



**Dorset**  
Council

# **LOW CARBON ECONOMY**

Detailed Technical Paper



15 July 2021

# LOW CARBON ECONOMY

## 1. CONTEXT

### National

The economy and the environment are closely linked. Many economic activities can contribute to climate change from the use of fossil fuels for heating and power and processing or transportation of goods, as well as the production of waste from their own operations and as a result of packaging and products. The commercial and industrial sector (as an end user) accounts for in the region of 27% the UK's carbon emissions.

**Figure 2: Proportion of net greenhouse gas emissions in each end user sector, UK 2017**



Source: Table 3, Final UK greenhouse gas emissions national statistics 1990-2017 Excel data tables  
 Note: Other includes Public, Industrial Processes and the Land Use, Land Use Change and Forestry (LULUCF) sectors (note that LULUCF acts as a net sink of emissions). The percentages may not sum to 100% due to rounding.

At the same time, climate change is one of the biggest threats to economic stability. Heatwaves make us less able to work and reduce productivity. Sea level rise, flooding, and high winds can devastate and damage property and communities, impact human health, and productivity, and furthermore negatively affect sectors such as agriculture, forestry, fisheries and tourism. Damage to other countries around the globe will also affect the UK economy through disruption in trade and supply chains and immigration. The World Bank is warning that, if we don't do something immediately, climate change could push 100 million more people into poverty by 2030.

In terms of the relationship between the economy and carbon emissions, the UK has shown evidence of absolute decoupling between 1985 and 2016, as gross domestic product (GDP) per head grew by 70.7%, while CO<sub>2</sub> emissions fell by 34.2%. This decoupling relationship is largely a result of the economic structural change (from manufacturing to service-based industry), technological advancement, and enforcement of environmental regulations such as the Climate Change Act in 2008<sup>1</sup>. The decarbonisation of the national grid is also a key factor, which has reduced the carbon intensity of electricity by over 50%. It should be noted that, while this reduction in emissions from electricity generation is real, at least some of the reduction from the economic structural change is not real. We have outsourced our manufacturing and therefore moved the emissions to other countries where they are not counted on our balance sheet, but do still exist.

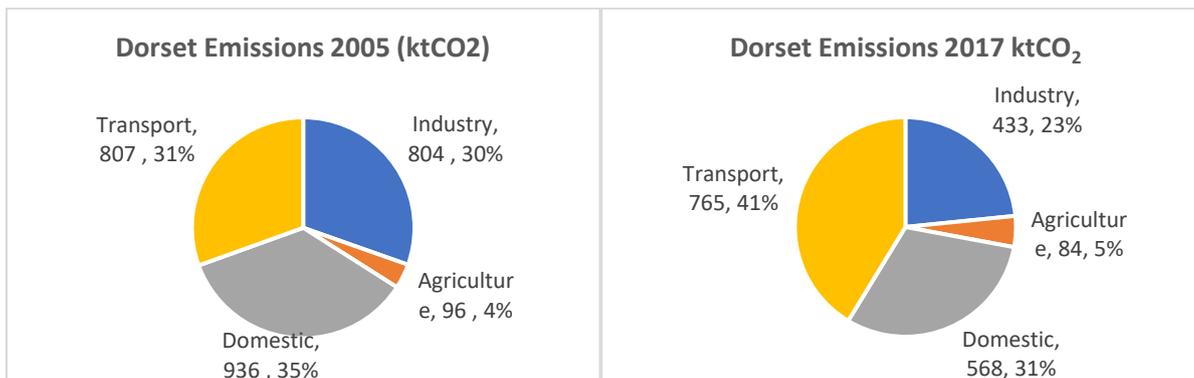
<sup>1</sup> The decoupling of economic growth from carbon emissions: UK evidence, ONS, 21<sup>st</sup> October 2019

The UK low-carbon and renewable energy economy (LCREE) is growing, but very slowly. LCREE turnover was estimated to be £46.7 billion in 2018, employing 224,800 FTE an increase from £40.4 billion in 2015, and 200,800 FTEs<sup>2</sup>. However, the LCREE accounted for only around 1% of total UK non-financial turnover and employment in 2018 – similar to 2015-2017. The figure was slightly higher for Scotland, Wales, and Northern Ireland than for England and the UK as a whole.

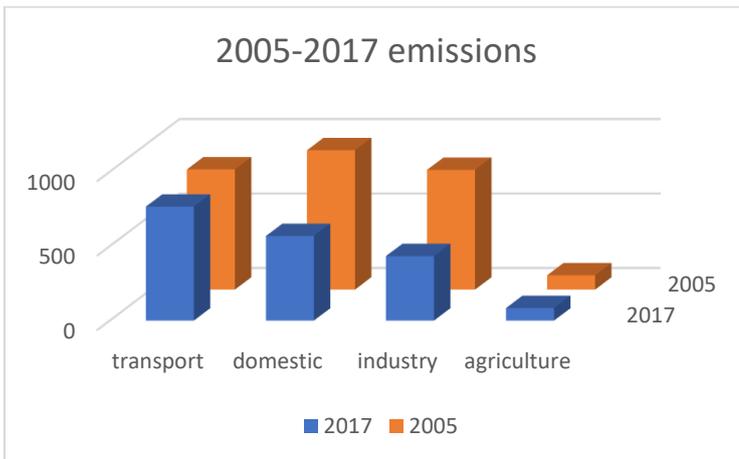
The energy efficient products sector remained the largest component of the UK LCREE in 2018, accounting for 36% (£16.7 billion) of UK LCREE turnover, and 51% (114,400 FTE) of UK LCREE employment. The largest proportion of total UK LCREE turnover and employment in 2018 was from businesses classified within the manufacturing industry, which account for around one-third of LCREE turnover (32%) and employment (37%). The low emission vehicles sector accounted for 59% (£3.1 billion) of total UK LCREE exports (£5.3 billion) in 2018. Total investment in the LCREE increased by 48% between 2015 and 2018, to stand at £8.1 billion in 2018. This was mainly the result of a rise in acquisitions by the offshore wind sector (up £3.5 billion between 2015 and 2018).

## Dorset

The Commercial and Industrial sector in Dorset accounts for 23% of Dorset’s carbon footprint, producing 433kt of carbon in 2017. This is a reduction from accounting for 30% of the total carbon footprint and 804 ktCO<sub>2</sub> in 2005 (a reduction of 372 ktCO<sub>2</sub> per year).



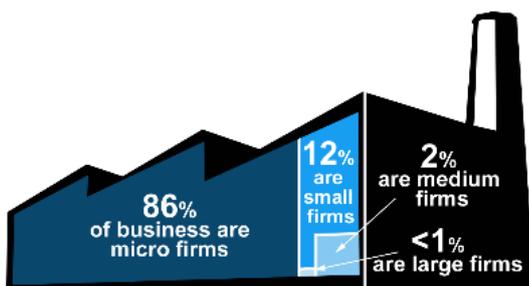
<sup>2</sup> Low carbon and renewable energy economy, UK: 2018, ONS, January 2020



Dorset’s environmental economy is estimated to be worth between £0.9bn and £2.5bn per annum, about 8-10% of the overall economy, and supports between 17,000 and 61,000 jobs. The low-carbon economy, a subset of this, has the potential to grow by 11% per year between 2015 and 2030 - four times faster than the rest of the economy<sup>3</sup>.

In Dorset, although business survival is good, we have fewer than average business births, which is 72 compared to 97 in England for every 10,000 residents aged 16-64. In addition, we have smaller business units, with just 7.2 employees per business unit compared to 9.6 in England.

Whilst large firms represent less than 1% of Dorset’s business stock, they employ about a 20% of the workforce. Most of the business sector in Dorset are classed as micro, small, or medium sized enterprises, with the vast majority (86%) being micro businesses. Self-employment is high in Dorset with approximately 18% of economically active residents, compared with 14% in England.



**Figure 1. Business make up in Dorset (2018)<sup>4</sup>**

Key economic sectors in Dorset include advanced engineering and manufacturing, agritech / aquaculture, construction, ICT services, tourism, and health and social care.

<sup>3</sup> Natural and Historic Environment Topic Data, <https://apps.geowessex.com/insights/Topics/Topic/Natural-and-Historic-Environment>

<sup>4</sup> Economy Topic data, <https://apps.geowessex.com/insights/Topics/Topic/Economy>

Whilst we have above national average representation of advanced engineering of manufacturing, we have a low representation of businesses in high productivity sectors and a below average representation in high R&D spending sectors.

Dorset is less competitive than the national average and, in recent years, competitiveness has worsened, with all parts of Dorset. Earnings are below the national average and 10 neighbourhoods in Dorset are in the most deprived 20% nationally for employment, with nine of these in Weymouth and Portland.

Dorset's working age population is expected to see a marginal decline over this period compared with marginal growth nationally.

Dorset is well connected with 95% of the County Covered by Superfast Broadband.

## **2. PROGRESS / CURRENT SITUATION**

In line with Dorset's overall carbon footprint, emissions from the commercial and industrial sector have decreased by 46% between 2005 -2017, while at the same time the economy in Dorset has continued to grow.

Dorset Council is currently delivering a Low Carbon Economy programme (Low Carbon Dorset) to provide advice and grant funding for organisations across Dorset to accelerate the deployment of low-carbon technologies (energy efficiency measures and renewable energy). It has supported over 80 businesses to invest over £4.8 m in the last two years, reducing emissions by 3,719 tonnes of carbon and increasing renewable energy capacity by 3.4 MW.

This is a small impact compared to the task ahead, but the project will also generate several practical case studies from Dorset Businesses, which through promotional activities have the opportunity for a much wider reach. The programme has applied for an additional £6 million ERDF funding, which if successful will support an expansion and extension of the project to 2023 and facilitate an additional £12 million investment in low carbon technologies.

## **3. THE FUTURE FOR ZERO CARBON ECONOMY**

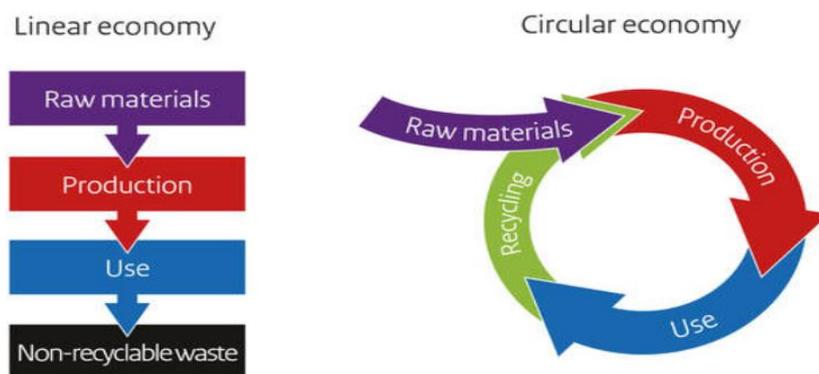
A zero-carbon economy is one where emissions from the commercial and industrial sector are reduced to zero while the economy thrives.

Dorset businesses will need to reduce energy consumption through the deployment of low-carbon technologies, efficiency improvements in buildings, and processes and increase self-supply of renewable energy. All commercial buildings will need to become net zero carbon, converting any heating currently using oil or gas to biomass (where circumstances allow), biogas, hydrogen (when available) or electric heat pumps. Water use will need to be reduced and greater self-supply or onsite storage and treatment undertaken. Travel and transport will need to be reduced and undertaken using electric- or hydrogen-powered vehicles.

For a long time, our economy has been linear, meaning that raw materials are used to make a product and, after its use, any waste (e.g. packaging) is thrown away. By 2050, we will need to develop a circular economy in Dorset, an economy based on reducing raw material use and reusing and recycling materials.

Businesses have a key role in development of this circular economy by making products and materials more efficiently, reusing them, and making sure wastage is designed out while re-use is designed in. If new raw materials are needed, they must be obtained sustainably so that the natural and human environment is not damaged. This also offers economic opportunities for the recycling and reclaim of waste materials for future use.

**Figure 2: Linear and Circular Economies**



The drive to reduce national and global emissions offers significant economic opportunity for the development of low carbon goods and services, and Dorset needs to take full advantage. Dorset LEP's vision for the economy already outlines high-level objectives to deliver the Government's 'Clean Growth Grand Challenge' to maximise advantages for UK industry from the global shift to a clean growth and green economy. Their aspiration is to create a competitive, sustainable, and resilient sector mix to achieve growth, whilst improving quality of life and reducing emissions and other environmental impacts and are committed to building on the principles of the circular economy<sup>5</sup>.

However, climate change will introduce significant risks to the economy, particularly through flooding and the disruption of supply chains and infrastructure. Businesses will need to be supported to ensure they can become more resilient to the risks posed by climate.

It will be important to ensure the availability of suitable employment land, like the Dorset Innovation Park, to offer larger sites and units to give local firms the chance to expand and relocate in Dorset, rather than leave the area. It also offers choice to new businesses considering a move to Dorset, bringing new jobs with them.

An economy that strongly supports the local economy will also have significant benefits from retention of money within Dorset's economy and the opportunity to reduce travel and supply chain miles.

<sup>5</sup> Dorset Local Enterprise Partnership, <https://www.dorsetlep.co.uk/clean-growth>

## 4. KEY ISSUES

Business investment models often seeking short term return on investment, making many carbon reduction activities, particularly renewable energy, cost prohibitive due to long returns on investment.

Businesses do not necessarily understand the available options to reduce energy use and deploy renewable energy technologies or the associated costs and benefits - smaller businesses often do not have the resource to investigate and implement these projects.

In recent years, the Government introduced an additional Business Rates levy, which increases the cost of Business Rates for businesses installing renewable energy technologies on their premises. Many businesses are unaware of this, but it does act as a significant barrier to businesses deploying Solar PV. There may be scope to waive this at a local level.

Many businesses operate from leased buildings, where there is often not a benefit to the landlord from investing in the building fabric or renewable energy technologies such as Solar PV.

The circular economy is at early stages of development and is heavily influenced by national policy and regulation. At a national level this is still developing, and new national waste policy is currently being developed.

The Business sector is vulnerable to the impacts of climate change, in particular through impacts on infrastructure and supply chains.

The low-carbon and renewable energy economy (LCREE) is growing slowly and has been affected over recent years by changing legislation and incentive schemes.

Dorset's transport infrastructure, location, and protected high quality landscape lends itself to high-value low-volume manufacture and service industries.

Dorset's protected landscape designations add to the regulatory issues involved in installing renewable energy production.

## 5. OPPORTUNITIES

- Through our economic development functions, we can work with business organisations and partners to maximise the opportunities of the transition to a low-carbon economy. This is specifically the opportunities for jobs and skill development within the Low Carbon Renewable Energy Economy (LCREE) sector, that will be needed to respond to the scale of rapid action required to retro fit buildings, install renewable energy technologies, smart energy systems, and Electric Vehicles required for a Zero Carbon Dorset.
- Responding to the climate emergency in Dorset will require significant activity over the next 10-30 years to include major retrofit programmes, a huge increase in deployment of renewable energy technologies at all scales, and the deployment of electric vehicles. This is as well as electric vehicle charging infrastructure, the development of a circular economy, and reuse of

materials. These activities will open up or significantly expand markets for businesses in the low carbon economy and offer major opportunities for the green economy.

- We have a successful Low Carbon Dorset programme, which supports businesses to become more energy efficient and install renewable energy. There is the opportunity to scale up this programme and use proven case studies to accelerate replication of these measures across businesses and buildings types.
- Dorset is one of the sunniest places in the UK, making solar PV slightly more cost effective than in many parts of the UK.
- Dorset Council owns the Dorset Innovation Park and, as the landowner and planning authority, we have the opportunity to encourage / incentivise any business building on the park to build low carbon building and also to develop a renewable energy infrastructure on the site. The Dorset Innovation Park provides an opportunity for an advanced engineering cluster of excellence for the South West, building on strengths in marine, defence, and energy. This could become a centre of excellence in the clean growth economy through encouraging low carbon business into the area, facilitating research and development, and ensuring best practice low carbon buildings and infrastructure on the site. Overall, the Innovation Park has the opportunity to act as a hub for clean growth in Dorset.
- Dorset has a strong high-tech sector, which is a good opportunity to take advantage of clean growth, through diversification and skills.
- Growth in the low carbon sector is likely to require high skilled workforce, offering an opportunity to attract more skilled, higher paid jobs and tackle social deprivation.
- We can use our procurement function to social and environmental wellbeing as well as economic value. For example, through contracts with firms that ensure sustainable working practices and those offering quality Apprenticeships.
- The Dorset Broadband programme can help to strengthen Dorset's digital infrastructure and enable development of innovative ICT solutions and reduction in travel through more home working.
- A large tourism sector in Dorset offers a specific opportunity to promote sustainable tourism, supporting business to reduce costs, be more competitive, and develop unique selling points to attract visitors.
- Our planning function provides the opportunity to ensure that tourism facilities are developed in areas accessible without the need for a car.
- The UK Shared Prosperity Fund may offer funding opportunities for projects like the Low Carbon Dorset programme.
- COVID-19 recovery programmes could potentially lead to some injections of finance, which would provide investment in low carbon technologies for long term business cost reduction and support key sectors in Dorset.

## **6. AREAS FOR ACTION**

### **Direct Action**

- Ensure Dorset Council procurement supports sustainable development.
- Build renewable energy infrastructure around the Dorset Innovation Park site.

### **Indirect Through Services**

- Encourage the development of the Dorset Innovation Park to become a centre of excellence in the clean growth economy. This is by attracting low-carbon businesses into the area, facilitating research and development, and ensuring best practice low carbon buildings and renewable energy infrastructure on the site.
- Through the Dorset Broadband programme, we can support greater deployment and strengthen high-speed broadband / ICT infrastructure in Dorset to enable business to utilise greater home working, reduce travel, and facilitate innovation and collaboration. Many solutions to a low carbon future will require 'smart' technology.
- Promote the low carbon economy and encourage investment in green jobs and businesses in Dorset to maximise the opportunities from the step change, which will be required to respond to the climate emergency over the next 10-30 years.
- Support businesses to become more energy and resource efficient. This is as well as installing renewable energy by working with partners to significantly expand the Low Carbon Dorset programme to deploy low carbon technologies and promote case studies of best practice to stimulate replication.

### **Influence / Partnership**

- Maximise opportunities for clean growth in Dorset by working with business organisations and partners to put clean growth at the centre of local economic development plans, and supporting the transition to a low carbon economy.
- Support our strong high-tech sector to take advantage of the growth in the low carbon sector which is likely to require high skilled workforce, through helping them to diversify and using these available skills.
- Work with partners to attract green sector businesses with highly skilled workforces in Dorset.
- Help businesses to be more resilient to climate change through our planning and flood risk management functions, as well as working with partners to encourage greater understanding of the risks of climate change for the economy and best practice for business.

- Work with the tourism sector to develop specific programmes of support for sustainable tourism and ensure tourist facilities are developed in areas accessible without the need for a car using our planning function.
- COVID-19 recovery programmes could potentially lead to some injections of finance, which would provide investment in low-carbon technologies for long-term business cost reduction and support key sectors in Dorset.

The opportunities of a low carbon economy in Dorset have several additional benefits, including:

- Upgrading the quality of housing stock, making homes healthier, more comfortable, and safer from the impacts of climate change
- Reduced energy bills for residents, helping tackle fuel poverty
- Improving the quality of commercial premises, creating better working environments, reducing energy bills, helping the companies they house to become more productive and competitive
- Green roofs and walls can result in less heat gain, resulting in a reduced demand for energy needed for cooling purposes as well as enhancing ecology
- Adapting to climate change will reduce risk, future cost, and improve working environments.