposal 2	Policy 19	Policy 20	Policy 21	Policy 22	Policy 23	Policy 24	Policy 25	Proposal 3	Policy 26	Policy 27	Policy 28	Policy 29	Cumulative
Score	+	+	+	+	0	+	+	+	+	+	+	0	0	0	+	+

wood.

Likely significant effects

Managing further power sector related GHG emissions via the phasing out of fossil fuel use and combustion to generate electricity (17, 18), regulation of large point source emitters and permitting requirements for carbon capture readiness (Proposal 2) all support efforts to mitigate global climate change.

Continued efforts to drive renewable generation (Proposal 3) and explore new approaches to energy delivery also demonstrate Wales's commitment to be a globally responsible nation.

Cumulative effects

Overall, minor positive effects have been identified for this section.

Mitigation/enhancements

None.

Assumptions and uncertainties

It is assumed that the Welsh Government continues to support global commitments on climate change as led by UK Government.

Transport

Key to numbering:

Proposal 4 – A pause and review of existing road proposals and a new methodology for assessing the appropriateness of future road schemes

Policy 30 - Enable people to work at or near to home

Policy 31 - Increase trip mode share of Active Travel from a current estimated proportion of 27% to 33% by 2030 and 35% by 2040

Policy 32 - increase trip mode share of public transport from a current estimated proportion of 5% to 7% by 2030 and 13% by 2040

Policy 33 - Reduce emissions from freight and logistics

Policy 34 – land use planning

Policy 35 – Accelerate the uptake of zero emission cars and vans

Policy 36 - Plan for and invest in EV charging infrastructure

Policy 37 - Zero emission bus fleet

Policy 38 - All taxis and private hire vehicles to be zero emission by 2028

Policy 39 – Decarbonise the Rail network

Policy 40 – Zero emission HGVs

Policy 41 – Reduce emissions from aviation

Policy 42 – Reduce emissions from shipping

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	+/-	+	+	+	+	+	+/-/?	+/-/?	+/-/?	+/-/?	+	+	+/?	+/?	+/-

Likely significant effects

Delivering sustainable transport infrastructure is important in achieving a well-being economy that is prosperous, greener, and more equal. Enabling greater choice, efficiency and value in transportation helps to support the economy by providing accessibility to employment and training opportunities. Additionally, policies that support continued investment in sustainable transport infrastructure would also support economic growth.

Policies that support an increase in the modal share of active travel (31), public transport (33), home working (30) would help to support economic activity that is tied to lower carbon and net zero forms of transport, helping to secure a greener economy. There could also be positive effects on the tourism sector through, for example, the encouragement of cycling holidays.

The provision of EV infrastructure (36) and acceleration of zero emission cars and vans (35) would support investment in these technologies and transition of jobs in supporting sectors. Additionally, the policies may support economic investment in new technologies in the short and long term beyond CB2. However, a lack of EV charging sites is identified as a major problem within rural areas and the rural economy could be adversely affected if investment in EV infrastructure here is not supported. Similarly pausing road building is likely to impact economic development in the short term but will enable progress towards net zero transport, with associated economic benefits in the long term (Proposal 4).

There may also be negative effects on the economy from a transition to zero carbon transport. Diesel/petrol/hybrid vehicle and engine manufacturing and servicing businesses may be lost or adversely affected, where effective transition to net zero services cannot be made.

Cumulative effects
Overall, the section is assessed as having minor positive and negative effects on delivering achieving a low carbon economy.

Mitigation/enhancements
Further consideration is required as to how to best deploy EV infrastructure in rural areas (36 and across the section as a whole).
Consideration could be given to the provision of specific support to combustion engine manufacturers and re-skilling of servicing industries as part of the transition to zero emission vehicles within Policy 11 and 51.

Assumptions and uncertainties
The extent to which investment in EV infrastructure and zero emission vehicles and infrastructure would support new employment and training opportunities.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	-	+/?	+/?	+/?	0	+	+/-/?	+/-/?	+/-/?	+/-/?	+	+/-/?	+/?	+/?	+/-

Likely significant effects

Measures that support greater availability and the lower cost of transport are likely to help support greater accessibility of employment and training opportunities. Therefore, policies related to increasing the modal share of active travel (31) and public transport (32) are assessed as indirect having minor positive effects on this objective. Increasing public transport (particularly journeys by bus) can support those without access to private transport. However, the extent to which this would support those in rural areas is less certain. Working at or closer to home (30) may provide investment in services and facilities, which would support employment opportunities. To some extent this is reliant on good broadband connectivity, which may not be available in all areas.

Investing in EV infrastructure (36) and supporting provision of zero emission cars, vans, buses, and taxis (37, 38, 40) may also support opportunities for employment within new technology sectors required in transitioning to zero carbon. However, there is a concern that rural areas may be excluded from this transition if EV infrastructure is not delivered. The transition to zero carbon transport methods may also have a negative effect on jobs. Diesel/petrol/hybrid vehicle and engine manufacturing and servicing businesses may be lost or adversely affected, where effective transition to net zero cannot be made. A mix of minor positive and negative effects are also assessed for these policies.

Minor negative effects are assessed for Proposal 4 due to the likely negative effects on employment in the short term.

Policy support for transition in net zero within shipping (42) and aviation (41) is likely to provide some positive benefits in terms of employment in the longer term

Cumulative effects
Overall, the section is considered likely to have a mix of minor positive and negative effects on supporting employment and delivering a just transition.

Mitigation/enhancements
Further consideration is required as to how to best deploy EV infrastructure in rural areas (Policy 36 and across the section as a whole).
Consideration could be given to the provision of specific support to combustion engine manufacturers and re-skilling of servicing industries as part of the transition to zero emission vehicles with Policy 11 and 51.
Policy 13 will support digital infrastructure.

Assumptions and uncertainties
The extent to which investment in EV infrastructure and zero emission vehicles and refuelling infrastructure would support new employment and training opportunities.
The provision of broadband infrastructure to support remote working.
The extent to which new transport infrastructure would support employment in rural areas.

SA Objective 3. To address climate change

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	++	++/?	+	+	+	++	++/?	++/?	+	+	+	+	+	+	++/?

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Likely significant effects

Transport accounted for around 16% of GHG emissions within Wales in 2019, with approximately 92% emitted from road traffic. Road traffic in Wales reached the highest ever recorded level in 2018, at 29.4 billion vehicle kilometres. The number of rail passenger journeys has increased steadily in recent years and stood at 21.6 million 2019, whilst the number of journeys by bus declined by 22% between 2008 and 2019 but in recent years the number of journeys has risen (2.2% rise from 2016 to 2019). Private vehicles are expected to provide the dominant mode of transport over the short and medium term.

The range of policy measures are likely to support a reduction in energy consumption and emissions linked to transport. Increasing the modal share of active travel (31) and public transport (32) would all support achievement of this SA objective both in the short and long term. Reducing the need to travel is central to the Wales Transport Strategy. These aims are also supported by PPW11 and Future Wales through the land use planning system (34).

The introduction of measures to accelerate EV take up (35, 36) through interest free loans and scrappage schemes could support substantial uptake of EV (if delivered in accordance with EV infrastructure), especially so in light of lower take up of EV than across Britain as a whole. As noted in the policy, this is dependent on UK government maintaining existing levels of incentive for buying new electric vehicles.

The Welsh Government's *Electric Vehicle Charging Strategy for Wales: Facilitating the Transition to Net Zero published* in March 2021 sets out a broad strategy to support EV infrastructure. Planning for and investing in EV infrastructure, and therefore the use of zero emission vehicles, would also support achievement of the objective. These effects are likely to be significant in the longer term as new technologies take hold. However, there is some uncertainty as to delivery in line with the action plan.

Cumulative effects

The policies in this section are considered to make a significant positive contribution to the achievement of this objective both in the short term and the long term as Wales seeks to be net zero in 2050.

Mitigation/enhancements

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The delivery of EV infrastructure is central to a successful transition to a net zero carbon future. It is vital that all communities are able to access suitable infrastructure (36). Therefore, further consideration is required as to how to best deploy such infrastructure in rural areas. Additionally, the cost of EV must be addressed to ensure take up of these technologies.

There is potential for further refinement with regards to the aim to achieve 30% of home working in terms of clarity and ambition within NZW. For example, the Welsh Government could aim that a minimum of 40% of employees, work on average, at least two days a week from home, where they are able to do so. There is also potential for the Welsh Government to act as an exemplar (30).

Consideration could be given to increasing the occupancy of road vehicles and shared occupancy of private vehicles as referenced in UK Government's recent *Decarbonising Transport*.

Assumptions and uncertainties
The delivery of EV infrastructure against the aims of the Welsh Government's *Electric Vehicle Charging Strategy for Wales* and the continuation of UK government incentives for the purchase of EV.

Increasing the proportion of home and remote working is reliant on the delivery of broadband infrastructure which is uncertain.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	+	+/-/?	++	+	+	+	++	+	++	+	+	+	+	+	++

Likely significant effects
Evidence suggests that during the COVID-19 restrictions experienced in 2020 levels of walking and cycling increased across the UK. Increasing active travel (31) is considered likely to support health and well-being and central to the Wales Transport Strategy.

Additionally, a reduction in emissions to air, and light and noise pollution, associated with fewer journeys by private car and increased public transport is also likely to support improvement to health and wellbeing. The promotion of zero emission transportation is also likely to support a reduction in emissions to air, particularly PM10 and NOx related to diesel engines and HGVs. This may also help to reduce the number of Air Quality Management Areas (AQMA) related to

transport. Significant positive effects are therefore found for Policies 35 and 37 and minor effects for 33, 38 and 40 related to zero emission vehicles. Additionally, pausing road building (Proposal 4) is also likely to support health.

Increasing the proportion of staff working remotely (30) may adversely affect mental health in some instances where feelings of isolation from social contacts and/or disconnection from work colleagues can occur. However, the magnitude of adverse effects is uncertain (although studies arising from remote working during Covid may help understand and provide solutions to alleviate these issues, e.g. RSPH Covid-19 health survey).

Cumulative effects
Overall, the policies have been appraised as having a significant positive effect on achievement of the objective.

Mitigation/enhancements
Mitigation of negative effects from homeworking could include consideration of work-home life boundary management support, provision of proper workstations, workload management, and greater facilitation of co-worker networking (BMC Public Health).

Assumptions and uncertainties
The magnitude of effects on mental health from remote working is uncertain.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	+/-	+	+/-	+/-	0	+	+	+/-	+	+	+	+	0	0	+/-

Likely significant effects
Supporting enhancements to accessibility and connectivity is considered to support the aims to improve cohesion and connectivity. Increasing active travel (31) is considered likely to support health and well-being though additional walking and cycling activity, which will also support inclusive and connected communities. Additionally, a reduction in air, light and noise pollution, associated with fewer journeys by private car (30, 34) and increased public transport (32) can also support communities by improving public spaces.

Investment in public transport in deprived areas would also positively support accessibility to services for those without cars (the Welsh IMD identifies that deprived areas are concentrated primarily in the South Wales cities and valleys, and in some North Wales coastal and border towns. These areas are recognised in NZW as those that can be more easily provided with improved services. Services would have to be delivered in conjunction with fair fares and better accessibility for disabled users (as envisaged in the Programme for Government).

However, there are concerns over whether the policies to address modal share (31, 32) and EV infrastructure (36) will fully encompass rural areas. Although there is often a focus on urban areas, it is important that the rural areas of Wales can equally benefit from investment that helps to promote connectivity and cohesion.

Additionally, with regards to demand management measures such as road charging (Proposal 4), this may disproportionately affect those who are economically disadvantaged. Some negative effects are therefore also identified.

Policies 35-37 that seek to accelerate the take up of zero emission vehicles are considered to positively reduce air pollution, which can be particularly problematic in denser urban areas which are often areas of greater economic deprivation supporting equality.

Cumulative effects
The range of policies in this section are likely to support improvements to cohesion and equality. However, there is expected to be negative effects with regards to the impacts on rural areas and potential effect on the economically disadvantaged.

Mitigation/enhancements
Further consideration could be given to rural transport needs. For example, the delivery of EV infrastructure (36) is central to a successful transition to net zero. It is vital that all communities are able to access this. Therefore, further consideration is required as to how to best deploy such infrastructure in rural and remote areas to ensure all parts of society can participate and are not excluded. Additionally, Welsh Government should work with UK government and the sector to ensure affordability in EV to help ensure take up of these vehicles across all communities.

Assumptions and uncertainties
None identified.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative

Score	+	+	+	+	+	+	+	+/-/?	+	+	+/-/?	+/-/?	+	+	+/-/?

Likely significant effects

Transport has impacts on the natural and built environment in terms of air emissions and noise, whilst transport infrastructure development may also have effects, whether through direct impacts from land take, or indirect effects from disturbance arising from construction activities.

The policies in this section that are likely to support an increase in opportunities for active travel, public transport use and reduced use of the private car are in turn considered likely to help reduce the emissions to air with positive effects also likely to be delivered with regards to noise. Additionally, increasing zero emission vehicles would contribute to a reduction in nitrogen (NOx) deposition, which would also support the conservation and enhancement of susceptible designated conservation sites.

However, the delivery of infrastructure envisaged such as EV infrastructure (36, 40) and rail infrastructure (39) may have localised negative effects on landscape/townscape dependent on location. It is assumed, however, that the application of land use planning controls would ensure that these effects are minimised and mitigated where necessary.

Cumulative effects

Overall, the policies in this section are considered likely to have a mix of minor positive effects and negative effects on achievement of this objective.

Mitigation/enhancements

It is recognised that the delivery of infrastructure associated with EV infrastructure (36) and rail infrastructure (39) may have impacts on landscape/townscape and negative effects are assessed. However, it is expected that mitigation would be captured through the land use planning system.

Assumptions and uncertainties

There is some uncertainty related to the impact on landscape, townscape and biodiversity related to the delivery of infrastructure.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	~	~	~	~	~	~	0/?	0/?	0/?	0/?	0/?	0/?	~	~	0/?

Likely significant effects

The majority of policies in this section are considered to have a neutral effect or no relationship with the achievement of this SA objective.

Investing in EV charging infrastructure (36) and other zero emission technology/infrastructure (35-40) may help to support job opportunities and skills development related to the technology, which would support achievement of this objective. However, there is some uncertainty related to the extent to which the development of skills will occur.

Cumulative effects

Overall, the section has been assessed as having neutral or negligible effects with some uncertainty.

Mitigation/enhancements

Support for behaviour change to encourage a shift to public transport and take up of EV.

Assumptions and uncertainties

The extent to which the development of skills will occur in relation to the investment in EV charging infrastructure and zero emission technology/infrastructure.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	?	+/?	+/?	+/?	+	+	0	0/?	0	0	0/?	0/?	~	~	+/?

Likely significant effects

Making active travel more attractive and viable (31) may support an increase in walking and cycling as recreational activities, which may have a minor positive effect on achievement of this objective.

If investment could be directed to integrate and connect any new active travel routes to leisure, cultural or heritage sites this may also enhance accessibility of activities, but this is dependent on the location. The modal shift towards public transport (32) may also support increased access to cultural or heritage sites, especially for those unable to access private car, but this would also require targeted intervention and investment.

Increasing the proportion of people working at or closer to home (30) may provide direct benefits with respect to the use of the Welsh language. Although, the extent of effects is largely dependent on the take up of the remote working and the location of those who are working remotely.

The provision of new and increased infrastructure (such as EV infrastructure) through additional investment could lead to negative effects on the landscape and townscapes of Wales, thereby affecting Welsh culture. However, this should be managed through the appropriate land use planning mechanisms which reduces the negative effects. However, some uncertainty remains dependent on delivery on the ground.

Cumulative effects
Overall, the section has been assessed as having a minor positive effect with some uncertainty.

Mitigation/enhancements
Decarbonisation of transport through a combination of EV (passenger and light goods vehicles) and hydrogen (HGVs, bus, rail, air, marine) can reduce community reliance on fossil fuel imports and potentially enhance community resilience through localisation of energy infrastructure. The policies could be enhanced by the inclusion of a reference to this.

Assumptions and uncertainties
The extent to which active travel and public transport investment could support increased access to cultural or heritage sites/activities is uncertain.
The extent to which working at or close to home will support the Welsh language is uncertain.

There is some uncertainty about the pausing of road building (Proposal 4) on connectivity which can support community wellbeing.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	++/-	?	++/-	++/-	+	+	0	++/-/?	+/-	0	+	+/-	+	+	++/-/?

wood.

Likely significant effects

This section of the NZW sets out the primary policies to help deliver active and sustainable transport measures and improved infrastructure to support Wales's transition to net zero. This will support achievement of the SA Objective which seeks to ensure modern, connected and resilient infrastructure.

There are a range of policies that work towards meeting the aims of the Welsh Government's Transport Strategy and support the provision of infrastructure that will support a move away from private car use to active travel and public transport. Supporting the modal shift to more active travel and public transport will support the objective significantly. Policies 31 and 32 set out clear targets for modal shift. The Welsh Government has allocated just under £75m from annual transport grants for active travel projects since LCDP1. Further and continued investment is required to help actively change transport behaviours and meet targets. However, it is recognised that the development of new infrastructure to meet modal shift targets may not be evenly distributed, favouring large conurbations and towns in preference to rural areas, which then may be disadvantaged.

The policies include supporting the roll out of EV infrastructure (36) and achieving zero emission buses (37) which will support achievement of the objective in the short and longer term, and may be significant for EV infrastructure. The Welsh Government expects the first phase of the EV network of rapid chargers on the strategic roads to be fully operational in 2021. However, as noted above it is important that rural communities are not left behind in the planning of such infrastructure. Minor negative effects are also assessed.

Broadband quality and coverage are improving in Wales but it is generally behind the UK as a whole on a number of measures. There is some uncertainty for Policy 30, as this will largely be dependent on further improvements to broadband.

Pausing road building may in long term lead to more sustainable infrastructure connections but in the short term there is potential to affect resilience of road infrastructure. Mixed significant and minor negative effects are assessed for Proposal 3.

Cumulative effects

Overall, a mix of significant positive and minor negative effects have been identified for this section with some uncertainty.

Mitigation/enhancements

Further consideration could be given to rural transport needs. For example, the delivery of EV and other refuelling infrastructure is central to a successful transition to a net zero carbon future. It is vital that all communities are able to access this.

Policy 13 could help to deliver digital improvements allied to broadband infrastructure delivery to support ultrafast rollout.

Assumptions and uncertainties

Increasing the proportion of home and remote working is reliant on the delivery of broadband infrastructure which is uncertain.

wood.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Proposal 4	Policy 30	Policy 31	Policy 32	Policy 33	Policy 34	Policy 35	Policy 36	Policy 37	Policy 38	Policy 39	Policy 40	Policy 41	Policy 42	Cumulative
Score	?	0	0	0	0	0	0	?	?	?	0	?	?	?	0/?

Likely significant effects
The policies in this section help to support the decarbonisation of transport across Wales. The majority of the policies are therefore considered to have a neutral or negligible effect on this objective. However, trialling innovative technologies that demonstrate how electric vehicles and smart technology can support community and business transport could have positive effects by helping to promoting Wales as a leader in low carbon economy. Supporting a transition to net zero internationally can also support the position of Wales as a responsible global nation. However, the extent to which this may occur is uncertain.

Cumulative effects
Overall, the section is considered to have neutral effects although some uncertainty remains.

Mitigation/enhancements
None.

Assumptions and uncertainties
The extent to which investment in new infrastructure/technologies could help to establish Wales as an 'exporter' of such technologies.

Residential Buildings

Key to numbering:

Policy 43 – The Optimised Retrofit Programme (ORP)
Policy 44 - Welsh Housing Quality Standard (WHQS) –. Improving energy efficiency for existing social homes
Proposal 5 – supporting PRS landlords to improve energy efficiency
Proposal 6 – supporting the owner-occupied sector to improve energy efficiency and shift to low carbon heat
Proposal 7 – bringing empty homes back into use and helping owners to start their journey to net zero
Policy 45 – Part L Building Regulations
Policy 46 - Social Homes will lead by example being built to standards in excess of Part L
Policy 47 - Developing Innovative construction techniques and increasing the use of sustainable materials
Policy 48 - Incentivising energy efficiency of homes through our Help to Buy – Wales
Policy 49 - Piloting Smart Flexible and Digitalised Systems to [maximise use of assets] and help reduce demand
Policy 50 - Develop behaviour change interventions alongside our wider programmes
Proposal 8 - Water Efficiency and Water Labelling* (This proposal has not been appraised due to late availability of the proposal wording)

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	+	++	+/?	+/?	++	++	++	++	++	++/?	0	++/?

Likely significant effects
Significant positive and positive effects can be expected in relation to a range of policies and proposals in this section associated with the construction and retrofitting of buildings (43, 44, 47) such that they directly contribute to lower embodied carbon and more efficient energy use and support investment in the economy. The commitment of funding helps to give certainty to the achievement of these policies and in turn the aspiration for a net zero economy.

Additionally, developing further innovation in construction techniques (45, 46) and bringing empty homes into use (Proposal 7) should help to support economic investment and induce broader economic benefits over the long term. The precise interactions are complex, however.

Cumulative effects
Overall, there are significant positive effects with some uncertainty.

Mitigation/enhancements

wood.

None.

Assumptions and uncertainties
There is uncertainty concerning the precise effects of a range of policies and proposals which, whilst positive, reflects their untested character and the need to monitor and adjust implementation accordingly. Continued investment will be critical in securing the transition to a zero-carbon economy, both in the application of new technology and better management of the existing housing stock.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	+ +	+ +	+/?	0	+	0	0	0	+ +/?	+/?	+/?	+

Likely significant effects
A number of the policies aim to stimulate the low carbon performance of buildings through construction and retrofitting (43, 44, 45 and 46) in turn increasing employment and skills development opportunities associated with the deployment of low carbon technologies. The size of the buildings sector and the scale of the challenge should provide opportunities for career-long employment, particularly for young people. Targeted investment (44 and 48) should help to address fuel poverty which can help support a 'just transition'.

Cumulative effects
Overall, minor positive effects have been assessed against this objective.

Mitigation/enhancements
The Net Zero Wales Skills Action Plan (Policy 11) could help support the skills necessary to ensure that retrofit/new build meets utilises new design/technologies.

Assumptions and uncertainties
There is uncertainty concerning the precise effects of some Policies and Proposals which, whilst positive, reflects the novelty of this policy area and the need to monitor and adjust implementation accordingly. In particular, developing innovative construction techniques, investment in home energy efficiency (Policy 48) and

digital solutions to energy management (Policy 49) should lead to greater employment opportunities and skills development although whether, and precisely how much, key receptor groups will benefit is less clear.

SA Objective 3. To address climate change

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	++	++/?	++/?	++/?	+/?	++	+/?	++	++/?	++/?	+/?	++/?

Likely significant effects

Wales has an estimated 1.4 million homes. At 3.7 MtCO2e, the residential buildings accounted for 10% of Welsh emissions in 2019. Additionally, 32% of housing stock pre-dates 1919, where there were no thermal standards to guide development. The policies and proposals in this section are aimed at reducing the carbon emissions from residential buildings, which will help to reduce the contribution they make to impacts on climate change. Investment in making the existing stock more energy efficient (43, 44), as well as ensuring new housing meets or exceeds evolving standards, is central to this.

Meeting and exceeding building standards (Part L) (45) and driving innovation in construction techniques (47) and energy efficiency measures (48, 49) is likely to result in significant positive effects, although the speed and penetration of these effects is uncertain and will require monitoring.

There are clear links to other sectors, and the implementation of PPW, Future Wales and Local Plan policies to ensure that housing is delivered in sustainable locations that minimise the increases in, for example, transport emissions is also critical.

Cumulative effects

Overall, significant positive effects have been assessed against this objective with associated uncertainty over the speed and effectiveness of various interventions in helping to achieve the wider goal of addressing climate change.

Mitigation/enhancements

None.

Assumptions and uncertainties

The speed and penetration of policy change in respect of energy efficiency in the construction and retrofitting of the building stock are likely to be areas of uncertainty in terms of the speed of change and whether Policies and Proposals will be sufficiently targeted and funded to meet aspirations for energy efficiency (and hence climate change) and, more widely energy security.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	++/?	++/?	+/?	+/?	+/?	++	+/?	+/?	++	++	+/?	++/+

Likely significant effects
The provision of quality and efficient housing has a number of health benefits for occupants. The policies will support the improvement of the physical and mental health and well-being of residents of Wales through improving air quality, reducing fuel poverty and providing communities with opportunities to participate in decarbonising their energy needs.

Delivering investment through retrofitting (43, 44) would ensure that those most in need of support to address fuel poverty can receive it. Investment under the Nest scheme as part of the programme supported reductions in bills of £282 on average for 4,500 households in 2019/20. This would support the aims the Welsh Government's Tackling Fuel Poverty 2020-2035 strategy. This would be supported further by increasing quality standard in existing social housing (Policies 44 & 46).

Cumulative effects
Overall, a mix of significant and minor positive effects have been assessed against this objective.

Mitigation/enhancements
None.

Assumptions and uncertainties
Whilst the proposed policies and proposals will help to promote well-being through the provision of better insulated homes, for example, there are uncertainties as to the effectiveness of implementation in terms of tangible benefits to key groups; monitoring and evaluation is likely to be required to test this and adjust policies as required.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	++/?	++/?	+/-/?	+/-/?	+	++	++	+/?	++	++/-/?	+/?	++/-/?

Likely significant effects

These policies will support good quality housing by improving the energy performance of buildings in the domestic sector, supporting low-income households during the low carbon transition and improve accessibility to appropriately skilled employment by supporting the expansion of the low carbon buildings sector.

Delivering investment to retrofit homes (43), raising standards of stock (44), and incentivising energy efficiency (Proposals 5 and 6) would support this objective significantly by supporting access to quality housing. There is also potential for significant positive effects from the proposals, particularly retrofitting, support services around new technologies such as smart metering. Increasing energy efficiency of social homes beyond Part L (46) could be significant in the long term with reducing power costs.

However, there is potential for negative impacts on some households. Around 1 in 5 homes are not connected to the gas grid and 32% pre-date 1919 in their construction. The low carbon transition and retrofitting to meet improved emissions standards could place a disproportionate financial burden on some households, through for example, increased private rental values, without support (Proposals 5 and 6). The introduction of new technology (Policy 49) could also place an additional burden on homeowners. However, in this context, dedicated financial support could be particularly helpful in the mitigation and therefore to some extent this is uncertain.

Cumulative effects

Overall, a combination of significant positive and minor negative (uncertain) effects have been assessed against this objective, reflecting the positive intent of policies and proposals but some uncertainty over how their full potential might be realised.

Mitigation/enhancements

None

Assumptions and uncertainties

The provision of adequate financial support for households that may be placed at a disproportionate financial burden during the low carbon transition period. The age of housing stock (32% of housing stock pre-dates 1919) the number of homes not on mains gas (around 1 in 5) presents particular challenges that require adequate funding and support to ensure a just transition. Focus on research may therefore not be sufficient to drive improvements in domestic energy usage.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	+ +	+ +	+/?	+ +	+ +	+ +	+/?	+/?	+/?	+ +	+/?	+ +

Likely significant effects

As noted above, GHG emissions from residential buildings are substantial. These policies aim to reduce the energy requirements from this sector and decarbonise the remaining energy requirements. This will also lead to improved air quality and reduce environmental and natural environment impacts from the residential buildings sector. Policies 43, 44, 45 and 49, along with Proposals 6 and 7, are identified as holding the potential for yielding significant positive effects, reflecting the need to employ a raft of measures to address this challenge.

Investment in energy efficiency measures and construction techniques and exploration of low carbon heat will significantly help to address the impacts on natural and built environment. This will help to support achievement of the objective in the short term and over the long term.

Cumulative effects

Overall, significant positive effects have been assessed against this objective.

Mitigation/enhancements

Policy 47 could make explicit reference to the Timber Industrial Strategy and the use of Welsh timber as part of a lifecycle approach to building construction and maintenance.

Assumptions and uncertainties

wood.

Whilst the positive effect of the policies and proposals should be reflected in enhancements to the built environment as part of energy efficiency measures, their connection to the natural environment is less clear, the effects of which will only be determined over the long term and in combination with other policies which promote the restoration and resilience of the natural environment against climate change effects.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	+	0	+	0	0	0	0	+/?	0	+/?	+	+

Likely significant effects
These policies should generally support the improvement of opportunities for people to gain employment within the low carbon buildings sector, which will require the need to invest in upskilling the workforce to ensure that the appropriate skills and knowledge will be available to the supply chain and allow a successful roll out of the decarbonisation of the sector.

Cumulative effects
Overall, minor positive effects have been assessed against this objective, reflecting the broad potential contribution of this change in how buildings are constructed and managed to the complex issue of life-long learning and skills acquisition.

Mitigation/enhancements
None.

Assumptions and uncertainties
Ensuring that implementation of Policies 47, 49 carries with it the provision of opportunities for skills acquisition and enhancement.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	+	+	0	+	+	0	+	0	+	+	+	+

Likely significant effects

The policies will support local participation in developing local decision making on energy requirements for local communities (49) and the securing of a better quality housing stock over time (43, 44, 46 & 48). This is likely to support the involvement of communities and therefore indirectly support the Welsh language and culture.

Ensuring that homes are energy-efficient will help to engender resilient communities in the long term, ensuring that where possible everyone has access to sustainable housing. Monitoring of policy implementation will help to ensure that policies meet the current and future needs of local communities.

Cumulative effects

Overall, neutral effects have been assessed against this objective.

Mitigation/enhancements

None.

Assumptions and uncertainties

None.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	++	++	+	?	?	+	+	+	0	++	0	++/?

Likely significant effects

The policies and proposals will support the SA objective through increasing the development of energy and buildings systems to meet residential energy needs through more resilient buildings and innovative technology to help reduce energy demand and hence emissions (43, 44 and 49).

This will help support the delivery of modern and retrofitted existing stock as part of broader aims to ensure that infrastructure is resilient to the effects of the climate change.

Cumulative effects
Overall, significant positive effects have been assessed against this objective, with some uncertainty as to how the wider owner-occupied and private rental stock will make the required transition

Mitigation/enhancements
None.

Assumptions and uncertainties
The effectiveness of implementing measures in the private and private rental sector (Proposals 6 and 7) are uncertain in respect of how far and fast changes can be secured.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Policy 43	Policy 44	Proposal 5	Proposal 6	Proposal 7	Policy 45	Policy 46	Policy 47	Policy 48	Policy 49	Policy 50	Cumulative
Score	+	+	+	+	+	+	+	+/?	0	+	+/?	+

Likely significant effects
These policies and proposals demonstrate Wales's commitment to reducing impacts on the climate within communities, industry and building stock, with the encouragement and support of resilient energy, buildings and renewable energy. This helps to demonstrate that Wales is a globally responsible nation. Overall, the policies are considered to have a positive effect on achievement of this objective.

Cumulative effects
Overall, positive effects have been assessed against this objective.

Mitigation/enhancements
None identified.

Assumptions and uncertainties

Whilst the policies and proposals will result in the advancement of Wales's role as a responsible nation, there is uncertainty as to how effective some of the interventions might be, notably in respect of behavioural change. Monitoring and evaluation will therefore be required.

Industry and Business

Key to numbering:

Proposal 9 - Develop Evidence and Analysis of the Industry and Business sector to ensure cost effective and rapid emission reduction – Welsh Government.

Proposal 10 - Prioritise financial, and other, support for clean and green jobs leading to a decarbonised economy

Policy 51– Drive Decarbonisation through the Manufacturing Sector

Proposal 11 - Develop a Decarbonisation Action Plan for the food & drink manufacturing Sector by 2026, to be underpinned by research and evidence

Proposal 12 - Fishing and fish supply chain decarbonisation

Policy 52 – Increased resource efficiency in business and industry through regulation and funding

Policy 53 - Implement a new regime for pollution control Best Available Techniques (BAT) for industry

Policy 54 - Business Wales – using our financial and advice services to encourage business emission reduction

Proposal 13 - Review and development of Business Wales

Proposal 14 - Build on our Foundational Economy

Policy 55 - Climate Change Levy (CCL) and Climate Change Agreements – UK Government

Policy 56 – Improvements to the Energy Saving Opportunity Scheme (ESOS)

Policy 57 - Streamlined Energy and Carbon Reporting (SECR)

Proposal 15 – Industrial Clusters – fuel switching

Proposal 16 – Engage with the UK Government on their policies in support of fuel switching

Proposal 17 – Continue to build our evidence base on Carbon Capture Utilisation & Storage over carbon budget 2

Proposal 18 – Industrial Clusters - Carbon Capture Utilisation & Storage

Proposal 19 - Greenhouse gas removals

Proposal 20 – Property Delivery Plan

Proposal 21 – Property Energy Efficiency Rating Scheme (PEERS)

Policy 58 - Development Bank of Wales – Decarbonisation to be included as a policy priority within the next remit letter to be issued in Autumn 2021

Proposal 22 – Develop new support mechanisms to encourage and support innovation in Industrial Decarbonisation

Policy 59 - Economy Futures Fund

Policy 60 - UK Government Funding Streams for Industrial Decarbonisation and Energy Efficiency

wood.

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	+ +	+ +	+/?	+/?	+ +/?	+/-	+	+/?	+	+ +	+/-	
Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	**Cumulative**
Score	+ +	+ +	+	+	+ +	+/-	+/?	+	+/?	+ +	+ +	+ +	+ +

Likely significant effects

Support for energy intensive industries in Wales, via emission reduction support and associated efforts to develop commercially viable carbon capture storage, will be a significant factor in maintaining sustainable low carbon industry. More widely, decarbonisation in business can be delivered via supporting efforts that offer targeted investment. This can be both access to capital for investment in low carbon assets and infrastructure, as well as regional investment programmes. via City and Growth Deals.

The UK Government has confirmed Climate Change Agreements (CCA) will continue until 2025. This aims to protect 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. This will be further supported by a range of financial support (such as Proposal 10, Policy 52). However, some measures may place burdens on industry and businesses in the short term until required changes bed in (53, 56, Proposal 19) leading to some negative effects.

Uncertainties exist in respect of the implementation of some measures, notably the role of Business Wales following review (Proposal 13) and how resource efficiencies in businesses might be achieved (Proposals 11, 12). There is wider uncertainty in respect of the timescale over which a shift to net zero carbon might be secured and whether the transition can be achieved as part of normal investment cycles or might require significant additional resources. Consequently, there could be implications for the availability of appropriately skilled workers to meet the demands of the new economy in areas such as construction and maintenance.

Cumulative effects

Significant positive effects are assessed.

Mitigation/enhancements

Prioritising financial and other support (Proposal 10, 22, Policy 52, 60) will provide important mitigation for businesses in the transition.

wood.

Assumptions and uncertainties

There is uncertainty concerning the precise effects of some of the Policies and Proposals (Proposals 11, 12, 20 and Policies 52, 58) which, whilst positive, reflects the novelty of this policy area and the need to monitor and adjust implementation accordingly. There will need to be ongoing monitoring and evaluation to determine the speed and direction of changes which will make a tangible difference to meeting climate change commitments. Consequently, additional measures could be required to adjust the direction of travel.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	++/?	+/-	+	+	?	?	+/?	+/?	+	+/?	+	
Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	+	+/-/?	+	+	+/?	0	0	0	+/?	++/?	+	++/?	++/-

Likely significant effects
Strategies for industrial decarbonisation, can deliver major benefits for sustainable employment. Significant positive effects could be expected for providing financial and other support for transition to green jobs (Proposal 10, 22) and investment in decarbonisation (60), which will support investment in sustainable jobs.

Driving decarbonisation (Policy 51) and fuel switching (Proposal 15) whilst positive in principle, could have unintended consequences in the form of high costs and consequent impacts on employment opportunities amongst businesses making the transition. Mixed positive and negative effects are assessed for these policies.

Cumulative effects
Mixed significant positive and minor negative effects are identified.

Mitigation/enhancements
Policies that support investment in skills, innovation and training (Policy 11, 12) will be important in mitigating negative effects on employment.

Assumptions and uncertainties
There is uncertainty concerning the precise effects of some of the Policies and Proposals (Proposals 10, 13, 18, 22 and Policies 54, 55 58, 60) which, whilst positive in the long term, reflects the novelty of this policy area and how far and deep the interventions might need to go. Ongoing monitoring and evaluation will be needed to determine the speed and direction of changes which will make a tangible difference to meeting climate change commitments.
Uncertain effects are identified in respect of Policies 52 and 53, associated with introducing new regulatory regimes which are untested in respect of delivering decarbonisation outcomes.

SA Objective 3. To address climate change

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	+/?	++/?	+	+	++/?	++/?	+/?	+/?	+/?	+	+/?	
Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	+	++/?	?	+	++/?	?	+	+/?	+/?	+/?	+	++/?	++/?

Likely significant effects
The CCC notes that decarbonisation of industrial processes is a particular challenge for Wales. Support to energy intensive industries in driving low carbon pathways and developing carbon capture storage is likely to have a significant impact on sector level GHG emissions and associated climate change impacts.

Supporting manufacturing sectoral change (51), targeting funding and regulation changes (52) including UK funds (60) whilst closely aligning best available techniques (BAT) with net zero ambitions (53) could drive emissions reductions in the sector. Distribution of hydrogen and carbon capture and storage as part of HyNet project in Ellesmere Port (Proposal 18) could support decarbonisation across North Wales. Supporting industrial clusters, such as the South Wales Industrial Cluster (Proposal 15), will support stakeholders in fuel switching.

Developing the evidence base and performance indicators (Proposal 9, 10) will support future efforts to reduce emissions in the sector will support the future pathway to net zero in 2050 and help to inform future policy development. Prioritising the Decarbonisation Call to Actions as part of the Economy Futures Fund (EFF) (59) would also be expected to have positive effects in the long term.

Cumulative effects
Significant positive effects with some uncertainty are identified.

Mitigation/enhancements
None.

Assumptions and uncertainties
There is uncertainty concerning the precise effects of some of proposals 10, 15, 18, 21, 22 and policies 51, 52, 53, 54, 56, 58 and 60 which, whilst positive, reflects the novelty of this policy area and the need to monitor and adjust implementation accordingly. There will need to be ongoing monitoring and evaluation to determine the speed and direction of changes which will make a tangible difference to meeting climate change commitments. Consequently, additional measures could be required to adjust the direction of travel. There is uncertainty around the impact of proposals 16 and 19 dependent on their development in CB2.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	+	0	0	0	0	0	0	0	+	0	+	

wood.

Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	0	0	0	0	0	0	0	+	0	+	+	+	+

Likely significant effects
There is limited evidence with which to assess impacts of these policies and proposals on physical and mental health. Nevertheless, policies and proposals linked to economic development can potentially drive sustainable business and employment opportunities, aiding well-being (through employment opportunities for example) and general mental health. Additionally, supporting the industry and business sector to transition to net zero with associated reductions in emissions to air can support physical health, through improved air quality.

Cumulative effects
Minor positive effects are assessed.

Mitigation/enhancements
None

Assumptions and uncertainties
Employment opportunities and associated income support the physical and mental health of everyone in the community. Monitoring and evaluation of policy implementation will be required to determine how effectively the needs of specific groups and localities are being met.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	+	0	0	0	0	0	0	0	+	0	+	

Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	0	0	0	0	0	0	+	+	0	+/?	+/?	0	+

Likely significant effects

Policies and proposals linked to economic development can potentially drive create opportunities to reduce the vulnerability of communities during the net zero transition by providing sustainable businesses and employment. However, it is important that jobs are secured through the transition. Implementing Community Wealth Building and Social Business Wales (Proposal 13) could be particularly effective in supporting community cohesion.

Cumulative effects

Overall, minor positive effects are assessed.

Mitigation/enhancements

None

Assumptions and uncertainties

Employment opportunities and associated income support the physical and mental health of everyone in the community. Monitoring and evaluation of policy implementation will be required to determine how effectively the needs of specific groups and localities are being met.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	++	0	+	0	0	0	++	0	0	0	++	+	

wood.

Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	+	+/?	+/?	0	+	+	0	+	0	+/?	+/?	+/?	+

Likely significant effects
Action to continue decarbonisation of business activity will benefit the natural and built environment through downstream effects over the longer term. The impacts of climate change are likely to be slowed, meaning less severe impacts on the natural environment. A new regime of pollution control (53) could be particularly important in securing protection of the natural environment, in turn complementing wider policies seeking to secure its enhancement. The climate change levy (55) and lower carbon business activities will mean enhanced local air quality and consequent benefits to the built environment. Development of the evidence base (Proposal 9) will play an important part in ensuring that there is a sound baseline and consistent longitudinal data to properly assess change and the likely effects of policy interventions,

Cumulative effects
Minor positive effects are assessed.

Mitigation/enhancements
None

Assumptions and uncertainties
Associated policy outcomes in all other themes are delivered in parallel. The positive intent of the policies and proposals means that the enhancement of the natural and built environments is likely to be part of implementation, although to what extent is unclear and would need to be established through a programme of monitoring.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	++/?	0	0	0	0	0	+	0	+	0	+	

Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	0	0	0	0	0	0	+	+	0	+/?	+/?	0	+

Likely significant effects

There is limited information to assess direct impacts of the policies on encouraging learning for life. However, changing business practices are likely to require new skills to deliver evolving priorities and opportunities, as part of the transition to net zero. Research and development of carbon capture storage on medium and large combustion plant, as well potential BECCS sites, will require different application of existing engineering skills. Support from targeted funding (Proposal 10) is likely to lead to skills development, although whether such interventions can reach all sectors and communities in need is uncertain.

Cumulative effects

Minor positive effects are assessed.

Mitigation/enhancements

Policies that support investment in skills, innovation and training (Policy 11, 12) will be important in enhancing positive effects.

Assumptions and uncertainties

The school curriculum continues to support mindset of learning for life and The HFE sector continues to be effective in its supporting role maintaining and developing skills and knowledge among the community. There are various uncertainties in respect of the links between the policies and proposals and the likely effects on skills development, centring on schemes designed to ensure an economic transition toward a more energy efficient and potentially zero-carbon economy. A programme of monitoring would be required to determine the effectiveness of policy implementation, particularly for specific groups such as young people.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	+	0	0	0	0	0	0	0	+	0	+	

Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	0	0	0	0	0	0	0	+	0	+/?	+/?	0	+

Likely significant effects

The decarbonisation of energy intensive industry will promote long-term sustainable business operations and therefore sustained employment opportunities. Efforts to drive sustainable growth in the food and drink sector will also benefit community resilience. Wider work in the Economic Action Plan, tying sustainable performance indicators to further investment will continue to promote positive low carbon pathways.

Cumulative effects

Minor positive effects are assessed.

Mitigation/enhancements

LEAP (Policy 20) will be important in enhancing the resilience of communities.

Assumptions and uncertainties

There is limited evidence of the likely connections between policy approaches to decarbonisation and resilient communities (community cohesion) – research into the key connections is likely to be required e.g. job opportunities, skills development and fuel poverty.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	+	0	0	+	+	+	+	+	+	+	0	+	
Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	Cumulative
Score	0	+	+	0	++/?	0	+/?	+	+	0	+	+	+

wood.

Likely significant effects
Targeted investment in industry and business is crucial to the development of low carbon infrastructure. Regional and geographic investment plans, linking business activity with underpinning requirements in energy, water, waste and internet connectivity, can support future low carbon behaviours. The provision of hydrogen network infrastructure and carbon capture storage is a critical component in decarbonisation of energy intensive industry and support of Industrial Clusters is likely to support significant achievement in the long term (Proposal 18).

The proposals and policies are generally likely to yield positive effects, reflecting the desire to create the enabling policy framework for a transition to a net zero carbon future. Establishment of a baseline and longitudinal data collection (Proposal 9) to determine the speed and penetration of change will be particularly important in ensuring effective implementation.

Cumulative effects
Positive effects are assessed.

Mitigation/enhancements
The provision of super and ultrafast broadband is required to support modern infrastructure requirements for business and industry (Policy 13 implementation is key to achieving this).

Assumptions and uncertainties
The role of Property Delivery Plan (Proposal 20) whilst positive contains uncertainty as to who will be targeted and with what outcomes.

Delivery of hydrogen networks and carbon capture (Proposal 18) is uncertain subject to delivery in the long term.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Proposal 9	Proposal 10	Policy 51	Proposal 11	Proposal 12	Policy 52	Policy 53	Policy 54	Proposal 13	Proposal 14	Policy 55	Policy 56	
Score	++	++	+	+	+	++	++	+	+	+	++	++	
Policy / Proposal	Policy 57	Proposal 15	Proposal 16	Proposal 17	Proposal 18	Proposal 19	Proposal 20	Proposal 21	Policy 58	Proposal 22	Policy 59	Policy 60	**Cumulative**

Score	++	++	+	++	++	++	+/?	++	+	++	++	++	++

Likely significant effects

Continued regulation of large scale GHG emitters will drive investment in abatement and carbon capture. Wider standards in respect of sustainable indicators for business, linked to investment, can demonstrate Wales's contribution to global climate change action. The Policies and Proposals are assessed as being overwhelmingly positive in their likely effects, reflecting their role as a clear demonstration of Wales' commitment to change backed up by clear financial and regulatory interventions, targeted at specific sectors where the most significant changes are required.

Cumulative effects

Overall, significant positive effects have been assessed against this objective.

Mitigation/enhancements

None.

Assumptions and uncertainties

Welsh Government continue to support global commitments on climate change as led by UK Government. Judgement on the long-term effectiveness of policies and proposals will need to be underpinned by research and monitoring, particularly where best practice and leadership is aspired to.

wood.

Agriculture

Key to numbering:

Policy 61 - Regulations to reduce agricultural pollution
Policy 62 – Glastir
Policy 63 - Farm Business Grant (FBG)
Policy 64 - Sustainable Production Grant (SPG)
Policy 65 - Animal Health and Welfare Framework (AHWF)
Policy 66 - Red Meat Development Programme
Policy 67 - Dairy Improvement Programme (DIP)
Policy 68 - Farming Connect
Policy 69 - Agriculture Bill
Proposal 23 - Sustainable Farming Scheme (SFS)
Proposal 24 – Work with farmers and the waste sector to improve resource efficiency and increase circularity on farms
Proposal 25 – Fuel Efficiency (Welsh Government)
Proposal 26– Support innovation in renewable energy/technology
Proposal 27 – Organic conversion
Proposal 28 – Precision Farming
Proposal 29 - Land Sharing
Proposal 30 - Explore the potential to support Horticulture

SA Objective 1: To achieve a strong and sustainable net zero economy

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
Score	0	+/?	+/?	+/?	++	++	++	+	+
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
Score	+	+	+	+	+	+	+	+	++

Likely significant effects

The agriculture sector plays an important role in the economy of Wales, especially for rural areas. The agricultural sector is heavily dictated by topography, which results in most of Wales's land being classified as ACL Grade 4 or 5, which is poor and very poor. This results in a focus on livestock.

The continuation of the Red meat Development Programme (66) and Dairy Improvement Programme (DIP) (67) would help make animal stocks more resilient to potential diseases and to enable farmers to market animals quicker. The animal health and welfare programme (65) would increase the efficiency of the farming industry through the proper treatment of livestock, increasing amount of milk and meat produced by fewer animals. These policies would contribute significantly to the economy, given that sheep and beef generated £764 million and milk and dairy products accounted for a further £568 million (2018).

The Agriculture Bill (69) will provide stability for farmers following departure from the EU. Farming Connect (68) would support the other policies of this section through training opportunities and grants to ensure the farming industry continues to grow its knowledge and skills base which can support existing and new workers in the sector. However, there is some uncertainty related to the economic impacts in the long term of Farming Connect, Red Meat Development Programme and DIP with funding due to end in CB2. However, positive effects would be likely in the short term.

The provision of grants for investment in more sustainable technologies (63, Proposal 26), investment in waste management (Proposal 24), and equipment to address water, soil and air quality by reducing agricultural pollution (61) along with Glastir grants (62) would support investment in the sector although Glastir is due to end in CB2.

Other proposals would have support farmers for additional non-food goods (23), by supporting farming through conversion to organic and meet increasing market demands (27) and supporting efficient horticultural food production (30). Precision farming (28) would also support investment in economic production.

Cumulative effects

Overall, the section is considered to have significant positive effects on the economy.

Mitigation/enhancements

None identified.

Assumptions and uncertainties

Glastir Small Grants, Farm Business Grant, Sustainable Production Grant funding is not certain subject to the 2021 CSR. This may affect economic benefits.

There is some uncertainty in relation to funding for the Farming Connect, Red Meat Development Programme and DIP for funding in CB2 which may impact on positive effects on the economy in the medium and long term.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
Score	0	+/?	+/?	+/?	+	+	+	+	+
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
Score	+	+	+	+	+	+	0	+	+

Likely significant effects

The agricultural sector plays a considerable role in providing jobs. The Welsh Government's *June 2020 Survey of Agriculture and Horticulture* shows that the number of principal farmers, directors, business partners and their spouses was 37,300, a fall of 6% from 2019. The June 2020 Survey also highlights that the number of employees on farms was 15,500, which is an almost 18% increase from 2019 (which may be attributable to an increase in casual workers). These figures have been heavily influenced by the COVID-19 pandemic. The exit from the EU may also impact on seasonal workers but at this stage there is some uncertainty regarding the impacts. The Agriculture Bill (69) will help provide some stability for farmers following departure from the EU.

NZW would support the agricultural sector's ability to offer a wide range of agricultural jobs for people of all ranges of educational attainment. Support for farming communities is likely to particularly help rural areas and the rural economy, which can also help address regional inequality. However, the median age for farmers in 2016 was 61 and for very small farms this was higher at 64. It is important that programmes are catered to meet the needs of an older workforce whilst support is provided to encourage younger entrants to the agricultural sector.

However, it is recognised that through further efficiencies some employment opportunities may also be lost, but on balance positive effects are assessed.

Cumulative effects
The section considered to have a minor positive effect.

Mitigation/enhancements
Further information could be set out with regards to supporting the older agricultural workforce to actively engage with training opportunities and support engagement with low carbon and renewable technologies.

Assumptions and uncertainties
Some funding (62, 63, 64) is subject to the 2021 CSR which may affect positive benefits in relation to skills development.

The uncertainty in relation to funding in CB2 (62 - 64) which may impact on positive effects on new employment creation in the medium and long term.

The effects of the departure from the EU on seasonal work is uncertain.

SA Objective 3. To address climate change

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
Score	+	+/?	+/?	+/?	+	+/-	+/-	+	0
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
Score	+	+	+	+	+	+/?	+	+	+/-

Likely significant effects
The agricultural sector is estimated to contribute 14% of the GHG produced within Wales, therefore any policies and proposals that work to reduce emissions are important. Polices support investment in newer, more efficient machinery (63) and associated training (68) would support the objective and the resilience of the farming sector to climate change. However, continuing with meat production and dairy to some extent, even with improvements to efficiency, would be

incompatible with the SA Objective, given the carbon intensity associated with this production. This is also likely to reinforce more carbon intensive diets. Mixed minor positive and negative effects are therefore assessed for 66 and 67.

Glastir (62) would aid carbon sequestration through the creation and restoration of new and existing woodland. Glastir Small Grants would aid farmers in achieving this, though funding may not be available in CB2. The implementation of regulations on pollution (61), though focused more on protecting watercourses from pollution, would also improve soil/nutrient management reducing GHG emissions and pollutants (such as NOx). Additionally, further modelling and monitoring supports programmes that support decarbonisation and sequestration in agriculture (Proposal 28).

Reducing waste and increasing circularity would support efforts to address climate change (Proposal 24), (Proposal 29) could contribute to efficient food production which would require less land. Organic conversion (Proposal 27) would also support efforts to address climate change by reducing chemical treatments and fertilisers (and emissions during production) and lower carbon diets. The Sustainable Farming Scheme (Proposal 23) would also help support decarbonisation of the agricultural sector. Precision farming (28) could support long term effective management farm management. The implementation of low carbon and renewable technologies and improved fuel economy would also support the objective in the long term. All proposals could therefore support achievement of this objective in the long term.

Cumulative effects
The policies and the proposal would have a minor positive and negative effects on this SA Objective.

Mitigation/enhancements
Consideration could be given to further aiding the adoption of zero/low carbon technologies, buildings/structures, vehicles, and waste management practices within the agricultural sector.

Assumptions and uncertainties
The uncertainty in relation to funding in CB2 (62 - 64) may affect positive benefits in relation to woodland creation and sustainable working practices.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
Score	+	+/?	+/?	+/?	+	+	+	+	+

wood.

Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
Score	+	+	+	+	+	+	+	+	+

Likely significant effects

Improving agricultural management to support transitioning to a net zero economy and society is considered to help support health and well-being by improving biodiversity, reducing air and water pollution, and through sustaining jobs in rural areas. Additionally, improved environmental and welfare standards and support for organic production could also translate into improved quality of food for consumers, improving diets.

Policies 62 - 64, 66 - 68 and Proposal 23 provide grants or funding to support the transition of the agricultural sector to net zero, which would support the cohesion of rural areas, where agriculture is an important part of vibrant communities. It is recognised that further mechanisation and efficiencies may reduce the overall numbers employed in the sector (particularly those employed by the principal farmers or owners) but on balance, positive effects have been assessed.

By protecting natural assets (61) and/or seeking their improvement, there is potential for the creation of new recreational areas, which would have numerous health benefits. Reducing the effects on local air quality (61) would also improve the health of those near agricultural processes.

Cumulative effects

This section would provide minor positive effects with regard to this SA Objective.

Mitigation/enhancements

None.

Assumptions and uncertainties

Some funding (62- 64) which may affect positive benefits for health and mental well-being within rural areas.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69

Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
SAO 1 Score	+	+/?	+/?	+/?	+	+	+	+	+
SAO 1 Score	+	+	+	+	+	+/?	+	+	+

Likely significant effects

Supporting the sector, and therefore those communities who are reliant on the sector through the transition to net zero would support communities who may be vulnerable to change and be a form of climate justice. This would contribute to social cohesion and equality.

Agriculture is uniquely tied to the communities and landscapes of rural Wales and helps to support the sense of place and identity in these areas. These policies and proposals would support agriculture in the long term, further contributing to the creation of a sense of place, belonging and identity during CB2 and beyond. Supporting the agricultural sector through the transition would also indirectly support services and facilities in rural areas, aiding cohesiveness and equality.

More broadly, supporting the agriculture sector in the transition could help to ensure affordable, low carbon, high quality food is available to all consumers, which may minimise disparities between members of society due to the cost of produce.

Cumulative effects

The policies and the proposal are therefore considered to have a minor positive effect on this SA Objective.

Mitigation/enhancements

None.

Assumptions and uncertainties

Some funding is uncertain in CB2 (62-64) and Precision Farming (Proposal 28) is subject to the 2021 CSR which may affect positive benefits to communities.

wood.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
SAO 1 Score	++	++/?	+/?	++/?	+	+	+	+	+
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
SAO 1 Score	++	+	+	+	++	+	+	+/-/?	++

<u>Likely significant effects</u>

Agriculture affects landscape character, biodiversity, soil, and water quality. Delivering new forest/woodland assets within Wales (62) would have significant positive effects on biodiversity in the long term and help to address the loss of biodiversity experienced in Wales. However, funding is not certain in CB2.

Policy 61 is focused upon reducing the pollution generated by the agricultural sector, especially regarding its effects on the water environment, including through nutrient management. Nutrient management is particularly important to reduce eutrophication in rivers (the increase in concentration of phosphorus, nitrogen, and other plant nutrients). Similarly, Sustainable Production Grant (4) seeks to provide funding to allow for further technological and machinery upgrades that reduce the effects of farming practices on water, soil and air quality, and enhanced nutrient management.

Policies 63, 65 – 68 seek to improve the health and wellbeing of livestock through new technology, farming practices and grants, which all have the potential to reduce the effects of livestock on the natural environment.

Proposal 23 also allows for the potential creation of new forests/woodland through support for agroforestry, which would help reduce soil runoff. In the long-term positive effects could be significant. Proposal 26 (organic conversion) would support transition to organic practices which could have significant positive effects on this objective in the long term by reducing fertiliser and chemical use. Improving the reduction in waste and circularity would support the environment.

Providing enhanced horticultural efficiencies would support effective land use (Proposal 30). However, the delivery of extensive polytunnels may have localised negative effects on landscape. It is assumed, however, that the application of land use planning controls would ensure that these effects are minimised and mitigated where necessary.

wood.

Cumulative effects

This section is considered to have a significant positive effect on this objective and help to protect protecting water/soil/air quality and support biodiversity.

Mitigation/enhancements

It is expected that mitigation of any localised effects on landscape from extensive polytunnels (Proposal 30) would be captured through the land use planning system. No further mitigation is proposed.

Assumptions and uncertainties

Some funding (62,64) is not certain in CB2. Significant benefits related to new woodlands under Glastir may not be realised.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
SAO 1 Score	0	0	++/?	++/?	++	++	++	++	0
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
SAO 1 Score	+	+	++	++	+	+	0	+	++

Likely significant effects

The Red Meat Delivery Programme and DIP funding and training to equip people with the skills to manage livestock sustainably and efficiently. Policies 63, 66 and 67 support learning how to implement new technologies and/or new sustainable working practices. The Red Meat Delivery Programme and DIP seek to equip farmers with skills to manage livestock sustainably. These are considered to have significant positive effects on this objective.

Proposal 23 seeks to create an agricultural sector that sustainably produces food, whilst enabling the sector to reduce its carbon footprint and improve the natural environment through proper biodiversity, water and air quality management. Proposal 25 and 26 would also indirectly support investment in new skills and training opportunities. Additionally, proposals for improved fuel efficiency and innovative renewable energy technologies on farms are considered to support achievement of the objective.

The median age for farmers in 2016 was 61 and for very small farms this was higher at 64. It is important that programmes that support skills development can be accessed by all those in the agricultural sector, regardless of age, whilst also supporting younger entrants to the sector.

Cumulative effects
Significant positive effects on achievement of this objective are assessed.

Mitigation/enhancements
Further information could be set out with regards to supporting the older agricultural workforce, and those in rural areas, to actively engage with training opportunities. The Net Zero Wales Skills Acton Plan (Policy 11) could support this.

Assumptions and uncertainties
Farm Business Grant and Sustainable Production Grant funding is not certain in CB2.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
SAO 1 Score	0	+/?	0	+/?	+	+	+	+/?	+
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
SAO 1 Score	+	+	+	+	+	+	+	+	+

Likely significant effects
There are direct and indirect positive effects in relation to Welsh language and culture. Farming is important to the culture of Wales, particularly within the rural areas where the Welsh language is often more prevalent than urban areas, and policies that propose support for the farming industry and encourage its transition towards zero carbon would likely keep this culture alive and growing, supporting belonging and a sense of place.

wood.

The provision of support for innovative farming practices, and the use of low carbon and renewable technologies, may also support training and employment opportunities, and potentially better paid jobs. The policies would generally support Welsh culture and community cohesion.

The policies would also likely aid in the protection of rural landscapes, which may indirectly support the provision of rights of way that can help ensure access to the countryside and heritage sites.

Cumulative effects
Overall, these policies and the proposal would have a minor positive effect on this SA Objective.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
Glastir Small Grants, Farm Business Grant, Sustainable Production Grant funding is not certain subject to the 2021 CSR.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
SAO 1 Score	~	~	~	~	~	~	~	~	~
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
SAO 1 Score	~	~	~	~	~	~	~	~	~

Likely significant effects

The policies are not related to this SA Objective as they do not lead to the creation and/or improvement of infrastructure or aid in the delivery of greater connectivity. Whilst some of the new technology focused policies could aid in the creation and adoption of new communication technology, infrastructure and/or the use of electric vehicles to reduce carbon emissions, all the policies and the proposal are assessed as having a negligible relationship to this SA Objective.

Cumulative effects
Overall, this Section is considered to have negligible effects on this objective.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
None identified.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Policy 61	Policy 62	Policy 63	Policy 64	Policy 65	Policy 66	Policy 67	Policy 68	Policy 69
SAO 1 Score	0	0	0	0	0	0	0	0	0
Policy / Proposal	Proposal 23	Proposal 24	Proposal 25	Proposal 26	Proposal 27	Proposal 28	Proposal 29	Proposal 30	Cumulative
SAO 1 Score	0	0	0	0	0	0	0	0	0

Likely significant effects
The policies and the proposal relate to improving the sustainability of the agricultural sector of Wales. The improvements to the agricultural sector that these policies and proposals would work to create would ensure that Wales is being a globally responsible nation that seeks to manage its effect on the world.

wood.

Many of the policies have elements that relate to making the agricultural sector progress towards zero low carbon, and are innovative in nature, including through 'precision farming'. Additionally, they would support the consumption of low carbon products in Wales. However, overall, the policies would be expected to have a neutral effect on achievement of this objective as they are primarily focussed on grants within Wales.

Cumulative effects
Neutral effects are assessed.

Mitigation/enhancements
The policies could be enhanced by making explicit reference to seeking potential to export innovative farming approaches to other nations (particularly Red Meat Development Programme and Animal Health and Welfare Framework).

Assumptions and uncertainties
The policies could be enhanced by making explicit reference to seeking to exporting innovative farming approaches to other nations.

Land Use, Land Use Change and Forestry LULUCF

Key to numbering:

Policy 70 – Create a National Forest for Wales
Policy 71 –Woodland Creation Scheme
Proposal 33 – Attracting private sector investment into Woodland Creation
Proposal 32 - New Sustainable Farming Scheme (woodland strand)
Proposal 33 – Supporting tree planting by families and communities
Proposal 34 – Develop a new Timber Industrial Strategy for Wales
Policy 72 - Implementing a Peatland Restoration Programme
Proposal 35- The ban of the sale of peat in compost
Proposal 36 - Investigating the potential contribution of blue carbon to achieve net zero

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	+ +	+ +	+ +	+	+	+ +	+	0	+/?	+ +

Likely significant effects

Overall, the policies and the proposals have the capacity to provide benefits towards this objective's goal of transitioning Wales towards a net zero economy. Many (70, 71, Proposals 31, 32) would see the creation of new tree/woodland assets or encourage investment for the creation of woodlands. These policies and proposals would therefore support carbon capturing economic activities (the planting and maintenance of trees). The creation of woodlands can also result in a new revenue stream through the Woodland Carbon Code, which allows landowners to plant and maintain woodlands for their carbon storage and then claim for reimbursement for this service.

Proposal 34 would encourage the use of timber within construction as a renewable resource that is often less polluting to produce than other raw material extracting industries (though the harvesting, processing and shipping would result in the creation of some harmful emissions). This would aid in transitioning the construction industry towards net zero.

Policy 72 would see the creation of a small number of green jobs in order to better manage and restore the peatlands within Wales and commits Welsh Government funding towards this aim, providing investment for this sector. Proposal 36 would see investment to enhance the ability of blue carbon resources to store and capture carbon. Any investment within this industry would therefore create sustainable and green jobs. The proposal is not specific and is seeking to understand and gather knowledge on how blue carbon can be used and expanded in the future after further study.

Cumulative effects
Overall, the policies and proposals would have a significant positive effect.
Mitigation/enhancements
None.
Assumptions and uncertainties
Further research is required in order to understand how blue carbon assets work within Wales and how these can be expanded in a safe manner.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	+	+	+	+	0	+	+	0	+/?	+

Likely significant effects
The policies and proposals all have the potential to provide some level of new jobs in sustainable fields (green jobs), though some of the policies and proposals would likely provide more jobs than others. Alongside this, all of the policies and proposals (besides proposal 35) would likely see investment from the Welsh Government or the private sector. Investment within woodland creation and management (Proposal 31) can have positive effects on economic areas such as tourism and recreational activities. The creation of woodlands can also result in a new revenue stream through the Woodland Carbon Code, which allows landowners to plant and maintain woodlands for their carbon storage and then claim for reimbursement for this service.

Policies 70 and 71 would likely result in the creation of green jobs linked to planting and ongoing management of woodlands. Both policies also provide financial support towards woodland creation. Proposal 34 would see the expansion and careful management of woodland to be used for timber. This would see an improvement to the sustainability of the construction industry and support employment in timber production/processing. In terms of job creation, due to likely Welsh Government funding, Proposal 32 would also likely have positive effects.

wood.

Policy 72 would encourage and provide investment in the restoration of Wales's peatlands, which would likely create some jobs. Proposal 35 is exploratory in nature and is seeking additional information in order to encourage the creation of a more actionable policy in the future. Some employment could be associated with the proposal, although the extent is uncertain.

Cumulative effects
Overall, the policies and proposals would have a positive effect.
Mitigation/enhancements
None.
Assumptions and uncertainties
The effects of Proposal 34 are uncertain as it is looking to gather information on blue carbon to aid in the creation of a proposal/policy in the future.

SA Objective 3. To address climate change

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	++	++	++	+	+	++/-	++	+/?	++/?	++

Likely significant effects
Woodlands, peatlands and even individual trees can all contribute towards carbon capturing and help to tackle the causes of climate change. Woodlands and trees achieve this through drawing in and storing CO2 and transforming it into oxygen over time. Forest Carbon highlights how the right trees in the right place can create woodlands that act as carbon stores for many years.

Wales completed its first carbon-funded peatland restoration in 2021 at Bwlch y Groes, which comprised 66 hectares of peatland restoration that is expected to store 2,335 tons of carbon over the next 35 years (Forest Carbon) whilst blue carbon resources within Wales are currently estimated to store 26,100 tonnes of carbon per year (Natural Resources Wales). Expanding or protecting peatland's ability to store carbon (72) has the potential to provide considerable positive effects against this objective. Similarly, Proposal 36 would secure the ability of blue carbon resources within Wales to operate as carbon sinks. Uncertainty about the positive effects exists, subject to the outcomes of the investigations.

Flood resilience is becoming increasingly as the effects of climate change become apparent. Woodlands and trees increase flood resilience through canopy coverage and through the strengthening of surrounding soils through root systems (Woodland Trust). The policies and proposals that may help create a

wood.

considerable amount of woodland (70, 71) or provide investment towards this goal (30) would have significant positive effects towards this objective. Minor positive effects are assessed for Proposals 32 and 33 as even the planting of small number of trees would have some benefit to local areas.

Proposal 35 would ensure compost used within Wales does not contain peat. The policy's ability to encourage this in other countries is uncertain.

Creating new woodlands to expand the timber industry (Proposal 33) would result in the creation of GHG through the harvesting/processing/shipping of timber products. Mixed effects are assessed.

Cumulative effects
Overall, the policies and proposals would have a significant positive effect.
Mitigation/enhancements
Consider a reference to the reduction/management of emissions and other pollutants produced by timber related harvesting, processing and shipping (34). Policy 40 will help reduce emissions from HGVs.
Assumptions and uncertainties
It not known how likely the Welsh Government would be able to encourage other countries to not use peat in the creation of compost resources (35). Proposal 36 is investigative but is likely to pave the way for further benefits in the future as a strategy pertaining to blue carbon is created.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	++	++	++	+/?	+/?	+/-/?	++	+/?	+/?	++/?

Likely significant effects
Woodlands and trees have the potential to provide significant benefits towards improving physical and mental health. Woodlands provide safe places away from urban environments to engage in active and healthy recreational activities such as walking, hiking and cycling. UK Research and Innovation found that woodlands are good for young people's mental health. Woodlands and peatlands can also aid in improving air quality in terms of soaking up CO2 and acting as carbon storage (IUCN).

Policies and proposals that create new woodlands, protect/restore peatlands and enable funding for these activities would have positive effects. Similarly, investigations into blue carbon's ability to store carbon would likely have some positive effects through improving local air quality.

Possible benefits of proposal 32 and 34 are unsure due to the likelihood of any woodlands created by these schemes not being accessible to the public. Proposal 34 would also compromise its health benefits to some degree through producing emissions when harvesting, processing and shipping timber. Proposal 33 would likely see the creation of woodlands and trees in community areas, ensuring such natural assets are in accessible locations, though some uncertainty exists around to the degree to which community groups and families would be able to provide such resources.

Cumulative effects
Overall, the policies and proposals would have a significant positive effect with some uncertainties.

Mitigation/enhancements
Opportunities for woodlands on private land (farming/timber related) to be accessible to public in some capacity should be explored as they are in Scotland.
Consider a reference to the reduction/management of emissions and other pollutants produced by timber related harvesting, processing and shipping (34).
Policy 40 will help reduce emissions from HGVs.
Assumptions and uncertainties
Uncertainty exists around the accessibility of some woodlands that would be created or to what extent certain policies/proposals would be actionable in order to provide benefits towards this objective.

SA Objective 5. To improve social cohesion and equality

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	++	++	++	+/?	+/?	+/?	++	+/?	~	++/?

Likely significant effects
Many of the policies and proposals would create or enhance woodlands within Wales or provide investment towards this aim, which would provide community spaces and access to green spaces. Peatland also acts as an important source of green/blue spaces within Wales and their protection and enhancement would ensure such spaces can be used into the future.

Uncertainty exists in terms of some the woodlands created as they would be on private land and not accessible to the public (32, 34). Proposal 33 has the potential, though how likely it will be able to achieve this is unsure, to create new green spaces in community spaces, providing accessible woodlands and trees for communities to enjoy together.

Cumulative effects
Overall, the policies and proposals would have a significant positive effect with some uncertainties.
Mitigation/enhancements
Opportunities for woodlands on private land (farming/timber related) to be accessible to public in some capacity should be explored as they are in Scotland.
Assumptions and uncertainties
Uncertainty exists around the accessibility of some of the woodlands that would be created or to what extent certain policies/proposals would be actionable in order to actually provide benefits towards this objective.

SA Objective 6. To improve natural and built environments

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	++	++	++	+	+	+/-	++	+	++/?	++

Likely significant effects
Many of these policies and proposals have the potential to provide considerable benefits to the natural environment. Woodlands and trees act as important places for biodiversity to thrive and also work to capture climate change contributing gases that often would have negative effects on local flora and fauna if they were not captured (Forests, Carbon and Climate Change: the UK Contribution). Woodlands and peatlands are often habitats that are located away from the built-up urban environment of Wales, ensuring the flora and fauna that use these habitats are less likely to be disturbed by human activity. These assets also often important features in the local and wider landscape of Wales. Any tree/woodland planting would contribute towards carbon capturing and providing benefits towards surrounding flora and fauna.

Proposal 34 would still contribute towards creating GHG and other emissions to air that can affect local biodiversity. Woodlands created by this proposal would also be, at some point harvested, resulting in the temporary loss of established habitats until the trees and re-planted and established.

Policy 72 would also aid in protecting and improving the water quality within Wales by improving peatland resources, which are often crucial to local water quality and act as an important habitat (IUCN). Proposal 34 would contribute towards this by ensuring peat would not be used as a compost resource within Wales.

Uncertainty exists regarding proposal 36. However, blue carbon does have considerable benefits for carbon capturing and improving habitats. Blue carbon expansion is likely to take the form of expanding local blue habitats, such as seagrass or protecting tidal marshes (The Blue Carbon Initiative), and other sea ecosystems.

Cumulative effects
Overall, the policies and proposals would have a significant positive effect.
Mitigation/enhancements
Ways in which emissions can be reduced within the forestry industry should be explored as part of proposal 34 to ensure it is self-mitigating to some degree. The management of woodlands to be harvested should be well planned to ensure harm to habitats that have developed within commercial woodlands is not caused. Policy 40 will help reduce emissions from HGVs.
Assumptions and uncertainties
Uncertainty still remains regarding proposal 36 due to the investigative nature of the proposal.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	+/?	+/?	+/?	+/?	+/?	+/?	+/?	~	~	+/?

Likely significant effects
The policies and proposals have the potential to provides positive effects by providing job opportunities or encouraging investment into woodland creation (70, 71, proposal 31, 32, 33) and forestry. Investment in this field that would likely result in new training and skill opportunities for the Welsh population. Such investment could also relate to funding research and development opportunities within the forestry management field.

The creation of a new Timber Industrial Strategy (34) could guide investment in skill and training opportunities alongside providing jobs. In order for peatlands to be restored correctly, skilled and trained workers would be required in order to carry out any required work due to the sensitive nature of peatlands (72). Such a requirement could result in training opportunities. Uncertainty exists as the extent to which positive effects in terms of actually providing training, skill or educational opportunities is unknown.

Cumulative effects

Overall, the policies and proposals would have a minor positive effect.
Mitigation/enhancements
Any Peat Restoration Management Plans should seek to ensure any required works are carried out by skilled professionals.
Assumptions and uncertainties
Uncertainty exists regarding all the of positives identified as training/skill opportunities might not manifest on a sufficiently large scale to have a positive effect.

SA Objective 8. To help build resilient communities, culture and language

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	++	++	++	+/?	++	+/?	++	~	~	++

Likely significant effects
The woodlands created could act as places for recreation uses, especially the National Forest (70). The investment opportunities and drive contained within proposal 31 are important to the success of the remaining policies and proposals. Uncertainty exists around how likely woodlands created by farmers (32) and those created for timber (34) would be usable for recreation as they might not be accessible to the public.

Proposal 33 is likely to not see the extensive creation of woodlands. It would however see the planting of trees in personal gardens and in community spaces. It would also encourage social cohesion within Wales by encouraging community tree planting. Due to the community focus of this policy, it is considered that it would have significant effects against this objective.

The restoration of peatlands would ensure that they are able to continue to be used for recreational activities (72). This has proven to be very successful in the past and peatlands have a lot of natural capital that can be used for recreational purposes (Snowdonia National Park).

Cumulative effects
Overall, the policies and proposals would have a significant positive effect.
Mitigation/enhancements
Potential for woodlands created by farmers and the timber industry to be places for recreational walks/cycling in a similar vein to Scotland's Right to Roam.
Assumptions and uncertainties
It is unknown to what degree woodlands created by farmers and the timber industry would be available for the public to use for recreational activities.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	~	~	~	~	~	~	~	~	~	~

Likely significant effects   The policies and proposals are not focused upon delivering infrastructure and therefore have no clear relationship to this objective.   **Cumulative effects**   The section has no clear relationship to the objective.   **Mitigation/enhancements**   None.   **Assumptions and uncertainties**   None.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy/ Proposal	Policy 70	Policy 71	Proposal 31	Proposal 32	Proposal 33	Proposal 34	Policy 72	Proposal 35	Proposal 36	Cumulative
Score	~	~	~	~	~	+/-	~	+/?	~	+/-

Likely significant effects   Most of this section has a negligible relationship with this objective. Proposal 33 could see a transformation within the construction industry towards the use of a more sustainable and energy efficient resources (timber). The harvesting, processing and shipping of this resources would result in the production of emissions, though it is considered that this is outweighed by the considerable benefits the proposal generated by aiding Wales into transitioning towards net zero. There are also some benefits in terms of Wales being able to export such low carbon materials around the world. Seeking to work with the UK government to stop peat in compost would also demonstrate global responsibility (Proposal 35) although there is some uncertainty.

Cumulative effects

Overall, the section is considered to have a mixed minor positive and negative effect.

Mitigation/enhancements

Opportunities to maximise emission reduction within the timber industry should be taken and explicitly mentioned within proposal 34 to ensure sustainability is present within the Industrial Strategy.

Assumptions and uncertainties

The ability to stop the use of peat in compost (35).

Waste

Key to numbering:

Policy 73 - Reduce waste sent to landfill
Proposal 37 – Further increase CH4 Capture and utilisation in Welsh landfill sites by 2030
Policy 74 - Further increase recycling
Policy 75 – Be Mighty Campaign

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	+	+	+	+	+

Likely significant effects

The efficient management of waste has considerable opportunities to make an economy more sustainable and aid its transition towards net zero. Increasing the level of composting and anaerobic digestion (AD) of all forms of biodegradable waste (73) such as food, paper, cardboard etc. would have positive effects as businesses and consumers would create less waste and support the creation of renewable energy. It is estimated that approximately 22% of Wales municipal waste was incinerated to produce energy in 2019-20 (Beyond Recycling) and this policy would seek to provide more renewable energy from AD. The creation of more renewable energy would have a double benefit as businesses and consumers would have greater access to this more sustainable form of energy.

Increasing the capture of CH4 in Wales's landfill sites and ensuring all landfills capturing their emissions (Proposal 37) would lead to a more sustainable economy. Policy 74 would contribute towards this objective by seeking to achieve a 70% recycling rate for all major waste streams (household, industrial, commercial and construction). The policy ensures the economy is more sustainable as more waste is recycled and disposed of in a sustainable manner.

Policy 75 would support other policies by raising the profile of recycling within the public consciousness and by also encouraging the correct sorting of waste by households and businesses to ensure it can be recycled as efficiently and economically as possible.

Cumulative effects

Overall, minor positive effects have been assessed.

Mitigation/enhancements

None.

Assumptions and uncertainties
None.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	+/?	+/?	+/?	0/?	+/?

Likely significant effects

The policies and the proposal all have the potential to provide employment opportunities that aid the transition to a more sustainable economy. None of the measures would create a considerable number of jobs and uncertainty exists as to the number and types of jobs that would be provided.

Policy 73 would create sustainable jobs in the fields of recycling and through the collection and sorting of waste to ensure as little waste as possible goes to landfill. Policy 74 would also create jobs in the recycling industry as the collection schemes within Wales expands and improves. The installation of solar panels on closed landfills would create short-term jobs. Investment in recycling of electronic resources could support some long-term jobs in managing this type of waste. However, there is uncertainty about the scale.

Improving landfill capture (proposal 37) would create jobs as older landfill sites potentially require upgrading to use new, emission capturing technology. It is likely that jobs would be temporary and only last for the duration of the improvement works to the landfill sites, though there could be some long-term maintenance and management roles.

The 'Be Mighty Campaign' (75) may support a limited number of jobs directly though it could potentially encourage job creation in other areas (waste management and recycling). This is uncertain to a large extent.

Cumulative effects

Overall, minor positive effects with some uncertainty are assessed.

Mitigation/enhancements

None.

Assumptions and uncertainties

It is difficult to predict to what degree certain policies would result in the creation of jobs. It has broadly been assumed that some level of jobs would be created, but the level of job creation could be extremely small in some cases.

SA Objective 3. To address climate change

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	++	++	++	+	++

Likely significant effects

The policies and proposal have considerable opportunities to contribute towards addressing climate change by reducing waste and its associated emissions. It is estimated that waste accounted for 3% of emissions within Wales in 2019. The primary emissions generated from waste is methane (92%). Emissions declined by 2.8% from 2018 to 2019 due to primarily better methane capture technology/processes at landfill sites, showing such technology/processes can have a positive effect.

Reducing the amount of avoidable food and biodegradable waste sent to landfill sent to landfill (73) would support aims to reduce waste overall, help generate renewable energy, and reduce methane emissions (methane is a GHG). Proposal 37 would ensure that any waste sent to landfill would have its associated emissions properly managed and captured where possible. Policy 74 could see the creation of solar panels at max capacity landfills. It also seeks to improve recycling, which would allow for more ethical and sustainable consumption of resources.

Policy 75 would raise the public profile of recycling. Achieving public 'buy in' could encourage investment in effective waste management that supports reduced emissions.

Cumulative effects

Overall, it has been identified that the policies and the proposal would have significant positive effects.

Mitigation/enhancements

None.

Assumptions and uncertainties

None.

wood.

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	++	++	++	+	++

Likely significant effects

The policies and the proposal have considerable opportunities for improving air quality within Wales. Wales does not currently suffer from any areas that are classed as having bad or hazardous air quality and generally the maximum daily pollutant concentrations is low across the country (Air Quality in Wales). The World Health Organisation identified that air pollution can contribute to/cause type 2 diabetes, obesity, systemic inflammation, Alzheimer's disease and dementia. Negative effects of air pollution are not just limited to lungs and airways as shown by a global study in 2018 (Air Pollution and Noncommunicable Diseases), as air pollution can detrimentally affect many of the body's organs.

The policies and the proposal contribute towards the achievement of this objective through reducing the amount of waste to landfill, ensuring emissions from landfills are reduced, encouraging renewable energy development/energy from waste, improve recycling and ensure recycling becomes part of the Welsh culture. This all cumulatively contribute towards keeping the air quality of Wales high and protect people's physical and mental health.

Cumulative effects

Overall, the section would have significant positive effects.

Mitigation/enhancements

None.

Assumptions and uncertainties

None.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	~	~	~	+	+

Likely significant effects

The policies and the proposal are primarily concerned with the correct management of waste and recycling. They are therefore largely not related to the achievement of this objective.

wood.

Policy 75 continues to build upon the success of the 'Be Mighty Campaign' to continue to emphasise recycling as a core part of living within Wales, which has had considerable success. Residents have been recycling for a long time to the point that it is part of its modern culture and therefore acts as a common cultural touchstone for communities within Wales. Minor positive effects are assessed for this policy.

Cumulative effects
Overall, a minor positive effect is assessed.
Mitigation/enhancements
None.
Assumptions and uncertainties
None.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Policy 73	Proposal 36	Policy 74	Policy 75	Cumulative
Score	++	++	++	0	++

Likely significant effects
Wales has a varied natural and built environment including a range of internationally and locally designated conservation assets, three national parks, five AONBs and a variety of designated and non-designated heritage assets including three World Heritage Sites. Wales natural assets are home to a wide variety of important flora and fauna that could be compromised should Wales not continue to keep its air quality high. This flora and fauna are fundamental to the built and natural environment of Wales. The policies and proposal therefore have the potential for considerable benefits through reducing the number of emissions the waste sector produces. All of the policies and the proposal would result in the more sustainable management of a waste, which is a core aim of this objective.

Waste facilities such as landfills often detract from their surrounding built and natural environments and policies such as 73 and 74 that seek to reduce the amount of waste sent to landfill and increase recycling ensure less landfill will be needed in the future.

Cumulative effects
Overall, it has been identified that the section would have significant positive effects.
Mitigation/enhancements
None.
Assumptions and uncertainties
None.

wood.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	~	~	~	~	~

Likely significant effects The policies and the proposals are primarily concerned with reducing emissions and encouraging recycling within the waste sector of Wales. Whilst skill and educational opportunities would arise from their implementation the policies are considered to have a negligible relationship with this objective. **Cumulative effects** Overall, it is considered that the policies and the proposal have no relationship to the objective. **Mitigation/enhancements** Further consideration could be given to explicitly encouraging the development of skills and training in the waste sector. **Assumptions and uncertainties** None.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	~	~	~	+	+

Likely significant effects The majority of the policies and proposal relating to waste bear no relation to this objective as they are focused upon reducing emissions, recycling, and improving waste management. Policy 75 would have some positive effects as it seeks to solidify and continue recycling as a core part of the Welsh culture and identity. The 'Be Mighty Campaign' has had success in increasing recycling and the campaign will capitalise on the momentum towards more recycling and more accurate recycling (correct sorting of waste at its source). **Cumulative effects** Overall, minor positive effects are assessed. **Mitigation/enhancements**

None.

Assumptions and uncertainties

None.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	~	~	+	~	+

Likely significant effects

Though the policies and proposal would result in a modern waste management system within Wales most of the section will have a negligible or no relation to this objective.

However, through developing additional infrastructure to support the collection and recycling of items not currently recycled (74) minor positive effects have been assessed.

Cumulative effects

Minor positive effects are assessed for this objective.

Mitigation/enhancements

None.

Assumptions and uncertainties

None.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Policy 73	Proposal 37	Policy 74	Policy 75	Cumulative
Score	+	+	+	0	+

Likely significant effects

The policies and proposals show that Wales can be a global leader in addressing waste generation, reuse and recycling in the transition to net zero. The reduction of waste (73) and the better management of waste emissions (Proposal 37) would ensure the products produced and used within Wales are less likely to be wasted and that any waste created would result in the creation of fewer GHG emissions. Policy 74 will ensure as much of the waste within Wales is recycled as possible in order to transition Wales towards a circular economy. This will aid global efforts to reduce plastic waste.

The waste section is fundamental in supporting the transition to a circular and net zero waste economy and supports global efforts on waste management.

Cumulative effects
Overall, minor positive effects have been assessed.
Mitigation/enhancements
Opportunities to support global efforts to recycle could be explored as part of an enhancement to the 'Be Mighty' campaign.
Assumptions and uncertainties
None identified.

Public Sector

Key to numbering:

Policy 76 - All public sector organisations should use the Routemap and Reporting Guide to develop and publish plans by March 2023 to achieve a collective Net Zero public sector by 2030.

Policy 77 - The Welsh Government's plan to achieve net zero as an organisation by 2030 will be publish before March 2023.

Policy 78 - The Welsh Government to include Net Zero Wales commitments in our remit letters and sponsor arrangements with public bodies in Wales

Proposal 38 - UK Government organisations who have a significant presence in Wales to develop and publish plans setting out how they will support Wales's ambition for a net zero public sector by 2030

Policy 79 - Make Carbon Reduction Plans a mandatory part of tenders for appropriate public procurement contracts and increasingly buy products which are fully recyclable, multi-use or able to be re-purposed as part of a more circular approach to waste

Proposal 39- All future public sector properties being built or refurbished achieve a net zero standard by 2030 (Policy)

Policy 80 - All new public sector cars and light goods vehicles should be zero/ultra-low emission by 2025 and heavy goods by 2030

Policy 81 - All public sector organisations should understand the sequestration potential of land in their ownership by March 2023 and commit to taking action to realise this potential by March 2030

Policy 82 - NHS Wales is committed to the collective net zero ambition by 2030 delivering through the NHS Decarbonisation Strategic Delivery Plan

Policy 83 - A joint NHS Wales and LG Social Care Decarbonisation Plan should be created to support the achievement of a collective net zero by 2030

Policy 84 - The Local Government Decarbonisation Strategy Panel and WLGA will support the commitments made by Local Government organisations to meet the collective net zero ambition by 2030

SA Objective 1. To achieve a strong and sustainable net zero economy

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+	+	+	+	++	++	0	++	+	++	++

Likely significant effects

The intention to secure net zero operation across the public sector estate by 2030 (77) through effective route-mapping and reporting (76), and to deliver net zero in NHS Wales and local government by 2030 (82, 84) will present an important and visible standard of good practice which the wider economy can follow. Wales has demonstrated that it can develop and deliver innovation and initiatives, for example the Welsh Government Energy Service and Smart Living Initiative (Energy-service and Smart-living), to progress the integration of low carbon technology to support and encourage public and private sector businesses (38).

Additionally, investment in EV (80) and net zero standard public sector properties is likely to support wider economic transition to net zero.

More generally, effects are likely to be positive reflecting the opportunities for a progressive, long-term transition of the economy as a whole to net zero (whilst recognising the substantial contribution of the public sector to the Welsh economy).

Cumulative effects

Overall, the section is considered to have significant positive effects. The suite of policies is likely to help secure progress towards a net zero economy.

Mitigation/enhancements

Policies will need to be kept under rolling review through monitoring and evaluation and adjusted accordingly.

Assumptions and uncertainties

None identified.

SA Objective 2. To provide sustainable employment opportunities that help tackle inequality and deliver a just transition

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+/?	+	+	++	++	++	0	++	+	++	++

Likely significant effects

Through the development of public sector leadership and ownership of achieving net zero by 2030 (Policies 76, 77, 79, 83) there is potential to engender innovation that could support local areas through the carbon transition and help reduce the pay gap, fuel poverty, and take into account SMEs and smaller businesses.

Sustainable procurement (79) and commitments to a low-carbon public sector transport and estate (Proposal 39, 80, 82) will help to support the broader transition to more diverse and hopefully sustainable employment opportunities, for example vehicle servicing and building maintenance. The transition to a net zero public sector by 2030 must be supported by procurement processes and this section would help to deliver that, and therefore support supply chain employment opportunities.

Overall, the policies, through targeted investment, should help to empower communities at local and wider scales in their transition to a lower carbon future.

Cumulative effects
Overall, the section is considered to have significant positive effects and would help secure progress towards a lower carbon economy.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
There is some uncertainty related to the Welsh Government's net zero plan and how that may support sustainable employment as it is subject to confirmation in CB2.

SA Objective 3. To address climate change

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	++	++/?	+	+	+	++	++	++	++	+/?	++	++

Likely significant effects
Many of the policies are likely to result in significant positive effects associated with the implementation of positive measures to mitigate and adapt to climate change and achieve net zero public sector by 2030. The public sector can be at the forefront of decarbonisation and an exemplar for other sectors to follow. NHS Wales is the biggest public sector emitter with around 1.00 $MtCO_{2e}$ and efforts to secure net zero by 2030 (82) are considered significant.

Policies related to public sector net zero in 2030 (1, 2), net zero public sector buildings and transport (Proposal 39, 80) and carbon sequestration (81) are likely to be significantly positive, creating a clear positive framework for behavioural change and investment in less carbon-intensive infrastructure.

In turn, Wales could be seen as a leader in the co-ordinated delivery of climate change policy responses that create opportunities for socio-economic advancement and environmental protection.

Cumulative effects
Overall, the section is considered to have significant positive effects.

Mitigation/enhancements

There is potential replicate the approach to the NHS, social care, and local government (81, 83, 84) across other public sectors such as higher education to enhance the outcomes.

Assumptions and uncertainties

There is some uncertainty related to the Welsh Government's net zero plan (77) as it is subject to confirmation in CB2 and the NHS Wales and LG Social Care Decarbonisation Plan (83).

SA Objective 4. To improve the physical and mental health and well-being of everyone

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	~	~	~	+	+	+	+	+	+	+	+

There are likely to be minor positive effects on health and well-being linked to the reduced emissions from new public sector cars and light good vehicles (80), which can support improved air quality, net zero buildings (Proposal 39) and net zero NHS Wales (82) although these are likely to be minor.

Cumulative effects

Cumulatively, the policies are likely to have a positive effect on health and wellbeing.

Mitigation/enhancements

None identified.

Assumptions and uncertainties

Uncertainties are associated with the likely effects of Policies 1 and 2.

SA Objective 5. To improve social cohesion and equality

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative

Score	++	+	+	+	0	++	~	0	+	+	+	++

Likely significant effects

Positive effects are assessed for a number of policies. Public sector route mapping and reporting (76) may provide opportunities to embed localised and community specific actions, including the community ownership of renewable infrastructure, into the public sector transition to net zero in 2030 (as in the Welsh Government Energy Service example).

The focus on Local Authorities is key to engendering localised decision making that reflects the communities where they are based. Support for improved housing stock (Proposal 39) is expected to help support community resilience. Additionally, this provides opportunities to addressed fuel poverty and address inequality.

Cumulative effects
Cumulatively, the policies are likely to have a significant positive effect.

Mitigation/enhancements
None identified.

Assumptions and uncertainties
None identified.

SA Objective 6. To improve natural and built environments

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+	~	~	~	+/-/?	+	+	+/-/?	~	+/-/?	+

Likely significant effects

The section is considered to minor positive effects overall, although many policies have a negligible relationship with the objective. Improvements to the public sector to help achieve net zero are likely to support improved air quality and reduce the effects on the natural and built environment.

Mixed minor positive and negative effects are assessed for policies related to refurbishment of properties (Proposal 39) and NHS Wales property improvements due to the potential for some limited and localised minor negative effects in the short term.

Cumulative effects
A minor positive cumulative effect has been identified.

Mitigation/enhancements
None.

Assumptions and uncertainties
It is assumed that the planning system will ensure that any localised effects on landscape/townscape from refurbishment (Proposal 39), NHS Wales or local government development (82, 84) are minimised or mitigated.

SA Objective 7. To encourage learning for life and help to equip everyone with the skills required for a changing world

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+	+	+	+	++	++	0	++	0	++	++

Likely significant effects
Various significant positive effects on skills development are identified associated with opportunities to re-position the public sector, wider economy and society towards a zero-carbon future.

Policies relating to achieving zero/low emission public sector vehicles (80), net zero buildings (Proposal 39), and decarbonised NHS Wales buildings and mobility (82) can all help to ensure that skills development for all ages can be a fundamental part of the changes and the new technologies, in particular, that will need to be employed.

As the zero carbon transition progresses, there is the opportunity for ensuring that schools and apprenticeships within the public sector, as well as higher education institutions, align training to the skills needed.

Cumulative effects
Cumulative effects are potential significantly positive in character.

Mitigation/enhancements
Further development of these policies is required to ensure that training and skills development opportunities are in place to support the policy outcomes identified.

Assumptions and uncertainties
None identified.

SA Objective 8. To help build resilient communities, culture and language

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+	~	~	~	+	~	~	+	+	+	+

Likely significant effects
Minor positive effects are assessed for a number of policies. Public sector route mapping and reporting (76) may provide opportunities to embed localised and community specific actions, including the community ownership of renewable infrastructure, into the public sector transition to net zero (as in the Welsh Government Energy Service example).

The focus on Local Authorities within the policies is key to engendering localised decision making that reflects the communities where they are based. Support for improved housing stock (Proposal 39) is expected to help support community resilience.

Cumulative effects
Cumulatively, the policies are likely to have a minor positive effect.

Mitigation/enhancements

None identified.
Assumptions and uncertainties None identified.

SA Objective 9. To help delivery of modern, connected, and resilient infrastructure

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+	~	~	~	++	++	~	++	+	++	++

Likely significant effects
There are various positive and significant positive effects likely to be associated with the proposed policies, reflecting their positive intention, with the public sector seeking to demonstrate good practice, supported by funding and monitoring. The commitment to zero carbon NHS Wales (82), net zero new build and refurbished public sector properties (Proposal 39), and low/zero emission vehicles (79) for example, presents a significant demonstration of a commitment to resilient infrastructure which could be become an exemplar for wider change. **Cumulative effects** Cumulative effects are likely to be positive/significant positive, although uncertain in their implementation. **Mitigation/enhancements** Through CB2 there is potential reflect the approach to the NHS and social care (82, 83) across other public sectors such as local government, higher education and social housing. **Assumptions and uncertainties** Various uncertainties associated with implementation in this immature policy area.

SA Objective 10. To ensure Wales is a globally responsible nation

Policy / Proposal	Policy 76	Policy 77	Policy 78	Proposal 38	Policy 79	Proposal 39	Policy 80	Policy 81	Policy 82	Policy 83	Policy 84	Cumulative
Score	+	+	+	+	+	~	~	~	+	+	+	+

Likely significant effects

The proposed policies are cumulatively likely to have minor positive effects on this objective.

There is the potential for Wales to be seen as a leader in public sector adaptation to the challenges of climate change and therefore strategies and targets developed to achieve net zero public sector in 2030.

However, much will depend on monitoring and implementation of those policies to ensure effectiveness. Adjustments to policy are likely to be required as understanding of policy effects evolves and the content and priorities of the climate change agenda are refined.

Cumulative effects

Cumulative effects are identified as being positive.

Mitigation/enhancements

Consideration could be given to 'exporting' the zero carbon routemap and reporting approach internationally through CB2 (Policy 76).

Assumptions and uncertainties

None identified.

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