

## Energy footprint

*“Climate change is a subtle form of human rights violation. There is no direct persecution or threat, but combustion of fossil fuels in industrialised nations has jeopardised the ability of certain societies to maintain their traditional practices, diminishing their cultural identity and their connection with their natural environment.”* Mary Robinson

## Energy: a global challenge

Energy poses one of the greatest challenges of the 21st century. By 2030, the world's energy needs are expected to be 50 per cent greater than today. At the same time, scientists are calling for massive and immediate reductions in the greenhouse gas emissions that come from our use of energy and are the cause of climate change. These two conflicting facts create a huge global challenge.

### So what is an energy footprint?

Put simply, this is the environmental, economic and social impact that results from the use of energy. Also known as a *carbon footprint*, which measures the amount of carbon dioxide (CO<sub>2</sub>) given off when **fossil fuels** such as oil, coal and gas are burned. Carbon dioxide is the main **greenhouse gas** responsible for **climate change**, considered by many scientists to be the greatest environmental challenge of our time.

### Energy footprint: how it measures up

- 1.6 billion people in the world, mostly in rural areas, have no access to electricity
- One in three people in the world still rely on traditional fuels such as wood and dung to meet their daily heating and cooking needs.
- The 100 countries most at risk from the impacts of climate change only release 3% of global carbon dioxide combined.
- The World Health Organisation believes global warming is already responsible for more than 160,000 deaths a year due to increases in malaria and malnutrition.
- The average American is responsible for 125 times more greenhouse gas emissions than the average African.
- Fifty years ago, people used 11 million barrels of oil a day. Today, 75 million barrels are used daily.
- Sweden has announced that it intends to be 'oil-free' by 2020.

## Walking towards climate chaos

Our heavy reliance on **fossil fuels** for energy is changing the planet's climate. It is making it warmer because the burning of fossil fuels generates carbon dioxide, a **greenhouse gas** that forms a kind of blanket around the earth. The thicker the blanket, the more of the sun's heat is trapped inside the earth's atmosphere.

Climate change is considered by many scientists to be the most serious threat facing people and the environment on which we all depend. The effects of climate change include rising sea levels, more severe storms and floods, longer droughts and the spread of tropical diseases. Climate change could also create up to 200 million climate refugees by 2050, driven from their homes due to floods, drought or water and food shortages.

The poorer you are the less you have contributed to the problem of climate change, yet the more you are likely to suffer. The world's poorest people have the lowest energy or carbon footprint – they use the least energy and so create the least greenhouse gases – but are likely to suffer the most.

Scientists predict that in Africa between 75 and 250 million people may experience serious water shortages due to climate change. Food crop yields may decline by as much as a half.

Meanwhile, those who are most to blame for climate change – people in the countries of the rich north – continue to live in relative luxury.

## Stepping into a new high cost world

You may have noticed the price of many foods has risen dramatically in the last year. In particular, the prices of basic foodstuffs such as wheat, rice and maize have nearly doubled in price. While there are many reasons for this, the cost of oil and climate change are two important reasons why food prices have risen so steeply.

The price of oil has risen tenfold from \$13 a barrel 10 years ago to \$130 a barrel in 2008. Many believe this is because demand for oil is greater than the supply of oil available and that we have reached the point of 'Peak Oil' (see Did you know? box below). More expensive oil pushes up costs associated with farming such as running tractors, using fertiliser – which is made from oil – and the costs of shipping or flying goods to market.

Climate change also plays a part. Severe droughts and floods brought on by global warming make it harder to grow crops like rice and grain.

One of the responses to climate change by western governments has also played a part in raising food prices: the replacement of food crops with crops for making [biofuels](#). In the United States, for example, 30% of the corn crop by 2010 will be for fuel rather than food. This reduces the amount of land available for food crops and so pushes up the price of corn flour.

The down side to all this is that the poorest in the world will suffer most. The Food and Agriculture Organisation estimates that an extra 100 million people have been added to the 800 million people who were already hungry because of the recent huge rise in food prices. This is why International Aid Agencies have called for more money to be spent on food production and food aid in poor countries.

On a positive note, it will encourage people in rich northern countries to buy only the food they really need; about a third of all food currently bought in the UK is never eaten and ends up being thrown away. More expensive oil (and gas) will also persuade people to think more carefully about the journeys they make by car and plane and how much energy they use in the home. This in turn will reduce their energy footprint and so help in the fight against climate change.

### **Did you know?**

#### **Our most important energy source is about to peak and go into decline?**

Oil is the most important fossil fuel there is. Our whole civilization and way of life; everything we are familiar with has been made possible by cheap and plentiful oil. But all that is about to change because of **Peak Oil**. The idea of Peak Oil is actually quite simple. Imagine all the world's oil gathered together in one big tank. At some point in time, we will have used up half of that oil. Peak Oil is the term used to describe this "mid-point" when half of all the world's oil is gone. Many geologists and scientists believe we may have now reached that point and that the amount of oil available to the world will decline steeply over the coming years. But this "peak" comes at a time when demand for oil continues to rise, particularly from rapidly developing countries such as China and India. This in turn will mean that oil prices continue to increase rapidly.

#### **BUT did you also know that towns and communities across the world are preparing for a low energy future when oil is no longer available?**

Known as the **Transition Towns Network**, these are communities that are planning for life beyond oil.

**Try to image a world without oil or with very expensive oil.** What would it be like? How would we travel? How would the goods we consume be made and then transported? How would farmers, heavily dependent on fertilizers and pesticides made from oil, grow our food? Would a world less dependent on oil be a better or worse place to live?

## Climate change and human rights

There is a clear link between climate change and human rights. The right to life itself can be denied in the immediate aftermath of an extreme weather event such as a hurricane. More extreme storms are predicted as a result of climate change.

People's right to food may also be affected. Food production is likely to decline because of increased temperatures, changes in rainfall patterns, [soil erosion](#), [desertification](#) and rising sea levels which will make coastal land unusable for growing crops.

As the earth gets warmer, heat waves and water shortages will make it difficult to access safe drinking water and sanitation. The result could be increased conflicts between countries over limited water.

Climate change will have many impacts on the right to health. It will, for example, provide a better climate for malaria carrying mosquitoes.

Many of the rights enshrined under the Convention on the Rights of the Child are threatened by lack of energy (see Did you know box? on the relationship between access to electricity and poverty below). Likewise climate change could undermine many rights. In particular Article 24 relating to the right to clean water, nutritious food and a clean environment could be threatened by global warming.

For further information on the Convention on the Rights of the Child [click here](#)

### Did you know?

**There is a direct relationship between not having access to electricity and living in poverty? Here are some examples:**

- Teachers are reluctant to go and work in areas without electricity so children don't get educated.
- Many children living in areas without energy, especially girls, do not attend school because they have to work for the family carrying wood and water.
- Likewise, many women spend much time collecting fire wood and water when they could be carrying out productive activities which could earn them money.
- There are threats to health. For example, water can't easily be boiled to make it safe to drink and lung disease can be caused by breathing in smoke from traditional fuels such as wood and dung.
- Lack of electricity in health clinics can prevent people being properly treated; doctors and nurses need electricity for lighting, refrigeration, and sterilisation in order to deliver effective health services.
- Radios and television – powered by electricity – can spread important public health information to combat deadly diseases.

## Millennium Development Goals

The eight Millennium Development Goals (MDGs) were agreed at the United Nations Millennium Summit in September 2000 and nearly 190 countries have signed up to them. The goals are international targets for reducing global poverty. They aim to lift around 500 million people out of poverty by the year 2015. If this happens, fewer women will die in childbirth, fewer people will die from treatable diseases, many more boys and girls will go to school and the lives of millions of people will improve dramatically.

Although energy is not directly mentioned in the eight MDGs, it is a basic requirement for achieving the targets. Without access to reliable and affordable energy, social and economic development simply cannot occur.

For more information on the Millennium Development Goals [click here](#)

For a table showing how important access to energy is to achieving each one of the Millennium Development Goals [click here](#)

### **Equal energy footprints: a way forward**

Communities, societies and nations have to face an uncomfortable truth: most of the remaining fossil fuels – oil, coal and gas – that lie under ground and under the oceans have to stay there. Uncomfortable, because fossil fuels have shaped the world we have today and continue to shape our lives. But necessary, because if we extract and use them we are likely to destroy our climate and make the world uninhabitable for future generations of humans and many other species too.

What the world urgently needs is climate justice and one of the fairest ways to make sure that happens is by adopting the idea of **contraction and convergence**. Put very simply, this would mean everyone on the planet having an equal right to emit equal levels of carbon dioxide and other [greenhouse gases](#). Contraction and convergence would set a ceiling on a safe and stable amount of greenhouse gases allowed in the atmosphere and divide this by the number of people on the planet. What is good about this system is that people in poor countries who do not emit their allowance of carbon, because they use much less energy than people in rich countries, could sell their allowances to rich people who, because of their lifestyles, wanted to emit more. The result would be win, win, win! The threat of climate change would be avoided, poverty would be tackled by trading carbon dioxide in favour of poor countries and the world would become a more equal place. To learn more about Contraction and Convergence see the links below.

### **Case studies**

(One that seems quite good, but I am sure there are others) [Case study Cote d'Ivoire](#)

### **Putting your foot down: taking action to reduce your energy footprint**

There are two key ways to reduce your energy or carbon footprint: use less energy and use different energy. There are many websites, including this one, that contain ideas for reducing your energy use (see links). Ideas include: walking and cycling short journeys, not leaving electrical items on standby or empty rooms with lights on, turning down your heating, buying locally grown food that has not travelled many miles to reach you and recycling or composting all your waste.

As for using different energy, the single most important step you can take is to persuade your parents, school, church, mosque, youth club etc to switch its electricity supplier to a company that supplies renewable energy; electricity produced by wind, water or wave power or another renewable source. You could also investigate generating your own energy at home or at school through solar panels or micro wind turbines.

### **Campaign for accessible, affordable and clean energy for all**

As aware and active global citizens we can work to persuade governments of the importance and urgency of reducing our heavy reliance on fossil fuels by investing in alternative renewable energy such as wind and solar; taking stronger action on climate change and investing aid money into clean and sustainable energy supplies for the billions of people in the world without energy. Here are some groups campaigning on these issues. They provide information on how to campaign effectively and suggest actions you can take:

[Christian Aid](#)

[Oxfam](#)

[Solar Aid](#)

[World Development Movement](#)

### **Learn more**

→ For more information about energy footprint download our Global Footprints leaflet [click here](#) (link to pdf download)

→ Links:

[Simple explanation of climate change](#) – a Science Museum animation.

[Global Eye focus on climate change](#) – learn about climate change in a fun and interactive way.

[BBC in-depth guide to climate change](#) – lots of background information and up to date news.

[Greener Living](#) – a quick guide to actions individuals and households can take on reducing carbon emissions and so help fight climate change.

[Sustainable Schools](#) – a page on climate change and actions that individuals and schools can take to reduce their carbon emissions.

[Global Eye focus on oil](#) – learn about the power of oil and its future in a fun and interactive way.

[Contraction and Convergence article](#) – article by Aubrey Mayer, the founder of the Contraction and Convergence campaign.

[TckTckTck](#) - is a youth and student focused campaign around climate change.

## Glossary

**Biofuels:** fuels produced by the conversion of plants to solid, liquid or gaseous fuel. Examples include bio-ethanol from corn or sugarcane which is being added to or used instead of petrol and diesel.

**Climate change:** the change in weather patterns over a long period of time - decades to centuries. The term refers to natural changes caused by, for example, the ice ages, but more usually it is now used to describe the changes to the climate caused by human activity, especially the burning of fossil fuels which increases carbon dioxide in the atmosphere and causes global warming.

**Deforestation:** the removal of trees and vegetation from land. This contributes to global warming and soil erosion.

**Desertification:** the spread of desert conditions into areas that were not previously desert. This is usually caused by is usually caused by climate change or by destructive use of the land, e.g. removal of forests or damage by grazing animals.

**Fossil fuels:** fuels such as oil, coal and natural gas that come from the rotting down of plant and animal matter over millions of years. These fossil fuels are the main sources of energy used by the rich countries of the north to generate electricity, heat, and fuel for transport.

**Greenhouse gases:** any gas that warms the Earth's atmosphere by reflecting heat given off from the Earth's surface. Examples of greenhouse gases are carbon dioxide, ozone and water vapor.

**Soil erosion:** the process by which soil is worn away. Wind, water, heat, cold and gravity or a mixture of all these things can cause erosion.