

How 5G will supercharge utilities and energy



Mobile^{UK}



Why should we care about 5G?



5G will benefit our economy and society.

It will be better at doing the things that 4G does already, but significantly, it will offer faster and more reliable mobile internet.

It will also do things that 4G cannot. It has the potential to change the ways in which we learn, how we communicate and how we do our jobs through the simultaneous and seamless connection of our digital devices.

But because it is often described using technical jargon, many people are unaware of how 5G will enhance their life.

This pamphlet explains the benefits of 5G using examples and language that anyone can understand. It is one of many that look at the impact of 5G. The topics included in these pamphlets are:

- **How 5G will help healthcare**
- **How 5G will increase rural opportunities**
- **How 5G will support the emergency services**
- **How 5G will help councils**
- **How 5G will change sport**
- **How 5G will help the environment**
- **How 5G will advance the manufacturing industry**
- **How 5G will improve the creative industries**
- **How 5G can meet the climate change challenge**
- **How 5G will improve the home and the workplace**
- **How 5G will revolutionise the retail industry**
- **How 5G will change the way we drive**
- **How 5G will supercharge utilities and energy**



How 5G will supercharge utilities and energy

Use of 5G in the utilities industry can deliver a **1000x** increase in the number of devices on the network.¹

5G has the power to touch every aspect of the energy and utilities sector. 5G-enabled technology will impact everything from renewables and storage-powered grids, to multiple connected devices (known as the Internet of Things) helping customers to monitor the energy usage of each device.

- **5G-enabled connectivity can reduce waste and stabilise renewable energy supply.**

5G connections will enable monitoring of demand peaks to enhance the generation and usage of renewable energy. This will in turn reduce wastage and make cost savings that can be passed to consumers. This monitoring of energy use and resource can also allow larger cities to plan their use of energy effectively, planning spend and making efficiencies.

- **5G infrastructures will reduce maintenance costs and downtime for utilities and energy.**

Through the Internet of Things 5G can improve data flow relating to in order to predict and analyse possible faults quickly, reduce outage and downtime for customers, and provide service and maintenance efficiencies. Research shows this could reduce downtime by 32% and maintenance sessions by 25%.²

5G networks are gradually being rolled out across the UK. When you will have access to 5G connectivity will depend on where you live, your network provider and whether you have 5G-enabled devices.

If you have further questions about 5G, some of the most common questions have been answered on the final page.

¹ The Future of Utilities: Powered by Connectivity | [deloitte.com](https://www.deloitte.com)

² Getting the energy utilities industry connected | [Ericsson](https://www.ericsson.com)

How 5G is energising the utilities and power industries

Nokia provides 5G-powered monitoring at Belgian windfarm.

The use of 5G connected devices (Internet of Things), at the Port of Zeebrugge, Belgium, is enabling the development and monitoring of windfarms. Smart devices throughout the port will empower self-driving vehicles, drones and augmented reality; which creates digital images in the physical world. This will help develop and maintain the largest on-shore industrial windfarm at the port. The windfarm can power the port, moored ships and the surrounding community with the equivalent energy to power 30,000 homes. This means sustainable sources of renewable energy can be created, and real time monitoring and adjustments ensure consistency and reliability of the power produced.³



Ericsson and Northumbrian Water trial 5G-enabled water leak detection.

Northumbrian Water is using 5G technology to increase reliability and effectiveness of the water network. A 5G digital map of the underground water network, allows engineers to manage hazards and risks detected across the water network - which in total features 47,210km of water mains, pipes and aqueducts - in real time. Secondly, a 5G network allows engineers to upload and access centralised data without needing to use Wi-Fi or a cable connection. A 5G app allows consumers to monitor their own home's water supply and flow, identifying any unusual patterns helping to flag potential issues ahead of time.⁴



5G and smart grids in Sweden.

Research in Sweden has shown that smart grids - which monitor energy requirements and usage via connected smart devices - provide the key to helping Sweden transition to more renewable energy sources. This move to renewable sources requires power grids to handle more generators and variations in power supply due to dependence on weather conditions. These smart grids, enabled by connected sensors and smart meters, can predict energy usage spikes, maintenance requirements and balance the power levels generated across multiple sources thus increasing reliability and minimising waste. Investments of EUR 1.5 billion per year in 5G enabled information communications technology are expected for the Swedish market, and this technology is expected to reduce the duration of interruptions by 50%-75%.⁵



5G technology to combat wastage and leaks at Centrica natural gas plant.

Vodafone's 5G enabled technology connects multiple smart devices that provide data from the Centrica's gas plant in Easington, County Durham; which processes gas from an underground facility representing 70% of the UK's gas supply - enabling detection and alerts to staff of any leaks or equipment failures. This added functionality safeguards staff and protects against disruption to service and wastage of this precious natural resource.



³ Nokia completes phase one of Belgian Port of Zeebrugge digitalization with 5G-ready private wireless network | [Nokia.com](https://www.nokia.com)

⁴ Ericsson, O2 and Northumbrian Water trial 5G utility benefits | [Ericsson](https://www.ericsson.com)

⁵ The shift to renewables with connected power distribution grids | [Ericsson](https://www.ericsson.com)

The statistics



Use of 5G in the utilities industry can deliver a 1000x increase in the number of devices on the network. Utility and power companies can increase the scale of their machine-to-machine communication and Internet of Things deployments to improve operational effectiveness, reduce waste and transition into renewable energy more quickly.⁶



The use of 5G smart meters and grids mean networks can use and distribute energy more efficiently. These efficiencies will equate to \$208 billion to global GDP (gross domestic product) by 2030.⁷



5G enabled enhancements in water network monitoring can reduce leaks and wastage, with a potential global GDP (gross domestic product) impact of \$39bn by 2030.⁸



56% of energy and utility companies are defining use cases for 5G and 20% are defining how they will use 5G to deliver services.⁹

6 The Future of Utilities: Powered by Connectivity | [deloitte.com](https://www.deloitte.com)

7 Forecasted 5G applications contribution to productivity in smart utilities management by 2030, by use case | [statista.com](https://www.statista.com)

8 The global economic impact of 5G | [pwc.com](https://www.pwc.com)

9 State of 5G - The Road Ahead | [infosys.com](https://www.infosys.com)

Frequently Asked Questions

1. How do I get access to 5G?

Firstly, you need a 5G signal in your area (just as you need a 4G signal to get 4G now). Secondly, you need a device that can receive 5G signal - some 5G-enabled smartphones are available now, with more coming onto the market.

2. Does 5G pose a danger to your health?

5G uses radio waves - as does 4G, 3G etc. - which have been found safe in numerous studies when used within guidelines. Public health organisations around the world support this conclusion.

3. Does 5G mean more masts and antennae?

Some new infrastructure will be needed to connect more remote communities to the 5G network. But existing masts will be adapted for 5G wherever possible. If new sites are needed, relevant planning rules will apply to them being built.

4. Is 5G bad for wildlife?

No. Despite many false claims, wildlife has not been found to be negatively affected by 5G.

5. Will 5G offer an alternative to broadband?

4G and 5G can both provide mobile home broadband connections. However, while 5G will offer potentially near gigabit capable speeds in the future, currently UK 5G mobile networks don't provide the same capacity or offer speeds as fast as 'full fibre' for home broadband.

Source: Mobile UK - www.mobileuk.org

5G CHECK THE FACTS

mobileuk.org

Mobile^{UK}