

Energy and climate change



**Friends of
the Earth**



Our changing climate

Is this the biggest challenge of the century?

Top scientists agree – climate change is real, it's happening and it's time to take action to stop it. We use energy from fossil fuels for almost everything we do: for heating our homes, cooking our meals and powering our cars. Industrial processes use vast amounts of energy to make the products we buy for our homes. But the burning of fossil fuel energy is largely to blame for the climate changes we are now experiencing worldwide.

When we burn fossil fuels (oil, coal, natural gas, petrol, and diesel) for energy, carbon dioxide (CO₂) is released. Like other greenhouse gases, CO₂ traps the sun's heat in the atmosphere, leading to global warming and climate change. Alternative sources of energy exist – from bio-fuels in Brazil to wind farms in Wales – but the switch away from fossil fuels will not happen without significant Government intervention.

The Kyoto Climate Treaty is the first international sign of hope. It places the responsibility for action with the rich developed nations like the UK. This gives the UK an important role in ushering in a new low carbon economy. We need to see massive expansion in renewable technologies, greater energy efficiency and cuts in our energy demand. We can do this by taking action at home or work and by lobbying our MPs to press for change.

This booklet gives you more information about climate change. It provides ideas about what you and your family can do. Please also visit the climate pages at www.foe.co.uk/campaigns/climate/.

Contents

Climate change hurts 4 • Costly energy 6
Clean, green future 8 • What you can do 10 - 13
Our climate campaign 14 • Find out more 15



Did you know

The UK has 1 per cent of the planet's population but produces 2.3 per cent of the world's CO₂. The US produces a quarter.

The world's 16,000 commercial jet aircraft produce more than 600 million tonnes of CO₂ every year, nearly as much as the whole of Africa.

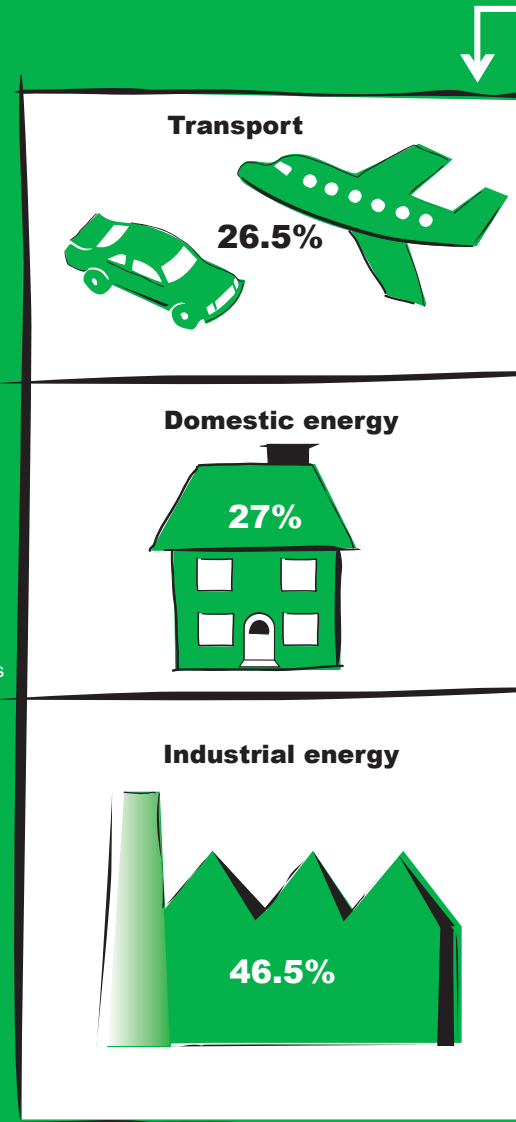
Nearly 90 per cent of all energy used in the UK comes from burning fossil fuels. But with the right investment, by 2050 we could get more than half our energy needs from clean, renewable sources.

"UK has the power to urge people to reduce emissions. But we fear that if London is not drowning the UK will not do anything." Armely Meiviana, Indonesia.



Digital Vision

Where do CO₂ emissions come from?*



How do you get around?

Better public transport and investment in cleaner fuels could help cut road traffic emissions. We also need to rethink planning rules so that people can travel from home to office to shops without having to make so many car trips.

A three-fold rise in aeroplane passenger numbers is forecast over the next 30 years but if Government taxed aviation fuel (just as they do other fuels) it would cut the surge in short-haul air travel and reduce the amount of goods and food being flown around the world.

Are you house proud?

Home improvements (from draft excluders to loft and wall insulation) can help plug leaks. Buying green electricity from renewable sources and cutting our energy use could make a huge difference.

Solar water heating is a cost-effective renewable technology, as are south facing windows and conservatories.

Fossil fools or pioneers?

We need to replace fossil fuels with clean alternatives. Making companies pay for the emissions they make is one way of encouraging this transformation.

We could also cut our wasteful use of natural and man-made resources by buying less, re-using more and recycling.

*UK carbon dioxide emissions by end user 1990-2020, published in *Climate change: the UK programme* (DETR, 2000)

Climate change hurts

An overall rise in average global temperatures is changing the world's weather. Scientists use complex computer models to predict what may happen. Rising sea levels, caused by melting glaciers and the thermal expansion of sea water, will lead to the flooding of huge areas of low-lying nations like Bangladesh. Extreme weather events like floods and storms may be much more common across the world, devastating homes and livelihoods. Already 40 million people suffer from water shortages, and more droughts will mean that by 2050 two billion people could be living where water is scarce.

The UK looks set to have warmer, wetter winters and hotter, drier summers, with an increasing number of both droughts and floods. Low-lying coastal areas like the Norfolk and Suffolk coasts could be submerged, including many important breeding habitats for birds. More flooding may make homes in some areas uninsurable. Water shortages in summer will make life difficult for farmers and gardeners.

Wildlife will suffer as many habitats are threatened by warmer temperatures and species fail to adapt quickly enough to new conditions. Species that are unable to migrate including trees vulnerable to drought, like the beech, may disappear. In the UK where wildlife habitats are fragmented by urban developments, isolated populations could die out. And at sea, temperatures will be too high for the spawning of some fish species.

Climate change is the most serious environmental threat facing the planet. Global warming, rising sea levels, widespread flooding, droughts and the spread of tropical diseases are already having a devastating impact. If we don't act it's likely to get much, much worse.



Did you know

Global warming is causing the Arctic ice cap to melt – since 1950 it has already thinned by nearly 40 per cent.

Higher temperatures bleach and kill coral, damaging the reefs that protect shorelines from storm damage.

Spring in Britain started three weeks early in 2002, according to a survey by the Woodland Trust. If this continues early-flowering wild flowers like bluebells may be threatened.

Over the past five years use of the Thames Barrier has increased to an average of six times a year, yet it only needed to be used once every two years in the 1980s.



Frank Lane Picture Agency



Troubled waters: over the past 30 years the number of extreme weather events, such as floods, droughts, storms and heat waves, has trebled worldwide. This photo shows how New Orleans residents coped with street flooding during a tropical storm in September 2002. More than 8,000 people needed to be evacuated from homes in Louisiana.

Reuters

Costly energy

Power from fossil fuel is finite and climate change is just one of the worrying consequences of our society's addiction to fossil fuel energy. Oil extraction in Ecuador, Nigeria and many other Southern countries has led to civil disturbances and wrecked local lives. Plans to build an oil pipeline from Baku in Azerbaijan to Ceyhan in Turkey have been met with outrage – it runs through sensitive environments and will displace communities. It will need military protection and still be vulnerable to terrorists. Funding for fossil fuel projects often involves institutions like the World Bank and taxpayers' money – absorbing funds that could otherwise be invested in renewables. Our cities are polluted by vehicle exhaust fumes which threaten the health of thousands of people.

Vested interests

The big fossil fuel companies formed a lobby group, the Global Climate Coalition, to rubbish climate change science and protect their profits. After international pressure the coalition was disbanded in 2002, but many corporations (eg, oil, coal and car manufacturers) still try to sabotage action on climate change. Esso is the biggest oil company on the planet and spent millions encouraging the US to reject the Kyoto Climate Treaty. In contrast BP and Shell are working on renewable alternatives to fossil fuels.

False nuclear future

Champions of nuclear power say it is a way to reduce CO₂ emissions. But there are still major problems with toxic waste including the danger of accidents, radio-active emissions and the threat of terrorist attack. The hidden costs are also enormous: during the 1990s the UK's nuclear industry needed £9 billion in subsidies. Taxpayers are now also liable for most clean-up costs (this could be more than £10 billion at today's prices). Coal may be the most damaging of the fossil fuels, but a new generation of nuclear power stations would be folly.

Did you know



It is getting harder to access oil reserves – 65 per cent of the world's known reserves are in the Middle East (11 per cent are in Iraq).

There is enough coal to last for around 200 years but to avoid climate change we must not use it.

UK Government's investment in renewable energy is a fraction of the amount it spent propping up nuclear power.

“Even when you are out shopping you need to keep in mind that what you do in the UK will somehow have an effect in developing countries. And you need to influence your policy makers.”
Tehri Vimalbhai, Delhi



Digital Vision

Hard times: our reliance on oil threatens world peace and oil exploration harms wildlife. It even damages areas like the Arctic which have previously been off limits. Oil spills damage marine life as well as the livelihoods of coastal people, especially if they depend on fishing or tourism.



PhotoDisc

Clean, green future

The good news is that clean green power is no longer just for eccentric inventors. There are already places in Britain using renewable power from the sun, the wind, the waves and biomass (plants). Government grant schemes ensure that solar roof tiles are turning up on ordinary suburban houses, and as the price goes down this trend looks set to continue. The first zero emissions housing development in South East England, known as BedZED, has already been built. Wave power and tidal turbines are starting to make headlines. Hydro power, especially small schemes, also offers reliable, clean and renewable energy.

As renewable power becomes more mainstream it can be used to generate electricity which is then used to create hydrogen – an alternative heat and transport fuel. Leaders in the green energy race include Germany, Denmark and Spain. Iceland, with its geo-thermal resources, is hoping to be the first country to free itself from fossil fuels by developing a hydrogen economy.

There is still a long way to go – there's no solar power at the Houses of Parliament yet. But our Government has signed up to the Kyoto Climate Treaty committing it to reduce greenhouse gas emissions by 12.5 per cent by 2010. It has also promised to cut CO₂ emissions (by 20 per cent from 1990 levels) as soon as 2010. The UK Government's 2003 Energy White Paper builds on this by promising 60 per cent CO₂ cuts by 2050.

Did you know



The UK has the richest wind energy resource in Europe. This can be utilised offshore as well as in land by sensitively sited wind turbines.

At least 250,000 new jobs could be created if the Government invested in energy efficiency, renewable energy and clean technologies.

Even on a cloudy day in Britain a solar roof can generate enough electricity to play 70 episodes of Coronation Street and make 35 cups of tea.

A £12 million New and Renewable Energy Centre, with large wave energy test facilities is being developed at Blyth, Northumberland.



Paul Carter/Wind Prospect

Sunny delight: Susan Roaf lives in an ordinary-looking, six bedroom house in Oxford with extraordinary energy saving thanks to south facing windows, triple glazing, solar panels and good insulation. It costs £120 for a year's energy and produces only 140 kg CO₂. (A similar sized poorly insulated house produces 4,000-5,000 kg CO₂ per year).



XXXXXXXX

What you can do

We can increase the speed the UK shifts to a low carbon economy by keeping up the pressure on Government. Do this by backing Friends of the Earth's Climate Campaign – you can sign up to our email climate activists list at www.foe.co.uk/campaigns/climate/ to help lobby your own MP. You can also take action in your own home or office by saving energy and backing renewable energy initiatives. Here are some more ideas:

1 Purse power for home and office

Do an energy audit: Have a look at how much energy you use – try www.natenergy.org.uk/convert.htm#calc – then you can decide on the best way of making savings. Some mortgage providers (eg Co-operative Bank) offer initial energy audits. You can also get help from your local Energy Advice Centre, see www.natenergy.org.uk/leac2.html or www.saveenergy.co.uk/about/energyeff.cfm.

Did you know



The average American household uses about as much electricity for air conditioning (12 per cent) as for heating (11 per cent).

1 Do you have to use a car for every journey? Walking and cycling are perfect for short journeys.



Ingram Publishing

Switch to green energy: look at our Green Energy league table at www.foe.co.uk/campaigns/climate/press_for_change/choose_green_energy/index.html or call Friends of the Earth's Information Service on Freephone 0808 800 1111.

Insulate your home: start with doors and window seals, then put reflective foil behind radiators (this is cheap and reasonably easy even for non DIY experts). Other ideas include cavity and roof/attic insulation.

Choose well-made white goods: a scheme from the Energy Saving Trust, see www.est.co.uk, has led to the arrival of energy-efficient stickers (where A is the best) on some items to help you identify the most energy efficient fridges, washing machines or even kettles. More about this at www.saveenergy.co.uk/whatto/searchour.cfm.

Use low-energy light bulbs: there are a variety of designs and all are now much cheaper than they were. Buying in bulk is still cheapest.

Generate your own power: you can already install solar-powered garden lighting, solar water heaters and solar PV panels (see contacts at end). Micro wind turbines for the home and micro combined heat and power (CHP) boilers will soon be on the market. Wind-up radios and torches exist too.

Buying a new home: some house builders are taking energy efficiency seriously, but you need to quiz them. The BedZED development in south London has energy efficient terraced homes, including bio-fuelled combined heat and power (CHP) boilers and sunny, south facing conservatories.



Friends of the Earth
2



Call Lelliott/Friends of the Earth
3



Ecoscene

2 Save power at home and work with long-life bulbs.

3 Choose electrical appliances with low energy rating (A is the best).

4 Cut those heating bills by improving insulation in your home.

2 Living sustainably

Shop locally: especially for UK-grown, seasonal produce. This cuts down on the number of miles food is transported (very often by air) from farm gate to plate.

Try tele-working: are all your trips to the office or face-to-face meetings necessary? See www.homeworking.com.

School run ideas: introduce a walking school bus to local schools or even a cycle train to enable children to travel to school together safely.

Use your car less: use the best method of getting around, try a car share or public transport. Good tips are in Anna Semlyn's book *Cutting your car use* available for £4.95 (ref T512) from Friends of the Earth, tel: 020 7490 1555.



In Sweden more than 400 buses run on bio-ethanol (alcohol based fuel from plants).

To date two British petrol outlets, Sainsbury's in Greenwich and Tesco in Hatfield, offer green diesel (currently enjoying a tax break). More should follow.

Own the right car: the Environment Transport Association at www.eta.co.uk can give advice on the most energy-efficient car to purchase, but also ask dealers for vehicles that run on a combination of petrol and bio-fuel.

Choose the train over a plane: especially for short trips.

Buy petrol from oil companies that are also investing in renewable energy: don't buy from Esso.

Invest in green energy: Triodos Bank makes a donation to Friends of the Earth for every Earth Saver account opened, www.triodos.co.uk or Freephone 0500 008720. Another group promoting renewables is the Baywind Energy Co-operative, see www.baywind.co.uk.

If you can only do one thing, then keep putting pressure on the decision makers: lobby your MP to back renewables. Find out how your local authority is planning to use renewable energy in its property or promote alternative fuels. Write to local climate villains (big industry and power stations sited locally) and ask what they are doing to cut CO₂ releases. And finally, join Friends of the Earth. The next pages show you how, or go to www.foe.co.uk/join/.

1 Drying on a line or a clothes rack saves electricity and puts less wear on your clothes.

2 Find out about grants for solar panels at Solar Grants, tel: Tel: 08002983978 www.solarpvgrants.co.uk Email: solarpvgrants@est.co.uk. Grants for installing other renewables from www.clear-skies.org. Also see the Community Renewables Initiative, www.countryside.gov.uk/communityrenewables.

3 The school run can be madness, causing congestion and pollution, so how about trying out a walking bus, the safe way for children to go to school?

4 Better bus services (eg hoppa stops around Kirby, Liverpool) cut the need for so many individual car trips.



Friends of the Earth's Climate Campaign

Here's how we are working towards a truly sustainable future

Friends of the Earth has a vision for a new era of energy efficiency and investment in green energy. To achieve this we need:



Global equity

We want to secure an international climate agreement to limit our emissions of greenhouse gases, based on the principle that no country should emit more than its fair share of greenhouse gases, and which doesn't promote nuclear power. We also want to phase out public subsidy of fossil fuels.

Making Britain keeps its promise

We are holding the UK Government to its promise to cut CO₂ emissions by 20 per cent by 2010, and paving the way for further cuts in CO₂ emissions by, for example, promoting caps on emissions from all large-scale emitters of climate pollution.

Meeting renewable energy targets

The Government has a target of meeting 10 per cent of our electricity supply from renewables by 2010. The 2003 Energy White Paper has an aspiration of doubling that target by 2020. We will work with regional and local groups to promote renewable energy and energy demand reduction to help meet these challenging targets.

Contact Friends of the Earth for more information about our Climate Change Campaign and Green Energy Campaign as well as for information about how to join us. Full campaign information, briefings and reports are at www.foe.co.uk/campaigns/climate/.

Information Service Freephone: 0808 800 1111
Email: info@foe.co.uk

Go to www.foe.co.uk/campaigns/climate/press_for_change/ to subscribe to the activists' climate on line email service.

Energy and climate change directory

ENERGY
Beddington Zero Energy Housing Development
www.bedzed.org.uk/main.html

British Wind Energy Association
26 Spring Street, London W2 1JA,
Tel: 020 7402 7102
www.bwea.com

British Hydropower Association
Unit 12 Riverside Park, Station Road, Wimborne, Dorset, BH21 1QU
Tel: 01202 886622
www.hydroplan.co.uk
Email: info@hydroplan.co.uk

British Biogen (Trade Association for the Biomass Industry)
Rear North Suite, 7th floor, 63-66 Hatton Gardens, London EC1N 8LE
Tel: 020 7831 7222
www.britishbiogen.co.uk

Centre for Alternative Technology
Llwyngwern Quarry, Machynlleth, Powys, SY20 9AZ
Tel: 01654 705950
www.cat.org.uk

Centre for Sustainable Energy
The Create Centre, B-Bond Warehouse, Smeaton Road, Bristol, BS1 6XN
Tel: 0117 929 9950
www.cse.org.uk

Energy Saving Trust
21 Dartmouth Street, London SW1H 9BP
Tel: 020 7222 0101
www.est.org.uk

Local Energy Advice Centres
Tel: 0800 512012

National Energy Foundation
The National Centre, Davy Avenue, Knowlhill, Milton Keynes MK5 8NG.
www.natenergy.org.uk
Tel: 01908 665555

Solar Trade Association
The National Energy Centre, Davy Ave, Knowlhill, Milton Keynes, MK5 8NG
Tel: 01208 873518
www.solartradeassociation.org.uk
Email: enquiries@solartradeassociation.org.uk

CLIMATE
Measure your impact on the environment with www.natenergy.org.uk/convert.htm#calc.

Baywind Energy Co-op
Unit 22, Trinity Enterprise Centre, Furness Business Park, Barrow-in-Furness, Cumbria, LA14 2PN
Tel: 01229 821028
www.baywind.co.uk

Friends of the Earth England, Wales & Northern Ireland
Freephone 0808 800 1111
www.foe.co.uk

Friends of the Earth Scotland
72 Newhaven Road, Edinburgh, EH6 5QG
Tel: 0131 554 9977
www.foe-scotland.org.uk
Email: enquiries@foe-scotland.org.uk

Government
1 DEFRA
Ergon House, 17 Smith Square, London, SW1P 3JR
Helpline: 08459 335577
Tel: 020 7238 6000
www.defra.gov.uk
www.doingyourbit.org.uk
Email: helpline@defra.gsi.gov.uk
2 DTI
www.dti.gov.uk/energy/ or
www.dti.gov.uk/ccpo or
www.dti.gov.uk/renewable/

Greenpeace UK
Canonbury Villas, London, N1 2PN
Tel: 020 7865 8100
www.greenpeace.org/~climate/

Intergovernmental Panel on Climate Change: IPCC
7bis Avenue de la Paix, C.P. 2300, CH- 1211 Geneva 2, Switzerland.
Tel: 41 22 730 8208
www.ipcc.ch
Email: ipcc_sec@gateway.wmo.ch

Oneworld Climate Change
Floor 17, 89 Albert Embankment, London, SE1 7TP
Tel: 020 77352100
www.oneworld.net/campaigns/climatechange

Triodos Bank
Brunel House, 11 The Promenade, Bristol, BS8 3NN.
Tel: 0117 973 9339
www.triodos.co.uk

WWF
Panda House, Weyside Park, Godalming, Surrey GU7 1XR
Tel: 01483 426444
www.wwf.org.uk
www.panda.org/climate

Friends of the Earth inspires solutions to environmental problems, which make life better for people

Friends of the Earth is:

- the UK's most influential national environmental campaigning organisation
- the most extensive environmental network in the world, with almost one million supporters across five continents and over 60 national organisations worldwide
- a unique network of campaigning local groups, working in over 200 communities throughout England, Wales and Northern Ireland
- dependent on individuals for over 90 per cent of its income.

Friends of the Earth

26-28 Underwood Street, London N1 7JQ

Tel: 020 7490 1555 Fax: 020 7490 0881 Email: info@foe.co.uk Website: www.foe.co.uk

Friends of the Earth Trust company number 1533942, registered charity number 281681
♻️ Printed on paper made from 100 per cent post-consumer waste

Front cover: Hurricane Fran approaching the North American mainland (1996). Winds reached 190 km per hour, there was 36 cm of rain and 34 people died. NASA/Science Photo Library
Written by Nicola Baird and Rachel Platt. Picture research: Calliste Lelliott. Layout and illustration: Deborah Thompson