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Ask an Expert...

How Can an EMS Manage GHG Emissions?

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According to the World Meteorological Organization, the year 2000 was the 22nd consecutive year with a global mean surface temperature above the 1961–1990 normal, and was the seventh warmest year in the past 140. (The warmer six years were all in the 1990s.)

This and other scientific evidence has led the Intergovernmental Panel on Climate Change (IPCC) in its Third Assessment Report (TAR) to state that there is “new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities.” According to the IPCC, the primary contributor to this warming trend is anthropogenic contributions of greenhouse gases (GHGs) from fossil-fuel burning and land-use changes. The range of actual and potential impacts of this warming has been well documented, and it includes flooding of low-lying states due to a rise in sea levels, changes in agricultural patterns and extreme weather events.

To address this developing situation, the United Nations created the Framework Convention on Climate Change (UNFCCC). The convention was originally open for signature at the 1992 United Nations Conference on Environment and Development (UNCED), and as of March 2001, it had been ratified by 186 member states.

In 1997, the Kyoto Protocol to the convention was developed to strengthen the guidance to signatory bodies regarding the policies and measures required to mitigate anthropogenic emissions of GHGs. The protocol commits signatory countries or regions to specific emissions reduction targets. For example, the U.S. target is a 7 percent reduction over 1990 levels, the European Community target is an 8 percent reduction and the Australian target is an 8 percent decrease. Overall, the protocol aims to reduce global warming by requiring industrialized countries to cut emissions of pollutants from 1990 levels by an average of 5.2 percent between 2008 and 2012. The Kyoto Protocol will only enter into force if it is ratified by at least 55 parties to the convention, who must account for at least 55 percent of the total carbon dioxide emissions for 1990 of the parties included in Annex I of the treaty.

The future of the protocol has been placed in some doubt by the decision of the United States in March 2001 to reject it on the grounds that it does not include developing countries and that it may harm the U.S. economy. (See *IESU*, April, 2001.)

In spite of the uncertainty surrounding the ratification of the Kyoto Protocol, national governments and international agencies now are deep into the process of identifying policies and programs to:

- reduce GHG emissions;
- adapt to existing and future climate change impacts; and
- enhance the sequestration of GHGs from the atmosphere.

Solutions likely will come from a mix of regulatory programs, market-based instruments, technology development and voluntary programs. Early indications are that governments will be developing policies and programs that favor less carbon intensive energy supply options and products.

Consequently, there is a renewed and growing interest in alternative energy technologies (e.g., solar, wind), cleaner fuels (e.g., biofuels, enhanced natural gas), cleaner electric power generation options (e.g., fuel cells, hydroelectric power and gas versus coal) and more carbon-efficient products (e.g., hybrid vehicles). Additionally, many nations currently are examining their national GHG inventories and are targeting key industrial sectors (e.g., transportation and fossil energy production) for improvement.

Industrial Response

The current climate change situation presents a number of opportunities and risks for companies. Some of the opportunities include:

- Utilizing the evaluation of the companies' GHG profile to enhance internal energy and material efficiencies and reduce costs;
- Creating new or growing existing markets for development of less carbon-intensive technologies, products or services;
- Generating emission reduction "credits" for either regional, national or international trading schemes;
- Purchasing lower cost emissions reductions through such schemes; and
- Opening of new investment opportunities (e.g., credit futures or new technology investments such as fuel cells and micro turbines).

Risks associated with the current situation include the reduced value of assets/operations (e.g., inefficient fleets and manufacturing facilities) and potential increases in the cost of doing business due to policy responses to climate change (e.g., rise in energy/material costs and taxation of carbon-intensive activities).

While the opportunities or risks associated with climate change will vary across sectors and jurisdictions, many leading companies are taking a proactive approach to evaluating how to best reduce their GHG emissions and how to gain political (and potentially economic) benefits from doing so. Indeed, many companies have managed and reported GHGs for years, and the potential economic value of future reductions has increased the need to do so in a manner that will be credible to external stakeholders. These stakeholders can be governments that are looking for emissions reductions, customers who wish to reduce the carbon intensity of their supply chain, buyers within an emissions trading scheme or, in a growing trend, the financial community that is looking to reduce investment risk.

From an industry perspective, a key lower-cost alternative to regulatory- and tax-based strategies for reducing emissions is the establishment of emissions trading systems. Under such systems, industries that are able to reduce their emissions more cost-effectively can trade emission reduction “credits” to those who are technologically or economically constrained from reducing their emissions. In some systems there is a cap on overall emissions applied by the government and the companies trade based on whether they meet, beat or exceed their assigned amount of emissions. This system is called “cap and trade.” The other possibility is an open trading system (the so-called baseline and credit approach).

However, the effective establishment of trading systems will require credible and accurate measurement and reporting approaches that help companies determine how to account for current emissions, identify reduction opportunities and document the emissions reductions. For example, in order to gain credit for emissions reductions in an emissions trading system, it is reasonable to assume that companies must be able to prove that their baseline is reasonable and that the reductions they claim are accurate and credible. Additionally, it is important that companies achieve GHG emissions reductions without increasing other environmental emissions/impacts in the process.

While the measurement and reporting of corporate GHG emissions/removals remains voluntary in most countries, many organizations have initiated such activities. For most, the logical starting point for the credible management of GHGs is an existing environmental management system (EMS).

Utilizing your EMS to Manage GHGs

As drivers to measure, manage and report GHGs increase, there will be a tendency to develop new tools and products to do so. The good news for

many companies is that their existing EMSs provide an excellent starting point for GHG management.

An EMS based on the ISO 14001 standard applies the classic Plan-Do-Check-Act framework to the management of environmental issues in a company. By simply identifying GHG emissions as a significant environmental aspect within the management system, a company can begin the process of credibly managing and reducing their emissions. A recent report for the Pew Center on Climate Change by Global Change Strategies International cited examples of firms such as ABB and IBM whose EMSs provided the basis and grounding for their GHG reduction targets. The report also noted that “corporate culture” plays an important role in how companies respond to political circumstances. Additionally, the process of continuous improvement through targets is ingrained in companies with well-established EMSs. In these companies, GHG emissions or energy targets are more independent of political circumstances.” Figure 1 illustrates the steps in applying an EMS to GHGs.

Act

- Align programs or procedures to better meet set targets and objectives, based on results of monitoring and assessments.
- Periodically review targets and objectives to determine whether these should be modified in order to better fulfill environmental policy requirements or overall business strategy.

Plan

- Include a statement on reduction of GHG emissions/climate change in environmental policy.,
- Set emissions reduction targets and objectives for environmental aspects that have GHG potential at each relevant level within the company.

Check

- Regularly monitor and measure GHG emissions reduction of operations and activities.
- Assess how the performance of implemented programs and procedures are achieving the set targets and objectives.

Do

- Identify which aspects of operations and activities produce GHG emissions and environmental impacts associated with each aspect.
- Implement programs to address the impacts and achieve set targets and objectives.
- Establish procedures to ensure that all personnel are aware of the company's environmental policy and emission reduction targets and objectives, and provide relevant training to personnel.
- Internally communicate progress on GHG emissions reduction activities among various levels within the company.

Standards Considerations

The application of an EMS-based approach to GHG management has been examined within the ISO TC 207 Climate Change Task Force for several years. The task force looked at the application of ISO 14001 and other standards such as the ISO 14040 series of standards on life cycle assessment for GHG management. With respect to management systems, the task force report noted that “an environmental management systems approach, as outlined in the ISO 14000 series, can be used by organizations to set and monitor objectives and targets in relation to the UNFCCC.”

Indeed, utilizing internationally accepted standards for GHG management is a key factor in enhancing the credibility of the actions taken. It also may be helpful if the intention is to utilize emissions reductions in an international trading scheme.

Currently, there are no internationally accepted standards for measuring and reporting GHG emissions reduction from organizations, although several countries have stated an intention to create such standards in the near future. (See *IESU*, July 2001.) The most advanced efforts in this area are project-specific measurement and verification protocols developed within various World Bank projects, the work of the World Resources Institute and World Business Council for Sustainable Development, with various other collaborators on a “measurement and reporting” standard for organizations. This latter effort is a significant advancement in the development of an internationally accepted protocol.

Whatever the protocol, the importance of international acceptance cannot be understated. For example, the three flexibility mechanisms of the Kyoto Protocol—Emissions Trading, Joint Implementation (JI) and the Clean Development Mechanism (CDM)—involve partnerships among players in different countries, different sectors and in the case of the CDM countries, at different stages of economic development. To have confidence as a “buyer” of emissions reductions, one must have a means to evaluate the proposed project or reduction and evaluate it against a credible internationally accepted standard. This confidence is required to ensure that the emission reduction is real and verifiable and to demonstrate to other stakeholders that the “buyer” has shown due diligence with respect to ensuring the emissions are real. To help increase confidence, there is a need to develop internationally standardized measurement and verification protocols.

Until such standards are developed and gain international acceptance, utilizing existing EMS and life-cycle standards offers a credible alternative that can give companies a jump-start on the management of GHGs. By doing so, companies can begin integrating GHG management into their existing systems and avoid the cost of having a separate data collection and reporting effort specifically for GHGs.

It is important, however, to note that for complex issues such as emissions trading and CDM projects, existing EMS and LCA standards are helpful but insufficient. Trygve Røed Larsen of Det Norske Veritas (DNV), a lead company in the verification of emissions reductions from GHG projects, has noted that while the principles of the ISO 14000 series of standards are helpful in auditing emissions reductions, other information is necessary for success. This additional information may include other accounting, financial and industrial standards and procedures.

Without question, the political and ecological drivers for companies to manage their GHG emissions will increase over the next decade.

Consequently, companies will come under increasing pressure from

regulators and other stakeholders to effectively manage their emissions and report on progress in reducing their contribution of GHGs to the atmosphere. Until internationally accepted guidance is established, an EMS is a logical starting point for the effective management of GHGs. For companies that wish to measure their emissions on a product basis, combining their EMS with a systems-based approach utilizing existing LCA practices (e.g., boundary setting, data quality and reporting) is also very useful.

For more information on GHG emissions management and reporting issues, visit these Web sites: www.wbcd.org, and www.wri.org.

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