

Onshore renewable energy: **common myths**



Foreword



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Onshore renewables are key to the UK's journey to net zero, enhancing energy security, reducing reliance on fossil fuels and bringing investment directly into communities. Yet, discussing these projects with constituents and stakeholders can be challenging – from the visual impact on landscapes to meeting infrastructure needs and the quality of local benefits.

As MPs, we play a critical role in this dialogue and it is vital that we are informed voices in the conversation to better advocate for our constituents. This guide provides clear, accurate information to equip MPs with the facts to counter common myths, engage effectively with stakeholders and provide us with context to confidently discuss onshore renewables with our constituents and in Parliament.

Our energy transition presents a unique opportunity for MPs to champion both national progress and meaningful local impact that resonates with communities. I hope this guide will support MPs in fostering constructive, informed conversations.

Introduction

To meet the UK's net zero and clean power ambitions, renewable energy generation, grid capacity and storage projects will need to be delivered at scale and pace.

Doing so will provide significant opportunities for local jobs, skills development and economic and environmental benefits. However, meeting these targets at the required pace needs broad public support and understanding.

Only by bringing everyone along on this journey can we ensure a successful and timely transition to net zero.

The facts

This document aims to set out the facts on common misunderstandings about renewable energy.

Our aim is to encourage informed discussions and decisions that support the UK's transition to a clean energy future. Regen and PRASEG have partnered to ensure that the facts presented in this document are accurate and accessible. Our collaboration reflects a commitment to transparency in the renewable energy and storage sector.



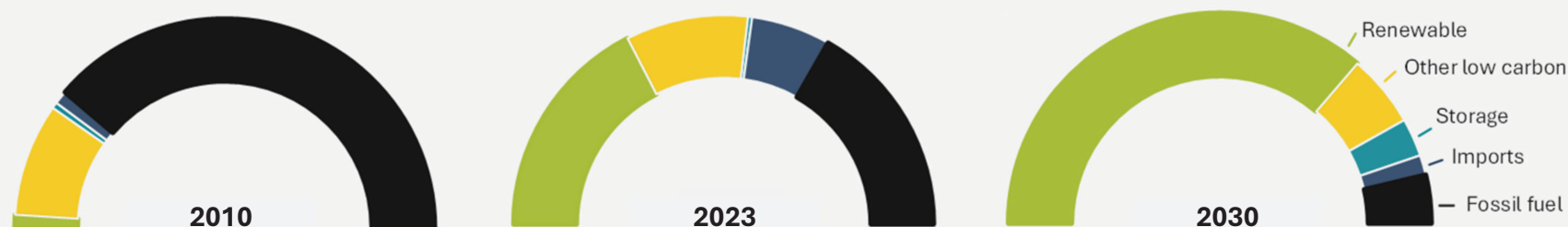
Regen provides independent, evidence-led insight and advice in support of our mission to transform the UK's energy system for a net zero future. We focus on analysing the systemic challenges of decarbonising power, heat and transport. We know that a transformation of this scale will require engaging the whole of society in a just transition.



Established as a not-for-profit in 1979, PRASEG Ltd is the Parliamentary Renewable & Sustainable Energy Group providing the Secretariat for the APPG for Renewable & Sustainable Energy. It exists to support Parliamentarians to advance dialogue on the energy transition, strengthen cross-party consensus, and to convene MPs, peers and experts to inform decarbonisation policy.

Where does our power come from?

Figure 1: Great Britain's electricity supply mix – past, present and future
Based on proportion of annual electricity supply



Sources: ESO historic_gb_generation_mix, FES 2024 Holistic transition ES.08-11 **Note:** The 2030 electricity supply mix is an illustrative pathway and will be refined and updated by the government's Clean Power Plan.

The government's ambitious Clean Power 2030 mission builds on a remarkable transformation in our power system in recent years.

Past

As recently as 2010, nearly 80% of the UK's electricity came from gas and coal power plants, with just 2% coming from renewable sources.

Present

We are now at a crossover point. In 2023, renewable power exceeded generation from fossil fuels for the first time – reducing emissions by over two-thirds. And the last coal-fired power station has been decommissioned.

Future

By the end of the decade, the government's plan is that we will produce more clean power over the year than we use. Fossil fuels will only be used as a strategic reserve for energy security, providing just 5% of electricity supply. We can then use this clean power to heat our homes and businesses, get around, and power our industry, putting us on course for our net zero goal.

We need a step-change in renewable energy deployment in order to make this pathway a reality.

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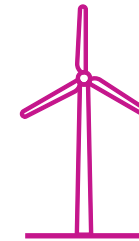
This document is organised into the following sections, each focused on setting out the facts related to key misconceptions about different elements of the energy transition:

1.



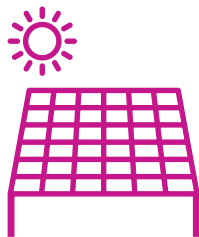
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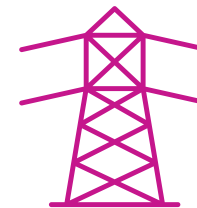
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1. Renewable energy – the facts



MYTH

Renewable energy projects are unpopular with many people

FACT

84% of people in the UK support renewable energy



Public support

Most people in the UK support renewable energy, even in their local area. According to UK government data, in spring 2024, 84% of the UK public said they supported using renewable energy to provide electricity, fuel and heat. Most people are also happy for projects to be located near them, with only 13% of people saying they would be unhappy to have a wind farm in their local area and 9% saying they would be unhappy with a solar farm in their local area.¹ Renewable energy projects can bring many benefits to local people, including job creation, improvements to nature and funding for local projects.



MYTH

Renewables are more expensive than fossil fuels

FACT

Dependence on gas puts us at risk of price shocks



Cost

Analysis by the Office for Budget Responsibility found that **continuing our dependence on gas leaves us vulnerable**. It found that 2022-style gas price shocks could add 13% of GDP to public debt by 2050 if they happened once a decade.² The cost of wind and solar power has dropped dramatically over the past decade, making them the cheapest sources of new electricity generation in most countries.³ According to the International Renewable Energy Agency, in 2022 onshore wind was 52% cheaper than the lowest cost new fossil fuel-fired power generation option, and solar PV was 29% cheaper.⁴ Costs are expected to decrease further because of technology development, competition and policy.⁵ According to the London School of Economics, while renewables are frequently criticised for being heavily subsidised, fossil fuels and nuclear power have had more financial support.⁶

Jobs

Research has found that, overall, investment in renewable energy and energy efficiency sectors can deliver more jobs than coal or gas power generation.⁷ In the UK, the renewables and storage industry supports a very wide range of jobs, including in manufacturing, installation, maintenance, policy, research and operations. According to the Office for National Statistics, in 2022 UK employment in green jobs was estimated at 639,400 full-time roles, an increase of 8.4% from 2021. Globally, jobs in renewable energy have almost doubled in the past 10 years.⁸ Through focusing on training and skills development we can ensure that people across the UK can benefit from job opportunities and achieve a just transition from fossil fuels.



MYTH

The transition to renewable energy will put jobs at risk

FACT

Renewable energy and energy efficiency can deliver more jobs in local communities across the country than fossil fuels



Electricity generation

In the first quarter of 2024, 50.9% of UK electricity generation was from renewable energy.⁹ Regen's 'Day in the Life' report showed how a power system based on renewables could remain reliable on a low wind day.¹⁰ Recent research from Oxford University identified that it would be possible to meet Britain's energy needs entirely from wind and solar backed up by storage.¹¹ Progress in the use of batteries and other forms of energy storage can help to provide electricity when the wind isn't blowing and the sun isn't shining.¹² However, to meet our net zero goals and deliver the government's Clean Power 2030 mission, we will need to increase the speed at which we are developing renewable energy projects.¹³

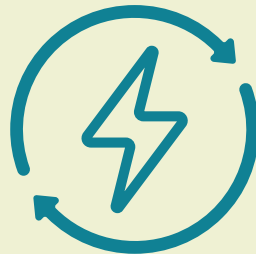


MYTH

Renewable energy can't ever meet the amount of electricity we need

FACT

The UK is moving rapidly to an electricity system powered by renewables



2. Solar energy – the facts



MYTH

Solar will use too much countryside and farmland

FACT

To achieve net zero, solar would only need to cover 0.3% of our land



Land footprint

Solar farms currently occupy less than 0.1% of the UK's land.¹²

Even when using the higher estimates of how much solar energy we need to meet net zero by 2050, solar farms would only cover 0.3% of the UK or 0.5% of all farmland¹⁵ – less than we use for golf courses.¹⁶ Solar has a relatively small land footprint, leaving space for other uses like animal grazing around the panels. Planning guidance also helps to ensure that solar development mainly occurs on lower-grade agricultural land.¹⁷ Additionally, solar development helps farmers by providing another stable source of income.¹⁸



MYTH

Solar panels permanently turn the land into brownfield land

FACT

Solar farms are temporary structures and land returns to its original use afterwards



Land use

Solar does not turn the land into brownfield land and does not make the land more suitable for other uses such as housing. In the UK, most solar farms have temporary planning permission, typically for 30 years, with legal conditions ensuring that the developer returns the land to its original use (e.g. farmland) afterwards.¹⁹ Using a field as a solar farm for this temporary period can also provide an opportunity for land restoration.²⁰

Biodiversity

Solar farms can benefit local biodiversity and wildlife by improving the range of plants within the fields.²¹ Research has identified that solar farms can play a key role in supporting pollinators such as bees by providing opportunities to create different habitats.²



MYTH

Solar is bad for biodiversity

FACT

Solar farms can be used help to support a range of plants and wildlife





MYTH

No farm activities can occur on solar farms

FACT

Animals can graze on solar farms, providing an additional benefit for farmers



Farming

Animals, most commonly sheep, can graze around solar farms.²³

This is good for the welfare of the sheep and it also helps manage vegetation growth, preventing shading of the solar panels.^{21,20}

Weather

Solar panels rely on the sun's light, not on the sun's heat. Even on overcast days, solar panels can generate electricity because they are still collecting sunlight.²⁴ Even in the bleak winter months, solar PV can generate electricity, though at reduced performance. For example, at one point in February 2022, solar generated more than 20% of the UK's electricity.¹⁴

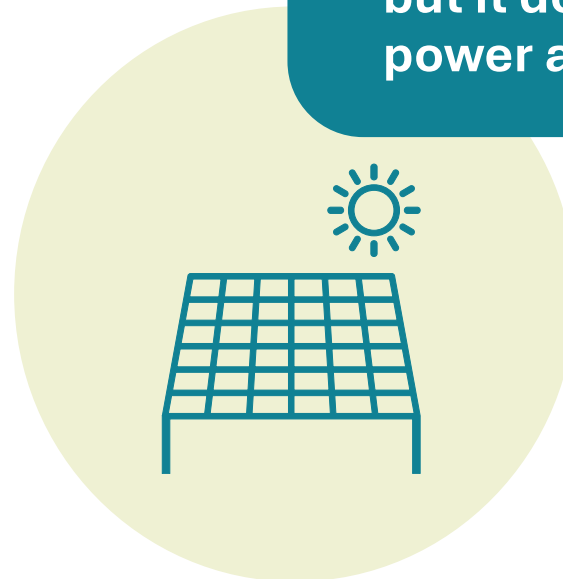


MYTH

Solar energy only works in the summer

FACT

Solar generates more in spring and summer, but it does produce power all year



3. Battery storage – the facts



MYTH

We don't need battery storage

FACT

Battery storage is necessary to help increase our energy security



Energy security

Grid-scale battery storage is crucial for keeping the lights on and maintaining power in the UK. Battery storage helps tackle energy supply challenges by storing spare electricity during periods of low demand and providing it when demand is high, balancing supply and bridging grid capacity gaps. It can be used in tandem with generation projects such as roof-top solar for home energy consumption, and to store excess generation at a greater scale rather than turning down renewable power. This helps reduce the need for fossil fuels and energy bill costs for households.²⁵



Supply chains

The Energy Transitions Commission reported in 2023 that there is ‘no fundamental shortage’ of any key materials. Its chair, Lord Turner, wrote “In today’s energy system, each year we burn 8bn tons of coal, 35bn barrels of oil, and 4tn cubic metres of gas, producing around 40bn tonnes of CO2 equivalent. In the new system, we extract far smaller quantities of key minerals and place them in structures that generate, store and use clean electrical energy; and the materials are then ready to do the same again next year or to be recycled over and over again.”²⁹ European battery production is increasing, with lower emissions from manufacturing, and stronger EU regulations including carbon footprint labelling are driving sustainability in the market.³⁰



MYTH

Battery projects pose an unmanageable fire risk

FACT

The rate of fire incidents affecting battery storage projects has fallen rapidly in recent years



MYTH

Sourcing minerals to build batteries is as environmentally damaging as burning fossil fuels

FACT

Batteries reduce greenhouse gas emissions and can be recycled and reused



Safety

According to a global study, the failure rate of grid-scale battery storage projects decreased by 97% from 2018 – 2023 as lessons were implemented.²⁶ In addition to planning guidance,²⁷ the government has published health and safety guidance for grid-scale energy storage.²⁸



MYTH

Battery storage systems have a short lifespan

FACT

Batteries can last over 20 years



Lifespan

All batteries degrade over time, but the rate varies based on usage and maintenance. Improvements in technology and management have enabled longer lives, and many lithium-ion battery manufacturers offer warranties of 20 years or more (with some drop-off in capacity).³¹ New developments in battery science are promising even longer lifetimes, and there is potential for 'second life' batteries and a growing focus on recycling.^{32,34}

Noise

While batteries are generally quiet, the cooling fans can produce some noise, particularly at higher temperatures and low background noise. Existing planning policy is designed to help mitigate against any noise. Good design noise assessments, and the implementation of recommended noise reduction measures (e.g. barriers or enclosures) are used to effectively minimise impact in residential areas.³⁴



MYTH

Battery storage systems are noisy

FACT

Planning policy ensures that batteries are in suitable locations to minimise noise from fans



4. Wind energy – the facts



MYTH

The public is opposed to onshore wind

FACT

77% of the UK public supports onshore wind



Public support

Polls consistently show strong public support for onshore wind in the UK, including from people living near existing projects and across political lines, with a key driver being the hope that it could help reduce UK electricity bills.^{35,36} The most recent UK government poll (2024) shows that 77% of the UK supports onshore wind, with only 13% saying they would be unhappy with a wind farm in their local area.¹

MYTH
Wind farms are noisy

FACT
Wind farms are designed to minimise noise

Noise

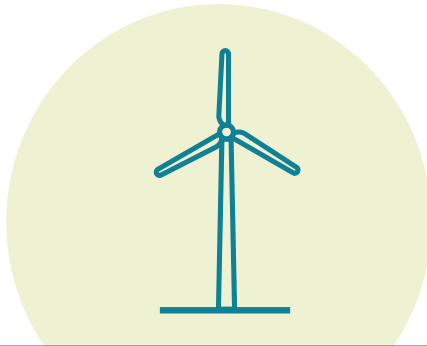
Modern wind turbines are designed to minimise noise. At 350m from a turbine, the noise level is much less than the noise created by traffic on a country road; noise impacts are considered as part of the planning process for onshore wind; a noise assessment considers the impact of noise on residents and businesses in the context of the local area and existing background noise.³⁷

Visual impact

The planning process helps to ensure that the visual impact of wind farms is minimised through good design. While some people may not like the look of wind turbines, many landscapes accommodate them without significant impacts. In some areas, the turbines have become a familiar part of the landscape. For example, residents of a Scottish community that owns three turbines affectionately nicknamed them the ‘Three Dancing Ladies’.³⁸

MYTH
Wind turbines are an eyesore

FACT
The planning process minimises the visual impact of wind turbines



MYTH
Wind energy is too expensive

FACT

Onshore wind is far cheaper than new fossil fuels



Cost

Wind energy is one of the fastest-growing energy sources worldwide, and because of this growth and improvements in technology, costs have been decreasing.⁴ According to the International Renewable Energy Agency report on 2022 energy costs, electricity from onshore wind is 52% cheaper than the cheapest new fossil fuel-fired power generation option.⁴ In the UK, onshore wind energy accounted for 13% of total electricity generation in 2023, which is expected to continue to grow with the lifting of the planning restrictions on new projects.⁹

Local benefits

Wind energy projects commonly offer local benefits like community funds and biodiversity improvements. Community benefit funds are used to support a range of local projects, from improving local buildings, to supporting local sports teams. For example, the community-owned Ambition Lawrence Weston Turbine, the most recent in England, is expected to contribute to a new community hub, providing support, training and debt advice.



MYTH
Wind energy projects do not provide benefits to the local community

FACT

Wind energy projects can create significant benefits for local communities





MYTH

The amount of CO₂ embedded in the construction of wind turbines is not recovered

FACT

The CO₂ payback time for wind turbines is only seven months, while turbines often last 25 years or more



Carbon

While wind turbines generate energy without producing carbon emissions, some carbon is produced during construction and removal of the turbines. Research has identified that it takes approximately seven months of operation for wind turbines to pay back all of the carbon produced during their lifetimes.³⁹

Recycling

Currently, 85-90% of wind turbine materials are recyclable.⁴⁰ The blades cannot yet be recycled; however, businesses are developing ways to repurpose turbine blades for items such as bridges, furniture, and play parks.⁴¹ As a result, these materials do not have to go to landfill. An example is the blade bridge in Cork, pictured below.



MYTH

Wind turbines will end up in landfill

FACT

Wind turbines can be recycled or re-used for items such as bridges



Image supplied by: Re-Wind

5. Heat and energy efficiency – the facts



MYTH

Heat pumps won't be able to heat most houses

FACT

Heat pumps will be suitable for most UK homes



Homes

Modern heat pumps can be used to heat most UK homes, including older properties. A research project funded by the UK government demonstrated that heat pumps could work in a wide range of properties, from Victorian mid-terraces to 1960s flats.⁴²



MYTH
Heat pumps are noisy

FACT

Modern heat pumps create noise that is similar to a refrigerator



Noise

Air source heat pumps located on the outside of a home produce a noise between 40-60 decibels; this is similar to the noise made by a refrigerator.⁴³ The model selected and positioning of the heat pump can also help to minimise noise further.⁴⁴

Hydrogen

Research has shown that hydrogen is not the most suitable option for heating our homes. A review of 54 independent studies revealed that hydrogen for heating buildings would be much more expensive than alternatives such as heat pumps.⁴⁵ The National Infrastructure Commission found that hydrogen heating would be unsuitable for UK home heating due to the costs and difficulties of moving from gas to hydrogen.⁴⁶



MYTH
We should wait for hydrogen to replace gas heating

FACT

Hydrogen is not the best option for heating our homes



6. Grid and transmission infrastructure – the facts



MYTH

The current grid system does not need to be updated

FACT

Upgrading the grid is essential to enable the transition to renewable energy and reduce our reliance on foreign energy imports



Grid upgrade

Much of the UK's electricity network was built in the 1950s and was designed to transmit electricity from coal and gas-fired power stations in central locations. The grid now needs to be updated to enable new sources of renewable energy to be generated across the country and supplied to the homes and businesses that need electricity. This need is increasing as we use more electricity to power our homes and transport. Upgrading the grid to support renewable energy development will also reduce the need for imports of energy from other countries.⁴⁷



MYTH

We could easily put all the transmission infrastructure underground or at sea

FACT

Using overground transmission lines will help to keep energy bills down



Transmission lines

While underground or subsea transmission is possible, it is significantly more expensive. Estimates for the cost of underground transmission cables range from five to 10 times more expensive than overhead transmission lines.^{48,49} Undergrounding can be a challenging process involving digging a trench along the length of the cable route, creating potential impacts on sensitive habitats and archaeological heritage.⁵⁰ Maintenance can also be a challenge for underground lines due to access. UK government planning policy states that lines should be placed underground (where possible) in nationally designated landscapes to minimise visual impacts.⁵¹



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Engage with us



Regen

If you'd like to speak to us about planning, please reach out to Rebecca Windemer, Regen's planning and communities lead, at rwindemer@regen.co.uk

We are continuing to work in this space and will be shaping our ideas through our planning working group. Regen members can sign up for the working group at: regen.co.uk/all-events



PRASEG

At PRASEG, we are always engaging with industry for the most relevant insights to support Parliamentarians in their commitment to advance the energy transition. For more information, contact Laura Douglas-Hamilton, who leads the Secretariat for the All-Party Parliamentary Renewable & Sustainable Energy Group, at laura.douglas-hamilton@praseg.org.uk



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