

## CONTENTS

Contents .....	1
What is the impact of climate change in the UK? .....	1
What is the impact of climate change in Wales? .....	3
Transport .....	5
Energy .....	6
Food .....	8
What have people said? .....	9

## WHAT IS THE IMPACT OF CLIMATE CHANGE IN THE UK?

Recent reports have confirmed that the UK climate is already changing rapidly. The '[State of the UK Climate](#)' report for 2020 (Royal Meteorological Society, 2020), finds that disruptive climate change is impacting on our daily lives, with the UK becoming 6% wetter and 0.9C warmer in the last 30 years. These changes will have impacts for the frequency and magnitude of extreme weather events such as heatwaves and floods.

The Intergovernmental Panel on Climate Change (IPCC) have recently published the findings of [Working Group 6](#), presenting the physical science basis underpinning our understanding of how climates may change in the future (IPCC , 2021). The [Summary for Policy Makers](#) finds that extreme weather events such as heatwaves and intense rainfall have become more frequent and intense across most of the Earth's landmasses since the 1950s, due to human influence on the climate system (IPCC , 2021).

Want to find data about Powys? Click here to view our



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The chart below shows projected annual emissions of CO<sub>2</sub> across five illustrative scenarios (SSPs) used by the IPCC:

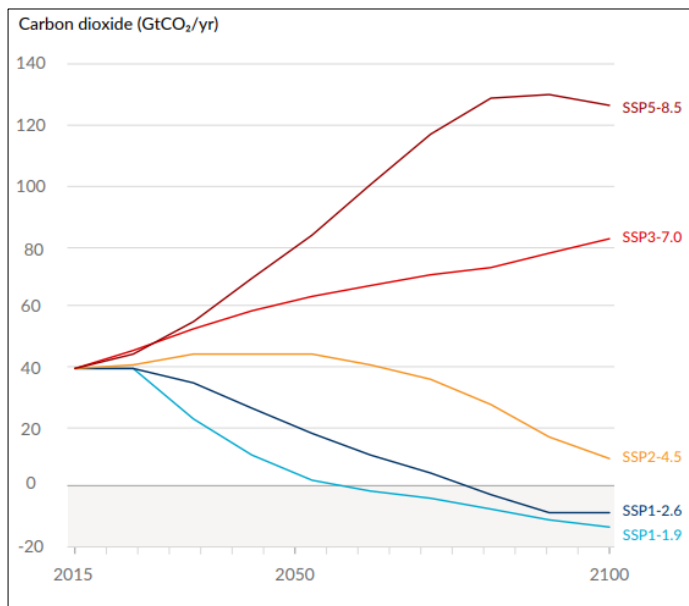


Figure 1: Different scenarios of projected annual emissions of CO<sub>2</sub>, IPCC 2020

In 2021, the UK [Climate Change Committee](#) released the [third independent assessment of UK Climate Risk](#) (CCRA3) (Climate Change Committee, 2021).

Key findings from the report show that adaptation has not kept pace with evidence that the climate risk is likely to be more severe than previously thought.

**Eight risks have been marked as the highest priority UK wide** which require urgent adaptation action in the next two years:

1. Risks to the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards
2. Risks to soil health from increased flooding and drought
3. Risks to natural carbon stores and sequestration from multiple hazards leading to increased emissions
4. Risks to crops, livestock and commercial trees from multiple hazards
5. Risks to supply of food, groceries, and vital services due to climate-related collapse of supply chains and distribution networks
6. Risks to people and the economy from climate-related failure of power system
7. Risks to human health, well-being, and productivity from increased exposure to heat in homes and from other buildings
8. Multiple risks to the UK from climate change impacts overseas

## WHAT IS THE IMPACT OF CLIMATE CHANGE IN WALES?

The Climate Change Committee have also produced a [Summary for Wales](#) (Climate Change Committee, 2021), which shows that **26 risks from climate change** have increased since the second risk assessment carried out five years ago.

Table 1: Climate change risks for Wales that have increased in the last 5 years (CCC 2021)

Risk and opportunity	Urgency score CCRA2	Urgency score CCRA3
N2. Risks to terrestrial species and habitats from pests and pathogens and invasive species	Sustain current action	More action needed
N6. Agricultural and forestry productivity	Research priority	More action needed
N7. Risks to agricultural and forestry from pests and pathogens and invasive species	Sustain current action	More action needed
N14. Risks to marine species, habitats, and fisheries from changing climactic conditions	Research priority	More action needed
N16. Risks to marine species and habitats from pests, pathogens and invasive species	Sustain current action	More action needed
N.18 Risks and opportunities from climate change to natural heritage and landscape character	Watching brief	Further investigation

CCRA 3 also lists new risks that did not appear in CCRA 2.

The Summary for Wales identifies the **following risks as high magnitude**, requiring action now:

9. The impact of climate change on the natural environment (terrestrial, freshwater, coastal and marine, forests and agriculture)
10. Increases in the range, quantities and negative consequences of pests, pathogens, and invasive non-native species
11. More frequent flooding and coastal erosion, leading to: (a) damage to coastal businesses; (b) increased severity and frequency of flooding to homes and communities; and (c) damage to infrastructure services (energy, transport, water supplies and ICT)
12. The impact of high temperatures, high winds, and lightning on the transport network
13. The impact of high temperatures on people's health and well-being
14. Extreme weather events causing disruption of health and social care services
15. Changes in temperature, precipitation, groundwater, and other landscape changes causing damage to cultural heritage assets
16. International impacts of climate change (e.g., food availability, safety and security, risks to international law/governance) that could affect the UK through disruption of trade routes, supply chains and public health

(Climate Change Committee, 2021),

NRW's [State of Natural Resources Report 2020](#) (SoNaRR NRW, 2020) draws on the [Welsh Donut Report](#) (OXFAM, 2020), which evaluates how well we are living within sustainable levels in respect of a suite of both environmental and societal parameters.

**Currently, Wales is not meeting goals related to society and well-being, nor are we within sustainable limits for our use of environmental resources** (SoNaRR NRW, 2020).

As outlined above, CCRA 3 Summary for Wales specifies eight high magnitude risks that require action to enhance adaptation and resilience to future climatic shifts. CCRA 3 also highlights those UK-wide risks that require urgent action in the next two years.

The [Welsh Donut Report](#) (OXFAM, 2020), SoNaRR 2020 and CCRA 3 all make it clear that in order to address the challenges faced by climate change, a transformative approach is needed. Technological, societal, and economic systems need fundamental reorganisation coupled with equally important input from individuals to reduce production and consumption while maintaining levels of well-being. Reducing our environmental footprint cannot come at the expense of the well-being of our societies and communities.

In a report produced by the [National Atmospheric Emissions Inventory in 2021](#), it shows that **68% of all emissions in Wales are produced by energy supply, businesses, and transport** (National Atmospheric Emissions Inventory, 2021). It is therefore recommended that policies and strategies are aimed at these areas in the first instance, while seeking to tackle the highest priority risks identified in CCRA 3.

The Welsh Government [Well-being of Wales Report 2019](#) makes it clear that if everyone used resources at the same rate as we do in Wales, it would require 2.5 planets. This is clearly not sustainable for the future (Welsh Gov, 2018/19).

SoNaRR 2020 uses the example of [‘One Planet Cardiff’](#) as a case study of the kind of transformative, integrated approach required to ensure that we fulfil the principles of SMNR, while meeting the seven well-being goals set out in the Well-being of Future Generations Act.

**Ideas that could be adapted for Powys and explored include:**

- Reducing our reliance on fossil fuels and energy consumption
- Prioritising green infrastructure across the county, increasing, and connecting green spaces in both rural and more urban areas
- Encouraging an increase in the use of active travel and public transport, with a focus on ‘clean’ vehicles
- Increase recycling rates and minimise waste – ensure Powys participates fully in making Wales a Zero Waste nation by 2050
- Reduce the impact of food choices on the environment, e.g., community farms and gardens
- Undertaking appropriate actions to increase the resilience of our communities to flooding and other extreme weather events

With regards to a regenerative economy, SoNaRR 2020 recommends using the [‘DISRUPT’](#) approach (NRW, 2020):

- Design for the future
- Incorporate digital technology
- Sustain and preserve what is already there
- Rethink the business model
- Use waste as a resource
- Prioritise regenerative resources
- Team up to create joint value

## TRANSPORT

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**Transport remains the third highest producer of greenhouse gases in Wales for 2019.**

Wales has had [consistently high rates of car use for commuting since 1990](#), which is likely to be due to the rural nature of much of the country, and this is particularly true in Powys (NRW , 2020).

In such a challenging context, SoNaRR 2020 recommends considering actions in the social sphere, driving change in how and why people travel or transport things.

- Build on the change of lifestyle we all experienced during the COVID-19 pandemic - more working from home, limited travel, people staying local for holidays and recreation
- Build on the impact Covid-19 had on how we shop – encourage the purchase of local produce to reduce transport costs
- Enact policies to convert to electrically powered vehicles for public transport, where possible

- Increase the number of fast charging points for electric vehicles – Powys as a county is approximately 112 miles from top to bottom, so having opportunities to charge vehicles will be critical to the uptake of electric cars
- Establish community networks for electric car users (this has already commenced in Powys) to share tips and knowledge
- Improve active travel routes, particularly in towns or areas where commuting in this way is possible; try to join up existing schemes that can be piecemeal in nature

## ENERGY

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**Powys has old and inefficient housing**, and therefore there are potentially significant reductions in carbon output to be made in terms of improving energy efficiency. Some things to consider are:

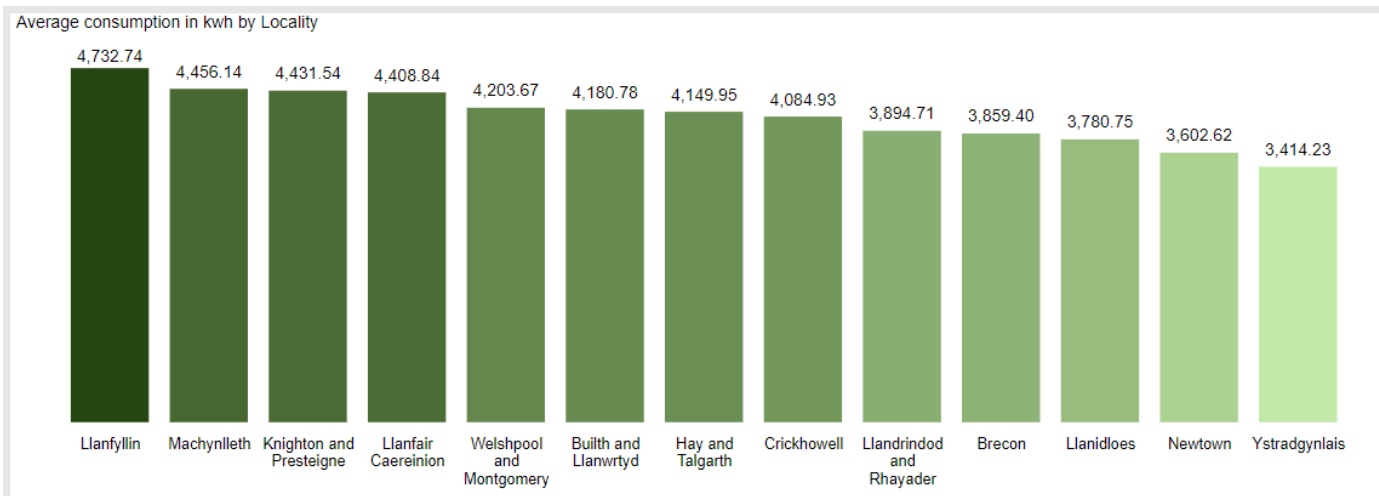
- Encourage the local generation of energy (e.g., support the installation of technology such as solar panels or battery storage systems; transfer communities to electrical heating from fossil fuels).
- Promote demand management and energy efficiency (e.g., the roll out of smart meters).
- Establish policies to include energy efficient technology into any new housing development.
- Establish policies, networks and community initiatives to encourage ‘prosumers’ - energy users who produce and/or conserve energy through use of solar panels, heat pumps, energy storage devices (such as batteries) and electric vehicles.

**Many homes in Powys are not connected to the gas network due to Powys’ rural nature.** These homes are likely to rely on other, more carbon intensive and expensive forms of heating, such as oil, liquid petroleum gas, and coal (ONS, 2011).

**Powys’ average household electricity consumption is significantly higher than the Welsh average**, as well as the UK average (Department for Business, Energy & Industrial Strategy, 2021).

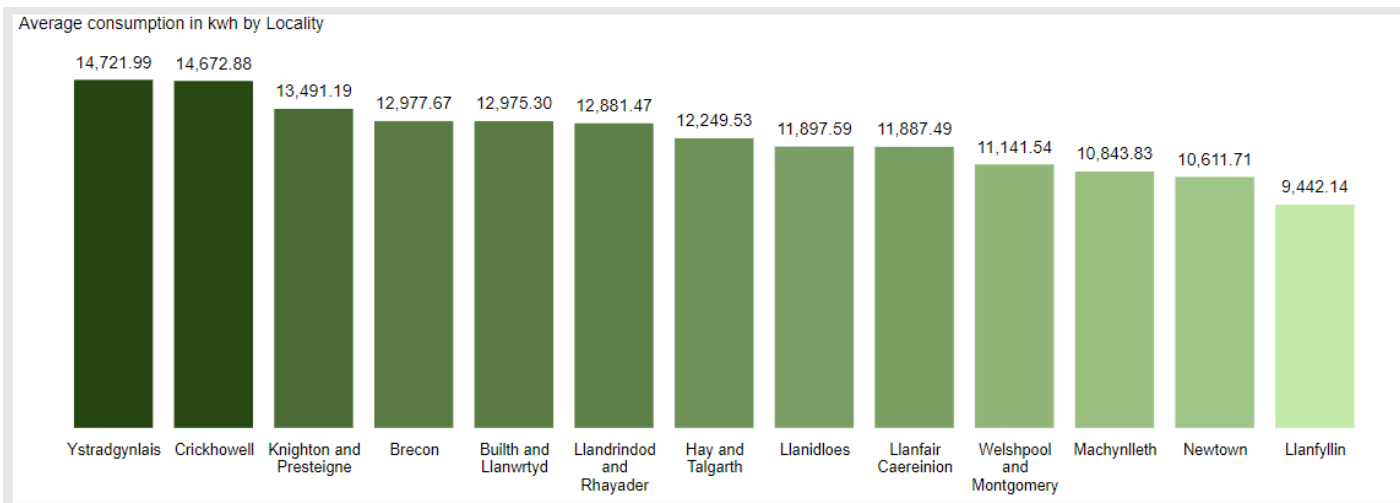
The **average domestic electricity consumption is 4,037 kWh per annum for Powys**, which is higher than the Welsh average 3,578 kWh/annum, but lower than the GB average 4,079 kWh/annum. Between 2015 and 2019, electricity consumption in Powys has fallen by 5%, Wales and GB have fallen by 8%.

**The average electrical consumption differs across Powys**, with Llanfyllin locality showing the highest electricity consumption of all 13 localities, the lowest being Ystradgynlais.



The **average domestic gas consumption per meter in Powys is 12,442kWh/annum** which is lower than both the Welsh average 13,502 kWh/annum, and higher than the GB average 12,368 kWh/ annum. Between 2015 and 2019, mean domestic gas consumption in Powys has risen by 2%, and Wales 2% GB by 1%.

**The average gas consumption differs across Powys**, with the opposite from electrical consumption Ystradgynlais locality showing the highest gas consumption of all 13 localities, the lowest being Llanfyllin.



Due to the rurality of Powys, more rural localities will not be connected to the gas network.

**In Powys, 53% of properties are not connected to the gas network (Wales: 15%, UK: 10%).**

Estimates of the number of properties not connected to the gas network vary, with one source **estimating that 43,000 properties in Powys are not connected to the gas network** (ONS, 2011)

Due to rising energy prices, many residents are finding it difficult to heat their homes to a comfortable standard.

**The percentage of households in Powys who are in fuel poverty was 17%** (Welsh average: 12%).

**Powys ranks third highest amongst all local authorities in Wales** (Gwynedd is highest (23%) and Ceredigion second highest (21%) (Welsh Gov, 2018).

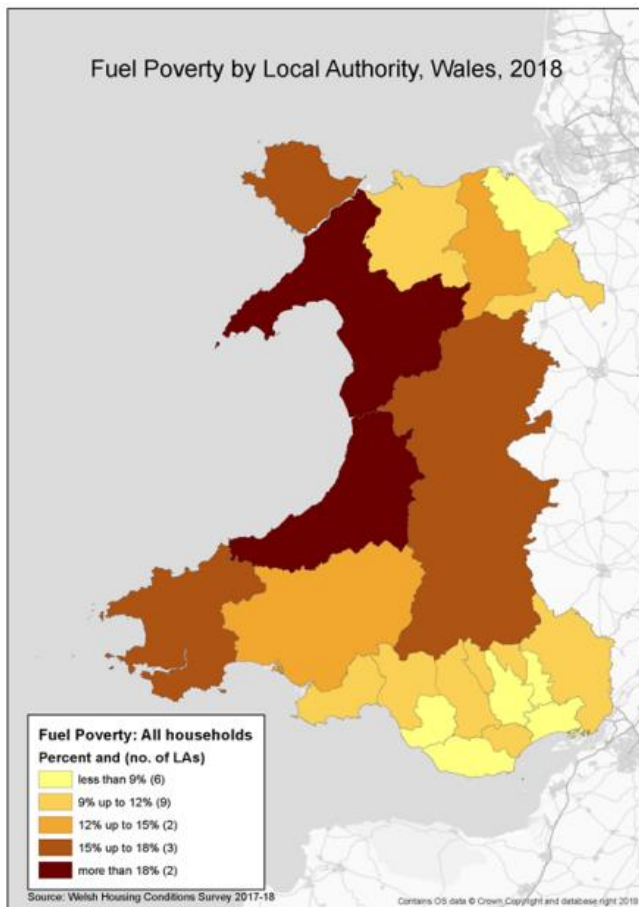


Figure 2 Map: Proportion of households in fuel poverty (10% definition), Wales, 2018

Follow the link to view more about [energy consumption in Powys and our 13 localities via our interactive report](#).

## FOOD

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The food system, in meeting society's nutritional needs, is responsible for many impacts on the environment. Examples include emissions of pollutants, depletion of resources, loss of biodiversity and



degradation of ecosystems in Wales and beyond. Options for making the existing food system more efficient include:

- Low carbon management practices
- Increased biodiversity-friendly management practices
- New incentives and regulatory mechanisms
- Changing diets
- Reducing food waste
- Increasing food production from a smaller area of land

## WHAT HAVE PEOPLE SAID?

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Living in Powys survey (July 2021)

82% of 468 respondents to the 'Living in Powys' survey agreed or strongly agreed that we are seeing more extreme weather events including flooding. 5% answered that they strongly disagreed, and 13% answered neutral.

When asked "what action they are taking to address climate change", 12% of respondents said that they would source renewable energy.

- 83% of respondents agreed or strongly agreed that action to address climate change is important to them.
- 74% agreed or strongly agreed that they are acting to address climate change and 72% felt informed about climate change.

Respondents were asked what action they take to address **climate change**, highest answers included:

- 17% reduce what I buy new
- 17% repair what I already have
- 16% expand lifetime of products through good maintenance
- 14% buy used, refurbished or re-manufactured
- 14% buy sustainable options e.g. From recycled content or low carbon
- 10% source renewable energy
- 1% said do nothing

For those selecting 'nothing' they were asked what is preventing them from acting, responses included:

- "I feel climate change is an exaggerated problem designed to increase taxation of everyday items, force us into buying very expensive electric cars and undermining our lifestyles."
- "Absolutely no need to do anything."

- “Climate has always changed, CO2 is not a pollutant, wind and solar are expensive yet useless. Wasteful use of resources is wrong but so far fossil fuels are the most effective, efficient, and beneficial provisions of the Creator God for mankind. The Maldives will show us when sea level change happens. I am all for good stewardship of resources, but not to be done under the false pretenses of the current "climate change" agenda. "While the earth remains, seedtime and harvest, cold and heat, winter and summer, and day and night shall not cease". God's promise, Bible (Genesis).”
- “It is over exaggerated. All climate is cyclical.”

Some respondents mentioned **electric and hybrid cars** in their response to what their priorities would be in a well-being plan:

- “Powys will need many more charging stations for all the electric and hybrid cars that will be taking over from petrol and diesel vehicles. How will you make sure there is capacity for us all to charge when we are not at home?”
- “Businesses can install more electric vehicle charging infrastructure and create more green spaces around the town.

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