

Greenhouse Gas Legislation

A Foresite White Paper on Climate Change's Impact on Energy Policy and Business Risk Management Strategies

May 2010

Introduction

The United Kingdom's adoption of energy policy legislation that established the first national mandatory greenhouse gas cap and trade systemⁱ has directed considerable attention to the existing government sponsored greenhouse gas data collection schemes. Globally, data collection and emission reporting protocols have always been considered a first step toward mandatory regulations and the existing data within national registries has become robust enough to set emission reduction targets of carbon dioxide equivalents. Concurrently, this attention has drawn proactive multi-national companies to (re)evaluate their internal greenhouse gas emission management systems to prepare for the inevitable passage of further greenhouse gas legislation that is on the horizon.

This paper provides a brief review of the pending greenhouse gas data collection schemes, and offers guidance on how companies can best position themselves to initiate sustainable business strategies that will have a positive impact on bottom line profitability.

Binding International Accords Driving Legislation

A. Kyoto Protocol

The Kyoto Protocolⁱⁱ represents the most widely accepted international accord aimed at reducing the concentration of greenhouse gases in the atmosphere. As of 2009, Kyoto had been ratified by 186 countries and the European Community. The Protocol segregated countries by annexes and prescribed varied target levels of greenhouse gas reductions below the benchmark year of 1990 levels. The widespread acceptance of Kyoto led to the establishment of the first market based emission trading schemes.ⁱⁱⁱ The Protocol is set to expire in 2012 and to date has produced mixed results, with wide variations between the signatories ability to meet their targets for emission reductions. Since its passage, there has been a net global *increase* in both energy consumption and carbon emissions that is predominantly attributable to the increased financial and manufacturing capabilities of developing nations. Discussions related to the continuation of the Protocol are ongoing and will likely define the future of greenhouse gas legislation. The next round of discussions concerning The United Nations Climate Change Conference is scheduled for Cancun, Mexico, in November 2010.

B. Montreal Protocol

The Montreal Protocol^{iv} entered into force in early 1989 and has subsequently undergone numerous revisions to expand and/or refine its scope. To date, the protocol has been ratified by 196 member states and has resulted in large scale decreases in ozone depleting substances, including chlorofluorocarbons, which are potent greenhouse gases. Due to its widespread adoption and implementation it has been hailed as an example of exceptional international co-operation with Kofi Annan quoted as saying that "perhaps the single most successful international agreement to date has been the Montreal Protocol".^v Recently, the Montreal Protocol has emerged as a force in greenhouse gas reduction legislation and has prompted the United States, Canada, and Mexico to begin tri-lateral discussions related to the implementation of North American based treaties designed to further reinforce the United States commitment to reducing the use of industrial hydrofluorocarbons.^{vi}

National Greenhouse Gas Inventories

Several countries, including: the United States, European Community Member States, and several Asian nations, have enacted legislation or administrative rules that establish inventories of greenhouse gas emissions.^{vii} These inventories are typically seen as a key first step toward the establishment of greenhouse gas legislation that mandates participation and sets emission reduction targets. Inventories of this nature also set the framework for the identification of entities with the highest concentration of carbon equivalent emissions^{viii} and define the scope of a country's regulatory framework. Conceptually, there are two fundamental processes by which carbon equivalent emissions can be regulated:

1. Greenhouse gas use taxation: Costs are applied to the individual unit of greenhouse gases emitted, which is intended to provide a proportioned cost on all users, consumer and business.
2. Cap and trade: Costs are applied via offset credits that are rationed to create market demands, which are intended to establish the motivation of a market driven cost on the select group of high emitters within the program's scope.

These programs, in turn, are supported by administrative rules and regulatory agency enforcement actions that serve to bring non-compliance to the forefront of the public and private sector's attention. Presently, regulators have focused on the application of cap and trade modeled systems based largely on the successes of the sulphur dioxide emission rationing systems^{ix} that were successful in mitigating the impacts of acid rain during the mid-1990's and the desire for a market accepted approach to carbon management that is tradable in free markets.

Emerging Market Based Approaches to Greenhouse Gas Management

A. United States Passed the First Economy Wide Climate Risk Disclosure Requirements

In January 2010, the United States Security and Exchange Commission (SEC) issued interpretive guidance documents that apply to the practice of disclosing risks associated with climate change.^x While not mandatory, this guidance will likely produce the largest response by the private sector related to the evaluation and implementation of business process changes through greenhouse gas monitoring programs. Specifically, publically traded companies that elect to follow the SEC guidance documents will need to offer detailed self-assessments pertaining to the risks and opportunities posed by climate change in their 10K, 10Q, item 101, item 103, item 503c, item 303, and 20-F (foreign entity) disclosures.^{xi} To effectively meet these public disclosure requirements, publically traded companies must be able to answer four (4) key questions:

- Will greenhouse gas legislation materially impact our business?
- Will international accords or treaties materially impact our business?
- What are the legal, technological, political, and scientific risks and opportunities that may affect our business?
- How will the perceived physical changes to the global environment impact our business?

The responses to these inquiries then enter the public forum under the watchful eye of SEC regulators where non-descript or sugar-coated self-assessments can have serious business/regulatory consequences. As such, an expert carbon exposure assessment or audit is the prudent course of action, which will in turn reveal organizational exposures, related to the effects of climate change and greenhouse gas legislation.

B. United Kingdom Passed the First National Mandatory Cap and Trade Scheme

The United Kingdom’s CRC Energy Efficiency Scheme (formerly known as Carbon Reduction Commitment)^{xii} offers a glimpse into the future of market driven greenhouse gas emission regulations that may soon propagate globally. The cap and trade mandate focuses on large scale emitters whom are defined by their 2008 energy usage statistics. Large public and private sector organizations that fall within the programs scope will be those that: (i) use half-hourly metering to record their electricity use; (ii) consumed over 6,000 mega watt hours (MWh) of energy in 2008 and (iii) are defined as an “organization”^{xiii} via the legislation.

The scheme is targeted at end users who consume annually approximately £1,000,000 sterling or more of energy. Once identified, these large end users are pooled into the cap and trade scheme where emission permits will slowly be rationed to shift the cost of compliance from the public to the end user under a polluter pays legislative framework.

During the initial years, a baseline will be established via a performance based model with shifting measurement criteria. (See Corresponding Table). The baseline data collected from this process will then be evaluated, measured and released to the public in a league table where the highest performers are rewarded with scheme revenue and the poorest performers must pay the on-going market rate for carbon credits.

Year	Absolute Metric	Early Action Metric	Growth Metric
1	0%	100%	0%
2	45%	40%	15%
3	60%	20%	20%
4 +	75%	0%	25%

Corporate Strategies

A. Senior Management Engagement

Developing the framework for an effective greenhouse gas management system requires a high level of senior management commitments and enthusiasm. This is because greenhouse gas policy has been directly linked to energy policy, which requires a comprehensive understanding of the organizational structure, departmental energy consumption needs, and supply chain network. Fortunately, a pragmatic analysis of greenhouse gas emissions should have the added benefit of establishing cost savings generated by process improvements, energy consumption reductions, and gains in efficiency. However, to effectively secure the greatest return-on-investment, management must engage in an

operational evaluation that strategically creates a commitment to implement business practices that can support the program. A recommended business practice roll-out would entail:

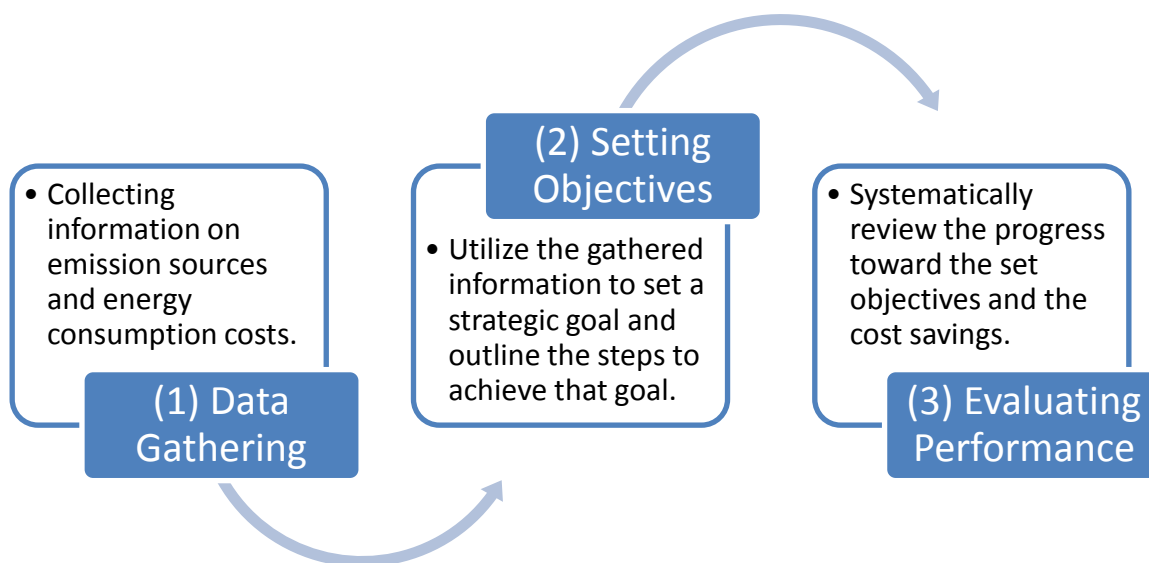
- Drafting a written business process and work plan for all operating groups that promotes operational efficiency and interdepartmental communications;
- Integrating a data collection system that automates a level of analysis and provides scalable metrics to assess improvement;
- Establishing documentation methods to produce a stored record of energy consumption and energy use reductions resulting from sustainable process implementations;
- Training key personnel to promote a streamlined roll-out and to facilitate compliance with corporate initiatives and legislative mandates; and
- Regular progress assessments to evaluate the effectiveness of implemented programs at reducing greenhouse gas emissions and promoting cost savings.

The combination of strong management support and a strategic process roll-out will produce the greatest likelihood of a high return-on-investment with the added effect of positioning a company favorably to adapt to emerging legislative requirements pertaining to greenhouse gas emission reductions.

B. Benchmarking to Prepare for Business Risks

The first critical stage in implementing an effective greenhouse gas management and reduction program lies in the process of benchmarking. Effective greenhouse gas benchmarking is a three-step process that can be repeated until the desired objectives are achieved and expanded to include the scope of emission sources that must be monitored pursuant to new legislation. This process is illustrated in the following

Figure 1: Phased Benchmarking Process



The critical first hurdle for establishing a greenhouse gas monitoring program is data gathering that can create an effective inventory from which a base-line and objectives can be set. Data gathering and management is the fundamental component to successful pro-active planning for future regulatory requirements. As is illustrated by the United Kingdom's CRC scheme, effective pre-planning is likely to be accounted for and evaluated during the initial phase(s) of a mature greenhouse gas regulatory scheme. Thus, effective pre-legislative required implementation will have the dual effects of allowing a company to prepare for pending legislation and to gain a competitive advantage once legislation is enacted.

C. The Importance of a Flexible Information Management System

The international nature of the climate change discussions driven by global forums, e.g. Copenhagen, Montreal, etc ..., have elevated the need to be cognizant of the global nature of environmental regulations that will impact greenhouse gas emitting companies. Automated environmental management systems, also known as Enterprise Carbon Accounting software systems, represent an effective information technology tool to address the documentation and record keeping challenges represented by climate change legislation. Regardless of the employed platform, certain key functions are vital for organizations seeking to develop a flexible greenhouse/carbon management program that can serve as a compliance engine for future and present legislative compliance initiatives. Important key functionalities include:

- Standardized data capture methods that utilize cogent, reputable conversion methodologies for evaluating carbon dioxide equivalents and specific targeted gases of high concern;
- A data storage element that will allow the successful recall of information from past data inputs in a readily accessible and auditable format;
- An accounting system that can pro rate the emissions generated from multiple direct emission sources at the facility level;
- The capacity to document the replacement or retirement of obsolete systems with "greener" energy efficient systems;
- The ability to evaluate conservation activities and the procurement of lower emission power sources that detract from the net greenhouse gas emissions of an organization (e.g. natural gas v. electricity v. on-site solar); and
- The flexibility to be expanded to include both down-stream and up-stream supplier emissions, in the event that supply chain emissions become required by future greenhouse gas legislation or customer requests

The centralization of reviewable emissions data in a flexible information management system provides the greatest opportunity to construct an easily accessible greenhouse gas emissions baseline that can provide your organization with a cost savings tool and a competitive advantage related to pending greenhouse gas monitoring and disclosure mandates.

Summary

Climate change legislation and the coordinated shifts in energy policy will make the development of an internal carbon emission equivalent tracking program a necessity for most large organizations. The breadth of the regulations impacts and market forces that will be implemented to develop the carbon markets will impact every area of industry. Accordingly, proactive organizations that implement effective carbon emission monitoring and benchmarking business process will gain a competitive advantage as emission reporting becomes mandatory. A centralized emission monitoring information management system offers the greatest return-on-investment strategy by allowing organizations to effectively monitoring their facilities, operational activities, and supply chains for efficiency and carbon emission reduction avenues.

About Foresite

Foresite System's Global Environmental Management Systems (GEMS) is a world leader in environmental compliance. The wealth of experience, innovative spirit, and international presence has provided Foresite with the ability to remain a best in class provider of environmental compliance engines for over 100 of the best and most recognizable blue chip companies in the world. The flexibility of the GEMS platform and Foresite's pragmatic approach to compliance has made the GEMS Carbon Management and Supply Chain Greenhouse Gas Inventory modules premier tools for our clients' implementation of effective and sustainable greenhouse gas and energy usage monitoring and reduction strategies. For more information or demonstration, please contact Foresite's Manager of Environmental Compliance, Travis Miller at travis.miller@foresitesystems.com or (408) 377-7400.

ⁱ Department of Energy and Climate Change - CRC Scheme Homepage,

http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/crc/crc.aspx (last visited May 10, 2010).

ⁱⁱ **Kyoto Protocol:** A protocol to the United Nations Framework Convention on Climate Change (UNFCCC or FCCC), aimed at fighting global warming. The UNFCCC is an international environmental treaty with the goal of achieving stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

ⁱⁱⁱ See M. Grubb, M. et al., *Climate Policy and Industrial Competitiveness: Ten Insights from Europe on the EU Emissions Trading System*, CLIMATE STRATEGIES, (August 2009), available at <http://www.climatestrategies.org/our-reports/category/17/204.html> (last visited 04-14-2010).

^{iv} **Montreal Protocol on Substances That Deplete the Ozone Layer:** (a protocol to the Vienna Convention for the Protection of the Ozone Layer) is an international treaty designed to protect the ozone layer by phasing out the production of a number of substances believed to be responsible for ozone depletion.

^v The Ozone Hole, available at <http://www.theozonehole.com/montreal.htm> (last visited May 10, 2010).

^{vi} United States Mandatory Reporting of Greenhouse Gases Rule, Fed. Reg. EPA-HQ-OAR-2008-0508-2278 (US EPA Effective Dec. 29, 2009).

^{vii} See UNFCCC website,

http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/5270.php (last visited May 10, 2010).

^{viii} See AMEE website, <http://www.amee.com/> (last visited May 10, 2010).

^{ix} Robert N. Stavins, *What Can We Learn from the Grand Policy Experiment? Lessons from SO₂ Allowance Trading*, 3 12, THE JOURNAL OF ECONOMIC PERSPECTIVES, 69–88 (1998).

^x SEC Issues Interpretive Guidance on Disclosure Related to Business or Legal Developments Regarding Climate Change, Interpretive Release, (SEC Jan. 27, 2010), available at <http://www.sec.gov/news/press/2010/2010-15.htm>.

^{xi} See Security and Exchange Commission – EDGAR Homepage, <http://www.sec.gov/edgar.shtml> (last visited May 10, 2010).

^{xii} The CRC Energy Efficiency Scheme Users Guide, (April 6, 2010 Update), available at http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/crc/user_guidance/user_guidance.aspx (last visited May 10, 2010).

^{xiii} *Id.* (Organization: Part of a group (undertakings); part of, or an agency of, a central Government Department; a joint venture (PFI); a franchisee or franchisor; a school or local authority; or a university.).