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SECTION OF ENVIRONMENT ENERGY AND RESOURCES

Innovation, Management Systems and Trading Committee Newsletter

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MESSAGE FROM THE CHAIR

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As the Innovation, Management Systems and Trading Committee, we like (in our better moments) to believe that we are a forward-thinking group, focused on the cutting-edge of environmental regulation. The theme of this newsletter issue – greenhouse gas (GHG) emission trading – certainly fits that description. At present, the United States has not committed itself to binding GHG emission limits. Most GHG trading opportunities today involve voluntary actions or overseas partners. However, some believe that more focused regulation of GHG lies somewhere in our future. If and when that does become a reality, it will likely include an emissions trading component that could dwarf existing trading programs, significantly reduce our GHG emissions, and involve market transactions valued in the hundreds of millions, or even billions of dollars. In this issue, Newsletter Vice Chair Joseph Dawley has recruited an excellent cast of authors to provide their perspectives GHG emission trading. We hope that you will enjoy reading about this increasingly significant topic.

Since the time of our last newsletter, the committee has been hard at work engaging the environmental bar in thought-provoking discussions about innovation, management systems and trading. Thanks to the efforts of Vice Chair Joel Bolstein, the committee produced an excellent submission for the Section's annual publication *The Year in Review*. Based on the fine efforts of Vice Chair Jamie Conrad and others, we co-sponsored three programs at the Section's recent 33rd Annual Conference on Environmental Law in Keystone, Colorado (an event that your chair attended for the first time this year and recommends heartily to anyone who enjoys beautiful mountain scenery, great skiing and stimulating presentations). The first of these programs, "Permission Granted! Obtaining Positive Permitting and Siting Results," looked at Colorado's innovative EMS Permit Pilot Project in which permit conditions are incorporated into a facility's environmental management system. A second program, "What's Driving Corporate Disclosure and Where It's Going," examined the current trend towards increased environmental disclosure. Our own Bob Sussman moderated the panel. Finally, we helped to plan a program on "Trading Air Emissions" that took a comprehensive look at various air trading programs and at the issues, and opportunities, that they present. Other programs are on deck, including a brown-bag/teleconference on EPA's newly released "Strategy for Determining the Role of EMS in Regulatory

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Joseph M. Dawley, Editor

In this issue:

This newsletter is a publication of the ABA Section of Environment, Energy, and Resources, and reports on the activities of the committee. All persons interested in joining the Section or one of its committees should contact the Section of Environment, Energy, and Resources, American Bar Association, 321 N. Clark St., Chicago, IL 60610.

Programs" and several programs planned for the upcoming 12th Section Fall Meeting, Oct. 6-10, 2004 in San Antonio, Texas. In short, we continue to try and bring our members, and the Section, current information on alternative regulatory approaches.

I hope that you will enjoy this newsletter, as well as the programs that we will be putting on. If you would like to get involved in these activities, write for the newsletter, or just have an idea as to a good topic for the committee to focus on, do not hesitate to contact me at dhirsch@law.capital.edu.

MESSAGE FROM THE EDITOR

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The success of the Clean Air Act's Acid Rain sulfur dioxide trading program provides the impetus for the developing market-based approaches for the control of greenhouse gases. However, rather than the top-down federal approach of the Acid Rain Program's trading program, the policy of greenhouse gas trading in the United States is driven by a multitude of forces that include individual states, nongovernmental initiatives such as the Chicago Climate Exchange, and other national governments, such as the European Union, the United Kingdom and Canada. This fragmented approach is primarily a result of the debate concerning the existence of climate change and its causes. Nonetheless, while the scientific debate over climate change evolves, the different approaches to greenhouse gas control provide ample opportunity for policymakers to evaluate. This issue explores various aspects of GHG trading programs. Jim Holtkamp's evaluation of the key elements for any GHG trading program provides insight for state and federal regulators that may venture down the

regulatory pathway. Patrick Esposito's examination of the opportunities that the fragmented approach to GHG control offers private practitioners is insightful for those of us who would like to play a greater role in the debate. Andrew Otis's piece on carbon dioxide trading in the European Union explains the mechanics of the trading program works and how companies should prepare for compliance with the program. Lastly, Paige Messec's analysis of state greenhouse gas reduction programs and recommendations for effective state climate polices establishes a foundation for policymakers to consider in developing state and federal climate change policies.

These articles highlight the various issues and opportunities surrounding GHG trading. I hope that you find them as insightful and informative as I have. Many thanks to the authors who took the time to make this issue possible and my apologies for the delays in publication.

GREENHOUSE GAS INVENTORY, ACCOUNTING AND REGISTRY ISSUES: THE ENABLING INFRASTRUCTURE FOR GHG EMISSION TRADING

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Emissions trading has evolved into a powerful tool to achieve compliance with air pollution requirements and to meet local, national and international emission reduction goals. Emission trading systems first emerged in the United States under the U.S. Clean Air Act and deal with certain types of emissions that contribute to ambient air pollution, interstate ozone transport and acid rain precursors. With the increasing political and legal pressures to address climate change, emissions trading has become one of the principal mechanisms to achieve targeted reductions of carbon dioxide and other greenhouse gases (GHGs).

There is no cohesive, single GHG market. GHG trading is contemplated by the Kyoto Protocol; however, the Protocol has not yet entered into force and may never become effective because the United States has renounced it and Russia continues to dither about ratification. Nonetheless, GHG emissions trades are increasingly common. The European Union, the United Kingdom, Canada and some other national governments have formal trading schemes in place administered by government authorities. In the United States, several northeastern states, led by New York, have announced a collaborative effort to establish a regional GHG market. Nongovernmental trading programs have coalesced around large corporations and other entities who wish to achieve collective GHG reductions, such as the Chicago Climate Exchange. Individual GHG trading also occurs in the absence of an

organized trading program through contractual arrangements between individual counterparties.

The viability of a GHG trading system depends on an infrastructure that assures consistency, predictability, transparency and enforceability of trades. Some of the elements of a GHG trading infrastructure have been extensively "road-tested" in the U.S. Clean Air Act trading programs. Others are unique to GHG markets.

Key GHG Trading Infrastructure Elements

An effective and robust GHG market depends on consistent, predictable rules administered by a third party with authority to promulgate rules, track deals and enforce noncompliance, a clear understanding of the nature of the commodity to be traded, mechanisms for allocating the risks inherent in dealing with GHG credits, and, of course, a market.

Credits and Allowances

Emissions trading programs fall into two general categories. *Credit* programs are characterized by the sale of credit for reductions in emissions to entities who are or will be emitting in amounts greater than legal limits. The New Source Review offset requirement of the U.S. Clean Air Act, which requires the proponent of a new major source of air emissions in an area which does not meet applicable ambient air quality standards to secure offsets in an amount greater than its projected emissions is an example of a reduction credit program. Other examples include the now-completed lead phase-down program under which refineries were required to cut back and eventually eliminate the production leaded gasoline. Refineries which reduced leaded gas production by more than the required amount could trade its "surplus" reductions with refineries which produced more than the allowed amount of leaded fuel.

The other general category of emissions trading consists of *allowance* programs, in which a cap is set on total emissions from a defined universe of sources, and allowances to emit no more than the capped emissions are allocated to the individual sources. The Acid Rain Program established by the 1990 Amendments to Clean Air Act is the prototypical "cap-and-trade" allowance program. A cap on total emissions of sulfur dioxide (SO_2) from utility power plants was set a level equal to approximately half of the historic levels. Power plants were allocated allowances to emit SO_2 in rough proportion to their share of overall power plant SO_2 emissions. Each allowance equals the right to emit one ton of SO_2 during a specified calendar year. By all accounts, the Acid Rain Program has been very successful, with emissions of SO_2 actually dropping below the cap. The principal "fixes" proposed for the program have been to lower the cap even further, with no serious proposal to eliminate allowance allocation and trading as the tool to accomplish reductions in SO_2 from power plants.

The initial GHG trades were almost exclusively credit-based, primarily because there were no legally mandated caps on GHG emissions or government-allocated allowances to emit GHGs below a cap. Most trades involved reductions in GHG emissions by one party which were sold to a party that wished to use the reductions to meet some GHG emissions limit imposed either by a government authority or established as a corporate goal.

For purposes of this article, the term "GHG credit" will include both credits and allowances.

Administering Entity

An obvious essential element of a GHG trading program is a neutral administrator. Although private entities could serve as such

an administrator, governments are best-equipped to handle the myriad functions of administering a GHG trading program. To be effective, the entity administering the GHG trading program should be responsible for:

- Defining the GHG credit to be traded.
- Establishing the appropriate baseline or baselines.
- Allocating GHG credits.
- Requiring and receiving reports of GHG emissions and/or sequestration from participants in the trading program.
- Registration of GHG credits and GHG credit transfers.
- Establishing rules for eligible participants.
- Enforcing noncompliance with those rules, including assessment of penalties and imposition of sanctions.
- Interacting consistently with other trading programs.

If the administering entity is not a governmental body, the power of the administering entity to carry out these functions is a matter of contractual arrangements between the participants. The Chicago Climate Exchange (CCX) exemplifies this type of arrangement. The CCX describes itself as "a self-regulatory exchange that administers the world's first multi-national and multi-sector marketplace for reducing and trading greenhouse gas emissions. CCX represents the first voluntary, legally-binding commitment by a cross-section of North American corporations, municipalities and other institutions to establish a rules-based market for reducing greenhouse gases."

What Constitutes a GHG Credit?

One of the most significant challenges in a GHG trading program is to define the GHG credit. U.S. Acid Rain Allowances or criteria pollutant offsets in major U.S. cities are fungible, *i.e.*, the allowances or offsets in a particular market category are identical to each other. However, a GHG credit resulting from the shutdown of an old factory may not have the same characteristics as a credit resulting from a reforestation project. The first criteria, therefore, in defining a GHG credit is that it be *measurable*, a task which is straightforward when dealing with GHG emissions from discrete industrial sources, but less so when dealing with carbon sequestration (*i.e.*, reforestation, CO_2 reinjection, etc.) or with "but for" GHG credits (*e.g.*, but for the construction of a hydro plant, there would have been a coal-fired power plant that is emitting more CO_2). In other words, the credits must represent actual emission events or non-events that are susceptible to quantification.

A GHG credit should also be *permanent*, which means that it should have a duration coterminous with the duration of the reduction obligation it is applied against. The permanent shutdown of an old factory clearly results in permanent reductions in GHG emissions; however, GHG reductions created because of the construction of a wind farm instead of a gas-fired power plant are arguably only of a duration equal to the amount of time before the gas-fired plant is actually built in order to accommodate increased demand. If a GHG credit is temporally limited, meaning that the reduction in GHGs represented by the credit will not last indefinitely, clear definitional criteria need to be established to assure that a temporally limited credit is not used for permanent reduction obligations.

Baseline

The allocation methodology should include a baseline determination. The baseline should be based on a past year to prevent "gaming" by participants. The Kyoto baseline of 1990 emissions (set in 1997 by the Protocol) is the prototypical CO_2 emission baseline. Article 3 of the Kyoto Protocol provides that Annex 1

countries (primarily the developed nations) "shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B and in accordance with the provisions of this Article, with a view to reducing their overall emissions of such gases by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012." Translated into simple terms, this means that each developed country is assigned a percentage reduction of GHG emissions below 1990 levels to equal an aggregate 5 percent reduction. The reductions contemplated by the Kyoto Protocol are in reality much greater than an aggregate 5 percent because of the growth in GHG emissions in the developed world since 1990.

Even though the Kyoto Protocol is not in force (and may never enter into force), many of the formal governmental GHG credit trading programs use the Kyoto Protocol baseline and assigned reductions.

Allocation

The formula for allocation of GHG credits should address such issues as whether to calculate emissions on an energy output or input basis and should include a wide variety of GHG sources.

If allocations are based on energy input, as is the case with the Acid Rain Program, the allocations do not encourage efficiency, *e.g.*, maximizing the amount of energy generated per BTU burned at a power plant. On the other hand, allocation of GHG credits to a variety of sources, including both power plants and manufacturing facilities, makes it very difficult to base allocations on facility outputs for purposes of the allocation. A megawatt of electricity from a power plant, for example, is difficult to compare to a ton of cement from a cement kiln in terms of units of output for GHG credit allocation purposes.

The more sources of GHGs that receive allocations, the more the resulting GHG market will reflect the actual costs of GHG mitigation activities. In addition, a large universe of sources eligible for allocation will "deepen" the GHG impacts of the trading program.

Although wind generation and hydroelectric facilities are encouraged as GHG-free sources of energy, nuclear power is excluded from many GHG trading programs because it is politically unpopular, even though it too does not result in GHG emissions. There may be very good reasons to deemphasize nuclear generation; however, if a new nuclear facility is constructed, it should be treated no differently than its hydroelectric and wind power cousins when it comes to allocation of GHG credits.

Reporting

The U.S. Department of Energy has in place a voluntary reporting system under section 1605(b) of the Energy Policy Act of 1992. However, mandatory reporting of GHG's is essential and should be done under generally accepted standards established by governmental directive. Along with the section 1605(b) standards, the World Business Council for Sustainable Development and the World Resources Institute has established the GHG Protocol Initiative, which has resulted in the GHG Initiative Accounting and Reporting Standard. The Standard consists of a module to assist companies and governments in quantifying and reporting GHG impacts from GHG reduction projects.

A model for GHG Reporting is the EPA Toxic Release Inventory or TRI program. Companies are required to report according to

well-defined criteria, and the results of the reports are publicly available. Companies who fail to report or whose reports are incomplete or nonncomforming face stiff sanctions, including civil penalties.

Registration and Banking

There should be unrestricted use of GHG credits to meet current reduction obligations. For a truly global market to emerge, national policies will need to be consistent on how credits are used to satisfy those obligations. There will also need to be a consistently high level of confidence on the national level in emissions trading as a mechanism to achieve reduction obligations.

The reductions used to support the credits should be verifiable and enforceable. Uniform protocols will need to be established, along with sanctions for defective credits. Measurement and reporting requirements are necessary to generate confidence in the system and to allow for iterative improvements.

The government's role in a transparent market should be limited to recording and verifying credits and allowances and enforcing sanctions for use of defective credits or fraudulent dealings. There should be no restrictions on the categories of market participants. Individual sources, governments, non-governmental organizations and brokers should all be included.

To the extent that a GHG credit is defined as an authorization to emit a specified amount of GHG during a given calendar year, unused GHG credits should be available to satisfy future reduction obligations. The banking of unused credits helps to assure the liquidity of the markets, and fosters the use of puts and calls and other traditional trading instruments. Concerns about "stale" credits can be mitigated by setting a time period for use of unused GHG credits or by discounting them over time. The Ozone Transport NO_x Allowance market in the northeastern United States uses "flow control" mechanisms to assure that unused NO_x allowances do not persist indefinitely.

Conclusion

There is a growing sense of inevitability in the U.S. corporate community that a mandatory GHG program will be implemented on a federal level. Notwithstanding staunch resistance to a mandatory program from the Bush administration and its congressional allies, an increasing number of states are establishing climate change programs with mandatory reduction and/or reporting requirements. Absent a dramatic reversal in that trend, the federal government will ultimately be constrained to establish a coherent national program to avoid a welter of differing and sometimes contradictory state regulatory systems. A coherent and transparent GHG credit trading program will provide a flexible and economically rational means of meeting GHG reduction goals.

12TH SECTION FALL MEETING

SAN ANTONIO, TEXAS
OCTOBER 6-10, 2004

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AGENTS OF CHANGE? HOW ATTORNEYS IN THE U.S. MAY PLAY A VITAL ROLE IN THE GHG TRADING MARKET

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From the United Nations to the Nassau County (New York) Legislature, public bodies have set efforts in motion to reduce greenhouse gas (GHG) emissions. At present, there are six GHGs recognized by international agreements – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. The disparate efforts regarding these six GHGs, some complementary, others contradictory, leave enterprises with critical choices regarding investments to meet new regulatory and voluntary targets. As regulatory regimes are put into place, they are often accompanied by GHG emissions trading programs, which add further complexities to emissions management. These market trading mechanisms are intended to allow for GHG emissions reduction and offset investments to be made when and where economically most appropriate, and, thus, not unduly burden companies and national economies.

As these trends emerge, professional service providers, including attorneys, accountants, commodity traders, engineers and emissions verifiers, among others, will likely play strong roles in the development of compliance reporting activities and market-based functions. Among these professional service providers, however, it may be attorneys that play the most crucial roles in helping to propel the developing GHG emissions management practices and their associated trading market beyond their emergent stage to an era of sustained activity. Moreover, while this may seem counter-intuitive, the more slowly developing U.S GHG emissions management and trading landscape may allow attorneys in the United States to play very strong roles in the emerging global market.

This article examines the roles for attorneys in the United States in the emerging global GHG emissions management and trading market. Prior to this assessment, however, the article provides background information on the present state of the global GHG emissions management and trading market, the types of decisions that businesses face given these developments, and the U.S. landscape and its emphasis on carbon sequestration research and development.

GHG Management Survey – Regulatory and Voluntary Regimes

A new market, and especially a market which involves a combination of compliance activities and trading, will likely be complex in its early days. In this respect, the GHG emissions management and trading market is similar to the environmental commodities markets in nitrogen oxides and sulfur dioxides that preceded it. However, the GHG emissions market, as it is global in reach and could contain a myriad of emissions offset and reduction possibilities, will clearly be more complex, and, perhaps, convoluted.

Adding to the complications of managing the investments and trades in this arena is the fact that enterprises with facilities or interests in multiple locations may be subject to different structures in different locales. In addition to the Kyoto Protocol presently being adopted or considered for adoption on a multinational-basis (and which needs only approval by Russia for enactment by ratifying countries), individual nations including Britain and Denmark have adopted trading mechanisms to allow for financially viable solutions in order to meet new emissions standards. To demonstrate the fragmentation of the regulatory approaches which makes planning difficult, the Danish and British systems allow

trading in different emissions, cover different economic sectors, and use markedly different allowance and credit-driven mechanisms. As if this was not complicated enough, both of these systems diverge from the one being developed for the European Union as a whole.

Similarly, in the United States, there have been overtures from national policymakers and business leaders that voluntary, market-based solutions offer the only realistic answer to reduce carbon dioxide emissions. The broad-based support for this vision can be evidenced by an examination of the energy and industrial players associated with the Chicago Climate Exchange, a voluntary emissions trading platform.

Further, over half of the individual states within the United States have developed or are developing strategies to reduce GHG emissions. Some are enacting their own carbon emissions regulatory measures. In most instances, these regimes fail to share commonalities with one another. For instance, Massachusetts, New Hampshire and Oregon have all mandated certain GHG emissions reductions for energy companies that differ in important respects. This lack of a common approach adds to the complexities of fashioning strategies for enterprises with facilities in multiple locales.

Decisions for Businesses

Thus, the emerging arena of GHG emissions management, and most significantly, carbon management, poses great strategic challenges to many enterprises, including energy companies, industrial businesses and public entities, among others. Inherent in designing enterprise GHG emissions management approaches are complex interplays between regulatory requirements, specific project investments, trading of emission reductions or credits, and risk management.

Clearly, decisions regarding data collection methods are difficult enough given the sheer volume of information that must be gathered, catalogued and tracked. However, the formulation of strategies to optimize an enterprise's portfolio will likely prove to be especially arduous. When the gamut of project specific investment or trading opportunities are analyzed with reference to the various regulatory and emissions trading mechanisms being implemented around the world, clear lines of connectivity may be difficult to discern. For small, local companies, multinational enterprises and public entities, alike, these regulatory structures, investment possibilities and trading options raise serious questions.

Obviously, these GHG emissions management decisions for businesses will entail the securing of advice from professional service providers to ensure that appropriate, legal and financially sound decisions are made. As the European Union moves forward with its regulatory and trading regime, which is said to be ready for implementation with or without Russia's ratification of the Kyoto Protocol, the structures of GHG emissions management schemes and trading markets appear to be coalescing for business and professional service firms with presences in these jurisdictions. In the United States, however, fragmentation of markets, regulatory structures and the need for the development of advanced legal frameworks appear to be here to stay, at least for the foreseeable future. More information on the present U.S. state of affairs is offered below.

U.S. Strategy: Voluntary Measures with an Emphasis on Carbon Sequestration

In the United States as noted, voluntary efforts to manage GHG emissions have reigned supreme. Of course, in limited instances, mandatory measures have been employed by U.S. states. Even with the surprisingly narrow

defeat of the McCain-Lieberman GHG emissions management legislation last year, its appears, for the time being, that national GHG emissions management regimes are still years away, if not just in terms of passage of legislation, then certainly in terms of implementation.

In the interim, President George W. Bush and his administration have been advancing the President's Global Climate Change Initiative, which casts as its goal an 18 percent reduction in GHG intensity, as measured against the gross domestic product, by 2012. To assist enterprises with meeting this goal, President Bush has offered two mechanisms, the Climate VISION (Voluntary Innovative Sector Initiatives: Opportunities Now) program and a continued, and perhaps revised, Voluntary Reporting of Greenhouse Gases Program. Each program, and its aspects, is briefly detailed for context. Then, federal support for these programs and their associated goals are addressed.

Climate VISION is a presidential public-private partnership initiative launched by the United States Department of Energy (USDOE) on Feb. 12, 2003, to contribute to the President's goal of reducing GHG intensity. Other agencies participating in Climate VISION include the U.S. Environmental Protection Agency (USEPA), U.S. Department of Transportation, U.S. Department of Agriculture (USDA) and U.S. Department of the Interior. To assist the Bush administration in meeting the President's goals, Climate VISION has focused on energy-intensive industries. Already, business associations representing 12 industry sectors and the Business Roundtable have become Climate VISION partners with the federal government and have issued letters of intent to meet specific targets for reducing GHG emissions intensity. These partners, which include some of the largest companies in America, represent a broad range of industry sectors: oil and gas production, transportation and refining; electricity generation; coal and mineral production and mining; manufacturing (automobiles, cement, iron and steel, magnesium, aluminum, chemicals and semiconductors); railroads; and forestry products.

Measurement of the Global Climate Change Initiative goals and the Climate VISION pledges will be accomplished through a variety of mechanisms, including utilization of the present, and perhaps a prospectively revised, Voluntary Reporting of Greenhouse Gases Program.

During the Clinton administration, the U.S. Congress established the Voluntary Reporting of Greenhouse Gases Program in order to meet United States commitments under the United Nations Framework Convention on Climate Change (UNFCCC). The program was established under Section 1605(b) of the 1992 Energy Policy Act, and serves as a mechanism for entities who have voluntarily reduced their emission levels to record their achievements, as well as communicate their ideas of action with other stakeholders in the hopes of stimulating future GHG emissions reduction efforts. The 1605(b) program is administered by the Energy Information Administration (EIA), which maintains a public database and publishes annual reports on voluntary GHG reporting. For the past decade, the voluntary 1605(b) reporting system has supported the reporting of achievements in GHG emissions reductions by U.S. companies. However, it is widely recognized that its frameworks and processes require alteration and modernization for the emerging GHG emissions marketplace.

In response, in February 2002, the Bush administration announced that an interagency working group, composed of representatives from USDOE, USDA and USEPA, had been charged to review the existing 1605(b)

program and make recommendations on enhancements to position the United States to achieve the Global Climate Change Initiative's GHG intensity goal. The interagency working group has been involved in numerous outreach efforts including soliciting input from GHG stakeholders by facilitating a series of interactive workshops and requesting public comments on suggested enhancements to the existing program. As a result, proposed revised general guidelines have been issued and proposed revised technical guidelines are forthcoming.

To support GHG emissions reduction achievements under and chronicled by the president's programs, another central element of the president's agenda is stimulating research, development, demonstration and deployment of carbon sequestration technologies and approaches. The wide-scale deployment of these technologies and techniques, which include both terrestrial and geologic applications, are a cornerstone of the president's vision. In addition, if the USDOE Office of Fossil Energy projections that the use of fossil energy for power generation will double by 2030 are correct, these technologies and approaches will be essential for U.S. GHG emissions management activities.

For reference, carbon sequestration is a promising area of scientific research in which carbon dioxide emissions are captured and permanently stored rather than being released to the atmosphere. Potential storage opportunities exist in a variety of applications. For example, you may be aware of terrestrial sequestration projects, in which carbon dioxide is permanently stored through managed forestry practices, or geologic sequestration projects, in which, for instance, carbon dioxide is stored in depleted oil and gas reservoirs or deep saline aquifers.

Presently, USDOE, though the National Energy Technology Laboratory, has contracted with seven partnerships of state agencies, universities and private companies to form a nationwide network of organizations to help determine the most viable and practical approaches for capturing and permanently storing GHGs. These regional partnerships presently involve more than 140 organizations covering 33 U.S. states, three Native American Tribal governments and two Canadian provinces.

As the work of these regional partnerships progress and carbon sequestration technologies are demonstrated in greater numbers, and, ultimately, widely deployed, the work of attorneys in the United States to support private, voluntary GHG emissions reduction activities through carbon sequestration will grow in volume and complexity.

Managing for the Future: Roles of U.S. Attorneys in the GHG Marketplace

In this emerging global and domestic GHG emissions management marketplace, attorneys will play a vital role in the development and maturation of the market. From contracts for trading of allowances and verified or certified emissions reductions, to purchases of emissions offset projects, attorneys throughout the globe will be leading the advancement of this GHG marketplace.

As a result of the advanced research, development, demonstration and deployment strategy being rolled out in the United States, attorneys in the United States will, perhaps, have the most difficult tasks of all. With the focus on carbon sequestration as a central element of the U.S. GHG emissions management strategy, U.S. attorneys, both in government and in the private sector, will likely be required to modernize applicable statutes and regulations related to both geologic and terrestrial sequestration applications. While the terrestrial sequestration regulatory and

permitting measures should be more straightforward in application, the geologic sequestration statutes and regulations could require greater revision and increased permitting filings. With the prospect of significant volumes of carbon dioxide being injected into geologic formations, laws and regulations requiring alterations and interpretations include those that govern direct carbon dioxide injection into geologic formations, enhanced hydrocarbon recovery using carbon dioxide and associated deep well injection classes.

With a need to not only structure contracts and purchases of emissions management commodities in uncertain markets, but also to develop the legal and permitting mechanisms for new breeds of emissions reduction and offset projects, such as terrestrial and geologic carbon sequestration, attorneys in the United States will likely be agents of change in the GHG emissions management and trading arena for decades to come.

MANDATORY GREENHOUSE GAS EMISSION REDUCTION REQUIREMENTS & PERMIT TRADING IN EUROPE: ASSESS YOUR RISK & OPTIMAL STRATEGY

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Introduction

On Jan. 12, 2005, approximately 12,000 installations emitting carbon dioxide in 28 European countries will, for the first time, face mandatory greenhouse gas (GHG) emission reduction requirements and will be able to trade GHG emission permits under a new European carbon dioxide control and emissions trading program (ETS). Operators of sources affected by these regulations should act now to assess their risk and develop a trading and investment strategy to optimize their position under the new trading regime.

Who Must Comply?

The ETS is broad in scope and will regulate carbon dioxide emissions from installations in the economic sectors indicated in Table I.

What Is The Schedule?

The ETS begins with a three-year "warm-up" compliance period from 2005 to 2007 and, beginning in 2008, segues to consecutive five-year compliance periods.

The 15 original European Union (EU) member states and the three European Economic Area countries (Norway, Iceland, and Liechtenstein) were required to enact implementing legislation by Dec. 31, 2003.

By March 31, 2004, participating states were required to publish National Allocation Plans (NAPs) for distributing permits to emit carbon

ENERGY	IRON AND STEEL
■ Combustion, including power, heat, and steam generation with 20 MW or more of thermal input, aggregated from all on-site alternatives ■ Mineral oil refineries	■ Ore ■ Pig iron and steel production with capacity greater than 2.5 tons per hour ■ Coke ovens
MINERALS	**OTHER**
■ Cement, over 500 tons per day using the clinker process ■ Cement, over 50 tons per day using lime or non-rotary furnace processes ■ Glass, over 50 tons per day ■ Ceramics, over 75 tons per day	■ Paper, over 20 tons per day ■ Pulp

Table I : CO_2 Emission Sources Regulated by the European Program

dioxide to installations in the covered sectors and must finalize such allocations by Oct. 1, 2004.

The 10 countries that joined the EU in 2004 were required to have the program in place upon entry into the EU.

At some time after the final allocation of permits by participating states but prior to Jan. 1, 2005, operators of installations must apply for permits to emit carbon dioxide.

Beginning on Jan. 1, 2005, no covered installation may emit carbon dioxide without a permit.

How Will The ETS Work?

Installations must apply for carbon dioxide permits to the state in which the installation is located. The application will have the describe the installation's

1) activities;
2) raw materials used;
3) sources of carbon dioxide emissions; and
4) measures planned to monitor and report emissions according to upcoming Union guidelines.

Participating states will issue one permit per ton of carbon dioxide emissions to installations for the relevant compliance period based on

the state's NAP. The total number of permits that will be allocated to an installation will be based on the installation's historic carbon dioxide emissions. Permits for the subsequent five-year compliance periods will be allocated at least one year prior to the beginning of each period. States are directed to take into account in their allocation plans the need to provide access to permits for new and expanded installations. Ultimately, however, states will allocate permits in a manner that will contribute to the reduction in total GHG that the state must make in order for the EU to comply with its commitment under the Kyoto Protocol to reduce GHG emissions 8 percent below 1990 levels by 2012.

In the warm-up period, participating states will provide 95 percent of the total permits to installations free of charge. It is presumed that participating states will auction the remaining permits, but states retain discretion regarding the method of distribution. In the first five-year compliance period beginning in 2008, participating states may provide up to 90 percent of the total number of permits free of charge.

Permits will be freely transferable. Permit holdings and transactions will be tracked both at the participating state level and at the EU level and the information will be available to the public. Installations will be required to annually report their emissions to the appropriate state according to the methods described in their permit application. By April 1 of each year, installations will be required to surrender to the participating states sufficient permits to account for their emissions of carbon dioxide in the previous calendar year. If an installation does not have sufficient permits to cover its actual emissions, the installation will have to either acquire additional permits in the market or pay a penalty and surrender additional permits to make up of the shortfall in the following year. Penalties range from €40 per ton in the warm-up period to €100 per ton in the subsequent compliance periods. In addition, the name of the installation will be published as a violator of the law.

Participating states or installations will be able to comply with European emission reduction requirements by using Emission Reduction Units (ERUs) from Joint Implementation (JI) projects and Certified Emissions Reductions (CERs) from Combined Development Mechanism (CDM) projects in non-European states that have ratified the Kyoto Protocol.

What Will The New European Carbon Dioxide Permit Market Look Like?

By any measure, the ETS market will be significant. When fully implemented, the ETS will cover an estimated 12,000 installations emitting some 1.5 billion tons of carbon dioxide annually. For the purposes of illustration, the U.S. program controlling sulfur dioxide emissions from power plants covers 3,000 units emitting approximately 8.9 million tons of sulfur dioxide. EU officials estimate that the aggregate annual compliance costs for the European program will range from €2.5 to 3 billion and that the average price for a carbon dioxide permit in 2005 could be approximately €10 per ton.

What Should Companies Do Now?

Companies that own or operate potentially covered installations should begin preparing for this new program now by taking the following steps:

1. Determine whether their installations are covered by the ETS:

   Is the installation in one of the economic sectors or categories covered by the ETS?

   Do the installation's inputs or outputs

exceed the applicable thresholds for that category?

When answering these questions, owners or operators must keep in mind that the combustion category is exceptionally broad and applies to any aggregation of boilers at an installation, except for hazardous and municipal waste installations, with a total thermal input that exceeds 20 megawatts.

2. Estimate the installation's annual carbon dioxide emissions.

3. Review the implementing legislation and NAP in the jurisdiction where the installation is located to determine the potential number of permits that may be allocated to the installation.

4. Begin gathering the information required to prepare an application to receive permits for the installation.

5. Estimate the installation's likely position in the market:

   Will the installation have excess emissions permits to sell or will it be required to reduce emissions in order to comply?

   Will the installation comply by reducing its emissions or by purchasing additional permits?

   How does the installation's position in the ETS market affect the company's expenditure plans, tax position and other financial considerations?

6. Begin to evaluate whether to invest in ERUs or CERs, either through a broker, direct investment in projects or through investment in a fund that finances such projects and distributes emissions credits to members.

What Should Companies Do That Want to Expand or Locate New Covered Installations in Europe?

The ETS will place a cap on carbon emissions from covered installations. Beginning on Jan. 1, 2005, new as well as expansions of existing covered installations in Europe will have to procure credits before they can operate. The program requires that participating states provide new or expanded covered installations access to permits, however, the program provides participating states no guidance as to how to provide such access. How states will implement this requirement is unclear. However, it is likely that, before new or expanded installations can operate, they will be required to purchase at least some permits on the open market, much like new or expanded installations of emissions of nitrogen oxides or particulate matter must purchase emissions credits in certain areas of the United States. Companies will have to incorporate such purchases into their planning for the location and timing of construction of new or expanded covered installations in Europe.

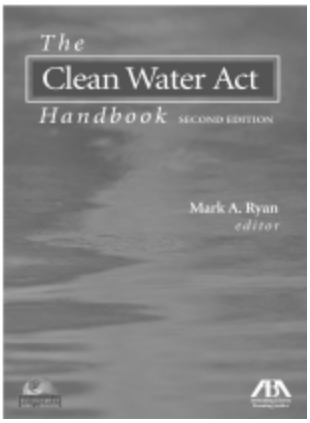
LIKE TO WRITE?

The Innovation, Management Systems and Trading Committee welcomes the participation of members who are interested in preparing this Newsletter.

If you would like to lend a hand by writing, editing or identifying authors, please contact the editor Joseph Dawley at 304/558-5929 or dawley@wvdep.org.

From ABA Publishing and The Section of Environment, Energy, and Resources

The Clean Water Act Handbook, Second Edition
Mark A. Ryan, editor



This updated guide is the definitive resource to the provisions and complexities of the federal Clean Water Act and how it continues to evolve. Recent court rulings and the change of administration have resulted in significant changes that dramatically affect practitioners working in the area. This new edition provides detailed explanations of these changes and considers the impact of recent court decisions, including the Supreme Court's decision in *SWANCC* and the Court of Appeals decisions in *American Mining Assoc*., *Talent Irrigation*, and *Forsgren*, among others.

Beginning with an overview of the law's provisions and pertinent regulation and enforcement issues, the subsequent chapters address specific issues, such as:

- NPDES permits
- Control of publicly owned treatment works
- Requirements applicable to indirect discharges
- The regulation of wetlands and the impact of recent judicial decisions
- Oil and hazardous substance spills
- Enforcement options under Section 309
- Judicial review

Chapters begin with a section on applicability and scope. Within each fully annotated chapter, clear explanations of specific statutory and regulatory provisions and court decisions applicable to the issue are presented in the order needed for full and accurate analysis – a virtual checklist of requirements and considerations. Making this new edition more useful than ever, the authors reference URL addresses for quick, up-to-the-minute information on government documents that are often difficult to locate.

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STATE GREENHOUSE GAS STANDARDS: A REVIEW AND ANALYSIS

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In the absence of federal policy on climate change, states are taking action to reduce their greenhouse gas emissions. Many state policies that have required reductions or mitigation of greenhouse gas emissions have allowed flexibility in compliance, in some cases creating a small market for greenhouse gas reductions. Such programs have been adopted in Oregon, Massachusetts, New Hampshire and Washington. While it is too early to evaluate the success of these programs, observations of the different structures used by these four states may be useful for other states considering climate policy.

Massachusetts: CO_2 Emissions Standards for Some Existing Power Plants

In April 2001, Massachusetts became the first state to set a CO_2 emissions standard for existing power plants when the Massachusetts Department of Environmental Protection (DEP) adopted a multi-pollutant rule. Rule 310 CMR 7.29, Emissions Standards for Power Plants, set new emission standards for nitrogen oxides (NO_x), sulfur dioxide (SO_2), mercury and carbon dioxide (CO_2). The rule applies to facilities that emitted more than 500 tons of SO_2 and 500 tons of NO_x during 1997, 1998 or 1999, and that include a fossil fuel-fired boiler or indirect heat exchanger that is regulated by the federal Acid Rain Program, serve a generator with a nameplate capacity of 100 megawatts or more, were permitted before Aug. 7, 1977, and had not subsequently received a nonattainment new source review or prevention of significant deterioration plan approval before Oct. 31, 1998. This definition covers six older facilities in Massachusetts.

At the time the rule was adopted, the six covered facilities accounted for 87 percent of carbon dioxide emissions from power plants in the state. Their average CO_2 emissions per megawatt-hour (MWh) were 2000 lbs CO_2/MWh between 1997 and 1999, compared to an average of 760 lbs CO_2/MWh for a new plant. The rule requires a CO_2 emission reduction of ten percent, to 1800 lbs/MWh. Facilities that repower using qualifying cleaner technology have until 2008 to achieve the standard, while facilities choosing other methods of compliance must meet the standard by 2006. The DEP expects a reduction of two to four million tons of CO_2 per year through direct reductions at the facilities or through emissions trading, depending on variations in output.

In addition to increasing energy efficiency at the plant, affected facilities may comply with the rule by using off-site reductions or sequestration to offset excess emissions, provided the DEP determines such offsite reductions or sequestration are real, surplus, verifiable, permanent and enforceable. Off-site reduction measures include carbon sequestration, shutdown of carbon dioxide sources, renewable energy generation and other projects approved by the DEP. The DEP has drafted rules for the trading of these credits, but the rules are not yet publicly available.

New Hampshire: Emissions Cap-and-Trade for Existing Power Plants

In May 2002, New Hampshire became the first state to legislatively impose a cap on carbon dioxide emissions from existing power plants. The Clean Power Act set annual caps on emissions of CO_2, SO_2 and NO_x, and will set a cap for mercury from the state's three fossil fuel burning power plants, all of which are owned by Public Service of New Hampshire (PSNH). In the case of CO_2, the law requires emissions from all affected sources to be reduced to 5,425,866 tons per year, which is

the equivalent of 1990 emission levels.

PSNH is required to comply with the caps by Jan. 1, 2007. In the case of failure to comply, a monetary penalty would be imposed. Any plant that repowers is exempt from the regulation. The legislation allows the affected sources to either reduce emissions directly or to buy emission credits through a national, regional, or other trading program acceptable to the Department of Environmental Services (DES), though there are currently no such approved trading programs. Reductions in CO_2 emissions that are achieved before the cap takes effect may be banked for future use in regional or national trading programs or to meet the emission caps established under the law. The law directed the DES Commissioner to adopt rules regarding the establishment of trading and banking programs.

To encourage energy improvement programs at PSNH facilities, the legislation authorizes DES to provide emission allowances to PSNH for expenditures made for energy efficiency, new renewable energy projects, or conservation and load management. The allowances granted are to be equivalent to the amount of such allowances that could have been purchased at market prices by the same dollar amount as the expenditure made. Such expenditures are to be consistent with the core energy efficiency programs approved by the Public Utilities Commission or other programs acceptable to the DES and should result in immediate, demonstrable energy improvements.

The annual cap of 5,425,866 tons will apply through Dec. 31, 2010. A cap for years following 2010 has not been determined, but on March 31, 2004, DES recommended a cap of 4,069,400 tons (25 percent below 1990 levels) to the legislature, contingent on the existence of an acceptable regional trading program. The legislature is committed to considering the proposed lower cap by July 1, 2005.

Oregon: Emissions Standard and Mitigation Requirement for New Power Plants

Oregon passed legislation in 1997 authorizing the Energy Facility Siting Council (Council) to consider the impact of carbon dioxide emissions when adopting standards for the siting, construction and operation of new electric generating facilities. The Council's current standard is .675 lb CO_2/kWh for base-load natural gas plants and for non-base load plants that use other fuels. The Council has not set standards for base-load plants that use other fuels, but if a non-covered plant were proposed, standards would then be adopted. Plants may meet the standard by using cogeneration, by implementing offset projects or by providing funds to a qualified organization to implement offset projects.

The law permits the Council to modify the base-load gas plant standard so that the net emissions rate remains 17 percent below the most efficient base-load gas plant operating in the United States. For other types of fossil fueled power plants, the legislation directs the Council to consider several factors when setting the standard, such as promoting facility fuel efficiency, being attainable and economically achievable, and promoting reliability of the regional electric system.

To arrive at the required amount of offsets for a base load gas plant, the Council determines the CO_2 emissions that are likely to result from the operation of the facility based on its proposed design. The Council calculates emissions by assuming a 100 percent capacity factor and a 30-year life of the plant. The Council tests the new facility once during its first year of operation to make sure that the facility does not exceed expected CO_2 emissions. After the first test, the Council does not track the actual emissions of the operating plant.

For non-base load plants, the Council determines the CO_2 emissions that are likely to result from the operation of the facility based on its proposed design and on its proposed annual operation hours. As with base load gas plants, the Council tests the new facility once during its first year of operation to verify emissions. Every five years after the plant begins operation, the plant operator must report its actual hours of operation to the Council. If actual emissions exceed the projected emissions for the five-year period, the certificate holder must offset the excess emissions. If actual emissions are less than projected for the five-year period, the Council will credit the plant operator with the "unused" emissions, which can be used to offset excess emissions in future reporting periods.

Affected applicants for new facilities may choose any of three paths to compliance, or any combination of the three. First, the applicant may meet a portion or the entire requirement through cogeneration. In this case, the Council will evaluate the likely CO_2 emissions reductions from cogeneration and will adopt site certificate conditions that guarantee that the projected emission reductions are achieved. Second, the applicant may implement offset projects directly or contract with a third party to implement them. This type of project must be approved by the Council, which must follow specific guidelines in determining the likely emission offset resulting from the project. The Council may then adopt site certificate conditions to ensure that the proposed projects are implemented, but it may not require the applicant to guarantee that the expected offsets are achieved. Third, the applicant may monetarily offset the emissions, by arranging for a qualified organization, approved by the Council, to conduct its offsets, paying the organization a specified fee per ton. The current monetary offset rate is $.85 per short ton, determined by the Council in September 2001. The Council may adjust the monetary offset rate to account for changes in the price of carbon mitigation as often as every two years, but it may not adjust it by more than 50 percent during any two-year period. The applicant must also pay a specified fee to the qualified organization to compensate it for selecting and contracting the implementation of the offsets.

Whether implemented by the applicant, a third party or a qualified organization, offset projects are not restricted by type or geographic location. In addition, no credit is allowed for offsets that have been awarded CO_2 reduction credits in another regulatory setting, nor can the certificate holder trade offsets that were provided to meet the CO_2 standard. The certificate holder must have begun its offset projects or have paid a qualified organization to implement them before beginning construction of the new facility.

The Climate Trust is an organization formed in 1997 to meet the requirements of the law, and it is the only qualified organization approved by the Council. Projects selected for the Trust's current portfolio include distributed generation, traffic signal timing, building energy efficiency, riparian reforestation, and combined heat and power. The eleven projects currently financed through the Climate Trust will reduce CO_2 at an average of about $2.00 per metric ton. Since the monetary rate set by the Council is $.85 per short ton, not a full ton of mitigation is achieved for every $.85 paid. These projects will offset about 2.5 million metric tons of CO_2 over their lifetimes of 10 to 100 years.

Washington: Emission Mitigation Requirement for New Power Plants

In March 2004, Washington passed legislation that requires new fossil fueled thermal power plants with capacities above 25 MW to provide

mitigation for 20 percent of their total projected CO_2 emissions. Depending on the proposed plant's size, applicants must obtain a site certification or order of approval from either the Energy Facility Site Evaluation Council, the Department of Ecology or air pollution control authorities before constructing a new plant. The applications for site certifications or orders of approval must now include carbon dioxide mitigation plans. Facilities applying for expansions or modifications that would increase carbon dioxide emissions by 15 percent or more must also submit carbon dioxide mitigation plans.

Three mitigation options are available to applicants: purchasing permanent carbon credits traded on a recognized trading authority or exchange, paying a third party a specified rate to provide the mitigation, or directly implementing carbon mitigation projects. Carbon mitigation projects implemented either by the applicant or a third party may include projects such as energy efficiency measures, clean and efficient transportation measures, qualified alternative energy resources, demand side management of electricity consumption and carbon sequestration programs. Projects implemented directly by the applicant may also include permanent reductions in carbon dioxide or carbon dioxide equivalents through cogeneration, process change or equipment shutdown. A combination of the three approaches is also permitted.

While mitigation projects implemented directly by the applicant must be approved and monitored by the appropriate permitting authority, projects implemented by an independent organization designated by the Council as "qualified" do not have to be approved. The Council is directed to maintain a list of qualified organizations. Qualified organizations must have proven experience in emissions mitigation activities and demonstrated ability to carry out their activities. They must permit the Council to inspect plans, operation and compliance activities of the organization, as well as file biennial reports with the appropriate authority. The legislation specifies an initial rate of $1.60 per ton mitigated, and gives authority to the Council to adjust the rate biennially, provided that the rate is not adjusted more than 50 percent up or down at one time.

The legislation stipulates that in the event of federal regulation of fossil fueled generating facilities, the Council may rule the federal regulation to be equivalent and a replacement for the law enacted by Washington. The legislation also directs the Council, Department and authorities to draft rules to implement the law, and rulemaking has begun.

Analysis of Policies

Some parallels can be drawn between the cases examined here. Each state's program, though affecting only a limited type of facilities, attempts to extend involvement to non-covered sectors by allowing flexible means of compliance. New Hampshire and Massachusetts cover only existing fossil fueled power plants, while Washington and Oregon cover only new plants, but each attempts to take advantage of cost-effective opportunities in other sectors by allowing either outright trading of emissions or by allowing affected facilities to contract with other parties to make reductions on their behalf.

In three of the above cases, climate change was addressed in the context of a larger issue. In Oregon, the carbon mitigation requirement was adopted during energy facility siting reform. In Massachusetts and New Hampshire, the CO_2 standards were agreed upon as part of strategies to reduce traditional air pollutant emissions from power plants. As these cases show, it is often possible to take climate into account when addressing other issues.

Similarly, climate change policy in these cases provides additional benefits not directly related to climate change. In Oregon, greenhouse gas mitigation projects are reducing traffic congestion, developing renewable electricity resources and preserving forest land. Projects carried out through Washington's mitigation program can be expected to deliver similar benefits. Delivery of multiple benefits is a critical to climate change policy; the more goals that can be achieved with a single policy, the easier it is to build consensus.

Crafting Effective State Climate Policies

The four states examined above have all taken important steps in addressing climate change. While the reductions from each program represent only part of the necessary reductions, the programs send a message to business and to the federal government that states are serious about climate change. These programs have established a testing ground for the trading of greenhouse gas credits and reductions. As policy experiments, lessons for future programs will be derived from them.

An ideal state greenhouse gas program, however, like an ideal national or international policy, would be as comprehensive as possible, covering all gases and sectors. Including all gases and sectors would not only reduce emissions further but would also expand opportunities for cost-effective reductions. The costs of reducing emissions can vary widely between individual greenhouse gases and sectors, and thus there are large potential gains from trade. A comprehensive program is capable of delivering the greatest environmental benefits at the lowest cost. When a comprehensive program, however, would be logistically and politically difficult for a state to adopt on its own, it is important that states take steps to build the framework that can someday support a more comprehensive program.

One step that states can take to position themselves for more comprehensive climate policy is implementing mandatory reporting of greenhouse gases. New Jersey and Wisconsin have already implemented reporting requirements, and Maine is currently drafting similar rules. Requiring reporting of greenhouse gases allows a state to create a reliable inventory of emission sources, which can provide information when crafting future policies. It also causes companies to examine their emissions, and often this leads to the discovery of reduction opportunities. Reporting can also help companies establish their baselines, which may be an advantage to them in the event of eventual regulation. Mandatory reporting can be implemented at very little cost, as the sources of greenhouse gases generally have reporting requirements for other pollutants already, and so the necessary infrastructure is already in place.

A program initially covering a limited number of sources and gases can be designed to facilitate future expansion. The structures of the programs examined here determine the difficulty of future expansion the programs to cover other sources or sectors. Oregon and Washington both incorporated the CO_2 mitigation requirements into their energy facility siting process, and so expansion to include existing power plants or sources from other sectors would have to be accomplished through an alternative path, though additional sources could also be governed by a system of emission standards and offset requirements. Massachusetts could expand its regulation to cover new power plants by setting a different emissions rate for the new facilities, and rates or a cap could be established for other sources as well. New Hampshire could also easily expand its program by modifying its cap to cover new energy facilities and other types of sources.

Programs like those in Massachusetts and New Hampshire can also set the stage for

expansion by allowing uncovered entities to "opt-in" from the start of the program. To opt-in, an uncovered facility would negotiate a cap or a rate with the regulatory agency and would then be required to meet that standard. Reducing emissions below the required level would earn emission credits that could be sold to other covered entities.

Climate change policy in the states may need to develop incrementally. While a program covering all gases and sectors may not be a state's first step into climate policy, many steps can be taken to move toward a more broad and inclusive policy, such as first laying the groundwork for later regulation by tracking emission information, choosing a regulatory structure with expansion in mind, and allowing the broadest participation possible with provisions for trading and opt-ins. States are already taking important action to address climate change, and measures like these can ensure that they continue to move toward comprehensive climate change policy.

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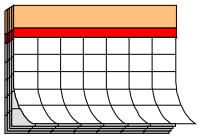

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