



**carbon  
control**  
SOFTWARE



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## Climate change

Life as we know it around the globe is being transformed on an almost daily basis. Climate change is playing a significant part in this process, resulting in altered landscapes, wildlife being put at risk, and continually rising temperatures.

With polar ice caps melting, and seas rising, the existing coastlines which we have come to know so well are being threatened and serious attention is now being focussed on the effects which will ultimately be felt even in the inner cities.

Weather patterns are changing with stronger storms resulting in increased damage and an ever greater risk of drought, fire and floods. As a result, we are suffering more heat related illnesses and diseases with The World Health Organisation suggesting that climate change already claims 150,000 lives annually.

The primary cause of these dramatic changes is the increasing levels of carbon dioxide. In 2007, the Carbon Disclosure Project (CDP) stated that the atmospheric concentration of carbon dioxide is currently 450 parts per million (ppm) compared to pre-industrial levels of 280 ppm.

So, just how do we address these very real threats to the lives we enjoy today?



## The IT carbon footprint

When we walk along a soft beach we leave a mark, or a footprint, in the sand. Similarly, every single one of us leaves a mark on the environment which relates directly to the amount of carbon that our activities emit into the atmosphere. Our use of computer systems, and our engagement with information technology, consumes a significant amount of energy on a daily basis contributing to the carbon footprint of our organisation.

The international information technology research company, Gartner, estimates that globally the information technology industry contributes around 2 per cent of carbon dioxide emissions - similar to global aviation emissions. Their latest research indicates that computers generate an estimated 35 million tons of carbon dioxide each year which is equivalent to approximately one million flights to and from UK airports.

There are several very good reasons why we should pay close attention to the amount of energy we use and the size of our carbon footprint. More and more companies are beginning to understand the growing commercial threat to their enterprises posed by climate change as discovered by a study carried out on behalf of 315 global investors. Investors want firms to quantify and disclose costs and benefits derived from climate change.

“Increasingly, investors view good carbon management as a sign of good corporate management,” says Paul Dickinson, Chief Executive of the Carbon Disclosure Project.

So just how do we change the way we use information technology for the better?



## CCS - reducing the IT carbon footprint

Carbon control software (CCS) has been developed to reduce the amount of carbon emissions produced by an organisation by helping them use their computer systems and infrastructure more efficiently. With the capability of measuring the amount of energy used to operate computer systems, and enforcing automated energy management policies, CCS reduces the company's energy use resulting in a significant decrease in energy costs and a reduction in the company's overall carbon footprint.

This is increasingly relevant given the carbon reduction commitment taken by European and International bodies. The European Council has agreed to reductions of 20% by 2020 against the 1990 emission levels, whilst early discussions suggest that the successor of the Kyoto Protocol will set emission reduction goals of between 25-40% for industrial countries. As such there are likely to be great financial rewards for organisations that make a strong contribution to reducing carbon emissions.

CCS enables organisations to make their carbon dioxide emissions available via CarbonEarth, the global carbon disclosure network, in the form of a carbon footprint placed on a map showing the location of their business. Organisations are thus given the opportunity to demonstrate to the wider world the positive steps they are taking to reduce their impact upon the environment.



## CCS - efficient power management of computer systems

Reducing the energy consumption of computer systems is simple and does not involve investing in new equipment. Annual energy consumption can be reduced by over half, simply by turning computers off at night and putting them into low power mode when they are idle during the day.

It is difficult to achieve consistently high levels of manual power management in large organisations because the workforce have to be trained to the point where energy saving practices become second nature. Automatic power management, on the other hand, can ensure computers are always turned off at night and put into low power mode when idle.

Windows based CCS, when installed on company computer systems, provides real time accurate measurements of computer activity across the network, expressed in terms of energy use over a specified time period.

CCS can also measure offline or remote computer activity. Data stored temporarily on a pc is automatically transferred to the permanent storage base on reconnection to the network. The information provided across the range of CCS reports enables the calculation of a company's energy consumption for its entire computer network and the consequent disclosure of carbon emissions.

The information can be broken down across several categories including individual computer systems, users, departments and the entire organisation.



## **CCS - optimising energy use and reducing carbon footprint**

CCS provides a practical way of implementing company policies aimed at optimising energy use and reducing the overall carbon footprint. The software can be used to display messages on screens, warning users who are not complying with company policies, and to activate automatic hibernation periods or shutdowns within prescribed time parameters.

CCS enables companies for the first time to conform to existing standards and legislation without having to invest in expensive system usage surveys and complementary manual procedures.



## CCS - compliance with European Union regulations

With the principal objective of promoting health and safety at work across all EU member states, the 1993 Working Time Directive set a maximum 48 hour maximum working week and stipulated rest and leave periods.

Within the legislation, it is suggested that employees should be allowed short frequent breaks away from their computer during long periods of work. Ideally 5-10 minutes for every 60 minutes continuous work. CCS can be configured to implement break schedules into an employee's working day. For instance, if an employee works over a continuous 60 minute period, CCS will display a timer on screen counting down the time until the computer goes into standby mode encouraging the user to take a short break. The user can accept the break by leaving their computer to go into standby mode automatically, or override this option and decline the break by continuing to work.

Graphs produced by CCS detail the number and length of breaks taken and can be printed out for employees and managers to sign, in acknowledgement of the information recorded.



## CCS - system design and architecture

The heart of CCS is the database which resides on the Microsoft SQL server 2005 engine, and stores and processes information collected by the clients' software within the network. It is the information collected on this database which is formulated into the energy reports and graphs which detail energy savings and CO2 emissions reductions.

Operating on a corporate network, or hosted remotely, CCS enables the availability of all software management tools on a single system.

A unique component of CCS is the secure information channel which links the databases of the CCS user and CarbonEarth. Information sent to CarbonEarth is authenticated by a disclosure key unique to each sender. Once the link is established, the CarbonEarth database associates the data with the correct source, ensuring that the correct carbon footprint updates are made on the map.



## CCS - trial

A trial of CCS, with an Aberdeen company involved in the oil and gas industry, has just been conducted to assess how effectively the software reduced PC energy consumption, the company's energy costs, and established a greener image for the organisation.

Data was taken from three days of normal computer use within the organisation and compared with data from the same three days of another week, after the software had been installed.

The data was evaluated and average figures, relating to the benchmarking and test periods, were derived for one computer. These figures were then extrapolated over a working year, and 100 computers, and the results established that energy wastage was reduced by 84 per cent.

For full details of the trial, please contact [info@carboncontrolsoftware.com](mailto:info@carboncontrolsoftware.com)



## CCS - the benefits

CCS contributes up to 40 per cent reduction in energy costs resulting from the efficient use of an organisation's IT equipment. CCS use, in either the short or long term, also means that the profits from the energy savings outweigh the software implementation and management costs.

CCS brings the benefits of centralised administration and customisation of policies. It provides a non intrusive way of monitoring computer activity and the potential to assess employees working habits, in respect of health and safety standards.

As well as providing a proactive approach to reducing an organisation's IT carbon footprint it increases the positive image of the company as a green partner who is contributing to the fight against climate change.

## CCS - looking ahead

Looking ahead, we are continually updating and improving CCS and further research and development is planned in several key areas. We are looking at different designs relating to the look and function of the database administration tool and by taking advantage of web based technology, users with the correct authorisation codes, will be able to access and work on CCS via the internet.

We are also developing a more streamlined version of the software for Windows supported operating systems and, in addition, developing a version compatible on other operating systems, including Mac.

## CCS - conclusion

With the capability of measuring energy used in IT and enforcing automated energy management policies, CCS offers centralised PC power management and detailed reports on power consumption. It provides automatic systems to better meet health and safety legislation and environmental policies as well as contributing to the mission of the Carbon Disclosure Project by making information available for public display on the CarbonEarth website.

CCS offers the complete software based solution to modern businesses wishing to improve their IT energy efficiency, promote a responsible attitude to the environment, create substantial savings in their IT energy costs, and comply with the latest European Union carbon reduction policies.



## **CCS – contact**

Carbon Control Software  
Woodburn House  
4-5 Golden Square  
Aberdeen  
AB10 1RD

Tel: +44 (0) 1224 627 694

Fax: +44 (0) 1224 531210

Email: [info@carboncontrolsoftware.com](mailto:info@carboncontrolsoftware.com)

[www.carbonearth.net](http://www.carbonearth.net)

