

# Electric and magnetic fields

The Hinkley Connection Project will connect low carbon energy to UK homes and businesses and increase capacity on our network for more green energy from the south west.

It's a new high voltage electricity connection made up of pylons, underground cables and substations operating at 400,000 and 132,000 volts. These create electromagnetic fields (EMFs), just like the many and varied electrical appliances in our homes.

Some people worry that EMFs have negative health effects. We take these concerns seriously. We want to keep the public, our contractors and employees safe.

## What are EMFs?

EMFs are two types of field – electric (produced by the voltage) and magnetic (produced by the current).

## Are EMFs from your assets harmful?

The weight of evidence is against there being any health risk. People may experience microshocks, but these are not considered to be harmful. These are similar to the shocks you receive when you touch another person or a car after walking on a nylon carpet.

## Where has the evidence come from?

Decades-long studies have been done worldwide by authoritative and independent scientific institutions, such as the World Health Organisation and Public Health England.

## What did they find?

They've been unable to establish any health risks from EMFs at the levels at which the UK's network operates. These levels are reflected in guidelines set by Government and met by all UK electricity infrastructure.

## What do the guidelines say?

Equipment that produces EMFs – from hairdryers to pylons – shouldn't produce more than 9 kilovolts per metre (kV/m) for electric fields and 360 microteslas ( $\mu\text{T}$ ) for magnetic fields.



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## How do EMF levels from pylons, cable and substations for this project compare to other electrical appliances?

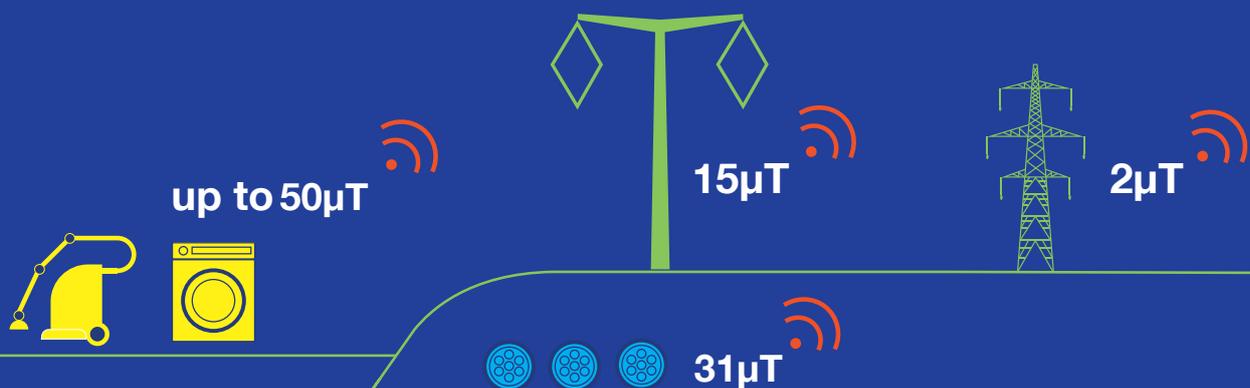
Normally these underground cables will produce up to 31 microteslas (the most they can produce is 96) and pylons up to 15 microteslas (83 at most). The pylons will also produce up to five kilovolts per metre (8.7 at most). Underground cables do not emit electric fields. EMFs from substations don't reach beyond the boundary fence. The EMFs here come from pylons and underground cables going into and out of the substations.

Microwaves and washing machines emit up to 50 microteslas. The voltage in the wiring around our homes is relatively small, so the electric fields are tiny.

### EMFs at a glance

	Magnetic field (microteslas / $\mu\text{T}$ )	Electric field (kilovolts per metre / $\text{kV/m}$ )
<b>Government guidelines – maximum permitted</b>	360	9
<b>Household electrical appliances</b>	Up to 50	Up to 0.18
<b>National Grid 400,000 volt pylons</b>		
Normal conditions	5 to 15	3 to 5
Maximum capacity	83	8.7
<b>WPD 132,000 volt pylons</b>		
Normal conditions	0.5 to 2	Maximum 2.1
Maximum capacity	22	
<b>National Grid 400,000 volt underground cable*</b>		
Normal conditions	31	-
Maximum capacity	96	-
<b>WPD 132,000 volt underground cable*</b>		
Normal conditions	4.1	-
Maximum capacity	54	-

\*underground cables eliminate the electric field altogether because it's screened out by the sheath around the cable.



### What further information and research is available to the public?

Further information is available in the booklet 'EMFs; The Facts' published by The Energy Networks Association (ENA) and on the dedicated National Grid EMFs website [www.emfs.info](http://www.emfs.info).

You can contact National Grid's EMF helpline on **0845 702 3270** or by email at [emfhelpline@nationalgrid.com](mailto:emfhelpline@nationalgrid.com).

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