

**REPORT OF THE PERFORMANCE AND COMPLIANCE CO-ORDINATOR AND
CONSERVATION POLICY OFFICER**

**SUBJECT: THE CONTRIBUTION OF PEMBROKESHIRE COAST NATIONAL
PARK AUTHORITY TO MEETING THE CHALLENGES OF THE CLIMATE
CHANGE EMERGENCY**

Purpose of the Report

This report outlines how the Authority across its functions is currently responding to Climate Change, via carbon reduction and sequestration, adaptation and mitigation. It also sets out recommendations on where potentially the Authority can make further reductions or impact.

Strategic Context

In March 2019 the Welsh Government published Prosperity for All: A Low Carbon Wales, which sets out 100 policies and proposals to set the foundations for Wales to transition to a low carbon nation. On the 29th of April 2019, the Welsh Government's Environment Minister Lesley Griffiths declared a climate emergency in Wales, highlighting the threat it poses to our health, economy, infrastructure and our natural environment.

The Welsh Government has committed to achieving a carbon neutral public sector by 2030. The Environment Act is Wales' only formal carbon reduction target – Act Part II specifies an 80% reduction in all net Wales emissions by 2050 against a 1990 baseline.

The Welsh Government's 2018 Valued and Resilient written statement on priorities for the Areas of Outstanding Natural Beauty and National Parks references the role that designated landscapes can play in contributing to a Carbon Neutral Wales:

- a) Designated landscapes must contribute to a sustainable low carbon economy for Wales, for example, through enabling the generation of renewable energy at an appropriate scale, water management and carbon sequestration.
- b) Through careful planning and management these landscapes can play a key role in meeting the challenges of adaptation and mitigation of climate change, achieving energy security whilst creating resilient communities and supporting the environment. Communities should be supported to bring forward appropriate renewable energy schemes which have the potential to reduce dependence on carbon based energy and be a source of revenue for the community.
- c) this Government has an ambition for the Welsh Public Sector to be carbon neutral by 2030. The National Park Authorities, in particular, can demonstrate leadership on achieving a carbon neutral public sector.

In May 2019 Pembrokeshire County Council declared a climate emergency and committed to making Pembrokeshire County Council a net zero carbon local authority by 2030.

Financial Considerations

The Authority is currently funding or has secured grants to fund carbon and waste reduction projects including water fountain project and electric vehicle charging points. Carbon reductions initiatives focused on energy, procurement and waste offer opportunities to reduce costs for the Authority. Financial and technological considerations including constraints and opportunities will impact on what interventions the Authority can pursue and timescales for implementation.

Risk Considerations

There is the potential for environmental, community and reputational impact arising from failure to meet the Welsh Government target to become carbon neutral by 2030.

Human Rights/Equality issues

Interventions developed to respond to climate change and carbon reduction need to take into account equality considerations from the start, including mitigating actions to ensure that people across protected characteristics are not disadvantaged by the solutions developed. Equality Impact Assessments are a tool officers can use to help them consider impacts.

Sustainable Development

Responding to Climate Change via carbon reduction and sequestration, adaptation and mitigation is integrated in work carried out by the Authority to achieve its Well-being Objectives and contribute to the Welsh Well-being Goals under the Well-being of Future Generations (Wales) Act 2015. To be effective it requires the Authority as shown in examples within the report to think long term, act in a preventative manner, work in an integrated and collaborative way and engage and involve people in activities it carries out.

Welsh Language statement

Interventions developed to respond to climate change and carbon reduction need to take into account impact on the Welsh Language when relevant.

Recommendation

That Members discuss and NOTE the report.

(For further information, please contact Mair Thomas, Performance and Compliance Co-ordinator or Michel Regelous, Conservation Policy Officer)

Consultees: Staff Reps, All staff, Chief Executive, Director of Planning and Park Direction, Head of Park Direction, Planning Officer, Building Projects Manager, Operations Manager, Administration Co-ordinator (Countryside, Community and Visitor Services), Business Improvement and IT Manager, Finance Manager

The contribution of Pembrokeshire Coast National Park Authority to meeting the challenges of the Climate Change Emergency

1. Introduction

- 1.1 This report outlines how the Authority across its functions is currently responding to Climate Change, via carbon reduction and sequestration, adaptation and mitigation. It also sets out recommendations for the future.

2. Climate Emergency Declarations and Carbon Reduction Targets

- 2.1 In March 2019 the Welsh Government published *Prosperity for All: A Low Carbon Wales*¹, which sets out 100 policies and proposals to set the foundations for Wales to transition to a low carbon nation. On the 29th of April 2019, the Welsh Government's Environment Minister Lesley Griffiths declared a climate emergency in Wales, highlighting the threat it poses to our health, economy, infrastructure and our natural environment.
- 2.2 The Welsh Government has committed to achieving a carbon neutral public sector by 2030. The Carbon Trust defines Carbon Neutrality as “A **carbon neutral footprint** is one where the sum of the greenhouse gas emissions (CO₂e) produced is offset by natural carbon sinks and/or carbon credits.”² The Environment Act is Wales' only formal carbon reduction target – Act Part II specifies an 80% reduction in all net Wales emissions by 2050 against a 1990 baseline. The Welsh Government has a target for 70% of electricity used in Wales to be from renewable sources by 2030. The Welsh Government also has a target for 1 gigawatt (GW) of renewable electricity capacity in Wales to be locally owned by 2030 and for all new projects to have an element of local ownership by 2020.
- 2.3 The Welsh Government's 2018 Valued and Resilient written statement on priorities for the Areas of Outstanding Natural Beauty and National Parks references the role that designated landscapes can play in contributing to a Carbon Neutral Wales:
- a) Designated landscapes must contribute to a sustainable low carbon economy for Wales, for example, through enabling the generation of renewable energy at an appropriate scale, water management and carbon sequestration.
 - b) Through careful planning and management these landscapes can play a key role in meeting the challenges of adaptation and mitigation of climate change, achieving energy security whilst creating resilient communities

¹ <https://gweddiill.gov.wales/topics/environmentcountryside/climatechange/emissions/prosperity-for-all-a-low-carbon-wales/?lang=en>

² <https://www.carbontrust.com/client-services/certification/carbon-neutral/>

and supporting the environment. Communities should be supported to bring forward appropriate renewable energy schemes which have the potential to reduce dependence on carbon based energy and be a source of revenue for the community.

- c) ...this Government has an ambition for the Welsh Public Sector to be carbon neutral by 2030. The National Park Authorities, in particular, can demonstrate leadership on achieving a carbon neutral public sector.

2.4 In May 2019 the UK Committee on Climate Change (UKCCC) recommended that a 100% reduction in greenhouse gas emissions should be legislated “as soon as possible” and urged Government to set a net zero CO₂ emissions target by 2050. In May 2019 following the Welsh and Scottish Governments the House of Commons declared a climate emergency. Welsh Government has accepted the recommendations from the UK Committee on Climate Change for emission reduction of 95% by 2050 with ambition to be net zero.

2.5 In May 2019 Pembrokeshire County Council declared a climate emergency and committed to making Pembrokeshire County Council a net zero carbon local authority by 2030. It is important that the Authority continues to work closely with Pembrokeshire County Council and other Members of the Pembrokeshire Public Services Board to ensure this target is achieved.

2.6 See Appendix 1 for information on current PCNPA emissions (p22).

2.7 See Appendix 2 for information on UK Climate Change Risk Assessment 2017 Evidence Report Summary for Wales (p24).

2.8 See Appendix 3 for information on State of Natural Resources Report 2016 (p27).

2.9 See Appendix 4 for further information on Authority’s Climate Change Adaptation Report produced in 2013 (p29).

3. Actions Taken – Strategic Integration

3.1 Carbon reduction and responding to the impact of climate change are recognized within key Authority strategic planning documents and partnership plans that drive the priority actions of the Authority:

Plan	Key Areas
National Park Management Plan	Current Plan (2015-2019): <ul style="list-style-type: none"> • CC1: Reduce greenhouse gas emissions • CC2: Adapt to climate change and support a low-carbon economy. Consultation Draft Plan (2020-2024)

	<ul style="list-style-type: none"> • N1: Contribute to a low carbon economy for Wales and adapt to climate change, e.g. <ul style="list-style-type: none"> ➤ Collaborate in delivery of actions in Prosperity for All: a Low Carbon Wales including a carbon neutral public sector by 2030, implementing renewable energy and energy efficiency measures, reducing transport emissions and safeguarding and increasing carbon storage including agricultural soils. ➤ Collaborate through the Pembrokeshire Greenways Partnership to provide and promote accessible and affordable public transport, active travel and low-carbon vehicle initiatives. • N3: Conserve and enhance soils and natural carbon storage e.g. <ul style="list-style-type: none"> ➤ Promote locally-produced, environmentally sound and socially responsible food (e.g. organic standard, community-grown or conservation-grade produce). ➤ Support soil conservation, management of peat soils, wetland protection, conservation and expansion of semi-natural habitats, trees in the landscape and reduction of artificial inputs. • E1: Protect and improve biodiversity quality, extent and connectivity at scale, e.g. <ul style="list-style-type: none"> ➤ Conserve and restore semi-natural woodland, wood pasture, trees in the landscape and field boundaries, taking into account species' connectivity needs, landscape and the impacts of plant pathogens e.g. <i>Chalara</i> ash dieback.
<p>Local Development Plan 2 (to 2031)</p>	<p>The Deposit Plan for the Local Development Plan 2 (currently under examination) includes policies on climate change, sustainable design, renewable energy, and flooding. The Local Development Plan strategy directs new development primarily to towns and villages which have services and facilities to support new growth and reducing the need to travel. The information contained in the Shoreline Management Plans has been used to identify Coastal Change Management Areas in the Local Development Plan 2. These are at Tenby, Solva, Saundersfoot, Newport, Newgale, Little Haven, The Gann, Dale, Broad Haven, Angle, Amroth and Wiseman's Bridge. Within these areas new development will be restricted and existing properties may wish to relocate inland as part of an adaptation process. This is a key change in the Plan. The Authority is also required to apply national planning policy set</p>

	by the Welsh Government when considering planning applications
Corporate and Resources Plan 2019-2020	<p>The Authority's well-being objectives include:</p> <ul style="list-style-type: none"> • Prosperity - To encourage and support the development of sustainable employment and businesses, particularly in tourism and recreation • Resilience - To improve the health of the National Park's ecosystems • Communities - To work alongside communities to help make the most of the NPA • Resilience - To ensure our work makes a positive contribution to global well-being <p>Work streams under these objectives include Sustainable Tourism and Recreation: Management and Promotion, Land Management Service: Conservation, Biodiversity and Connectivity Projects, Looking after the Park's Ecosystem: Engagement and Volunteering, Sustainable Development Fund, Carbon Neutral Authority, Sustainable Transport, Climate Change Risk and Adaptation, Marine and Foreshore Environment.</p>
Pembrokeshire Well-being Plan 2018	<p>Plan projects (that as a Member of the Public Services Board the Authority is involved with) include:</p> <ul style="list-style-type: none"> • Environmental and Climate Change Risk Assessment • Carbon Neutral County • Celebrating the great outdoors
Pembrokeshire Rights of Way Improvement Plan 2	<p>Plan objectives include:</p> <ul style="list-style-type: none"> • Objective A – to maintain an accessible network of public paths; • Objective B – to provide a more continuous network that meets the requirements of all users; • Objective C – to work with the highways and construction section of the County Council to develop a safer network of paths with regard to the road network; • Objective D – to improve legal procedures for recording, protecting and changing Public Rights of Way; • Objective F – to increase the awareness and use of countryside access opportunities afforded by public paths and access land through promotion and information provision.
Nature Recovery Plan for Pembrokeshire	The Pembrokeshire Nature Recovery Plan replaces the Local Biodiversity Action Plan for Pembrokeshire, and closely follows the format of the Wales Nature Recovery Plan. It provides the framework for local biodiversity action that will contribute to the

2018	<p>delivery of national targets for key habitats and species and raise awareness and understanding of the relevance of biodiversity. Examples projects include:</p> <ul style="list-style-type: none"> • Work with the private sector to embed biodiversity in decision making. • Assist partners in identifying, developing and delivering actions to increase the resilience of our natural environment by restoring degraded habitats and habitat creation in Pembrokeshire. • Work with site owners and site managers to reduce the fragmentation of habitats, setting individual actions in the broader, landscape scale context through initiatives such as B-Lines, the Long Forest and the Reconnecting Welsh Dragons project and others as they arise. • Increase resilience of species, habitats and ecosystems to the effects of climate change through improving the condition, extent and ecological connectivity of our nature-rich areas. • Encourage the use of natural solutions such as reed beds, buffer strips and contour hedge planting to reduce diffuse pollution and soil erosion.
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4. Actions Taken – Corporate Policy, monitoring and contributing to the evidence base

4.1 Environmental Policy

4.1.1 The Authority is currently reviewing its Environmental Policy. The purpose of this policy is to set out the Authority’s commitment to minimising negative impacts on the environment and to help facilitate enhancements where possible. An action plan will be developed once the revised policy is approved by the Authority to help implement and drive delivery of policy objectives across the Authority.

4.2 Monitoring

4.2.2 The Authority currently has in place mechanisms to monitor and calculate the Authority’s carbon emissions. The current method of calculation is based on the DEFRA carbon calculator also used by the National Trust. In 2018/19 using this methodology it was calculated that the Authority’s carbon emissions were 898,479 kg. This compares to 946,712 in 2017/18 and is a 5% decrease. Please note this figure has not been independently verified.

4.2.3 At a Wales national level work is being carried out by the Welsh Government and the Carbon Trust that will influence future calculation methods as these are standardised in order to develop a baseline for the Public Sector to monitor progress against Welsh Government targets under the Environment (Wales) Act 2016. In 2018/19 Officers met with a representative of the Carbon Trust to discuss the current approach of the Authority. At a local level the Pembrokeshire Public Services Board has a project focused on Pembrokeshire becoming a Carbon Neutral County and is looking at how other public bodies can adopt the approach used by Natural Resources Wales in its Carbon Neutral Project. The Authority will participate in a future proposed regional workshop led by NRW looking at Carbon baseline measurements at a local level.

4.3 Recording Change

4.3.1 The Authority has been engaging the public in capturing the impact of climate change and coastal erosion through its Changing Coast project. Members of the public are encouraged to take and submit a photo from one of the Authority fixed point photography posts. Each fixed photography point has been carefully chosen to help the Authority record different kinds of changes such as dune erosion, cliff erosion, changing vegetation, changing sand levels, changes to pebble banks, changes to stream course and flooding. The submitted photos are added to the other shared images to create a time lapse film to show change. In 2018/19 there were 730 submissions and 629 in 2017/18.

5. Actions Taken – Buildings and Energy

5.1 Authority Properties and Energy Consumption

- 5.1.1 The Authority has had a long standing Greening the Buildings programme. The Authority takes an “Efficiency First” approach through its environment audit system for buildings which includes:
- a) Managing an effective energy monitoring system for each property
 - b) Fitting secondary glazing
 - c) Replacing bulbs
 - d) Introduction of water saving measures
 - e) More efficient control of boilers and running times
 - f) Increasing insulation to building elements & pipework
- 5.1.2 The Authority has a biomass boiler at Llanion Park H.Q and Castell Henllys. Carew has an air source heat pump and Oriel y Parc has a ground source heat pump. There are photovoltaic panels at Llanion

Headquarters and Oriel y Parc Gallery and Visitor Centre. 26,736 Kwh of renewable energy was produced from them in 2018/19. The Authority is currently exploring the feasibility of installing photovoltaic panels at two other Authority sites, Cilrhedyn and Castell Henllys.

- 5.1.3 Llanion Headquarters is the only National Park Authority building that is covered by the Energy Performance of Buildings Directive which requires a formal independent energy assessment and has to Display Energy Certificates (DECs). Its current rating is a B. In Llanion the Authority has seen its annual metered electricity use decrease by 37,126 Kwh from 126,537 Kwh in 2012/13 to 89,411 Kwh in 2018/19.
- 5.1.4 The Authority has sought to develop a solution to a challenging area of energy consumption in relation to the maintaining of strict climate controls within the gallery at Oriel y Parc. Strict climate controls have been required in order to be able to display work from the Amgueddfa Cymru – National Museum Wales. Authority staff have worked closely with Museum staff including the Principal Preventive Conservator to come up with a proposal that could make significant energy savings in the way the galleries at Oriel y Parc are operated and which could translate into cost savings for this Authority. Areas looked at include:
- a) testing overnight shutdown in Gallery 2. Involving programming the environmental control plant to turn off completely after the gallery has closed for the night and then turning it on again approximately 1 hour before the gallery door is opened for the first time in the morning.
 - b) upgrading lighting with LED fittings and lamps with permission from Amgueddfa Cymru – National Museum Wales.
- 5.1.5 The Authority currently procures 100% of its supplied electricity energy from certified renewable generation source. Pembrokeshire County Council sits on the NPS Energy Sub Group and represents the interests of Pembrokeshire Coast National Park Authority on this group.
- 5.1.6 The Authority also recently attended the first Pembrokeshire Energy Forum meeting which provides opportunities for joint working.

5.2 Sustainable Development Fund – Energy focused projects

- 5.2.1 The Pembrokeshire Coast National Park Authority Sustainable Development Fund (SDF) supports projects that provide social, environmental, economic and cultural benefits, to improve the quality

of life for communities in the National Park. Energy focused projects supported through the fund have included:

- a) *Ty^ Solar*, a prototype affordable eco-home built from Welsh timber by local people using locally-sourced materials
- b) Marine Renewable Supply Chain Project to assess the supply chain capabilities of Pembrokeshire companies with the potential to diversify into the Marine Renewable Energy (MRE) industry
- c) Photovoltaic panels for *Café Mor* at Freshwater West.
- d) Ramsey Power Project providing new renewable energy system on Ramsey Island

6. Actions Taken – Transport and Vehicle Related

6.1 Electric Vehicle Charging Points

- 6.1.1 The Authority has been working with Pembrokeshire County Council on the development of a network of electric vehicle charging points in Pembrokeshire including the National Park. The scheme is designed to give coverage across the county of Pembrokeshire to address the electric vehicle charging needs of residents, visitors and primarily to support and encourage the transition to electric vehicles.
- 6.1.2 Pembrokeshire County Council is currently preparing their second phase of procurement for electric vehicle charging points installations across the county and the Authority has been invited to be part of that process and include our sites in the Council's document. £30,000 has been allocated for phase 1 of this project for 3 sites - 2 points at Brewery Meadow car park in Saundersfoot, 2 points at Porthgain Harbour and 2 points (to replace the single point) at Oriel Y Parc. Installation for the above (subject to tenders received) is planned for January – March 2020. Further sites across the Park are being highlighted for Phase 2, subject to funding.

6.2 Helping to fund the Coastal Bus Service

- 6.2.1 The Authority helps fund the Pembrokeshire Coastal Bus Service through the Greenways Partnership. The Pembrokeshire coastal bus services run up and down the National Park coastline, ensuring that the entire length of the 186 mile (299km) Pembrokeshire Coast Path National Trail, from St Dogmael's to Amroth, is accessible by public transport. This service enables people living locally and visitors to get around the coast without having to use a car. In 2018, 62,968 people

used this service over the summer months. Since 2009, 663,855 people have used this service.

6.2 Active Travel

- 6.2.1 The Authority continues to invest in maintaining the Coast Path and Inland Rights of Way in the Park Area. 86.92% of Public Rights of Way in the Park are open and accessible (998.7 km.) Some of these paths will interlink with active travel opportunities. The Authority worked in partnership with Pembrokeshire County Council on the development of the revised Rights of Way Improvement Plan.
- 6.2.2 The Authority also provides information on its website on circular walking opportunities. It also developed a Walks for all Guide that provides information for people to decide for themselves if a route, is suitable, depending on their own needs and abilities. The walks are intended for people who use mobility scooters, manual or powered wheelchairs and for people who have limited walking ability. The walks can therefore be enjoyed by family groups with toddlers and pushchairs as well as people with mobility problems and wheelchair users. In 2018/19, 43,018 circular map routes were downloaded from the Authority's website, 4,094 of these related to wheelchair walks. The Authority has also removed where possible stiles and replaced them with gates to improve accessibility.
- 6.2.3 The Authority continues to support and deliver projects that help build people's confidence to take up walking opportunities within their locality. The Authority's supported walking project Walkability had 1,730 participants across its sessions in 2018/19. Pembrokeshire National Park Authority also co-ordinates the *Let's Walk Pembrokeshire* initiative that supports the work of the Creating an Active Wales Pembrokeshire Partnership. Partners include the National Trust, Communities First, and Pembrokeshire Libraries. *Let's Walk Pembrokeshire* promotes a range of activities, events and routes that will help people take the first steps to making walking a part of their daily routine.
- 6.2.4 Staff Members of the Authority are also able to access the Cycle to Work Scheme.

6.3 Fleet Management

- 6.3.1 In 2018/19 the Authority contracted a Fleet Management company to manage its fleet, an aspect of their work will include looking at

Greening the Fleet. This will include looking at the replacement of older vehicles with lower emission vehicles. The Authority currently has 1 hybrid pool car. A demonstrator electric vehicle has been tested at Carew, however there were issues with its use on site. The Authority is currently exploring demonstration options elsewhere including for the pool fleet and in relation to electric vans for the new pollinator warden and one of the Authority Rangers. Due to current technical (battery size) and cost limitations the Authority is not currently looking to replace four by fours used by certain teams with electric versions. The challenge is finding suitable electric vehicles that can perform well on variable terrain and pull heavy loads.

- 6.3.2 The mileage travelled by Authority personnel has decreased by 17,984 miles from 357,075 in 2017/18 to 339,091 in 2018/19. The Authority continues to look at ways travel costs and emissions can be reduced through its travel policy. Staff are encouraged to think about is the journey necessary, consider alternatives e.g. video conferencing, consider public transport, explore car-sharing options before using a pool car, hire car or their own vehicle. Further work and data collection could be carried out to see what sort of efficiencies could be made in terms of usage.

7. Actions Taken – Procurement

7.1 Procurement Processes

- 7.1.1 The Authority has in place a sustainable procurement policy and as part of this there is a sustainable procurement checklist that staff should follow when seeking to procure goods.
- 7.1.2 46% of Authority income was spent locally (SA postcode) in 2018/19. The Authority monitors indirect transport emissions. In 2018/19 the mileage travelled by suppliers had increased slightly but not significantly by 1,049 miles from 106,594 in 2017/18 to 107,643.

7.2 Uniforms and Equipment

- 7.2.1 In 2017 UK's National Parks announced a five-year partnership with Columbia Sportswear, making Columbia the official outfitter of the UK National Park's staff. Further information on Columbia Sports responsible practices can be viewed here: <https://www.columbiasportswear.co.uk/c/csr-practices>. This page also contains link to their position statements on areas such as climate change and Perfluorinated Compounds (PFCs).

- 7.2.2 The Authority has experimented with electric powered machines including power-barrows and brush cutters. However, the Authority has had limited success, largely due to the power difference between battery and petrol machines when they are used intensely. Battery operated machinery can also be poor in wet conditions.
- 7.2.3 A funding bid has been put together for £5,000 for battery operated equipment to be used for work and in situations where machinery is less intensively used. This includes electric brushcutters, polecutters, chainsaws and blowers. This equipment would be used at our Centres (Oriol y Parc, Carew and Castell Henllys) where they will be less intensively used – i.e. not used for hours each day. The added advantage is that battery operated machinery is less noisy for residents and visitors. The new Pollinator Warden will be issued with a battery operated Brushcutter, for small jobs. The Authority has recently invested in brand new petrol pedestrian flails, which will be much more efficient fuel wise than older models.
- 7.2.4 However, realistically for the Authority unless battery technology dramatically improves, the changes we make in terms of equipment will be pretty limited.

8. Financial Investments and Pensions

- 8.1.1 Dyfed Pensions has in place socially responsible investment policies to guide investment managers. The fund has a financial duty to obtain the best financial return on its investments against a suitable degree of risk. It also considers a company's good practice in terms of social, environmental and ethical issues is generally likely to have a favourable effect on the long-term financial performance of the company and improve investment returns to its shareholders. The investment managers, acting in the best financial interests of the Fund, are expected to consider, amongst other factors, the effects of social, environmental and ethical issues on the performance of a company when considering the acquisition, retention or realisation of investments for the Fund.
- 8.1.2 In terms of the Authority's financial investments Lloyds Banking Group has sustainability guidance that provides guidance to relationship managers and sanctioning officers on Climate Related Risks and Climate Related Opportunities (including low emission sources of energy, emergence of new technologies, use of more efficient modes of transport, shifting consumer preference.)

9. Actions Taken – Waste

9.1 Recycling and reducing waste

- 9.1.1 Recycling is carried out across Authority sites. Staff have also driven initiatives within the Authority relating to increasing recycling opportunities and reducing waste, including at Llanion the setting up of the Razorbill Bazar to enable staff to sell unwanted goods and preventing them from going to landfill, collecting crisp packets for a crisp packet recycling scheme and creation of eco bricks.
- 9.1.2 In July 2018 the Authority opened the Nest Café at Carew, which it runs. The café is striving to be single-use plastic free and our packaging including takeaway cups are compostable or degradable.
- 9.1.3 Further work could be carried out to revisit previous work on waste management carried out by the Authority when it was part of the Green Dragon scheme. However staff commitment is a key driver for improvement in this area, as shown by the work of the Caretaker in Llanion that has led to a reduction in 'black bag' waste at the site.

9.2 Water Refill Project

- 9.2.1 The Authority received Tourism Amenity Investment Support funding in 2018/19 to enable it to trial and develop the provision of water refill bottle stations within the Park. PCNPA and Danfo carried out site surveys in 2018/19 to identify potential sites and Nolton Haven Car Park has been identified as the first installation planned for Autumn 2019.

9.3 Awareness Raising and Litter Picks

- 9.3.1 The Authority in 2018/19 carried out a range of activities to raise awareness of marine plastic pollution and activities to help respond to this issue. This included the holding of the Coast exhibition at Oriel y Parc, associated sessions with schools around this exhibition and commissioning of year of the sea metal sculptures in the shapes of dolphins and razorbills that the public fill with plastic waste at events, beach cleans and on sites.
- 9.3.2 181 people were engaged in beach cleaning or litter picking activities facilitated by the Authority in 2018/19.
- 9.3.3 The Authority provides funding as a relevant authority to the three marine European Sites that adjoin the National Park. Funding has been used to undertake beach cleans, provide marine litter art

workshops, involving schools and businesses in community litter reduction and the responsible disposal of derelict fishing gear.

9.4 Sustainable Development Fund – Circular Economy

9.4.1 The Pembrokeshire Coast National Park Authority Sustainable Development Fund (SDF) July 2019 Committee resolved to provide funding to St Davids Old Farmhouse Brewery project. The project involves the diversification of a family beef farm through applying circular economic principles to create a Microbrewery via a cycle of production supported by the farm's natural resources; crops and materials, including barley and honey.

10. Actions Taken – Carbon Sequestration and Conservation

10.1 Carbon Sequestration

10.1.1 Carbon sequestration refers to the capture and storage from the atmosphere of carbon dioxide and other forms of carbon through biological, chemical and physical processes, including artificial processes.

10.1.2 As a land owner / manager and influencer (e.g. through management agreements) the Authority has roles to play in terms of carbon sequestration and retention of stored carbon, in vegetation and in soils. The following sections outline the Authority's main land management roles.

10.1.3 Note: as a public body a question arises as to whether the Authority should lay any offset claim to carbon sequestration simply by virtue of ownership. It seems appropriate to separate the Authority's custodial roles (e.g. looking after existing woodland) from value-added roles (e.g. increasing trees, meadows, mires and heath in the landscape, reducing grazing levels).

10.2 Land Management and Conserving the Park

10.2.1 As part of Pembrokeshire Coast National Park Authority's land management programme, tailored conservation work is carried out on over one hundred sites aimed at benefitting priority habitats and species within Pembrokeshire Coast National Park, covering 4,324 hectares (7% of the National Park). In 2018/19 463 hectares of property owned or leased by the Authority was managed for biodiversity, 1,110 hectares of land was managed for biodiversity in partnership with private landowners and 2,750 hectares of Access

land where the Authority supports common management partnerships. This is achieved through the management of the Authority's owned or leased estate and also through working in partnership with private landowners with our 'Conserving the Park' scheme, with practical elements of conservation work carried out in partnership with the Warden and Ranger teams, including volunteers.

10.3 Specific Conservation Projects

- 10.3.1 The Authority also supports and delivers specific conservation projects, either through direct delivery or as part of a partnership.
- 10.3.2 Funding was secured in 2018/19 for the Paths, Plants and Pollinators (P3) Pilot Project that aims to enhance the biodiversity alongside the Newgale to Abereddidi section of the Pembrokeshire Coast Path. The pilot area falls within the Pembrokeshire Coast Important Invertebrate Area. The project partners (Natural Resources Wales & the Authority) will achieve this through working together with landowners, The National Trust, Buglife Cymru, Bumble Bee Conservation Trust and volunteers to identify and implement a range of practical management activities. A pollinator warden will be employed as part of this project. Learning from this project has the potential to influence future ways of working for Warden Team in relation to the Coast Path.
- 10.3.3 The Authority has been successful in securing continuation funding for the Stitch in Time Project from the Welsh Government's Enabling Natural Resources and Well-being in Wales fund and the Welsh Water Catchment Fund. The project will focus on monitoring and maintenance of outcomes in the Gwaun and Porthgain catchments in terms of invasive species and initiating action on the Castlemartin Corse Catchment in partnership with Natural Resources Wales.
- 10.3.4 Previously the Authority's Naturally Connected project over 18 months in 2017 and 2018 explored the opportunities for working with the local tourism industry in enhancing their land for wildlife. Seven businesses took part in the project including; Brandy Brook Camping Site, Llwyngwair Manor Holiday Park, Manorbier Youth Hostel, May Cottage, Penrhiw Hotel, Picton Castle and Tyriet Farm (Bluestone Brewery). An ecologist visited each site to carry out a wildlife survey of their land and also to make recommendations for enhancing their land for wildlife. Each business received their own report on the wildlife on their property as well as information about special places and wildlife experiences in the area local to them for their own use

and also to share with their visitors. The Authority worked with businesses to identify a small project aimed at enhancing or interpreting the wildlife biodiversity on their land. These projects were then implemented with a small budget and practical support through the National Park Rangers and the Pathways Project.

10.4 Woodland Restoration and Meadows

- 10.4.1 Woodland has the one of the, if not the greatest combined carbon storage potential (i.e. soil plus vegetation) of the UK's habitats. While scope for new woodland planting may be limited in a coastal environment, there does exist considerable scope to add trees in the landscape, e.g. in fields and in field boundaries, as woodland strips, and through regeneration.
- 10.4.2 Ancient Woodland Restoration is on-going at the Authority owned Pengegin site. Timber extraction is complete and volunteers have now planted half the site with native species such as oak, birch and hazel.
- 10.4.3 Officers attended an Ash Dieback event launching the Tree Council's Ash Dieback Toolkit in 2018/19. The toolkit aims to raise awareness of the disease, help the development of local action plans, identify best practice for managing non-woodland trees and advise on recovery and creation of alternative treescapes.
- 10.4.4 The Pembrokeshire Coast National Park Authority has changed the management of several grassland sites it owns to create flower-rich habitats suitable for a wide range of pollinators, including bees, butterflies, beetles and hoverflies. The Authority has meadows at Carew Castle, Skrinkle Haven, Minwear Picnic Site, St David's Airfield and Porthgain and its headquarters in Pembroke Dock. The meadow at Llanion showed a notable improvement in species richness this year. Of particular note was a record of 3 Southern Marsh Orchids – a first for the site. 6 Hectares of new pollinator habitat has been created through the Conserving the Park scheme in 2018/19. This adds to the 38 hectares created in 2017/18.

10.5 Working in Partnerships

- 10.5.1 The Authority continues to contribute and work with a range of partnerships that contribute to conservation in the Park and surrounding area including the Pembrokeshire Nature Partnership, Pembrokeshire Grazing Network, Milford Haven Waterway Environmental Steering Group and Relevant Authority Groups for Pembrokeshire Marine Special Area of Conservation, Cardigan Bay

Special Area of Conservation and Carmarthen Bay and Estuaries
European Marine Sites.

10.6 Search Engine

10.6.1 The Authority's IT Team have promoted the use of the Ecosia Search Engine which can be used as the default search for any desktop web browser. The Ecosia search engine pledges to plant trees using the profit made from searches.

11. Actions Taken – Community Based Projects, Awareness Raising and Education

11.1 Trees and school grounds

11.1.1 Volunteer days facilitated by the Authority contributed to tree planting in 2018/19 while other volunteer activities included removal of tree guards and scrub clearance around trees. Examples of activities undertaken include

- a) planting of 100 trees with participants from Clynyw Care farm with 900 trees sorted and given to St Dogs Peoples Orchard staff.
- b) planting trees at Aberfelin with Team Around the Family participants.
- c) Voluntary Wardens North tree planting in Brynberian
- d) Duke of Edinburgh Open Award Group Tree planting at Allt Pengegin.
- e) tree planting in school grounds at Ysgol Penrhyn Dewi
- f) Pathways volunteers carrying out Tree Guard clearance at Cilrhedyn and planting oak and ash trees Gwaun Valley

11.1.2 The Authority has continued to carry out schools ground work to assist outdoor learning through the Rangers team working with schools and pupils. Examples of work carried out in 2018/19 included

- a) building bug hotel with Mount Airey Nursery School and Ysgol Llanychllwydog.
- b) wildlife garden and pond creation at Milford Haven School
- c) creating wildlife sensory garden at Pembrokeshire Learning Centre, Neyland.

11.2 Awareness Raising and Climate Change

- 11.2.1 Events at Centres or run by the Authority across the Park and community engagement activities offer opportunities for the Authority to engage with the public on issues relating to climate change.
- 11.2.2 In 2018/19 Rangers delivered community group talks on Climate Change to Saundersfoot WI and Fishguard Friendship Group.
- 11.2.3 In July and August of 2018 Oriol y Parc hosted an Artist in residence exhibition by Professor Karen Ingham featuring photography, digital textiles and various forms of craft. Deluge, took inspiration from the Pembrokeshire Coast National Park and oceanic climate change. It included powerful images that mixed microscopic images of plankton, pollinating insect behaviour patterns and the movement of oceans. Oriol y Parc also hosted Climate Minds, an event involving a (poetic) conversation on climate change & our (creative) responses.
- 11.2.4 The Authority's Interpretation Officers actively seek to promote awareness of the impact of climate change on Pembrokeshire's landscapes, and to inspire and motivate the public to make changes to their lifestyles in response to climate change, in their projects. The Interpretation team also collaborates with other teams on their projects, and current relevant examples include the Pollinators and Meadows projects, Broad Haven car park refurbishment (interpretation to explain the installation of water fountain), including themes and messages relating to climate change and plastics in the exhibitions at Oriol y Parc gallery. The interpretative materials at Castell Henllys and Carew Tidal Mill promote sustainable lifestyles by giving visitors an insight into how people in the past managed and harnessed natural resources sustainably. The Park Authority will continue to place messages around sustainability and climate change at the heart of our interpretation at these sites and at other sites as they are updated.

12. Environmental Awards

- 12.1 The three Authority Centres (Castell Henllys, Carew and Oriol y Parc) have Green Key Awards. The Green Key award is the leading standard for excellence in the field of environmental responsibility and sustainable operation within the tourism industry.
- 12.2 In 2018 PCNPA became the first National Park in Wales to be awarded Bee Friendly Status by the Welsh Government. Bee Friendly is an initiative run by the Welsh Government to widen participation in the delivery of the Wales Pollinator Action Plan. The award recognises the

significant efforts of the Authority to manage our owned estate in a way that is of benefit to pollinators in particular our work on species-rich meadow creation at Llanion HQ as well as other sites such as St. Davids Airfield, Carew Castle and Skrinkle Haven.

13. Actions Taken - Coastal adaptation and adverse weather

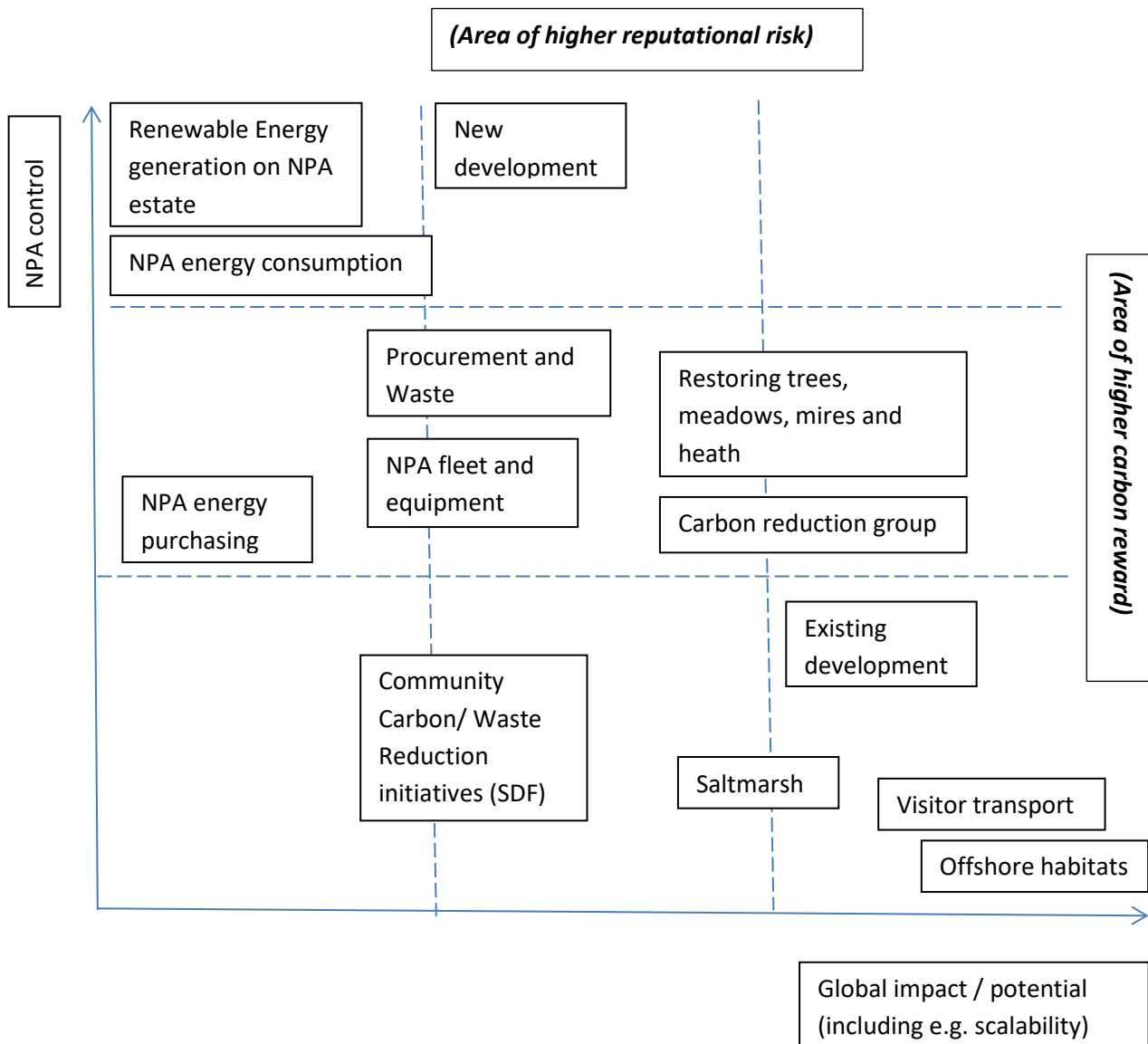
13.1 Climate Change Risk Assessment

13.1.1 The Authority is currently represented on the Natural Resources Wales led Public Services Board integrated project group for environmental and climate change risk assessment.

13.3 Response at Operational Level

13.3.1 As part of the Digital Park project work is being carried out to digitise the Authority's current process in relation to responding to impact of adverse weather. This will help with monitoring both the impact of adverse weather and our response. As part of this, ongoing work is being carried out on revising the Authority's tree inspection standard operating procedure, weather triggers and infrastructure checks.

14. Assessing where the Authority can make further reductions and impacts



The table above attempts to show where action areas fall in terms of: (a) the control which the Authority has or could have (vertical axis) and (b) in terms of the carbon reduction impact action areas have (horizontal axis). The reasons for this initial placement of actions are given below. These would benefit from discussion by the Authority as they have the potential to inform the route plan toward becoming a carbon-neutral authority.

Note – it may be possible to deliberately exert greater control over some actions, i.e. move them upwards in the table. However, actions towards the top of the table could carry more reputational risk in the sense that the Authority has more

control, so failing to act could damage the Authority's reputation, even if the carbon reduction impact is minor.

Reasons for placement:

- Own Renewable Energy generation – High degree of control but finite opportunity due to limitations of estate (no assets are held by the Authority explicitly for renewable Energy generation.)
- National Park Authority energy purchasing – Authority is already on 100% renewable tariff, control limited as energy purchasing done centrally through Welsh Government.
- NPA Energy Consumption - High impact in terms of what the Authority consumes.
- NPA fleet and equipment – Limited by technology available and lifecycle costs. Consideration of reduction in usage. Depreciation also a factor as technology advances rapidly.
- Procurement and Waste – Control of what we procure, use and consume. There is some limitation in terms of waste hierarchy. Procurement regulations can impact on indirect transport emissions.
- New development (Planning) – Within the framework set by national policy the Authority has a high degree of control but is limited by the number and nature of applications put forward.
- Existing development (Planning) – Greater efficiency of existing buildings would have a moderate impact but the Authority has a limited ability to influence.
- Restoring trees, meadows, mires and heath - Habitat restoration at a range of scales to safeguard carbon already stored in soil and vegetation, and to sequester additional carbon, with wellbeing, enjoyment and understanding benefits. Could be an increased focus in future.
- Offshore habitats, particularly seagrass meadows, can be major (and collectively extensive) carbon stores and sinks. However, carbon can be rapidly released when they are damaged by human activities. The Authority has limited direct influence over offshore habitats.
- Saltmarshes and other coastal ecosystems can sequester large amounts of carbon. Coastal retreat may result in saltmarsh creation (and loss). The Authority has limited direct influence over saltmarsh / estuarine habitats.
- Visitor transport – A large number of private vehicle miles are attributable to enjoyment of the National Park. Continued involvement in public transport and active travel opportunities is essential, although the degree of influence is limited compared to the scale of the issue. Opportunities to further assist the creation of network of electric vehicle charging points in the Park, dependent on funding.

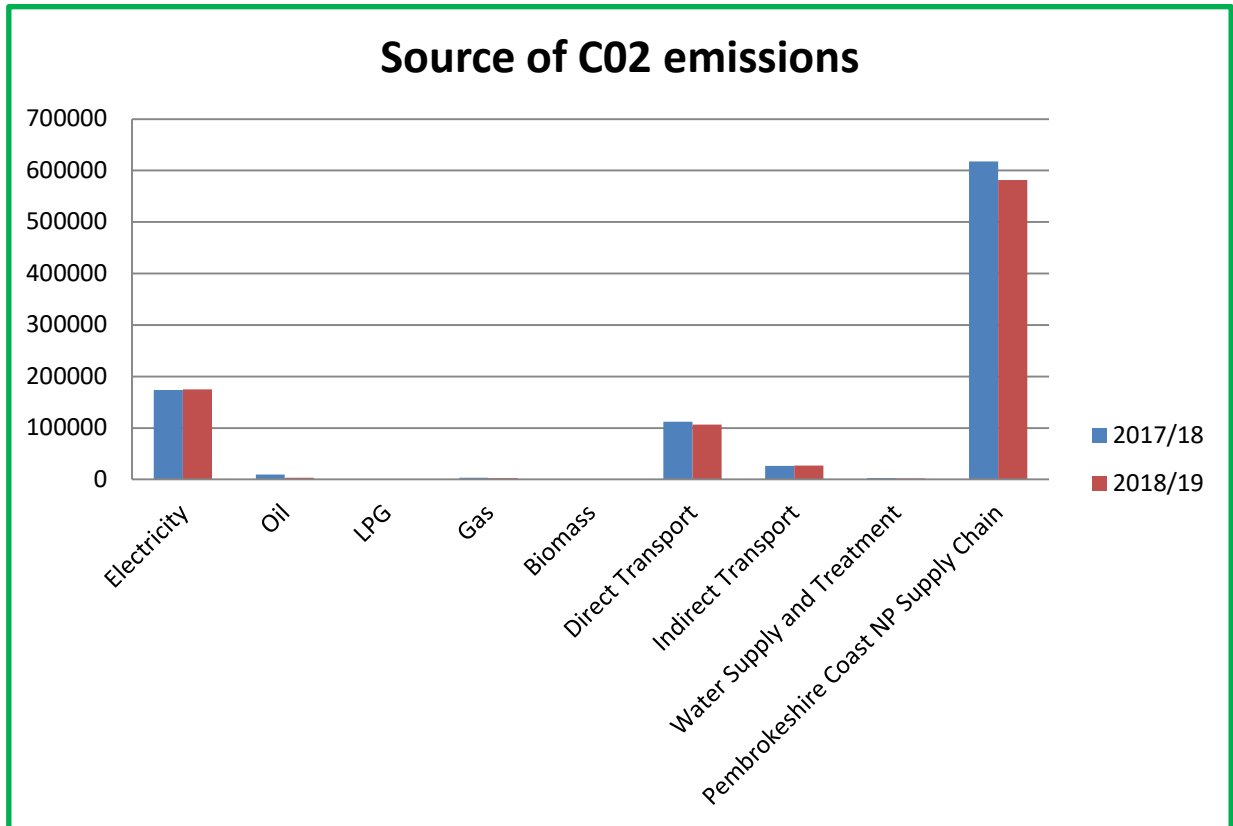
- Community Carbon/ Waste Reduction initiatives (SDF) – Opportunities to focus SDF funding on innovative carbon reduction, renewable energy generation and waste reduction/circular economy projects. This is dependent on relevant projects coming forward.
- Public sector carbon reduction group – Continued opportunities for collaborative working with Pembrokeshire County Council and other public and private sector bodies (including tourism businesses). Potential for ideas from group to be passed to the wider private sector.

15. Developing a route plan towards being net zero carbon

- 15.1 The Authority and other public sector bodies have 10 years to become carbon neutral under Welsh Government targets. To achieve this, the Authority requires a clear plan and identification of suitable and realistic time scaled targets across different areas. It will require developing different ways of working and the need to forward plan now to be able to implement changes across this 10 year period. This will have an impact on how we deliver services and how we operate. A mid-point review in 2025 will be central to ensuring we are on track and if not to investigate why and identify alternative interventions or approaches. The Authority will need to take account in this time period of wider changes including developments relating to energy production and waste, technological advancements, changes relating to land management schemes following Brexit and wider funding constraints and opportunities. It will need to continue to learn from and work with other public bodies if it wishes to achieve a carbon neutral status.
- 15.2 The Authority is currently waiting for the specific formalised greenhouse gas targets and reporting methodologies from the Welsh Government that will assist it in developing a clear plan and route towards being net zero carbon by 2030. The Authority will also participate in a future proposed regional workshop led by NRW looking at Carbon baseline measurements at a local level.
- 15.3 Further work is needed to look at how we can assist within our remit to improve carbon sequestration within the National Park and support a circular economy.
- 15.4 As a coastal National Park issues relating to climate adaptation and responses will increasingly become a priority issue across planning and other functions within the Authority. Relevant plans and decisions across the Authority will need to continue to take these factors into account.

Appendix 1 - Our Current emissions

In 2018/19 the Authority produced 898,479kg of carbon emissions. This compares to 946,712kg in 2017/18 and is a 5% decrease.



The method of calculation the Authority currently uses is based on the DEFRA carbon calculator also used by the National Trust. Please note this figure has not been independently verified.

In terms of the Direct transport calculation the mileage travelled by Authority personnel has decreased by 17,984 miles from 357,075 to 339,091.

In terms of Indirect transport calculation – the mileage travelled by suppliers has increased slightly but not significantly by 1049 miles from 106,594 to 107,643.

Electricity use was slightly increased, due to increases at Carew and Castell Henllys. At Carew this reflects the impact of the opening the Café in July 2018. Water use was reduced. Oil use was significantly reduced in Pant Glas. LPG use at Castell Henllys remained the same due to lack of information from the café franchise.

There were a number of changes within the supply chain which have led to a significant reduction.

There were significant changes in refrigeration due to the closure of Tenby and Newport offices and the opening of the tearoom at Carew

Appendix 2 - UK Climate Change Risk Assessment 2017 Evidence Report Summary for Wales

The latest set of projected changes in climate for Wales comes from the 2009 UK Climate Projections. Under a medium emissions (A1B) scenario, regional summer mean temperatures are projected to increase by between 0.9 - 4.5°C by the 2050s compared to a 1961-1990 baseline. Regional winter precipitation totals are projected to vary between -2 - to +31% for the same scenario.

The average sea level for Cardiff is expected to increase by between 22.8 cm and 37.6 cm by 2090 compared to a 1990 baseline. Higher rates of sea level rise for the UK of up to 1.9 metres by 2100 have been modelled in a plausible high scenario, though this is considered highly unlikely to occur this century. However, sea levels are projected to continue to rise beyond 2100 even in lower emission scenarios and several meters of sea level rise within centuries is possible.

Climate change poses risks in Wales to soils, freshwater resources, natural carbon stores, marine ecosystems, farming, forestry, wildlife and habitats. More action is needed to manage these risks. More evidence is also needed to fully characterise other climate change risks that are likely to be important for the natural environment in Wales, including changes in agricultural and forestry productivity and land suitability, as well as the impacts to freshwater and marine species.

Example action areas:

- More action needed to reduce existing pressures, improve condition of habitats, restore degraded ecosystems, and deliver coherent ecological networks.
- More action to factor climate change into conservation planning and site management
- More action needed to deliver coherent ecological networks and to factor changes in species composition into site management.
- More action needed to reduce existing pressures on soils, increase uptake of soil conservation measures and restore degraded soils.
- More action needed to restore degraded carbon stores, particularly peatlands.
- Ensure climate change impacts on carbon stores are accounted for in the UK greenhouse gas inventory.
- More action needed to reduce pollution and over-abstraction and improve the ecological condition of water bodies
- Ensure decisions on use of water allow for necessary environmental flows and take account of climate change.

- Deliver wider uptake of natural flood management in high-risk catchments especially where there are likely to be carbon storage, water quality and biodiversity benefits.
- Continue to implement surveillance and bio-security measures.
- Continue to build resilience of ecosystems to drought, flood and fire
- Continue current efforts to manage and respond to wildfires.
- More action needed to deliver managed realignment of coastlines and create compensatory habitat.
- Monitor climate impacts on landscapes and ensure climate change is accounted for in future landscape character assessments.

Infrastructure across Wales is exposed to range of climate hazards. Impacts on some assets have the potential to cascade on to others as part of interdependent networks. Flooding poses the greatest long-term risk to infrastructure performance from climate change, but the growing risks from heat, water scarcity and slope instability caused by severe weather could be significant.

Example action areas:

- More action needed to manage increasing risk to existing infrastructure service networks (including flood and coastal erosion risk management infrastructure), from sea-level rise and increased rate of erosion.
- More action needed to deliver sustainable drainage systems, upgrade sewers where appropriate and tackle drivers of increasing surface runoff (e.g. impermeable surfacing in urban areas).
- New policies and stronger co-ordinated, cross-sector effort needed to deliver more ambitious reductions in water consumption and establish strategic planning of new water-supply infrastructure.
- Ensure appropriate siting of new infrastructure and use of cooling technologies.

The Climate Change Risk Assessment Evidence Report suggests that there are potential health benefits from warmer winters in Wales, but more action is needed to manage current risks to people from cold temperatures through addressing fuel poverty.

Example action areas:

- Policies do not exist at present to adapt homes or other buildings to higher temperatures projected for the future.
- Climate change is projected to reduce the health risks from cold, but the number of cold-related deaths is projected to decline only slightly due to the effects of an ageing population increasing the number of vulnerable people at risk. Further measures need to be taken in the next 5 years to

tackle large numbers of cold homes and reduce cold effects on health, even with climate warming.

- Research is needed to better characterise the impacts from sea level rise on coastal communities, thresholds for viability, and what steps should be taken to engage and support affected communities.
- Climate-related hazards damage historic structures and sites now, but there is a lack of information on the scale of current and future risks, including for historic urban green spaces and gardens as well as structures.

Flooding and extreme weather events which damage assets and disrupt business operations pose the greatest risk to Welsh businesses now and in the future. This could be compounded by a lack of adaptive capacity. New regulations or other government intervention made necessary by climate change also poses an indirect risk to businesses.

Example action areas:

- Sustain current actions to create more flexible abstraction regimes and promote water efficiency among businesses.

Climate change will impact upon water security, agricultural production and economic resources around the world. These impacts can compound vulnerability in other countries, which can in turn exacerbate risks from conflict, migration, and humanitarian crises. The main risks arising for the UK from climate change overseas are through impacts on the food system, economic interests abroad, and increased demand for humanitarian aid.

Example action areas:

- At the present, there is no co-ordinated national approach to ensure the resilience of the UK food system. Coordinated approaches require broad participation across policy, industry and research.
- The UK may increase its comparative advantage in specific areas of agricultural production in the future.

Appendix 3 – State of Natural Resources Report 2016

- Climate change is predicted to affect the amount and distribution of rainfall, with consequences for flows and water levels and for drought and flood events which may become more common. Work carried out in 2002 showed that by 2050 river flows in winter may rise by 10-15% but in the summer and early autumn could reduce by over 50% and as much as 80% in some places.
- Climate change may affect groundwater recharge. By 2025 it is likely that groundwater recharge will decrease, resulting in decreased dry weather river flows and a general lowering of groundwater levels. This may have impacts on base-flow to rivers and wetlands in dry periods and affects small domestic and agricultural water supplies.
- Climate change effects are the main broad scale driver of change for coastal and marine hydrological processes, including changes to tidal levels due to sea-level rise and increased storminess leading to increases in wave energy.
- Climate change is also predicted to increase sea surface temperatures, to affect salinity to a lesser degree and may increasingly affect mixing and stratification over time.
- There are climate change risks to natural carbon stores and carbon sequestration. Welsh soils contain 410 million tonnes of carbon. Upland and lowland deep peat soils represent Wales' largest terrestrial store of carbon.

Only 30% of the Welsh peat soil area is considered to be in good condition. Climate change related risks are threatening the many services that soils provide, notably those that relate to soil biota, soil organic matter, and soil erosion and compaction.

Broad habitat condition, extent and trend data includes the following in relation to Wales as a whole:

- Climate change related risks include water scarcity and flooding; pests, pathogens and invasive species; change in frequency and/or magnitude of extreme weather and wildfire events. Projected climate change may provide new cropping opportunities, but more agricultural land is likely to suffer from water deficits in summer and waterlogging in winter.
- The area of woodland in Wales has nearly tripled since the 1800s. However, Wales is one of the least wooded countries in Europe.
- Fragmentation is a significant pressure affecting native woodland condition - there are nearly 22,000 woodlands identified as being smaller than 2 hectares.

- Woodland productivity and carbon sequestration rates are likely to be impacted by climate change.

Appendix 4 - Climate Change Adaptation Report

The Authority produced a Climate Change Adaptation Report in 2013. This attempted to identify risks to National Park purposes and risks to Authority operations from generalised climate impacts across a range of categories. It also sought to factor in other global trends which might interact with each other and with climate change, for example:

- Growing world population
- Growing overall resource demand (water, energy, food)
- Continued global mobility of people
- Continued global mobility of plant and animal disease
- Aging population (UK)
- Relative sea-level rise of at least 1m per century³

The report adopted the view that while climate change, including abrupt climate change, is not new, what is different this time is that it comes accompanied by many other human pressures on the environment and its inhabitants. Collectively these pressures reduce the options for natural adaptation at a time when those options are most needed. This makes it important to address non-climate problems as they will be exacerbated by climate change. Measures to address non-climate related problems might therefore also be classed as adaptation measures.

³ Higher rates of sea level rise have since been modelled.