ea technology

Going Carbon Neutral

A step-by-step guide for businesses

The United Nations has urged businesses to reduce their emissions and to help play a role in accelerating the global journey to a climate-neutral future.

Introduction

At EA Technology, we believe it is our duty to reduce our environmental impact. It is why we have made a commitment to becoming carbon neutral by 2025.

We are working hard to put a series of measures and targets in place to drive better efficiencies. We are not the only ones leading the way.

Companies including Microsoft, Marks & Spencer, Adidas Group and Sony have all pledged to become carbon neutral as part of a campaign led by the United Nations.

Going carbon neutral can do much more than protect the environment. It may also reduce operating costs for businesses, lower energy bills, reduce waste and enhance reputation.

In 2016, 190 of America's largest "Fortune 500" companies saved a total of about **US $3.7 billion** by energy efficiency and using renewable energy.

The annual emission reductions from these efforts were equivalent to taking 45 coal-fired power plants offline for one year, according to research.

Marks & Spencer has reported that its Plan A sustainability plan saved it around £750 million in costs between 2007 and 2017. The savings included using less energy, fewer transport miles and reducing packaging. The Climate Change Act 2008 is the basis for the UK's approach to tackling and responding to climate change.

It requires that emissions of carbon dioxide and other greenhouse gases are reduced and that climate change risks are prepared for. The Act also established the framework to deliver on these requirements.

Through the Act, the UK government has set a target to significantly reduce UK greenhouse gas emissions by 2050 and a path to get there.

This booklet provides tips and advice on how businesses can help themselves to take more environmental responsibility

STEP ONE

Calculate your carbon footprint

A carbon footprint is a measure of the impact our activities have on the environment. It calculates all the greenhouse gases produced by our activities and measures them in units of carbon dioxide.

So, as a business, how do you calculate it? Start by using an accredited non-domestic Energy Assessor to assess the energy efficiency of the buildings you occupy. The Assessor will provide you with an Energy Performance Certificate for the building and a recommendation report.

Next, it is important to work out what greenhouse gas emissions are being created by your company's activities. Technology can automate some of these calculations.

The Carbon Trust has developed carbon footprinting software to help businesses to measure, manage and reduce their carbon, energy, water and waste footprint.

Visit **www.carbontrust.com** for more information.

Making a thorough estimate of your carbon footprint is vital because it allows you to prioritise where change is needed, will help you measure progress and prepare you for future legislation.

STEP TWO

Write a business plan

Write a plan for making your business carbon neutral. Appoint someone to manage the project. Work out a budget for the project.

The cost of becoming carbon neutral will depend on things such as how environmentally friendly your business already is and its size. Its cost can be recouped over time by reduced energy bills.

The biggest task in becoming a carbon neutral business will typically be changing your infrastructure, for example:

- Replacing old, energy-inefficient gas boilers with new ones
- Replacing draughty windows with double glazing
- Replacing fluorescent lights with LEDs
- Installing solar panels on building roofs
- Installing electric charging points for electric vehicles.
- Installing smart meters to monitor energy use
- Insulating the roof

For more information visit
www.energysavingtrust.org.uk

STEP THREE

Use less energy

A simple way to start reducing your carbon footprint is to consume less electricity. A good start for a business is to replace traditional strip lighting with long-lasting, energy-efficient LED light bulbs.

LEDs use at least 80% less electricity than an equivalent tungsten halogen source, according to the Carbon Trust, which advises organisations on how to reduce their carbon emissions.

Up to 40% of a building's electricity is accounted for by lighting.

Other ways to reduce lighting bills include:

- Occupancy sensors: By dimming or switching off lighting when there is nobody in a room, sensors can reduce electricity use by 30%.
- Daylight sensors: Adjusting the artificial lighting according to the amount of natural light in a room using daylight sensors or photocells can reduce electricity use by up to 40%.
- Maintenance plan: By regularly cleaning windows and skylights you can reduce the need for artificial light. Cleaning the fixtures that contain lamps, known as luminaires, will improve their performance.
- Consider investing in renewable energy and making use of biomass, heat pumps or even hydropower.

Ground source heat pumps use pipes buried outside to extract natural heat from the ground, which stays at a fairly constant temperature throughout the year. This heat can then be used to power radiators, hot water and warm air heating systems in your business.

Air source heat pumps absorb heat from the outside air. Usually placed outdoors at the side or back of a building, they take heat from the air and boost it to a higher temperature using a heat pump. Although the pump needs electricity to run, it should use less electrical energy than the heat it produces.

Biomass is another carbon neutral energy source which can help businesses to generate electricity and heat.

STEP FOUR

Train your staff

Make sure they understand why your business is becoming carbon neutral and how they can help achieve it.

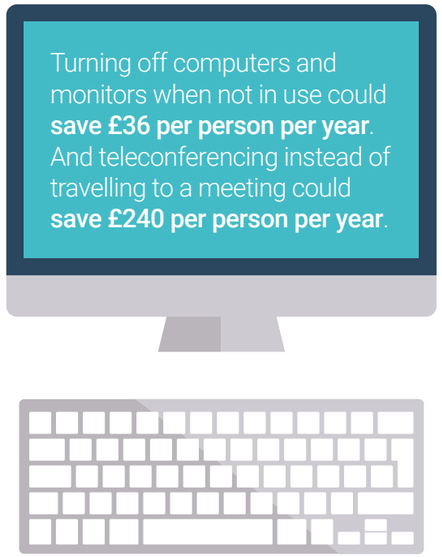
The Carbon Trust estimates that by investing between one and two per cent of an organisation's annual utility bill in educating employees about energy efficiency, they could save up to 10% in energy costs. Turning down heating by one degree Celsius can reduce your annual heating bill by up to eight per cent.

Turning off computers and monitors when not in use could save £36 per person per year. And teleconferencing instead of travelling to a meeting could save £240 per person per year.

The University of Sheffield saved more than £30,000 and more than 200 tonnes of CO_2 after a campaign encouraging staff to save energy.

Staff may need guidance about which equipment they can switch off at the end of their shift without causing problems for other parts of the business. Simple things can change employees' behaviour.

For example, the university put stickers on equipment in its science faculty - which produced 43% of the university's carbon emissions, excluding residences and non-university owned buildings. The stickers explained why the equipment should be turned off when not in use, turned off at the end of the day, or left on all the time.



STEP FIVE

Make your own energy

Renewable energy is energy that is collected from naturally renewable sources such as the wind and solar. The latest figures show that just 9% of the UK's energy currently comes from renewable sources.

Creating your own renewable energy can reduce your business' carbon footprint, and reduce its energy bills. It can also enable you to sell surplus electricity back to the electricity grid and improve your reputation on sustainability.

Before spending on renewables do a feasibility study. This should include an estimate of the costs and benefits of all potential renewable technologies. Consultants or your own experts in energy and facilities management can help do this.

You may be able to get government funding towards the cost of renewable energy. For example, there are enhanced capital allowances, which allow your business to deduct 100% of capital expenditure against taxable profits, and feed-in tariffs, for energy-efficient plant and machinery that is approved by the government.

Wind Power (small wind energy)

Harness the power of the wind using small scale wind turbines to generate your own dedicated clean electricity.

Solar Electricity (photovoltaics)

Solar photo voltaic panels convert sunlight into electricity. They are attached to the outside of buildings. You'll need to do a structural survey and may require planning permission.

Small-Scale Hydro-Electric Power

An immersed turbine uses flowing water to produce electricity.

Anaerobic Digestion

Anaerobic digestion is an ideal way for businesses to recycle their waste and cut their carbon footprint. The technology is perfect for businesses which produce food or sewage waste. The process turns waste products into methane-rich biogas which can then be used as a source of renewable energy to power electricity generators and provide heat.

STEP SIX

Store excess energy to use later

It is now possible to store any excess energy, including from renewable sources, in electric batteries until you need it at peak times.

There are three main types of energy storage system:

Bulk
Including pumped hydro and compressed air which are normally used in the electricity transmission network;

Distributed
Such as lithium batteries, which are best suited for small or medium amounts of energy storage;

Fast
Including flywheels, a type of rotor that turns at a very high speed and can provide high power but only for very short amounts of time. They can help businesses cope with surges in the demand and supply of power.

Bulk storage transmission can store energy for a long time and send electricity to where it's needed in the grid.

Lithium batteries, which are used in smartphones and electric cars, may have the greatest potential for business, although their cost can be high and it's still a new type of energy storage.

Energy storage will give businesses more control over their energy use. Businesses with spare energy can make a profit by selling it back to the National Grid through a system designed to help energy networks cope with fluctuations.

STEP SEVEN

Make your company car fleet greener

How green is your company car fleet? Moving towards a low carbon future means considering what type of company cars you invest in, what fuels they use and even whether you need to install on site electric vehicle charging points.

Currently, only about 5% of new British company cars are either electric or hybrid. With the cost of environmentally friendly vehicles set to fall, and financial incentives to use them, the market for electric, hybrid and plug-in hybrid cars is expected to grow fast in the next 10 years.

One in three of new UK company cars will run on either plug-in hybrid power or electric batteries within five years, according to research of fleet managers by Kia, the carmaker.

Driving 100 miles in a petrol or diesel car will cost around £11 to £16 in fuel, which is around four times the cost of an electric car. The cost savings will be greatest when owners have access to an off-peak overnight electricity tariff.

There are fewer mechanical components in an electric vehicle when compared with conventional vehicles, which can mean lower servicing and maintenance costs.

Consider introducing electric company cars for your employees, with enough charging points in your company car park. As well as reducing your carbon emissions, your business can benefit financially through government tax incentives for electric cars.

Your business may be able to get a grant to help with the initial cost of eligible plug-in vehicles and towards the cost and installation of charge-points. The Office for Low Emission Vehicles (OLEV) awards the grants.

It will cost **£3 to £5 to fully charge a pure electric vehicle** and this will give a typical range of 100 miles.

Energy Saving Trust

STEP EIGHT

Get certified

The Carbon Trust Standard, run by the Carbon Trust, is a global standard for sustainability.

It helps businesses and the public sector become more environmentally sustainable by measuring and certifying the carbon footprint of their organisation, their supply chains, products and services.

There's also ISO 50001, an international standard for using energy efficiently. It also helps organisations save money, conserve resources and tackle change.

Further information:

www.carbontrust.com
www.climateneutralnow.org
www.energysavingtrust.org.uk

Safer, Stronger, Smarter Networks

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