

Electricity
Transmission

Our route to net zero emissions



nationalgrid

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0%

net zero

We will reduce our own direct greenhouse gas emissions to net zero by 2050



Context

On 27 June 2019, the UK became the first major economy in the world to legislate a target to become net zero of carbon emissions by 2050.

In National Grid Electricity Transmission, we fully support the UK's bolder and more ambitious commitment. There is no more important issue than the climate crisis and we are making it our business to drive action in every way we can.

We are responding to this challenge by reviewing every aspect of the way we do business. Our transmission infrastructure is uniquely placed to be part of the solution. We are ready to lead in accelerating this transition by designing and delivering transformative, innovative engineering to help solve cross-sector challenges at scale across the country.

Now is the right time to set ourselves challenging goals. This roadmap sets out in more detail how we will navigate the next steps of this journey. Whether this is through direct action to introduce electric vehicles to our fleet or accelerating the shift to net zero by playing an instrumental role in connecting greener and cleaner energy.





Collaborative,
innovative, and
whole-system solutions

A three-step plan

To achieve our aim, we have carefully considered the Greenhouse Gas Protocol for Scope 1, 2 and 3 emissions and explored how we can best accelerate change as an infrastructure business (our day-to-day activities is maintaining and constructing assets), and as the transmission owner (we are responsible for connecting new generation in England and Wales).

Our three step-plan focuses on ourselves, our value chain and the role we play to connect renewable and low-carbon energy.

Step 1

Direct emissions:

We will reduce carbon emissions we can directly control through changes to our behaviour, policies and operations

Key areas:

- Use of insulating gases
- Energy used at offices and operational sites
- Business and employee travel
- Transmission losses

Step 2

Indirect emissions:

We will reduce carbon emissions we can control indirectly through our wider value change, via influencing our customers and supply chain

Key areas:

- Capital carbon/construction
- Supply chain emissions

Step 3

Facilitating a net zero energy system:

We will enable the UK's progress to net zero by putting forward collaborative, innovative, and whole-system solutions to support policy makers deliver a low-carbon energy system

Key areas:

- Connecting new generation needed to meet net-zero
- Working as a whole system with other stakeholders and industries
- Using system flexibility to unlock network capacity

How we will get there

Step 1 – Direct emissions

We will achieve net zero for our scope 1 and 2 emissions by 2050, with interim targets of:

- 50% reduction by 2030 and,
- 34% by 2026 from a 2018/19 baseline

These are science-based targets, in line with limiting global temperature rise to 1.5°C above pre-industrial levels.

Our biggest single contributor to climate change is insulating gases like Sulphur Hexafluoride (SF₆). SF₆ is an extremely effective electrical insulator. It is used all over the world and has significant advantages over alternative materials. However, SF₆ is a very potent greenhouse gas with a Global Warming Potential (GWP) of 23,000TCO₂e.

As a responsible business, we will provide brave leadership with targeted investment

to replace SF₆ equipment and tackle the challenge. We will continue to explore SF₆ alternatives, including insulated lines, alternative gases and capture techniques. We have also just introduced a new SF₆ policy that positions we will not be putting any more SF₆ into the network when there is an alternative.

Our stakeholders have been clear that they expect us to go faster; we share this ambition and are working hard to find ways to accelerate progress and stop putting any more SF₆ into our network when there is another alternative to do so.

We will also move towards 100% alternative fuel fleet by 2030 and 100% renewable electricity for our own use, with a 20% increase in energy efficiency for our offices by 2026.

	2020	2025	2030	2040	2050
Line losses	◆ Decarbonisation of electricity/energy losses increase	→			
SF₆	◆ New 132kV assets are SF ₆ free. Signal our intent on alternative gases	→		◆ All new assets are SF ₆ free	
	◆ ET SF ₆ policy agreed	◆ Replace SF ₆ assets with alternatives	◆ Replace SF ₆ assets with alternatives		
Fleet	◆ Pilot of 20 electric vans	◆ 60% of fleet switched to electric	◆ All vehicles replaced with Alternative Fuel Vehicles (AVFs)		
Energy consumption (buildings)	◆ 100% renewable tariff (metred)				
	◆ Energy efficiency measures	→			
	◆ Decarbonisation of electricity	→			

Assumptions: there is suitable funding agreed for the RIIO-ET2 period from 2021-2026 and beyond

Step 2 – Indirect emissions

We will become net zero across all the areas we can directly control and reach beyond our boundaries to inspire wider action. One area where we can step our ambition is by inspiring action in our supply chain.

Infrastructure projects are responsible for half the UK's carbon emissions. Building new assets such as substations is a big part of our job. We therefore need to find ways to make our construction work less carbon intensive, which goes hand-in-hand with reducing costs for the business. Our target is to achieve carbon neutral construction emissions by 2026.

We already have tools in place to measure carbon emissions from construction right through to the end of an asset's life. This approach has helped us achieve a 50% reduction in carbon already from a 2015/16 baseline in 2019. In future, we will continue to collaborate with our supply chain and reduce emissions as much as it is feasibly possible. We will only offset residual emissions, in line with the internationally recognised industry standard PAS 2080 Carbon Management in Infrastructure. We will do the hard work first.

In addition, 75% of our top 250 suppliers will have carbon reduction targets by 2026. We will collaborate further with our suppliers to assess how we could expand this commitment in future.

0%

Carbon neutral construction

We will achieve carbon neutral construction by 2026

Step 3 – Facilitating a net zero energy system

The Committee on Climate Change (CCC) report, which advised the UK should set this target, set out a proof of concept scenario for a future energy system. This showed that net zero by 2050 is theoretically possible whilst recognising that further work is needed. The route to net zero is not yet clear but we will be flexible to deliver the investment needed for net zero in the 2020s. We will invest in equipment and technology to support the electricity system operator (ESO) to operate a net zero carbon electricity system by 2025.

In ET, we have looked at energy scenarios which would deliver a net zero 2050 generation mix and are using these to identify and anticipate future upgrades to the transmission system. We are looking at innovative solutions to future upgrades to ensure we avoid greenhouse gas emissions whilst delivering an efficient and secure transmissions system. We expect to see increasing UK electricity demand which will require new generation to connect to our transmission system. We will be proactive in our discussions with Government, Ofgem and industry to facilitate the connection of new generators.

We will work with stakeholders to overcome cross-sector challenges for electric vehicles infrastructure and support solutions for decarbonisation of wider transport, such as rail and shipping. We will also proactively engage in the heat decarbonisation debate and facilitate innovation projects to make sure the electricity transmission network is ready for the transition.



National Grid plc
National Grid House
Warwick Technology Park
Gallows Hill
Warwick
CV34 6DA
United Kingdom

Registered in England and Wales No. 4031152

nationalgrid.com