

Kent County Council

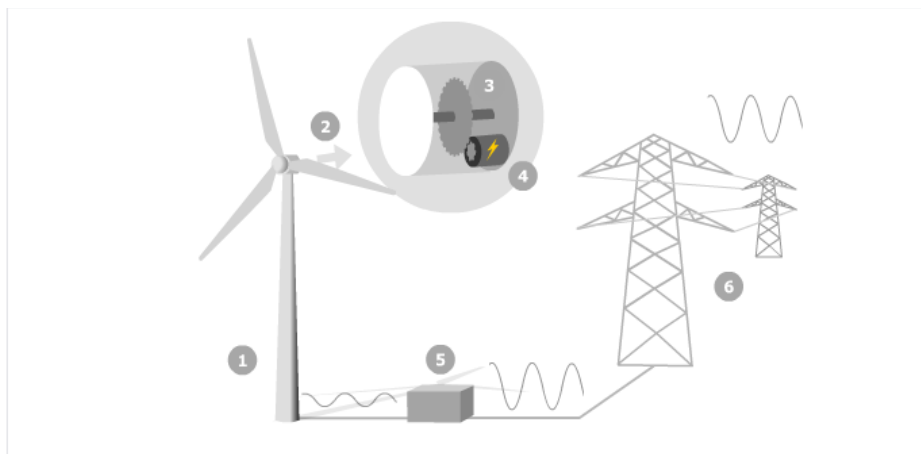
Energy Security Select Committee

Wind Power – An Overview

Wind power is one form of renewable energy, meaning it is not depleted when used (unlike fossil fuels such as coal and oil).

How It Works

Both onshore and offshore wind turbines operate on the same principle: blades on the turbine spin a rotor connected to a gearbox and generator. As the blades spin, this movement is converted into electrical energy.



1. The wind turns the blades.
2. The blades turns a shaft inside the nacelle (the box at the top of the turbine).
3. The shaft goes into a gearbox which increases the rotation speed.
4. The generator converts the rotational energy into electrical energy.
5. The transformer converts the electricity from around 700 Volts (V) to the right voltage for distribution, typically 33,000V.
6. The National Grid transmits the power around the country.

Facts and Figures

The UK is the global leader for offshore wind energy, with the potential for up to 18GW of energy to come from offshore turbines by 2020.¹

The average onshore wind turbine has a capacity of 2.2MW (offshore turbines = 3.6MW). This is enough to meet the electricity needs of over 1,200 homes for a year, or fuel over 2,300 electric cars.²

¹ DECC (2011) UK Renewable Energy Roadmap.

² EWEA (European Wind Energy Association, 2012) Wind Energy Statistics and Targets [online] available at: http://www.ewea.org/uploads/pics/EWEA_Wind_energy_factsheet.png

As of December 2014, there are 7,826 onshore wind turbine sites in the UK, and 28 offshore sites, with wind making up 20% of the UK's renewable energy mix.³

The onshore wind industry generated £906 million in gross value added (GVA) revenue to the UK economy in 2014.⁴

Public Opinion

As of 2015, 75% of the public support the use of renewables, with 24% strongly supporting their use. 4% oppose the use of renewables, with 1% strongly opposed.⁵

³ DECC (2015) Digest of UK Energy Statistics (DUKES) 2015.

⁴ Renewable UK (2015) Onshore wind industry adds £906 million a year to UK economy [online] available at: <http://www.renewableuk.com/en/news/press-releases.cfm/onshore-wind-industry-adds-906-million-a-year-to-uk-economy>

⁵ DECC (2015) DECC Public Attitudes Tracker – Wave 14, London.