

## Chapter 30

# Carbon Emissions Management Software (CEMS): A New Global Industry

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### ABSTRACT

*Carbon Emission Management Software (CEMS) is a new category of software that helps organizations manage and report on their carbon dioxide and other greenhouse gas (GHG) emissions. These measurements are now becoming a legal requirements for many organizations in many countries. The Kyoto Protocol was the first real international attempt to formalize the measurement, monitoring and mitigation of GHG emissions. The recent Copenhagen summit was an attempt to take the agreement further. Many countries, including the United Kingdom, Australia and most of Western Europe, now have legislation based on the GHG Protocol which mandates the reporting of carbon emissions. CEMS products have been developed largely in response to these legally binding requirements. This chapter looks at the evolution of CEMS, and how and why the products are used. It provides a CEMS taxonomy and looks at the main selection and implementation issues.*

### INTRODUCTION

Carbon Emissions Management Software (CEMS) is a very new category of software. Since around 2005 sensitivity to carbon-emission levels and the need to control them has increased significantly,

which has led to an increased awareness of the need to measure carbon emission levels. Today, such measurement is not only seen as desirable, it is in many cases becoming mandatory.

Public and corporate understanding of climate change and of the effects of greenhouse gases (GHGs) on the atmosphere has increased signifi-

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cantly in recent years. Once regarded as the domain of fringe greenies, the issues relating to GHGs in business are now mainstream. The Kyoto Protocol, developed by the United Nations Framework Convention on Climate Change (UNFCCC, 2010) was the first real international attempt to formalize the measurement, monitoring and mitigation of GHG emissions, dates from 1997, but it is only in the last few years that most governments have started to act and that individuals and organizations have begun to realize the extent to which they are affected. The UN Climate Change Conference in Copenhagen in December 2009 (UNFCCC, 2010) has further raised public, political and corporate awareness.

There remains a body of opinion which believes that climate change is not occurring, or that if it is, it is not caused by human activity. Even if those views are correct, they do not alter the fact that governments around the world are introducing various legislative mechanisms to reduce the production of GHGs and to mandate the reporting of GHG emissions (Philipson, Foster and Brand, 2010). A precondition of reporting is measurement, and a precondition of measurement is some sort of tool by which to conduct that measurement. Hence the development of CEMS.

Carbon emissions legislation is typically based on national targets for reductions by 2020 and 2050. The later date is the ultimate aim, but will be impossible to reach unless an interim reduction is achieved. The means to address those targets will vary between countries, and in setting those targets countries will have to address other issues such as the use of renewable energy, the extent to which biofuels will or can be used, whether offsets will be allowed in order to achieve targets, and how carbon trading will be managed, nationally and internationally.

In most countries legislation addresses the larger emitters first – primarily energy companies and heavy industry – but will also address increasing proportions of the commercial sector

over time, to meet the ultimate targets. This is already happening in many countries. In addition to legislation, there are also pressures from the business world.

## **PRESSURES AND RISKS IN THE BUSINESS WORLD**

While many countries have been moving slowly along the road to international agreement, at the corporate level there is increasing responsibility, as highlighted by many discussions (e.g. Murugesan, 2007). The pressure on business to take unilateral action has grown significantly. An increasingly active environmental movement, extreme weather events, and international conferences and agreements have all helped bring the issue of climate change to a broader section of the general public and to the attention of corporate stakeholders. At the same time, economic factors have added another dimension by putting the spotlight on the cost of the energy responsible for generating greenhouse gases (Unhelkar and Dickens, 2008). As a result, there is increasing pressure on corporations from a number of areas:

Clearly, there is growing pressure from a variety of directions for organizations to assess their carbon emissions, report them publicly and set targets for their reduction. Those looking to address pressures and stakeholder expectations should prepare a formal assessment of the risks and opportunities of climate change, what needs to be achieved and how to get there. Since environmental issues can have an impact across an organization, it requires a fairly broad assessment to encompass knock-on impacts that combine, as discussed by Unhelkar and Trivedi (2009), both technology and business perspectives. Note that the assessment is not just about the risks of not doing anything, but also the market opportunities of taking positive action.

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