

Future proof: Preparing your business for a changing climate

The impact of climate change on business is already significant and is likely to increase. The 2007 floods cost UK business £3bn and experts predict that in 25 years time flood damage could cost the UK economy £10bn a year, and that climate change could eventually cost the UK in excess of £75bn a year. This guide explains how your business can be prepared.

Climate risk must be understood and managed in the same way as any other corporate risk, but it is clear that UK business is not fully aware of it or taking action to address it. Climate changes could result in premises being damaged, supply chains interrupted, financial investments impacted, and customers and employees being affected.

By making the investment to adapt to a changing climate now, your business can avoid greater costs in the future. Some companies will soon be legally obliged to take action on climate risk under the 2008 Climate Change Act.

This guide sets out the potential impacts a changing climate could have on business, provides case studies of how UK companies are responding and presents eight simple steps to minimise that risk.

Our climate and weather is predicted to change

A predicted rise in average global temperature of 2-4 degrees could bring an increase in high temperatures and more regular extreme weather such as electric storms and intense rain storms. Our weather could also become less predictable, making it harder to anticipate incidents like the snow storms of January and February 2009. The government is launching its UK climate projections in summer 2009, which will provide detailed projections of regional impacts across the UK.

International climate impacts are also likely to present a risk to companies that operate globally. Some scientists predict the strength of hurricanes in the US will grow by 5-10%, there will be more droughts and flooding in India and China, and droughts, desertification and bush fires already happening in Australia, regions of the US and parts of Africa are likely to intensify.

A 2008 CBI survey indicated that 35% of respondents are taking action to manage the business impacts associated with a changing climate



Impacts on business are likely to be diverse

Buildings and infrastructure could be at risk

Impacts on buildings and infrastructure are particularly important to companies with a large and valuable asset base – especially where the service life is over 20 years, over which time, the climate could change significantly.

The 2007 **flooding** led to 180,000 insurance claims that totalled over £3bn, and affected businesses in a range of ways. For example in one business, network servers stored in basements were damaged, losing the business short-term computing capacity and long-held data. Annual flood damages in the UK could total £22bn by 2080, with coastal flooding accounting for the majority of that expense.

Vulnerability to flooding should be a major consideration when **locating** a business, especially in low-lying areas or where there are drainage issues.

Drier soils in summer are expected to lead to building subsidence that could cost around £1bn annually by 2080, and could damage underground infrastructure such as sewers and piping.

The possibility of more frequent **electrical storms** could threaten electrical infrastructure such as computer networks.

Suppliers, customers and employees could be affected

Damage to premises, homes, transport and other infrastructure is likely to have an impact on supply chains, customers and employees. For example flooded roads could prevent both supplies and employees reaching the workplace.

The standards and specifications of **products and services** demanded by customers, and offered by suppliers, may have to change, offering new business opportunities for companies that adapt effectively. For example, construction materials, such as pipes and guttering, may have to change to meet new demands from construction firms.

International supply chains may also be affected. For example, crop yields could decrease as a result of drought or desertification, or extreme weather incidents could have a disruptive impact – during Hurricane Katrina oil installations in the Gulf of Mexico were shut down, causing a spike in oil prices.

Utilities could also come under pressure as a result of climate change – for example, water supplies could be threatened if reservoir levels become critically low during dry summers, and extreme weather incidents could disrupt energy or communication networks.

Climate impacts such as extreme heat or floods could also affect the **health and safety** of employees in the workplace.

Case study: Impacts on hydro-electric power plant design

Rainfall levels are crucial to the efficient operation of hydro-electric power plants. The operating strategy for the hydro power station at Rio Tinto Alcan's Lochaber site in Scotland has been developed to cope with climatic changes taking place in the Scottish Highlands.

There has been a 12% increase in rainfall catchment runoff since 1944 and winter rainfall is increasing, while summer rainfall is decreasing. In particular, over the last 16 years there has been a considerable increase in runoff in February and March compared with the period before this (1944-1986).

The business has adapted to these changes in two ways. Firstly, the new hydro power station – that will increase capacity to 80MW – has incorporated these changing climatic aspects into its design. Secondly, all strategy and water management models relating to the day-to-day operation of the plant have been revised to run in accordance with runoff since 1987.

Case study: Protecting key infrastructure

The 2007 floods cost Network Rail £10.5m in material damage and £25.6m in compensation to train operators for business interruption.

Network Rail expects this threat to increase in future. For example in the south-west, where two lines were closed owing to flood risk on an average of about two days a year in the six years to 2005, by 2085, if nothing is done about the threat, four lines could be closed for nine days a year.

Network Rail has pledged £160m to improve drainage between 2009 and 2014. It has also been working with the Met Office to lengthen the warning period for heavy rain. Climate change and resilience is also now a major consideration whenever assets are due for enhancement and renewal.

“Weather damage in the UK is likely to double in a ‘normal’ year in the 2040s-60s compared to a current year”
Association of British Insurers



“It is no longer possible to prevent the climate change that will take place over the next two or three decades, but it is still possible to protect our societies and economies from its impacts” **Lord Stern**



Critical levels at which business can be impacted

There could be certain levels at which climate impacts will pose a targeted threat to **business operations** – for example, machinery may need to cool overnight or have a maximum temperature at which it can operate. A recent study conducted by a group of electricity companies found that warming in urban areas may result in electricity sub-stations being unable to cool properly overnight.

Low water levels in rivers in summer months may lead to restrictions on companies’ rights to release **effluents** into waterways.

More intense rainfall may mean the level of water in a flood plain could threaten the **safe operation** of an installation. For example during the 2007 floods, an electricity substation in Tewkesbury came very close to being overwhelmed by flood water.

There may also be levels at which demand for goods and services increases markedly. For example heat waves over a specific temperature could see a need for new health and pharmaceutical **products and services**.

A factor in insurance and investment decisions

Risk management at all levels will almost certainly become more important to keep **insurance** affordable for firms and households.

The ability to provide insurance will also come under pressure – for example, the cost to insurers of the damage in the US from hurricanes is anticipated to double, and the cost of international weather-related disasters is predicted to rise above \$150bn, exceeding current global re-insurance capacity of \$100bn.

Consideration of climate risks by **investors** also means that those seeking investment have an opportunity to make their business more attractive by understanding and managing climate impacts.

Combining with other business challenges

When combined with other difficulties, such as economic recession, climate-related risks become more threatening to businesses, suppliers and customer bases. Problems in financial markets which reduce the availability of credit may combine with climate impacts to place businesses under extra pressure where overdrafts cannot be extended or loans provided to fund repairs.

Case study: The investment community and climate risk

UK financial companies are at the centre of efforts to understand and act on the risk to investments posed by a changing climate.

In 2007, Barclays Environmental Risk Management conducted research with climate adaptation consultants Acclimatise into impacts across sectors – including those affected in complex ways, such as pharmaceuticals and chemicals.

The research considered physical risks to fixed assets and infrastructure from storm damage or flood, impacts on supply chains from increasing scarcity of natural resources such as water, and shifting patterns in demand for goods and services. These impacts could potentially become material factors as a part of a bank’s assessment of corporate credit risk.

Another bank, HSBC, has with the Met Office established a climate change research facilitation programme, which will allow fund managers to make more accurate assessments of the climate risks and impacts across their investment portfolios. This is part of a major effort by HSBC to assist fund managers in understanding the broader impacts of climate change on investments.

Case study: An SME response

After the floods in 2007 an SME owning several machinery sales and servicing depots in the Midlands was worried about the threat to expensive stock, as well as the potential impact on its livelihood and that of its 54 employees.

With the help of Aon Global, a risk management specialist, a brainstorming session grouped together employees of each depot to point out potential risks unique to each site, and to the overall business. The resulting adaptation programme revealed the need to reinforce retaining walls extensively on one site, and design better surface water drainage on all sites.

The emergency action plan created will be reviewed and improved each season as knowledge and understanding of the threats advances in the company. The plan ensured all employees were responsible for recognising the warning signs, and forming part of the team effort required to secure the site and move machinery.

Future proof – eight simple steps to prepare your business for a changing climate

Understanding climate and weather changes and integrating climate risk into existing risk-management will make your business less exposed to climate impacts.

This also presents an opportunity to seize a competitive advantage by making your company more climate resilient than competitors, and to develop products and services providing climate change adaptation solutions.

1. Appoint someone internally to evaluate and manage climate related risks

This should be the person already responsible for resilience and risk management, who should work with those responsible for supply chains, buildings, long-term investment, and health and safety.

2. Assemble evidence of the impacts on your business from recent and historic weather events

Previous impacts are often a good guide to how future extreme weather may affect your business.

Warming: The ten hottest summers on record have happened since 1995. Currently, a mean rise in temperatures of 2-3.5 degrees is projected by 2080 and the hot summer of 2003 – currently a once in a thousand years event – could be considered a normal summer by the 2040s. By 2040 winter temperatures in the UK are expected to rise by between 0.5 and 1 degree.

Drier summers: Total summer rain has decreased in most parts of the UK by between 10% and 40% since 1961 and by 2100 there could be 50% less rain in summer months.

Rising sea-levels: Rising sea-levels of 3.1 mm a year combined with high tides and storm surges mean that coastal flooding could account for 46% of all UK flood risk by 2080 – up from 26% today – and may increase coastal erosion.

3. Access sources of external support and climate and weather information

The UK Climate Impacts Programme, the Met Office, the Environment Agency, insurers, risk management consultants, academic support, regional climate change partnerships and regional development agencies can all offer information and advice.

4. Assess vulnerable areas of your business

Including buildings, supply chains, employees, investments and customers. Consider the risk you are willing to tolerate. Identify the impact climate changes could have on you now and in the future, especially on investments with a life-span of over 20 years.

Possible strengthening of winds: Some scientists predict the strengthening of winds globally. While it is difficult to predict UK wind changes this could lead to stronger winds in the UK.

Electric storms: A possible increase in the number of electrical storms could increase the threat of lightning strikes.

6. Establish a climate resilience plan

Setting out measures to be taken immediately, on going risk-assessment measures, and points in the future where resilience could be improved – such as when relocating, or renewing equipment. Integrate this plan into existing risk-management strategies.

5. Engage colleagues to raise awareness of climate risks and to gain their input

Holding an internal workshop or brainstorming session can make employees more aware of climate risks and provide valuable input from a range of perspectives on the climate impacts faced by your company.

More intense rainfall: Wetter winters and more regular intense rain storms could mean that low-land river and flash flooding like that experienced in 2007 will become more regular.

7. Implement solutions and on-going risk-assessment plans and gain company-wide support

It is essential to achieve organisational buy-in, especially from the senior management, for adaptation measures that need to be implemented immediately and on-going risk-assessment plans.

8. Explore how you can work with external partners to contribute to increased climate resilience

Partners with a mutual interest in ensuring climate security could include suppliers, customers, other local businesses, local authorities, universities, regional climate change partnerships, the Environment Agency and others in your sector.

Key climate change adaptation contacts on reverse of this poster

Key climate resilience contacts

The Department of Environment Food and Rural Affairs is the lead government department on climate change adaptation

www.defra.gov.uk

The UK climate impacts programme provides projections on climate impacts and assistance in addressing them, as well as the details of regional initiatives

www.ukcip.org.uk

The Met Office is the key source of weather forecasting information in the UK and offers a range of services to help businesses understand climate change

www.metoffice.gov.uk

The Environment Agency is the lead government agency in England and Wales on flooding and broader environmental management

www.environment-agency.gov.uk

The Scottish Environment Protection Agency is the lead government agency on flooding in Scotland

www.sepa.org.uk

The Northern Ireland Rivers Agency is the lead agency on flooding in Northern Ireland

www.riversagencyni.gov.uk

The Walker Institute at Reading University offers advanced forecasting and risk assessment and management advice

www.walker-institute.ac.uk



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Climate change: everyone's business

The CBI climate change board:
building a low-carbon economy

The CBI climate change board was set up in 2008 to deliver the commitments set out in the CBI 2007 climate change taskforce report 'Climate change: everyone's business.' The report recognised that government, business and consumers all have a role to play in making the shift to a low-carbon economy. The board brings together senior business leaders from a range of sectors to demonstrate business commitment to managing the risk of climate change by:

- promoting business-led policy solutions to realise carbon savings
- showcasing business opportunities for green growth
- leading by example on corporate commitments to manage carbon footprints
- monitoring progress by government and business in realising the UK's carbon targets
- influencing a post-2012 international climate change agreement.

www.cbi.org.uk/climate change