



SOE 4: Climate

Systemic change is required for Ireland to become the climate-neutral and climate-resilient society and economy that it aspires to be.

ACTIONS – WHAT IS NEEDED?

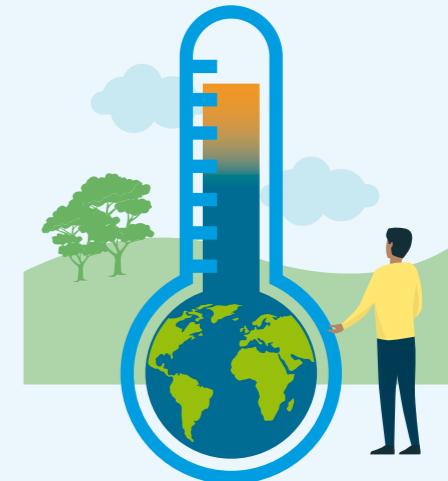
More urgency is needed to deliver actions on climate mitigation and adaptation and to ensure that Ireland meets its international obligations to reduce greenhouse gas (GHG) emissions. While Ireland's GHG emissions, with full implementation of the 2019 Climate Action Plan, are projected to decrease by an annual average reduction of 3 per cent between 2021 and 2030, further measures are required to meet national and EU ambitions to keep the global temperature increase to 1.5°C.



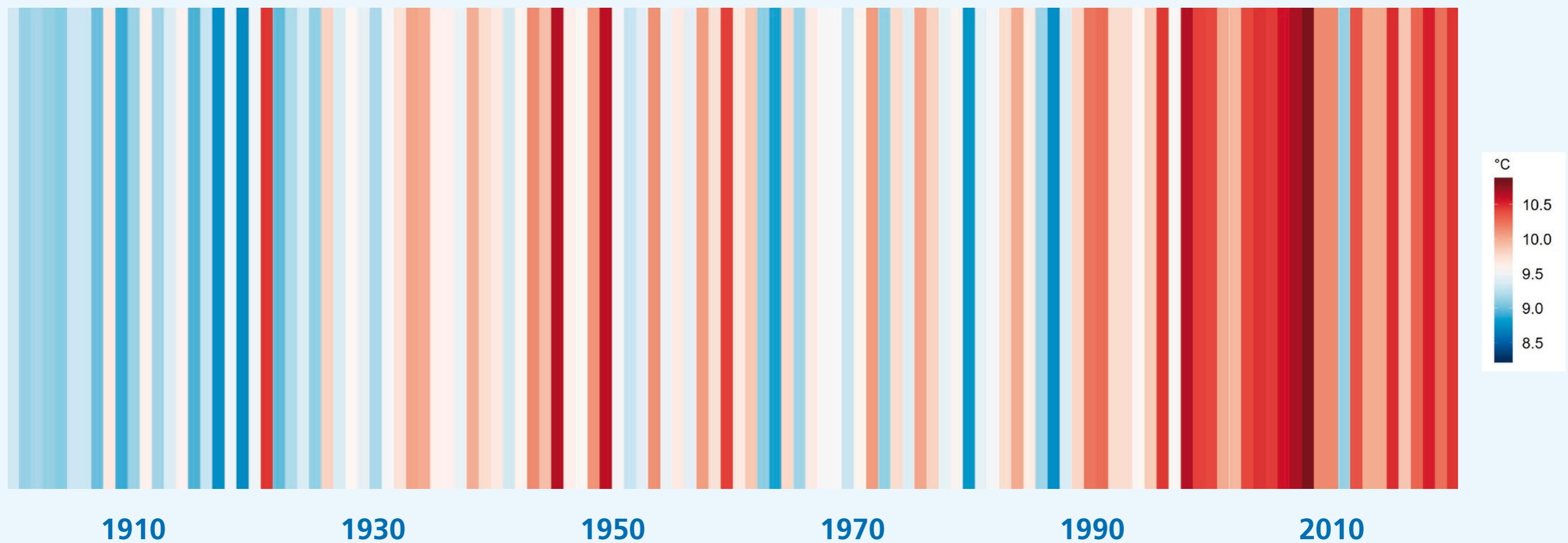
Ireland's Climate is Changing

Climate change has been described as the defining challenge of our age. In line with global trends, Ireland is already experiencing temperature increases of about 0.9°C (compared with 1900). Recent national-scale extreme weather events demonstrate Ireland's vulnerability to such events, with the resilience of our infrastructure and economy severely tested. Projections indicate that climate change will continue and intensify over the coming decades.

This graph shows Ireland's warming stripes. Each stripe represents a year, the colour shows the difference between the average air temperature for that year and the average temperature for the whole period 1961-1990 (the baseline). If the average temperature for the year is lower than the baseline then the bar is blue, if it is higher then it is red. This graph was created by Ed Hawkins and taken from <https://showyourstripes.info/> under Creative Commons attribution license (CC By 4.0)



Temperature change in Ireland since 1901



Climate Change in Ireland – our emissions

Climate change means a significant change in the measures of climate, such as temperature, rainfall, or wind, lasting for an extended period – decades or longer. The build up of greenhouse gases in our atmosphere has caused the planet to heat and we are now experiencing climate change as a result.

The difference between weather and climate is a measure of time. Weather relates to the conditions of the atmosphere over a short period of time while climate refers to average weather patterns experienced over long time periods (minimum of 30 years). When we talk about climate change, we are referring to changes in long-term averages of daily weather.

Where do the greenhouse gases come from?

Greenhouse gas (GHG) emissions come from electricity generation, agriculture, transport and from our homes and businesses.

Emission sources

The circles in the chart on the right show Ireland's sources of emissions: the size of the bubble reflects the size of the emission (in 2020). The numbers in each circle are the CO₂ equivalent in kilo-tonnes.

Changes in emissions since 2010

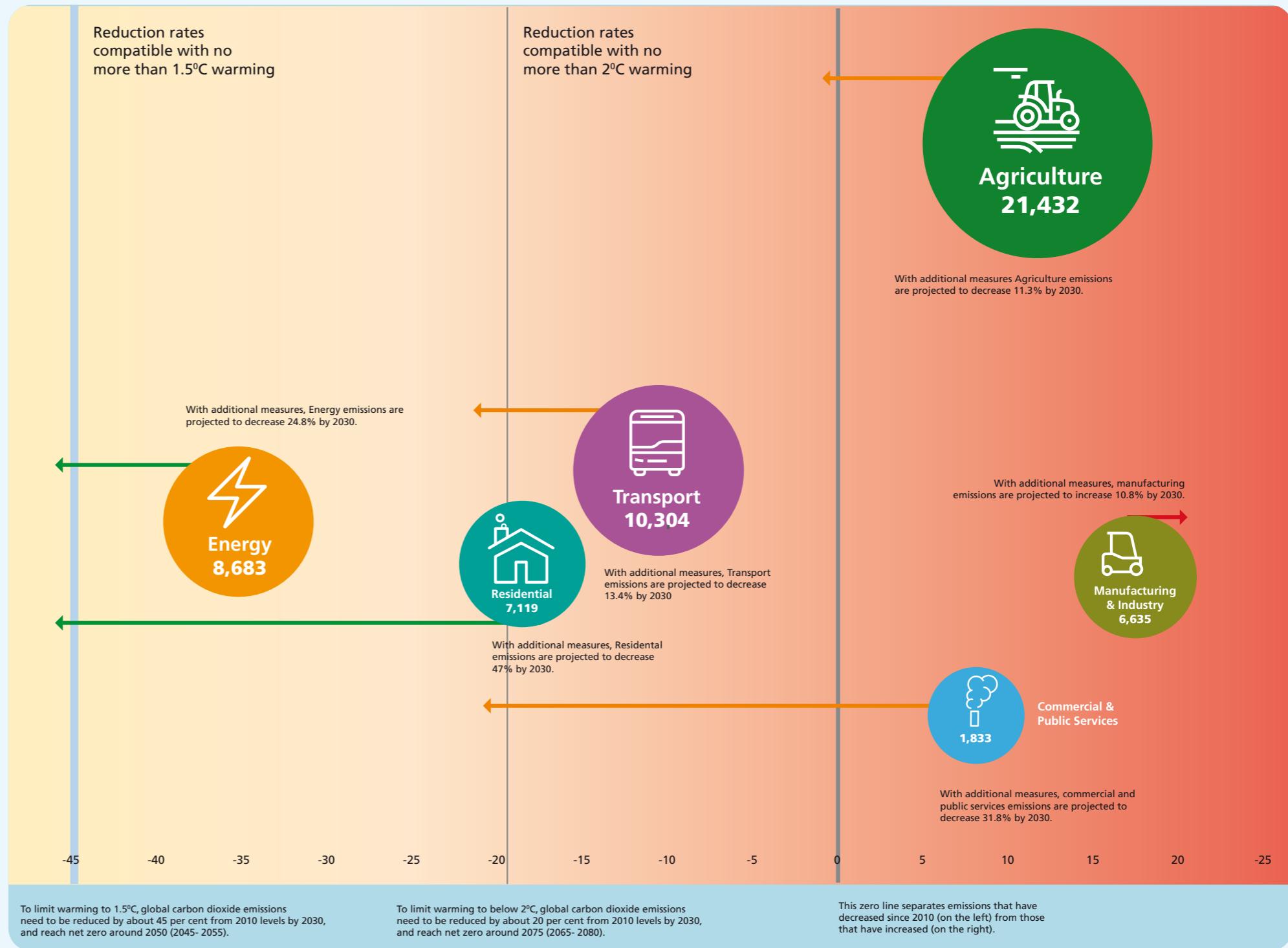
This graph also shows the rate of change from 2010 to 2020. If the circle is on the right of the zero line this means that the GHG emissions have increased since 2010. Agriculture, manufacturing and service emissions have all increased since 2010. If a circle is to the left of the zero line then the GHG emissions have decreased. Transport, residential and energy emissions have all decreased since 2010. COVID-19 restrictions in 2020 were responsible for reduced transport emissions during 2020.

Meeting Paris Agreement Goals

The goal of the 2015 Paris Agreement is to limit global warming to well below 2 °C, preferably to 1.5 °C, compared to pre-industrial levels.

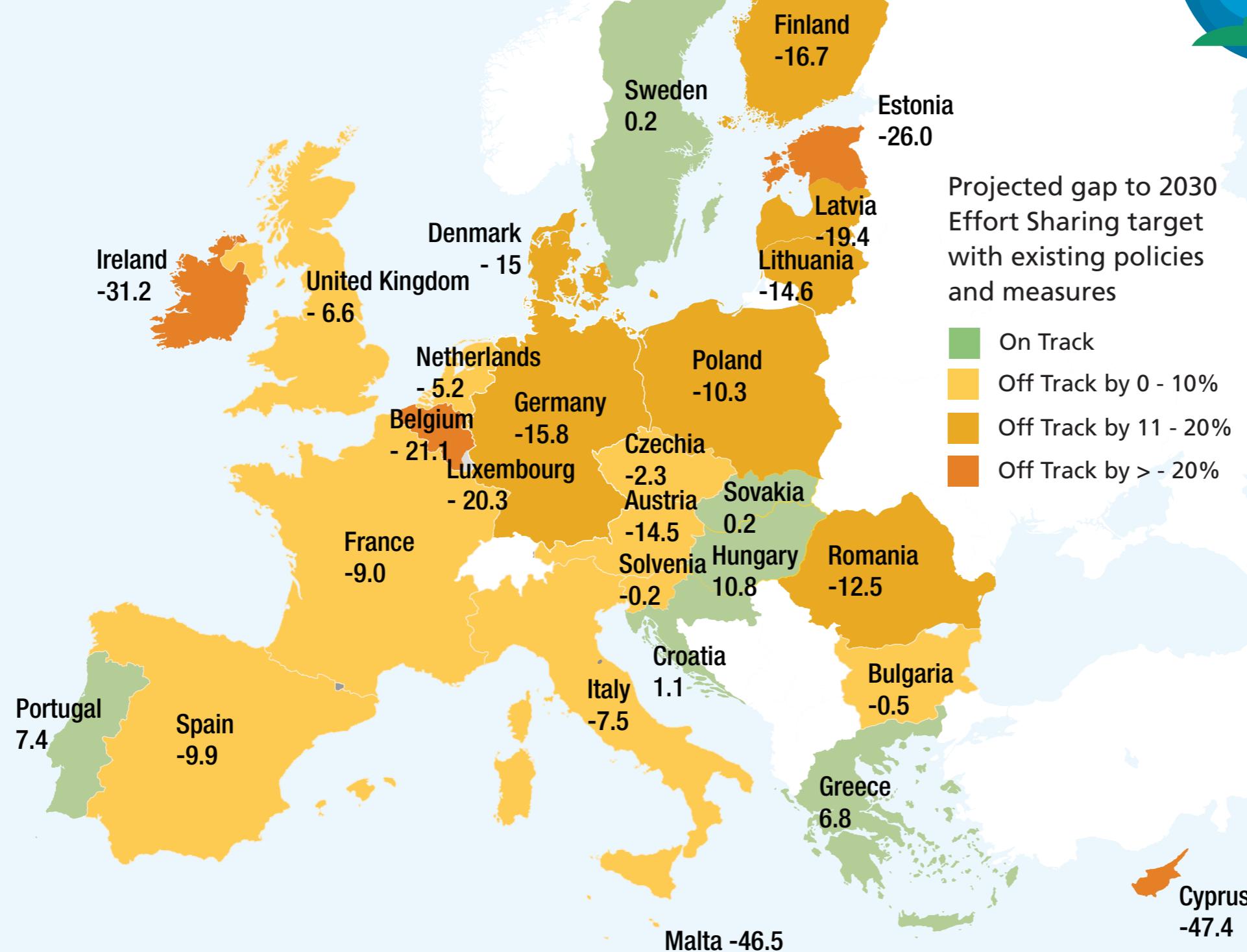
There are two lines on the left of this graph. The line at -20% shows the rate of GHG emission cuts needed to limit global temperature rise to no more than 2 °C. The second line is at -45%. This shows the rate of GHG emission cuts needed to limit global temperature rise to no more than 1.5 °C.

By implementing the existing 2019 Climate Action Plan, Ireland is projected to save 58 Mt CO₂ eq over the period 2021-2030. The projected rate of change with these additional measures is shown by the arrows on each circle. The Climate Act announced in 2021 commits to a 51% decrease by 2030: the 2021 Climate Action Plan sets out the measures needed to achieve this.



How do we compare with other countries?

Ireland's emissions per capita are above the EU average, and well behind the targets and commitments. A 2018 assessment by the European Environment Agency (EEA) ranked each Member State to assess whether it was on track to meet their Effort Sharing targets.



Responding to Climate Change - Mitigation

The term mitigation means taking efforts to reduce or eliminate the emission of greenhouse gases: this will limit the magnitude of future warming. Through the Paris Agreement, nations have committed to take action to limit the level of future warming to no more than 1.5 degrees Celsius and well below 2 degrees Celsius of warming.

The scale and pace of greenhouse gas emissions reductions must accelerate.

Agriculture

The trend in greenhouse gas emissions from agriculture is largely determined by the size of the national cattle herd and application rates of nitrogen fertilisers.

Mitigating agricultural emissions requires changes in agricultural practices. Limiting application rates of fertilizer would have benefits for climate change and also for water quality.

Transport

Increases in GHG emissions from transport have been recorded for 5 out of the last 7 years.

Mitigating transport emissions requires us to take a new approach to our transport habits. As well as switching away from fossil fuels to power our vehicles, Ireland needs to invest in public transport and active transport. These changes have health and air quality benefits.

Energy

Increased use of wind energy and the switch to gas from coal for electricity generation have helped to reduce our energy emissions.

Ireland has excellent renewable energy resources and investing in the exploitation of these resources will have benefits for the environment, human health, sustainable development and energy security.



Residential

Improvements in the building standards and insulation of older buildings and the shift to less carbon-intensive fuels have driven emissions reductions in this sector but further work is needed.

Realising the Opportunities

Climate mitigation actions often have other beneficial impacts

Reducing fossil fuel use improves air quality. Diversifying our approach to transport to include more active transport support makes it easier to be active and helps to reduce traffic congestion.



Climate mitigation actions in the agricultural sector have other environmental benefits for biodiversity and water quality.



Transition to a greener economy could save costs through increased energy efficiency, create jobs and scale up technological innovations for building, transport, energy and industry that benefit our wider society.

Nature

Nature based mitigations can benefit climate action and also help biodiversity. Nature based mitigations include rewetting of bogs to turn them into carbon sinks, instead of sources of carbon emissions. Planting the right trees in the right place can act as a carbon sink as well as improving our forest habitats.



Responding to Climate Change - Adaptation

Ireland's temperature has already increased about 0.9°C compared with 1900. Until global greenhouse gas emissions reach net zero, this warming will continue.

Disruption from extreme weather events demonstrates the vulnerability of Ireland's infrastructure and economy. To build the resilience of society and the economy we need planned adaptation to current and future impacts of climate change.

Agriculture

Agricultural adaptations to climate change are important to ensure food security.

Changing temperatures and weather patterns will impact on growing seasons. New diseases and pests may become established. Diversification of crops will be necessary to remain resilient to these pests and diseases, and to changing weather patterns.

Implementing more rainwater harvesting and storage can help adapt to potential increases in incidences of drought.

Transport

Our transport infrastructure is vulnerable to extreme weather events: extreme winds, rainfall and flooding can grind transport to a halt causing particular problems for rural communities.

Diversifying our approach to transport can be part of our response to these events.

Renewable Energy

Our energy system must adapt to be less reliant on fossil fuel sources so that we can meet our greenhouse gas emission reduction obligations.

There is great opportunity for renewable energy sources in Ireland. Having a mix of sources would increase of resilience to variable - or even extreme - weather events. Community led and microgeneration projects can help to build energy resilience in communities.



Our homes & communities

Building performance will be challenged by a changing climate and will need to cope with more extreme summer temperatures, intense rainfall events and potential changes in wind and storm patterns. This will require appropriate design and building standards, as well as adaptation of the existing building stock.

Our Changing Coast

Predicted changes in mean sea level will be magnified by changing storm surge and wave patterns in coastal areas.

Continuing to build the resilience of our coasts and our understanding of sea level rise in a changing climate is essential.

Nature Solution

The NPWS Habitats Directive Article 17 Report identified that climate change is more likely to many of our more vulnerable habitats in the next 12 years. The same report identified climate change is having an impact on some species now, and is a threat to more species for the future.

Targeted efforts to help conserve vulnerable habitats and species will be needed to protect our biodiversity.