

Appendices to Climate Change

1. Achieving net-zero carbon emissions

1a. Recent research by the University of Exeter has confirmed that:

- 27 per cent of all carbon emissions in Devon are generated by on-road transportation,
- 19 per cent of all Devon's carbon emissions are created by our homes.

A report created by the University of Exeter for Devon County Council has highlighted a number of opportunities for the county as part of the examination of the Low Carbon Transition Plan (LCTP). The report, 'The Low Carbon Economy in the context of the Devon Economy' was commissioned by the Council as part of its Local Economic Assessment. It includes an examination of how Devon can meet the targets outlined in the government's LCTP, which sets out emissions cuts for 2020.

"The report also discussed Devon's specific challenges. For example, transport emissions are more than 25% greater proportionally within Devon when compared to the UK average, and agricultural emissions are proportionally double the UK average.

Despite this, a number of areas of opportunity have emerged. The most significant national policy in the LCTP is associated with reducing emissions from existing domestic dwellings. This could support an additional 800 jobs and generate £500 million for Devon's economy.

Policies aimed at more efficient use of fertiliser, better management of livestock and manure, advice and financial support to the agriculture sector, encouraging woodland creation, reducing landfill and uptake of anaerobic digestion could mean that Devon also has the opportunity to lead the way nationally in reducing agricultural emissions.

Large scale renewable energy will have an increasing role to play in Devon, with its wealth of natural resources, for example for wind and marine technology. There may be chances for the port towns to support this, and also for manufacturing firms to become component suppliers to this growth sector. Over time Devon could become an area of national skill and expertise in marine technologies, bringing employment and fresh talent to the county.

Michael Finus from the University of Exeter Business School and co-author of the report comments 'Devon is well placed to move towards a low carbon economy. It has good resources and a proven track record in renewable energy, centres of world leading research at the University and Met Office, strong organic food and tourism sectors and a robust local, grass roots community movement. As this moves up the national agenda, I'm sure Devon will benefit in terms of investment, training and jobs.'

Dan Lash from the Centre for Energy and the Environment at the University and co-author of the report comments "This work forms part of Devon County Council's Local Economic Assessment. Together with previous work undertaken by the Centre on transport, and on the domestic sector by the Energy Savings Trust, this evidence base will now be used to identify where the council can adopt recommendations in the existing national carbon reduction policy, and also where it needs to develop new policies to help Devon's transition to a Low Carbon Economy".

1b. Government advice:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/218799/tackling-climate-change.pdf

1c. A salary sacrifice scheme for electric cars: The scheme allows employees to pay for an electric car through their pre-tax income. This means employees save 12% on their National Insurance contributions as well as 20% or 40% depending on their marginal income tax rate.

2. Sustainable tourism

The World Tourism Organisation (WTO, 2001) defines this as:

"Sustainable tourism development meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future. It is envisaged as leading to management of all resources in such a way that economic, social and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity and life support systems."

3. Community owned shared energy scheme

The Plymouth social enterprise model uses a mixture of finance and the money raised through community shares to instal solar panels on schools and community buildings. Plymouth Energy Community is a charitable organisation, responsible for most day to day activities, the process, on behalf of members, from start to finish and then the on-going management once the scheme is up and running.

4. A creative local awareness campaign would encourage all residents, businesses and visitors to maximise their efforts, by setting out appropriate current advice and options for all sectors of the community. To raise its profile and aims from the outset, it is proposed that the launch of this campaign would announce a competition to choose a suitable **campaign slogan and logo**. The competition could be announced on social media, local media and schools. A campaign link from the DTC's website (to a discrete independent website) would point to downloadable information, advice and suggestions according to the enquirer's status, eg: resident, local business owner, tourist, etc.

Campaign information could include, for example:

- raising awareness of bylaws governing emissions, such as idling cars in ferry queues and waiting or visiting river craft,
- the location of electric vehicle points, when these are introduced,
- recycling and energy conservation, local bus services information for holiday lets and B&Bs,
- a section by and for children and young people,
- a link to the proposed portal on the DTC site listing local walks, to reduce car journeys,
- advice on heating: for example, publicising the proposed Community Energy social enterprise; updates on the switch to renewable energy and the type of heating systems that need to be installed. The Government intends that all homes will use renewable energy systems by 2030. Wood burning stoves are popular in Devon; although wood burning is considered carbon neutral, pollutants often caused by wood-burning are being targeted, the UK government is looking at fuel sources and limiting availability to the most efficient stoves. The Clear Air Strategy has promised that 'only the cleanest stoves are available for sale by 2022'. Certain stoves will be phased out.

An excellent example of community participation in a thorough strategy to tackle Climate Change can be found in the Helston Climate Action Plan 2019, <https://www.cornwall.gov.uk/media/41106932/helston-climate-action-plan-september-2019.pdf>.

4a. Environmental Agency Report: Dartmouth Wave conditions and tidal modelling updates, Final report, 2017.

5. Flood Risk and prevention

5a. Built defences

[Combined Environmental Report and Sustainability Appraisal For the South Devon AONB Management Plan](#) states:

"3.1 The Main Objectives of the Management Plan

The statutory purpose of the AONB Management Plan is to set out South Hams District Council, Plymouth City Council, Torbay Council and Devon County Council's policy¹⁰ in relation to the management of the South Devon AONB.....

Whilst the main purpose of the South Devon AONB Management Plan is to formulate local authority policy in relation to the AONB, its policies should also be used by other relevant authorities... to assist them in exercising their functions...with due regard to the AONB

In exercising or performing any functions in relation to, or so as to affect, land in an area of outstanding natural beauty, a relevant authority shall have regard to the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty."

5b. Natural Flood Management

[The High Water Common Ground video](#) on the DCC website illustrates various methods.

"Many flood schemes already feature a mixture of hard and soft engineering and natural flood management. It can be a cost-effective and sustainable way to manage flood risk alongside traditional engineering, while creating habitat for wildlife and helping regenerate rural and urban areas through tourism.

Natural flood management works best when a 'catchment based approach' is taken, where a plan is developed to manage the flow of water along the whole length of a river catchment from its source to sea. This way, natural processes can be used upstream and on the coast to compliment engineered flood defences – such as walls and weirs – in populated areas.

Natural flood management not only reduces flood risk it can also achieve multiple benefits for people and wildlife, helping restore habitats, improve water quality and helping make catchments more resilient to the impacts of climate change.

The Environment Agency hopes that the evidence directory will help flood risk managers, local authority engineers, non-governmental organisations and community flood action groups to incorporate natural approaches to flood risk management in to their plans to reduce flood risk.”

5c. Runoff from rainfall, erosion and landslide risk and prevention

Definition of

Geomats: three-dimensional water permeable polymer or other synthetical materials' structures, thermally jointed with each other. They are used for fixing soil elements, grass and small plants roots.

Geogrids: are manufactured specifically as a reinforcement material, interlocking of the soil with the grid membrane.

Cliff drainage: eliminating surface runoff and infiltration on the slope. This can be done by creating ditches at the top and/or on the slope of the cliff. Reducing pore pressure can also be achieved by piping water out of the cliff. This method is suited for limited runoff and infiltration, and is applied to rocky cliffs. Drainage can sometimes be applied to groundwater level, when groundwater plays an important role in rock deterioration. This is achieved by drilling and inserting draining tubes or perforated metallic tubes on the slope surface.

Urban runoff: Water from rain storms flows down the steep town street surfaces as well as rooftops, carry stormwater to storm drains, instead of allowing the water to percolate through soil. This causes lowering of the water table (because groundwater recharge is lessened) and flooding as the amount of water remaining on the surface is greater. Most municipal storm sewer systems discharge untreated stormwater, to streams, rivers and bays. Excess water can also collect in lower streets and make its way into properties.