

# Information Guide: Carbon Reduction Legislation

Issue 24

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## Carbon Reduction Legislation

This is an independent guide produced by Mitsubishi Electric to enhance the knowledge of its customers and provide a view of the key issues facing our industry today. The guide accompanies a series of seminars, all of which are CPD accredited.

The changing face of construction in the 21st Century demands that designers, specifiers and suppliers work as teams to create better buildings - or occupants and the environment.

Mitsubishi Electric aims to be a part of this by encouraging employees and customers to work together to increase their knowledge of the latest technology, legislation and markets.

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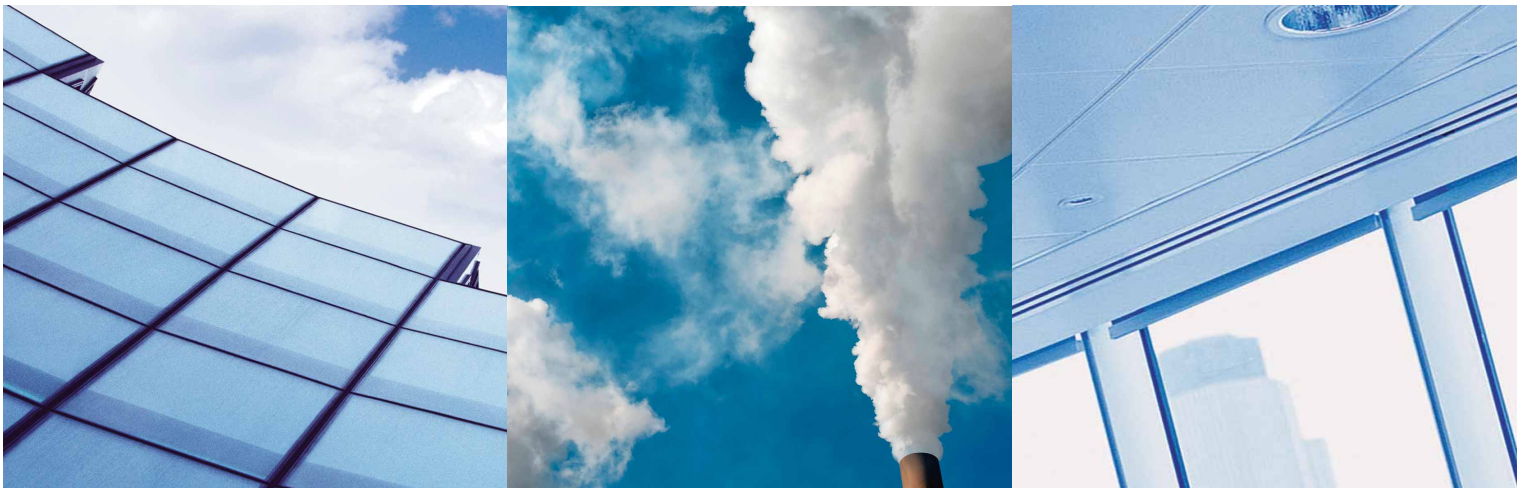
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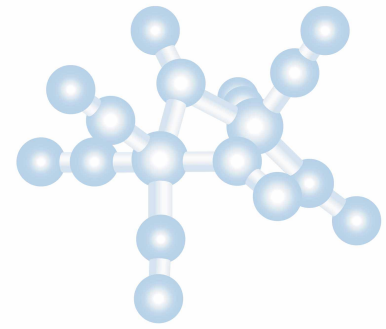
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# Global targets and local actions

Legislation on carbon reduction, mitigation of climate change and use of renewable energy sources is having a huge influence on most business sectors, not least construction and building services engineers.

The UK is not alone in its growing concern about the impact of domestic and commercial buildings on the environment. The legislation which is being implemented here has its source in worldwide agreements, in some cases in international treaties which were signed over a decade ago. In this Guide we will be looking at some of the key drivers behind UK legislation, and how these are being implemented in this country.





**High level agreement by several national Governments on the need to mitigate the effects of climate change was first reached as far back as 1988. It was in this year that Governments established the Intergovernmental Panel on Climate Change (IPCC).**

The IPCC was the result of a growing consensus among scientists that global warming would have devastating effects on the planet and its population. The first report from the IPCC was published in 1990, and its main recommendation was that Governments around the world should agree to work together to start combating the causes of global warming.

The UN Framework Convention on Climate Change (UNFCCC) was signed at the Rio Earth Summit in 1992. The Convention established an annual Conference of Parties (COP) as the mechanism for implementing actions, and the first goal it established was that all signatory countries should return their emissions (carbon and other greenhouse gases) to 1990 levels. Since that initial goal, the Convention set up the Kyoto Protocol as the mechanism to deliver further cuts in global carbon and greenhouse gas reductions.

Under the Kyoto Protocol, the European Union (consisting initially of 15 nations) was given a collective target of reducing its greenhouse gas emissions to 8% below 1990 levels by 2012. The new states which joined the EU were also included in this target on their accession to the EU in May 2004. A 'Burden-Sharing Agreement' allocates this target between the member states, and the UK was given a target of a 12.5% reduction. The UK Government has gone beyond this requirement, with a number of its own ambitious targets. Initially, the Government produced an Energy White Paper which set out the objective of cutting UK carbon emissions by 60% against 1990 figures by 2050. However, this has now been replaced by a target of an 80% reduction by 2050.

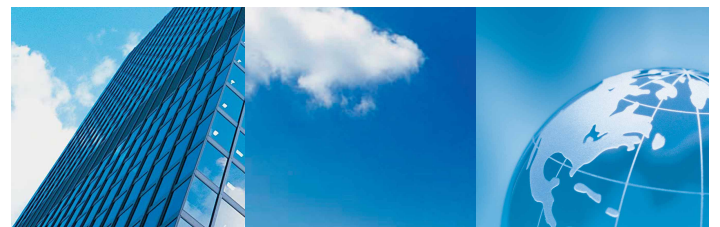
The new target was introduced in the November 2008 Climate Change Act, giving the Government a legally binding framework for ensuring that it meets its commitments to mitigate the effects of climate change. The UK is the first country in the world to introduce emissions reduction targets as law.

The Carbon Change Committee (CCC) is an independent body which was established to advise the Government on the targets and to advise on progress. The CCC advised the Government to raise the CO<sub>2</sub> reduction target from 60% to 80% after careful analysis of scientific understanding of the impacts of global warming indicated greater and faster action would be required.

The Government believes that the 2050 target is achievable through increased use of renewable energy sources in the long term, though energy efficiency will be the main method of cutting the country's emissions in the shorter term. The CCC has identified a number of areas where savings can be made, and identifies energy saving in buildings as playing an important part.

In the UK, we have felt the impact of international targets on carbon reduction through a number of legislative measures such as the European Energy Performance of Buildings Directive, and the EU Renewables Directive. This legislation has, in turn, resulted in new obligations for the construction and property industries including building energy labelling; air tightness testing; and development of the Standard Building Energy Model (SBEM).

Local government has also contributed with obligations on designers to employ on-site renewable energy sources wherever possible. Energy Performance Certificates have added to the emphasis on continued energy efficient operation of buildings during their lifetime. In addition the new Carbon Reduction Commitment (CRC) will see almost 5,000 UK businesses faced with further obligations to reduce their carbon footprints. Our next features look at the workings of the CRC, as well as examining the proposed re-launch of the Energy Performance of Buildings Directive.

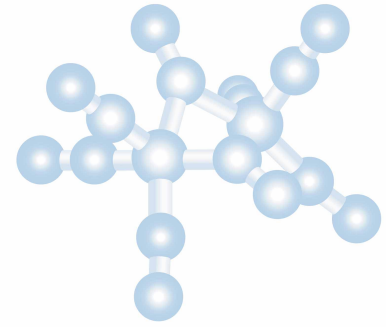


# Trading Carbon

As well as setting the first international targets for greenhouse gas reduction, the Kyoto Protocol also established the idea of emissions trading mechanisms. By creating a 'value' for carbon and other greenhouse gases, the aim was to encourage countries to trade their savings on a global basis.

The first large scale scheme was the EU Emissions Trading Scheme (ETS), launched in 2005. The EU ETS puts a price on carbon (by the tonne). Participating companies are allocated allowances. If the companies emit less than the allowance, they can 'sell' these on the ETS market. And if a company exceeds its carbon emission allowance, it purchases more carbon credits from the same scheme.





**The amount of allowances is fixed, so the environmental benefits remain the same. One of the cited benefits of trading schemes is that they set a level for emissions, but allow industry the flexibility to decide how to meet the targets - buying allowances or investing in energy management programmes.**

The EU ETS encompasses large-scale corporations and energy-intensive industries. A new scheme will soon start that will include many more UK private and public sector organisations, this new scheme will have a far greater potential impact on energy use in buildings. The Carbon Reduction Commitment (CRC) will run its first phase from April 2010 to March 2013. A second phase will then run from March 2013 to March 2016. The CRC is designed specifically to include the industry sectors and businesses not included in the EU ETS. It is a mandatory carbon emissions 'cap and trade' mechanism for 'non-energy intensive businesses'. According to the Carbon Trust, around 5,000 organisations in the public and private sectors will be affected. The CRC includes all carbon emissions created by 'processes', as well as emissions resulting from purchased energy. The scheme does include transport energy as well.

The CRC is not aimed at the construction or property industry specifically, but since buildings use such a large proportion of the UK's energy, it will certainly drive the need for greater energy efficiency in the commercial built environment. Eligible organisations have at least one half hourly electricity meter settled on the half hourly market, and they will qualify as CRC participants if their total half hourly electricity consumption exceeds 6,000 megawatt hours (MWh) during the qualification period. The CRC is not voluntary - if a company is eligible, participation is compulsory and non-compliance will result in penalties including fines.

The Carbon Trust estimates that around 5,000 organisations in the public and private sectors will be affected by the CRC, and that collectively they account for 10% of the UK's carbon emissions. A wide range of organisations will be taking part: local authorities, supermarkets, banks, and all central government departments. Participants will be given bonuses for cutting carbon emissions. Those that don't perform so well will have to pay a penalty.

In phase one of the CRC, participants will register for the scheme in April 2010. In April 2011, participants will buy allowances to cover the previous year's emissions (2010/2011). An unlimited amount of carbon allowances will be available, but they can only be purchased in April. They will have a fixed price of £12 per tonne of carbon dioxide. After that date, participants will have to trade on the market if they need more allowances. Research by KPMG suggests that the minimum outlay for a participating organisation will be £38,000 although it is anticipated that most will have to pay much more.

In phase two of the scheme, there will be a fixed number of allowances each year sold via auction. There will also be limits on the number of allowances a single organisation can purchase in the initial auction. Perhaps the most significant aspect of the CRC is that participating organisations will be placed on an annual league table, according to their carbon savings over each year of the scheme. While the details of how the league will be published are still being decided, it is clear that placement on a league table of carbon emitters could have a big impact on an organisation's reputation. The CRC will become a further driver of energy efficiency measures in the private and public sectors.

### League table of carbon winners and losers

The CRC will include a league table of participants which will show which organisations are cutting back on their carbon emissions - and which aren't. There are three elements which will be used to place participants on the table:

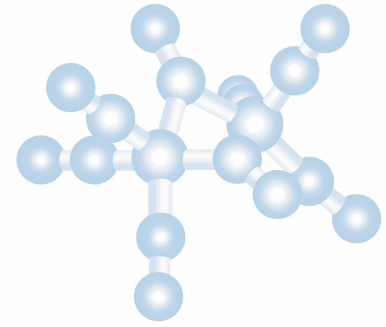
- **An organisation's percentage change in emissions from the previous 5 year average**
- **In phase one only, participants will be recognised for 'early actions' such as voluntary use of automated meters and meeting the new Carbon Trust Standard**
- **Evidence of becoming more carbon efficient, for example achieving higher turnover but no increase of emissions**

These points will be weighted 60:20:20. In the early stages of the CRC there will not be enough data to quantify emissions reductions, so more weight will be given to 'early actions'.

# Recast of EPBD

The EU Energy Performance of Buildings Directive (EPBD) introduced many changes to the UK's building legislation. Most notable was the 'new' Part L of the Building Regulations which came into force in 2006. It introduced requirements such as measured improvements in building sustainability and mandatory air tightness testing.





In January 2007, the EU Commission introduced a climate and energy policy which includes targets of “20-20-20%”: reduction of energy consumption and greenhouse gas emissions and increased share of renewables by 2020. The built environment is viewed as a key source for its targeted carbon savings. The EPBD is the main pan-European tool for delivering energy savings in the built environment. Its main aim is to encourage cost-effective improvement in the overall energy performance of buildings.

There is now a proposed 're-cast' of the EPBD which could be introduced as early as 2010, which would see more buildings covered by the legislation, higher efficiency targets, and redefinitions of energy efficient technologies.

A re-cast is very different from simply amending the existing Directive. The recast will produce an entirely new legal document, which will replace the existing Directive. The EU Commission has decided on this course of action 'to ensure clarification and simplification of certain definitions and provisions of the current Directive'.

### The Commission proposes a range of changes, including the following:

1. The 1000m<sup>2</sup> threshold for new and existing buildings (Articles 6 and 7) will be removed. This means that all buildings will be covered by the Directive regardless of size. The current 1000m<sup>2</sup> threshold excludes 72% of Europe's building stock.
2. The definition of heat pumps will be amended to include all types: water, geothermal and air source (Article 2 and 14).
3. Inspections of boilers only will be replaced by inspections of whole heating systems. All heating systems with a boiler of an effective rated output of more than 20kW should be inspected (Articles 13, 14 and 15).

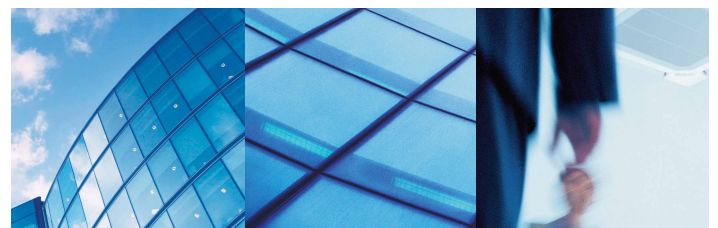
4. A new benchmarking tool for calculating cost-optimal standards will be devised and 'determined by the Commission by December 31st 2010'. The new tool would almost certainly set higher standards than currently exist (Articles 3 and 4).

5. Member states will have to impose penalties for infringement of national provisions of the EPBD (i.e. infringement of whatever law in each country has been used to introduce the provisions of the new Directive. In the case of the UK this would probably be a new Part L of the Building Regulations).

Studies carried out by the Commission estimate that if the potential energy savings for buildings were achieved, the EU could be consuming 11% less final energy than it does today and saving 4% to 5% of its current carbon emissions.

It is not yet clear how the recast Directive would be brought into UK legislation, but it seems likely that a new Part L will have to be introduced. The proposed changes to the Directive may well prove challenging, particularly since many aspects of the current Directive are still being worked out.

However, it is vital for anyone involved in designing, operating or installing equipment in buildings that they are aware of these proposals, and to help clients remain as prepared as possible for changes to current legislation.





# Further information

You can find more information on the topic of Carbon Reduction Legislation and related issues at the following websites:

**Department for Energy and Climate Change (DECC)** [www.decc.gov.uk](http://www.decc.gov.uk)

Gives the latest information on programmes such as the Carbon Reduction Commitment. You can also sign up to receive email updates on the progress of this and other legislation, such as the Climate Change Act. Information relating to energy which used to be on the DEFRA site, is now largely transferred to DECC.

**The Carbon Trust** [www.carbontrust.co.uk](http://www.carbontrust.co.uk)

Gives the background to much of the UK legislation on carbon reduction, and a good explanation of the Kyoto Protocol and emissions trading.

**Directive Implementation Advisory Group** [www.diag.org](http://www.diag.org)

Deals with the implementation of the European Energy Performance of Buildings Directive (EPBD) and is a good site for finding out the latest information on progress towards the recast and any planned changes to the legislation. Includes lots of information on Energy Performance Certificates.

**European Alliance of Companies for Energy Efficiency in Buildings** [www.euroace.org](http://www.euroace.org)

Has a useful Resource Centre with news and information on European legislation and news on what's happening in Europe with regard to energy efficiency and carbon reduction.

If you missed the CPD seminar on **Carbon Reduction Legislation** you can call your Mitsubishi Electric Regional sales office to arrange an in-house presentation of this information.

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Issue 24 Version 1 (March 2009)



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