

How to:



**Friends of
the Earth**

get our climate-changing emissions under control

Let's state the obvious: to cut our climate-changing emissions by 3 per cent a year, as set out in The Big Ask, we have to burn less oil, coal and gas. This means that we need to develop clean and renewable ways to power our industries, homes and transport – and we have to be a lot more efficient in the way that we use energy, write Climate Campaigners Alex Phillips and Dave Powell

Some claim that developing renewables will be costly, resulting in thousands of job losses, and that the only alternative is nuclear power. But Friends of the Earth believes that by improving the energy efficiency of our industry and taking advantage of the enormous renewable resources right here in the UK, we can actually boost the economy and create jobs – all whilst providing a much more secure, home-grown, energy supply.

What will a clean, sustainable and efficient 21st century look like – and how will we get there?

On these pages we've described part of a package of solutions **making 3 per cent possible**, some of which we're still working on. Taken together, these solutions show how we will meet the climate challenge without recourse to nuclear. They don't pretend to be a definitive list of solutions, but it shows what is possible, and we will be adding to this package as we go along.

All of these solutions are either already on the market or very nearly market-ready, and now need long-term investment so that they can realise their true potential. Particularly where energy generation is concerned, installation and operational costs are currently higher than their established competitors – but these would drop hugely if the technology is allowed to develop and spread on a level-playing field.

This only underlines why we need to keep up the pressure on Government through The Big Ask campaign to bring in our **Climate Change Bill**, as it would force them to put in place frameworks and long-term strategies to support and develop these solutions.



**For more information on making 3 per cent possible, visit
http://www.foe.co.uk/campaigns/climate/case_studies**

Energy efficiency

1 Super-efficient light bulbs

Yes, efficient light bulbs cost more to buy than traditional ones, but they last a lot longer. Over a year they each knock about £7 off the average household's electricity bill, because they use only one-third of the electricity of a standard bulb, and last 10 times as long. If every UK household installed three, enough energy would be saved to supply all street lighting in the UK. And excitingly, Philips will soon release an even more efficient bulb – one which uses a mere one-eighth of the electricity of a traditional one.

2 Get rid of stand-by

When electrical products are switched off, they often still consume energy. Sometimes there's a little red light indicating this – other times not. In the UK this waste accounts for a staggering 7 per cent of domestic electricity consumption, and a similar amount in industry. The good news is that the European Union is gearing up to regulate stand-by, which will have a huge effect on global manufacturing standards. In the meantime we can each play our part by ensuring that off means off – and by doing all we can to get the UK to ensure rapid progress is made at the EU level.

3 More efficient industrial motors

Motor systems consume more than 60 per cent of the electricity used by EU industries, but many use motors that are either old and inefficient or too big for the needs of the plant. The equivalent of three nuclear stations' worth of electricity could be saved if all UK industry did three things:

- 1) switched to the most efficient motors currently on the market;
- 2) ensured that they buy the right size motor for their needs; and
- 3) installed so-called Variable Speed Drives – which adapt the speed of the motor to the actual demand at that time.

4 Dynamic demand

This one's clever. Currently many electrical appliances, such as fridges, air conditioners and water heaters, are controlled by thermostats. They maintain a constant temperature by powering up for a short period when needed and then shutting off again. The problem is this happens when there's a peak demand for electricity as well as when there isn't, thus pushing the peak demand even higher – and meaning that power stations need to be kept fired up in reserve, just in case. Dynamic demand works by switching thermostats on only when there's a lower demand for electricity across the grid. Trials show that this has no effect on the performance of the appliance, but goes a long way towards smoothing the demand for energy – thus reducing the need for back-up generation, and the emission of huge amounts of carbon dioxide.

5 Greener cars

Getting people to buy and use cars that are more fuel-efficient is essential. Not only must manufacturers be required to design, build and sell greener cars, but they should also use more renewable fuel sources, like biomass (see page 13). The Government must also give incentives to encourage people to buy greener cars instead of gas-guzzlers. Of course, car manufacturers say that making cars more fuel-efficient will be very expensive but research suggests that the extra cost of making the car is far outweighed by the savings made by consumers.

6 Changing how we travel

We can use IT to work from home, or can install video-conferencing facilities to reduce the need to travel between offices. But there's also a role for more old-fashioned approaches – reliable and effective public transport, safer streets for cycling and walking, and better information to help plan journeys without using cars. Improvements to our public transport network wouldn't be cheap, but could be funded by increasing fuel tax and by cutting the billions of pounds currently earmarked for building new roads.

Generating energy

1 On-shore wind energy

There are a lot of unfounded myths about the reliability of wind power. However, if there's one thing you can say for wind in the UK, it's that it is reliable: low winds affecting 90 per cent of the country only occur for one hour out of every five years – and indeed the availability of wind power in the UK is greater at precisely the times we need it (during the winter and during peak daytime hours). So although it's hardly a surprise to learn that these isles are home to the biggest wind resource in Europe, it is disappointing to learn that we're not currently making anywhere near enough use of it: there are only about 1,300 turbines in the UK at present. By comparison, to date over 16,000 onshore turbines have been built in Germany. It's clear that a big investment in wind power is needed if it's to play a meaningful part in meeting our energy needs.

2 Off-shore wind energy

A significant amount of our electricity needs could be met from wind turbines located in the seas around the UK. Several medium-sized windfarms have already been built or approved, with larger-scale versions planned. Although there is little design difference between on- and off-shore turbines, the higher wind speeds and more uniform airflow at sea mean that output is likely to be 25 per cent higher off shore – countering the higher costs of installing the turbines.

3 Wave and tidal stream

These devices are placed in the sea or on the sea bed, generating electricity from the movement of waves and tidal currents. A tidal device has been tested in the Severn Estuary with good results, and commercial schemes are likely to begin operating within the next two years. It's thought that wave and tidal streams could account for 3.5 per cent of UK electricity needs by 2020.

4 Tidal lagoons

Tidal lagoons generate electricity by enclosing an area of shallow sea in rock walls and then forcing the tide through underwater turbines. The first such scheme in the world could be in Swansea Bay – and installing several others in optimum locations could generate on average up to 7 per cent of current electricity consumption in England and Wales.

5 Biomass

Burning plant and animal matter has provided people with heat for warmth and cooking for thousands of years. Indeed, 14 per cent of energy use worldwide still comes from these fuels. So why don't we do more of it?

The biggest problem with biomass is the land available to grow it. As the UK is a densely populated country it's unlikely that we'll be able to devote much of our own land to producing the stuff – we'd have to bring it in from abroad, probably Europe. However, even when the CO₂ impacts of importing biomass are factored in, using our fair share of the world's sustainable biomass supply could generate enough power to do away with the need for four and a half nuclear plants.

Although burning biomass still produces carbon dioxide, remember that the plants absorb that much carbon dioxide from the atmosphere as they grow – thus making biomass carbon neutral. Biomass is flexible, too: one of its great strengths is that it can be used for heating and to generate electricity, or it can be converted to a liquid and used to power vehicles.



How to...Pull-out section

Solutions in action:

how to make a difference right now

There is a perfect opportunity right now to get some of these solutions in your local area

Because of the shake-up in the planning system, Local Authorities in England and Wales are all writing their new local planning documents (Local Development Frameworks in England, and Local Development Plans in Wales). You may be cynically wondering what reams of consultations have got to do with solutions, but the answer is “everything”.

National level planning documents require local authorities to tackle climate change – including reducing emissions – through local planning documents. Yet, councils have yet to grasp the nettle and actually embed suitable policies in their local planning documents.

This is where you can help. There are examples of councils which have started to do something. Croydon and Merton councils have policies that require new developments to have micro-renewables embedded within the buildings to meet a fraction of their energy needs. There is no reason why all councils shouldn't follow suit and adopt similar – and preferably even more ambitious - policies. Yet, when we rang round over 50 councils guess what we found? Only a small minority were even considering adopting similar policies in their planning documents.

Just imagine if new developments had embedded renewables in your area.

This would be a great step towards tackling climate change, and it would do wonders for bringing micro-renewables into the mainstream. If all councils had policies such as these, not only would the rapid take-up in renewables bring prices down – making the technologies more available to all – but also, just as importantly, people would be able to see the solutions to climate change happening in their town.



Press for change Why not try to get progressive policies adopted by your council? For campaigners in England we have put together *The Big Ask Action Guide 5* which is available from <http://community.foe.co.uk/campaigns/climate/materials.html>. This talks you through all the basics of the issue. You don't need to be an expert on climate or planning – you just need to be a concerned individual who is prepared to contact your council, to see at what stage your local planning documents are. If the consultation period is still in the future – then you can ask to be consulted and make your voice heard.

If you are in Wales, you should go to <http://community.foe.co.uk/campaigns/climate/planning.html> for a briefing sheet as well as a briefing for Assembly members.



STOP PRESS

There are current issues with the standards to which new buildings are built, that directly impact this climate solution through low carbon buildings. Find out how to take action at http://www.foe.co.uk/campaigns/climate/press_for_change/. Deadline end of February!