INSIDE THE MINDS

The Legal Impact of Climate Change

Leading Lawyers on Preparing for New Environmental Legislation, Assessing Green Programs for Clients, and Working with Government Agencies on Climate Change Issues

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Climate Change and Sustainable Development: Business Challenges and Opportunities and the Role of Lawyers in Meeting Them

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Introduction

In the summer of 2007, lawyers at my firm, Wiggin and Dana LLP, formed our Climate Change and Sustainable Development group. This chapter discusses the need our community of active and potential clients has for the services provided by this practice group. This chapter cannot discuss in detail the immense range of topics comprehended by the subject of climate change and sustainable development, but, as leader of our Climate Change and Sustainable Development group, I hope to be able to convey both the importance and the diversity of the subject matter and the important role for attorneys in meeting the challenges that lie ahead.

The overwhelming scientific record demonstrates that human activity since the beginning of the industrial age, and particularly within the last several years, has resulted in climate change all over the planet. The world is getting warmer, and, unless checked, global warming will result in, among other dire consequences, melting polar ice caps; rising sea levels that could flood low-lying coastal areas; changes to weather and climate patterns resulting in more frequent and intense hurricanes, tornadoes, and cyclones; drought in some portions of the world; and changing patterns of agriculture. We can find ample evidence of this phenomenon from various sources. For an excellent example, see the Intergovernmental Panel on Climate Change (IPCC) "Summary for Policy Makers," November 2007, http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf. The IPCC is a scientific intergovernmental body set up by the World Meteorological Organization and by the United Nations Environment Program. IPCC reports have supported efforts by United Nations Framework Convention on Climate Change (UNFCCC), which underlie the Kyoto Protocol, discussed below.

No area of our economy—manufacturing, resource production, real estate, construction, transportation, technology, or investment and finance—can fully avoid confronting the newly emerging regulatory and business initiatives on climate change and sustainable development. These developments have affected almost every area of law practice. Although we cannot predict the full scope of the new paradigm that will emerge, it will certainly include efforts to ameliorate climate change by reducing pollution, developing new technologies, and changing corporate practices. These efforts will, in turn, create both new opportunities and new challenges for public and private entities, as well as the law firms that represent them.

This chapter deals with how these developments in climate change and its associated subject of sustainable development affect the practice of law. Among the areas of practice most immediately affected are those that deal with the imposition of regulatory/legislative or otherwise mandatory, or the adoption of voluntary, environmentally desirable business practices, the business opportunities associated with climate change and sustainable development, and litigation arising in connection with these trends.

Regulatory Compliance

International, Federal, Regional, and State Cap and Trade Regimes

The Kyoto Protocol is a form of treaty under the International Framework Convention on Climate Change. Agreed to at a Conference of Parties in December 1997, with an effective date of November 2007, it aims to reduce greenhouse gases that cause climate change. As of the end of 2007, 175 parties, not including the United States, had ratified the protocol. Of these, thirty-six developed countries (plus the European Union as a party in its own right) agreed to reduce greenhouse gas emissions to the levels specified for each of them in the treaty (representing more than 61.6 percent of emissions from industrialized countries). One hundred thirty-seven developing countries have also ratified the protocol, including Brazil, China, and India, but have no obligation beyond monitoring and reporting emissions. The protocol aims to limit the following greenhouse gases:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous Oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs), and
- Sulfur hexafluoride (SF_6)

The Kyoto Protocol requires participating industrialized nations to reduce their greenhouse gas emissions to approximately 10 percent below 1990 levels on a five-year average basis measured between 2008 and 2012. Participants that do not meet their reduction targets, however, can purchase "tradable allowances" from nations whose greenhouse gas emissions are within their cap. To meet its Kyoto Protocol commitments on an aggregate basis, the European Union in 2003 implemented its Emissions Trading Scheme, under which each member country sets a cap for each of its covered facilities. Each facility, in turn, can either reduce its greenhouse gas emissions to the specified level or purchase allowances in the emissions allowance market, which includes non-EU trading systems. Because the United States did not sign the Kyoto Protocol, its emission limitations do not apply to this country as a matter of law.

As will be discussed later in this chapter, enterprising U.S. businesses may take advantage of the Protocol's emission trading mechanisms. Further, in the United States, local, state, regional, and federal authorities all are in the course of imposing restrictions on the amount of carbon dioxide and other greenhouse gases utilities and other industries may emit. This regulatory process is difficult both as a legal and a technical matter. The science is sophisticated, and there is an arguable lack of consensus in the scientific community as to what constitutes the appropriate measures to address climate change.

Greenhouse gas emissions emanate from, among other sources, coal-fired electric utilities, industrial plants, and "mobile sources," such as cars, planes, trucks, boats, and airplanes. One would reasonably anticipate that government would try to use current mechanisms, such as the federal Clean Air Act, 42 U.S.C. §§ 7401 *et seq.*, to regulate and reduce those emissions. Relying on some of the reasons described above and the further rationale that the Clean Air Act governs the emission of "pollutants" and carbon dioxide is not a pollutant, the U.S. Environmental Protection Agency had declined to regulate the emission of carbon dioxide and other greenhouse gases.

In *Commonwealth of Massachusetts et al. v. Environmental Protection Agency*, 549 U.S. 497 (2007), however, the U.S. Supreme Court held that the Environmental Protection Agency violated the Clean Air Act by improperly declining to regulate new-vehicle emissions standards to control the pollutants that scientists say contribute to global warming. That case dates from 1999, when the International Center for Technology Assessment and other groups petitioned the EPA to set standards for greenhouse gas emissions for new vehicles. Four years later, the EPA declined, claiming that it lacked authority to regulate greenhouse gases and that, even if it did, it might not choose to do so because of "numerous areas of scientific uncertainty" about the causes and effects of global warming. Massachusetts, along with other states and cities, then sued the EPA.

The Supreme Court's decision, along with a rising tide of legislation at all levels, will inevitably result in the creation of an even more complex regulatory scheme that will require the work of lawyers to advise clients on compliance. The situation today is reminiscent of legislative and regulatory activity after the infamous Love Canal hazardous waste incident in the late 1970s, which generated enactment of the Comprehensive Environmental Response, Compensation, Liability Act (CERCLA, or "Superfund"), 42 U.S.C. §§ 9601 *et seq*., and similar state laws throughout the country. This legislative activity in turn resulted in massive litigation over the cleanup of hazardous waste sites, spawning a new legal industry of Superfund lawyers and environmental consultants. A similar phenomenon appears to be emerging with climate change.

The Climate Security Act (S. 2191), introduced by sponsoring Senators Joseph Lieberman (I/D-CT) and John Warner (R-VA) (the "Lieberman-Warner Bill"), which died in the Senate in early 2008 because of a failure to overcome a filibuster, would have imposed a declining cap on greenhouse gas emissions resulting in reductions to 10 percent below 2005 levels by 2020 and 70 percent below 2005 levels by 2050, and would have covered roughly 80 percent of U.S. emissions. This would have included emission reductions from the electric power, transportation, and industry sectors. The act also would have established a board similar to the Federal Reserve called the Climate Change Credit Corporation. That board would auction a portion of the emission allowances the proceeds from which would be used to promote new energy and emission-reducing technologies to ease impacts of climate change on the most affected communities, wildlife, and waterways.

Although the Lieberman-Warner Bill had an arguably credible 2050 target, it would have created a massive bureaucracy with potential costs to the economy of more than $1 trillion; hence, the fierce opposition to the bill, coming at a time of national economic doldrums and soaring energy prices, was both understandable and anticipated.

Despite the failure to enact the bill, Barack Obama supports some form of climate change and energy legislation that will share elements of Lieberman-Warner, and it is highly likely that Congress will soon enact some form of such comprehensive federal legislation. Further, even though Congress has not yet enacted comprehensive climate change legislation, it has passed piecemeal efforts at meeting the challenges posed by the emission of greenhouse gases. For example, the late 2007 Omnibus Spending Bill included a provision that requires the U.S. Environmental Protection Agency to issue greenhouse gas reporting final rules by June 26, 2009. These rules will probably influence the reporting requirements under any mandatory greenhouse reduction program that Congress eventually enacts.

Meanwhile, both regional associations of states and individual states on their own have acted to fill the void left by federal inaction. The Regional Greenhouse Gas Initiative (RGGI), for example, is a cooperative effort by Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Vermont, and Rhode Island (with Pennsylvania on "observer" status) to reduce greenhouse gas emissions from power plants in the region through a flexible, market-based, cap-and-trade program. RGGI states have established a budget of greenhouse gas emissions, limited to carbon dioxide emissions from fossil fuel-fired electronic generating plants of 25 megawatts or more.

Commencing in 2009, RGGI puts a limit on carbon dioxide emissions from power plants to existing levels between 2009 and 2015, with emissions to be reduced by 10 percent by 2019. Utilities must purchase "allowances," essentially buying the right to emit CO_2. Each RGGI state issues its own regulations. Each utility within an RGGI state must estimate its projected CO_2 emissions and obtain enough emission credits, or allowances, to match or exceed those projections. If the utility emits more CO_2 than it has allowances, it will be severely penalized. Each state allocates a certain number of emissions credits by grant or open market auction. Emissions credits may be traded within the RGGI and with other states that have agreed to adopt RGGI policies.

As under the Kyoto Protocol, RGGI allows companies to create credits by undertaking offset projects that fall into the categories of landfill methane capture and combustion, sulfur hexafluoride (SF_6) capture and recycling at electricity transmission facilities, carbon sequestration through forestation (i.e., planting trees), fossil fuel end-use efficiency, and methane capture from agricultural operations. Offset projects must be located within RGGI states or states with comparable cap and trade programs, or states that sign an Offsets Memorandum of Understanding.

Similar to RGGI, the Western Climate Initiative (WCI), comprising Arizona, California, Montana, New Mexico, Oregon, Utah, and Washington, and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec, is developing strategies to reduce greenhouse gases in the region. Broader in its range of covered sectors, WCI restrictions will apply to the activities of stationary industrial sources, energy supply, residential, commercial, industrial, transportation, waste management, agriculture, and forestry. The Midwestern Regional Greenhouse Gas Reduction Accord (Accord) is also developing a cap-and-trade mechanism for reducing greenhouse gas emissions from both utilities and industrial facilities located in the member states of Illinois, Iowa, Kansas, Michigan, Minnesota, and Wisconsin and the Canadian member province Manitoba.

On the state side, California has enacted its California Global Warming Solutions Act, Assembly Bill 32, which began a system of measuring greenhouse gas emissions and carbon footprints and reducing carbon emissions. The California legislature also adopted The Greenhouse Gas Emissions Performance Standard Act, Senate Bill 1368, which makes California the first state in the nation to ensure that electric utilities' new commitments to power plants meet a minimum performance level for global warming pollution. Connecticut, New Jersey, Hawaii, and Washington have also enacted legislation imposing mandatory caps on greenhouse gas emissions. The Connecticut legislation, Public Act 08-98, requires emissions in the state to be 10 percent below 1990 levels by 2020, and 80 percent below 2001 levels by 2050. Further, to prevent and ameliorate the adverse effects of climate change, both California and Connecticut have either enacted laws or promulgated rules that require higher energy efficiency in building standards in both public and private buildings.

Local Government Initiatives

Local governments also play a central role in efforts to address climate change. For instance, local governments have taken the lead in implementing innovative projects that reduce greenhouse gas emissions, including operating hybrid municipal fleets, mandating the construction of energy-efficient buildings, engaging in environmentally preferred purchasing policies, and implementing local land-use and transportation initiatives to reduce the use of automobiles. As the first responders to such effects of climate change as increased extreme weather events, local governments have begun to take measures to anticipate and ameliorate the impacts of rising sea levels, increased flooding, droughts, and other natural disasters that threaten local infrastructure and the health and safety of communities. These efforts are reflected in local zoning, land-use, and public-health ordinances that govern, among other things, where, to what purpose, and how structures may be built in a community.

It will be the task of lawyers dealing with climate change issues to help reconcile potentially conflicting aspects of these international, federal, regional, state, and local programs and to lead their clients through the complex maze that governments are now weaving for them to navigate.

Mandatory Corporate Reporting

Climate change also has an effect on the advice lawyers must provide to public companies with regard to their disclosure and reporting obligations. Because Securities and Exchange Commission (SEC) regulations were largely adopted prior to the current recognition of climate change, and also because there may be competing interpretations as to the obligations companies have to their investors when it comes to transparency and disclosure of climate change-related issues, public companies need legal guidance in this area. Existing SEC rules arguably require some level of disclosure, but of what, how much, and when are open to debate.

Three existing SEC rules, Items 101, 103, and 303, likely have a bearing on reporting companies' disclosures under the Securities Exchange Act of 1934 (the Exchange Act). Lawyers will need to advise their clients as to how each of them may require some level of climate change-related disclosure.

Item 101(Description of a Business) requires the disclosure of "material changes in the mode of conducting the business," a requirement that may implicate changes made by companies in response to climate change-related issues, whether economic or otherwise, and "material areas which may be peculiar to the registrant's business," which may affect disclosures made in industries particularly affected by climate change. Of particular note, Item 101(c)(1)(xii) requires the disclosure of material costs of compliance with environmental regulations. Regardless of the success or failure of congressional greenhouse gas reduction schemes, regional initiatives such as RGGI and the Western Climate Initiative, both of which will establish cap-and-trade programs, will immediately create a need for climate change disclosure under Item 101 for companies with operations in those jurisdictions. Other initiatives, whether global in scope (for example, companies with operations in Kyoto Protocol nations) or local (for example, California Assembly Bill 32), also create reportable compliance costs.

Item 103 (Legal Proceedings) requires that companies "describe any material pending legal proceedings" to which they are a party. Although climate change litigation has not yet embroiled public companies to a large extent, Item 103 makes it clear that actions by government authorities, including foreign governments, pursuant to environmental protection provisions, will not be considered "ordinary routine litigation incidental to the business" that would be exempt from disclosure requirements. Any such action must be disclosed if it is "material" and involves a claim for money damages or "monetary sanctions, capital expenditures, deferred charges or charges to income" that, together with all other proceedings involving the same legal and factual issues, exceeds 10 percent of the assets of the registrant and its subsidiaries.

Item 303 (Management Discussion and Analysis, or MD&A) requires a discussion of information that the company "believes to be necessary to an understanding of its financial condition, changes in financial condition and results of operations," and "known trends or uncertainties" that can be expected to have a material impact on revenue or operations. As with Item 101, climate change regulation is one likely source of disclosure under Item 303: previous SEC guidance has indicated that the impact of "proposed or implemented" laws or regulations is required under Item 303. And, as noted below, pending federal legislation would deem climate change a "known trend," squarely forcing companies to engage in a discussion of the impact of climate change on revenue and operations.

In 2008, Congress considered a half-dozen legislative proposals to limit greenhouse gases, two of which, the Global Warming Pollution Reduction Act (S.309) and the Global Warming Reduction Act of 2007 (S.485), also propose to expand disclosure requirements under the Exchange Act by requiring corporations to disclose the risks associated with climate change. Both would require the SEC to promulgate regulations mandating that issuers of securities inform investors of the company's financial exposure due to its net global warming pollution emissions and the potential economic impact that global warming may have on the company's interests.

The enactment of either bill would alter current regulations by expressly requiring corporate disclosure of climate change risks—removing current ambiguities, but mandating heightened disclosure. These bills have not made significant progress in the legislative process; they were both referred to the appropriate Senate committees with no further action having been taken by the date of this writing. While their fate remains uncertain, given the support of both presidential candidates for comprehensive climate change legislation, one cannot dismiss the likelihood that they or similar bills will be enacted. Moreover, the new federal greenhouse gas reporting regulations discussed above, scheduled to be published in final form in June 2009, will clearly affect public company shareholder disclosure obligations.

Unwilling to wait on a slow and uncertain legislative process, investors and public officials took the cause of climate change disclosure directly to the SEC in October 2007 and again in 2008. Twenty-two petitioners, including the investor coalition Ceres, environmental advocacy group Friends of the Earth, pension giant the California Public Employees' Retirement System, and the representatives of eleven states, filed a petition with the SEC requesting that the SEC issue guidelines requiring disclosure of the impact of climate change on a company. Such disclosure, the petition argues, is already required under existing rules, but because corporate disclosure has "lag[ged] behind" the current understanding of the threat of climate change, investors have "little or in some cases no useful information about corporate exposure to these risks." The petition not only garnered headlines, but also indicated that the disclosure of climate change-related effects on corporate affairs might not wait until Congress acts.

Even without congressional action or other change in SEC rulemaking, lawyers advising companies that have disclosure obligations must carefully consider possible climate change-related effects that may require public disclosure in their clients' 10-Ks, 10-Qs, and 8-Ks. Investors will likely increasingly seek such information, and regulatory agencies will likely follow suit in response to investor demand.

Business and Real Estate Transactions

Building and Manufacturing Practices

A surprisingly large amount of greenhouse gas emissions emanate from the "built environment," i.e., everything from a single residence to a huge office building or a large shopping center. According to a November 2007 article published by the RREEF Research Foundation, buildings account for 39 percent of the nation's primary energy use, 70 percent of its electricity consumption, 30 percent of raw materials use, and 30 percent of greenhouse gas emissions. Although the carbon cap-and-trade systems of RGGI and similar programs for climate change do not explicitly apply to real estate development, as a practical matter the real estate industry has responded positively to pressure for "greening," and lawyers have taken important roles in advising their clients how to do so.

The momentum for "greening" real estate development has steadily grown for almost a decade. In the initial stages of the green building movement, public and corporate sector entities—rather than real estate owners, developers, and investors—took the lead. These public and corporate entities, which consume large areas of office space, frequently constitute either owner-users or single tenants who are better situated to capture the benefits of green development than the owners of smaller or multi-tenanted properties. Traditional property owners frequently operate on a "net-net basis," meaning that the tenant bears the burden of taxes and utility costs. Hence the tenant, rather than the owner, reaps the benefit of energy efficiency. Further, these larger-space users have more immediate sensitivity to increases in worker productivity that accompany green development.

Today, however, the dynamics have substantially changed, although the public and corporate sectors continue to dominate the demand for and construction of green buildings. Factors such as tenant demand, governmental mandates, corporate accountability, socially conscious investment vehicles, and financial pressure exerted by traditional capital providers (both equity and debt) have resulted in a "greening" trend that will redefine Class A office space. Market incentives for more green development include evidence of energy savings that average 30 percent less than conventional buildings, amounting to an annual savings of $135,000 for a typical 200,000-square-foot building. Already in New York City, the market does not recognize a new building as Class A space unless it meets a "green standard."

Larger problems confront renovation and rehabilitation to green standards, which raise issues of cost and feasibility that do not confront new construction, and any mandatory green revision may raise insurmountable problems that may result in legal battles. The costs and net benefits of renovating existing buildings to green standards are uncertain because the extreme diversity of the standing stock (e.g., age, condition, quality), and the difficulty of retaining historical features may frequently not allow renewal, rehabilitation, or historic preservation to co-exist with green upgrades. Without some external incentive, such as expedited permitting or government subsidy to either developer or tenant (via tax break or otherwise), the market is not likely to favor green renovation, at least until the capital expense savings resulting from the renovation meet or exceed the renovation costs. Green upgrade may also have to give way to historic preservation in appropriate circumstances. Programs to compel all renovation to meet government-imposed green standards may thus result in the absence of renovation and a deteriorating, less energy-efficient building stock, or in litigation.

The creation and acceptance of national standards, which have been adopted for the most part on a voluntary basis, have helped move the ball forward for green development of commercial and industrial office space. These standards include the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) rating system, the Green Globes USA design program of the U.S. Green Building Initiative, and the energy standards set forth in the American Society of Heating, Ventilating, and Air Conditioning

Engineers (ASHRAE) Standard 90.1. These standards all set uniform goals that commit discussion of these issues to a common vocabulary.

The LEED standard, for example, stresses energy efficiency, but also includes sensitive land use, conservation of natural resources, and prudent but comfortable indoor conditions. The LEED program has separate levels (certification, silver, gold, and platinum) and different standards that apply to new construction, renovation, and interiors. More than sixty-five local governments in the United States have made a commitment to LEED standards in building construction, while others have trimmed the entitlement process and offered tax credits to spur green development. As referred to above, both California and Connecticut have taken measures to have their state building codes require use of the LEED standard in both public and commercial buildings.

This trend in green real estate development extends also to the realm of affordable housing. Government agencies that provide financial and other types of incentives and assistance to affordable housing developers are increasingly incorporating “green building” standards, often developed by the private sector, into their programs and regulations. These standards generally incorporate specific construction, rehabilitation, and outfitting methods and/or materials intended to reduce a building’s energy use and environmental impact. Just as “green” building requires specialized expertise in construction, energy usage, and engineering, financing “green” projects requires an understanding of the various incentive programs and the regulatory framework.

In addition to issues of financing, the green-building business needs lawyers for negotiation and crafting of contracts among owners, developers, builders, architects, and suppliers to meet its demanding criteria. Lawyers are also needed to address potential liabilities of parties that promise to meet those criteria, which in turn affect their ability to obtain insurance, the cost of that insurance, and the liability the insurers must consider in crafting policy terms.

Greening Existing Businesses and Products

A wide range of businesses and other organizations finds it valuable for the public, their customers, clients, employees, and government agencies to conceive of them, their products, and their services as promoting sustainable development and reacting positively to climate change—i.e., acting "green." One prominent example is BP, whose acronym originally stood for British Petroleum. BP doubtlessly remains a huge global petrochemical company, but in a recent advertising campaign, it held out the letters "B" and "P" to mean "Beyond Petroleum," committing itself to "generating low carbon power."

Moving from energy to real estate, CB Richard Ellis (CBRE), the world's largest commercial real estate services company, manages 1.7 billion square feet of building space. The company has adopted a goal to become carbon-neutral by 2010 at the more than 5 million square feet it occupies worldwide through a combination of energy savings, more efficient space utilization, carbon emissions reductions, and, if necessary, investments in carbon offsets.

As a final example, one popular publication that evaluates U.S. colleges has adopted a green rating for colleges since it found that 63 percent of college applicants surveyed said they would value having information about a college's commitment to the environment and that such data could affect their choice to apply to or attend a school.

Each of these examples, and hundreds more will generate revisions in strategic planning, allocation of resources, and other important business structures that will require lawyer involvement.

On a cautionary note, however, the growing number of green consumers searching for products that are "organic," recyclable, energy-efficient, or otherwise helpful in addressing climate change serves as a temptation for exaggerated marketing claims. A business, college, health care institution, or any other entity that desires to be rated highly on its green efforts should resist the temptation to overstate its claims of "greenness." Such overblown claims are covered by federal and state consumer protection and fair advertising laws. The Federal Trade Commission (FTC), for example, has guidance for enforcement of the FTC Act, in the form of its Green Guides, which it is currently in the process of updating from its 1992 version. Although the Green Guides, found at 15 C.F.R. Part 260, do not constitute enforceable regulations, they suggest how the FTC will exercise its discretion to prosecute misleading "green" claims. The FTC has announced that in revising its Green Guides, it will consider the marketing of carbon offsets and renewable energy certificates, such as the credit/allowance financial devices available under RGGI and other carbon cap-and-trade systems. State consumer laws, such as the Connecticut Unfair Trade Practices Act, Conn. Gen. Stat. §§ 41-110(a) *et seq.*, may also apply. This is an area for lawyer vetting of claims.

Due Diligence Reviews

New business and real estate projects should include identification of how climate change and sustainable development issues might affect them. Whereas several years ago, so-called environmental due diligence on a project might have been discrete, limited to traditional concerns with regard to pollution issues in relevant business operations and real estate holdings and uses, that review now has expanded to exploring challenges presented by climate change issues. These include inquiries as to whether a product manufactured or service rendered by a "target" company will suffer from the impact on new climate change regulatory controls.

For example, will the effect of laws and regulations affecting climate change suggest a long-term good future or bad future? If a company's operational methodologies require the production or the use of greenhouse gases, it may be a less desirable acquisition. On the other hand, such inquiries may establish that a target entity can serve as part of the climate change solution, rather than part of the problem, such as in efficient use of land and energy. Similarly, the development of "brownfield" properties (those with real or perceived contamination and not currently being put to their highest and best uses) may find favor because they utilize current in-fill/urban resources, do not require resource-intensive new infrastructure development, and represent recycling of useful yet underutilized properties. Such brownfield properties may also be entitled to favored tax treatment and potentially be eligible for public funding. *See, e.g.*, B. Trilling and S. Siegel, *Brownfield Development in Connecticut, Overcoming the Legal and Financial Obstacles*, 26 Quinnipiac Law Review 919, Fall 2008.

Climate change issues that arise during due diligence exercises generally focus on compliance costs. The decision of whether to purchase or expand a business or to buy real estate that involves buildings, the redevelopment of which will require adherence to stricter more environmentally friendly and energy-efficient code requirements, will be accordingly chilled or encouraged. Discoveries made during diligence activities influence and often determine the course of negotiations, the language of business agreements, and the allocation of liability with regard to issues that arise during the diligence period.

New Markets, Products, and Opportunities

Taking the Lieberman-Warner Bill as an example, government policy makers have set a goal of reducing our greenhouse gas emissions to 70 percent below 2005 levels by the year 2050. Achieving this or even a more modest goal will require massive changes in patterns of energy consumption. Our current use of alternative power sources, such as nuclear, biomass, geothermal, solar, wind, and wave, constitutes about 5 percent to 6 percent of our total energy. We are quite dependent on fossil fuels for everything else, and we just do not have the time to wait for these technologies to develop. Nonetheless, we can prudently anticipate massive expenditures and incentives for alternative sources of energy. Business opportunities will abound in this area, and so, too, will the need for legal services to support them.

Climate-friendly exploitation of natural resources is already creating interesting business opportunities. Various pieces of federal legislation have been introduced (*e.g.,* S. 1370, the Clean Energy Investment Assurance Act of 2007; S. 2242, the Heartland, Habitat, Harvest, and Horticulture Act of 2007; and S. 2149, the Coal Fuels and Industrial Gasification Demonstration and Development Act of 2007) to provide tax credits for energy systems that will address climate change and reduce our dependency on fossil fuel, while additional calls have been made for Congress to extend investment tax credits for renewable energy sources. In July 2008, Pennsylvania Governor Ed Rendell signed his state's Alternative Energy Investment Act (House Bill No. 1), which establishes a $650 million fund to support programs designed to increase the development and use of alternative and renewable energy, improve energy efficiency, and reduce energy consumption. Legal advice will be needed to take advantage of the incentives the act creates, as well as for businesses requiring legal tax advice, and to use other incentive programs.

For example, a client developer recently came to us with an idea about undertaking a project in Latin America, where the proposed company would purchase methane gas that was currently being flared off by a landfill. The client intended to purchase property next to the landfill, build a small electric generating station, and then sell the energy it produced to the national utility. The project in itself would not lose money, but it would not throw off on its own the kind of return that would ordinarily attract investor interest. The country in which the plant would be located, however, was a signatory to the Kyoto Protocol, which made it possible for such a project to earn emission reduction credits, the value of which dwarfed the projected earnings of the energy sales. The project would earn credits under the Kyoto Protocol, first for reducing methane gas emissions from the landfill, then additional credits for selling clean electrical product to the national utility, which would have displaced electricity generated by a coal-fired power plant. The company could bank or sell the credits and make itself an attractive investment. As part of the package, to make the project attractive to the local authorities, the client also had a plan to purchase and redevelop properties in the area. The various legal disciplines involved in this project included environmental, energy, real estate, finance, tax, corporate, capital formation, and international law.

Additional opportunities arise from the need for the clean use of coal. That fossil fuel constitutes both a pervasive problem and an attractive business opportunity. As noted above, our current use of non-fossil fuel sources makes up a miniscule portion of our total energy output. Various governmental incentives, including tax credits, government grants, and government-backed insurance programs, are likely to encourage the use of clean coal technologies, while legislation continues to punish the use of “dirty fuels” by imposing financial penalties on entities that do not reduce their emissions. This creates demand for the creation and expansion of businesses aimed to help coal burn cleaner and more efficiently, such as more productive coal scrubber technologies and systems for the capture and sequestration of carbon (CCS) in which carbon dioxide that would otherwise disperse in the air is diverted to deep underground chambers.

Thus, while new local, state, regional, and federal restrictions on carbon dioxide and other greenhouse gas emissions create work for lawyers on compliance issues, they also result in the need for legal services in advising clients on exploiting the business opportunities that arise in response to the regulatory schemes. The emerging new market in the trading of emission reduction credits serves as a good example. Emission credits may be sold like any other financial instrument, and new vehicles are being developed to trade these, such as in Europe under the Kyoto Protocol, and in the United States under mandatory schemes like RGGI and voluntary emission reduction allowances that are sold by the Chicago Board of Trade. Lawyers are required for the creation of business entities, protecting the intellectual property underlying the technical innovations that give rise to the new businesses, structuring contracts for trading, and meeting the regulatory requirements that govern the trading systems.

Litigation and Insurance

Global warming may result in the melting of ice caps that will raise sea levels. Some dire predictions project that an increase of only several inches to the current level of Long Island Sound may destroy the entire sewer infrastructure of communities along the shore. An event like this would result in potentially billions of dollars in insurance claims and litigation. Such a result of climate change could dwarf the insurance and litigation consequences of Hurricane Katrina—which some claimants and trial lawyers also attributed to the effects of climate change.

On a more familiar liability pattern, but reflective of facts arising from response to concerns addressed to climate change and sustainable development, a recent spate of claims and litigation has arisen against engineers and architects for liability connected with their alleged project green failures. A variety of factual circumstances includes the inability to achieve the level of LEED certification at which an owner sought to market its building, a school district's suit against a design team where energy use on a purportedly sustainable project failed to "reduce operating costs by fifty percent" over comparably sized schools, as stated in the design team's contract, and a situation where an owner sued his architect for "negligently" specifying a supposedly innovative exterior solar shading system that turned out to be patented by another party.

Litigation also arises under the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 *et seq.*, and state equivalents. That statute requires that no action may be taken to spend government dollars until sufficient studies have been completed with regard to practically avoidable adverse environmental impacts from the activity that will be funded. Every major federal program and most state and local governmental programs, as well, including permitting actions under environmental regulations, must comply with this process. The spending or permitting decision must consider all the alternatives that would have less dire environmental impact. Cases now arise where projects have been challenged for failure to consider the effect of the project on climate change and global warming.

The consequences of non-compliance with regulatory requirements imposed to prevent or ameliorate the effects of climate change may include fines and penalties based on some quantification of non-compliance, and, regardless of regulatory compliance, allegedly aggrieved persons may bring actions for personal and property damage based on a wide variety of theories, including negligence, nuisance, trespass, and strict liability. As an example, a business that uses a carbon capture and sequestration scheme, where carbon dioxide gas that was supposed to be encapsulated in a secure underground chamber has nonetheless escaped, could face actions from neighboring owners of adjoining properties whose valuable groundwater has been adversely affected by infiltration of the carbon dioxide. Projects subject to NEPA requirements may face years of litigation delay if an adequate environmental impact analysis has not been performed.

Further, enforcement agencies will always be on the watch for scofflaws and bad actors. Enforcement of environmental laws over the last thirty years has resulted in the development of concepts such as the "responsible corporate official" doctrine, placing an individual to shoulder blame and liability for corporate conduct. The range of this doctrine extends from liability for making specific knowing decisions in violation of the law to exposure for certifying the veracity of an official document that proves to be untrue. Although the law continues to insulate individuals and companies protected by a "corporate veil," a very aggressive plaintiffs' bar could seek to use climate change issues to pierce that veil. That trend would not be inconsistent with lawsuits brought against companies, boards of directors, and executives with regard to decisions they have made that affect the shareholders' ownership interests in the corporation. We should not be surprised to see lawsuits based on corporate decisions that wind up hurting the shareholders' pocketbook, based on some theory that the directors or the executives should have known better with regard to climate change issues that have resulted in corporate losses.

Litigation, of course, breeds claims against insurance policies. The subject of insurance, however, goes well beyond litigation to encompass broad aspects of risk and liability. As the international insurance industry has adapted its products and created new ones to meet the challenges of global climate change, so lawyers will be needed to advise both insurers and insured parties on the structuring of policy provisions and in claims made under those policies. New insurance products extend to products designed to encourage environmentally sensitive construction, rebuilding, and renovation.

For example, green building insurance exists to cover not only the cost of restoring a building to its original condition, but also the costs of upgrading (or, in the case of a total loss, of rebuilding) conventional buildings after a loss using green alternatives such as Energy-Star® rated electrical equipment, roof and insulation materials, energy-efficient lighting systems, and water-efficient interior plumbing. In the case of loss to a green-certified building, these insurance products cover the cost of rebuilding to green-certified standards, including the cost of hiring a LEED-certified professional to oversee the repairs.

As discussed in more detail above, cap-and-trade programs aimed at reducing greenhouse gas emissions will launch insurance companies and brokers into major roles in helping businesses develop carbon management strategies and innovative products, as well as to mitigate risks arising from newly formed carbon markets. As emission reduction programs become more prevalent, new technologies will emerge to meet the challenges they present. Emerging technologies include various forms of alternate energy production, such as solar, wind, and geothermal power, as well as methodologies to reduce emissions of greenhouse gases from coal and other fossil fuels, such as carbon capture and sequestration. As with any other new technology, these emerging technologies present risks that participants will seek to address through insurance.

Participants in the various carbon markets resulting from these cap-and-trade programs face a number of unique risks, and the insurance industry is beginning to develop products and services to help businesses manage these risks. The Kyoto Protocol provides for several mechanisms for participants to meet their emissions targets and generate tradable allowances. As discussed earlier in this chapter, participants may jointly implement projects, many of which involve emerging technologies, resulting in tradable credits, and may sponsor emission-reduction projects in developing countries to generate credits. The protocol also permits the trading of credits between participants in developed nations to meet their greenhouse gas emissions reduction requirements. Domestic initiatives, including RGGI, call for similar mechanisms. Carbon market participants therefore face a range of risks in the event that their carbon credits are not actually delivered, including:

- Political risk: Investors in Clean Development Mechanisms—projects built in developing countries in part to generate tradable credits—face the risk that government action or inaction will impede the project or prevent the delivery of expected credits. These investors may find that delivery is impossible because of civil conflict or other political issues.
- Performance risk: Especially in cases of untested technologies, such as carbon sequestration (i.e., artificial means of capturing and storing carbon dioxide emissions), investors and other participants may need to mitigate the risk that a project will not be able to deliver the expected credits.
- Price risk: Participants who have purchased credits may need to mitigate the risk that they will have to incur higher costs for credits bought on the spot market if the project fails to deliver.
- Credit risk: Participants face the risk that a project will run out of funding and/or become bankrupt before the credits are delivered.
- Risk of third-party legal action: As discussed above, the use or failure of emerging technologies could result in actions for trespass, nuisance, and negligently inflicted injury to the environment, property, and people.

Carbon market participants hope to manage these risks, in part, through insurance, and insurers are rapidly developing products to meet these needs. Although currently available programs are designed specifically for Kyoto Protocol projects, similar products will likely become available to participants in projects under other regimes. Indeed, the RGGI model rules specifically contemplate the availability of performance risk insurance for carbon sequestration projects. Regardless of the regulatory regime or liability addressed, however, both claimants and insurers will need to make use of legal services to address these climate change issues.

How Intense Is Client Interest in Climate Change Issues?

As discussed above in "Greening Existing Businesses and Products," a wide variety of industries have taken a serious interest in and committed significant resources to issues of climate change and sustainable development. General Electric Company, for example, has undertaken a vast advertising campaign emphasizing the importance of meeting the challenges of global warming and featuring the term "Ecomagination®." GE is also an outspoken member of the United States Climate Change Partnership (USCCP), an umbrella group of U.S. businesses and environmental organizations calling for immediate action to reduce CO_2 emissions. Among many other high-profile companies, USCCP counts the following among its members: American International Group (AIG), Alcoa, BP America Inc., ConocoPhillips, The Dow Chemical Company, DuPont, Ford Motor Company, General Motors Corporation, PepsiCo, PG&E Corporation, Shell, Siemens, and Xerox Corporation. Mega-retailer Wal-Mart has also called for mandatory caps on greenhouse-gas emissions and is in the process of implementing plans to run its operations on 100 percent renewable energy and to produce zero waste. Wal-Mart has such a massive influence on the retail market, including the consumer goods suppliers that fill its shelves, that its green endeavors cannot help but affect all the entities with which it does business. Further, as discussed earlier in this chapter, the commercial real estate market is now demanding new construction to meet high environmental and energy-efficiency standards. Last, but certainly not least, and as part of the continuum of client interest, News Corporation CEO Rupert Murdoch has announced that his company will make all of its operations "carbon-neutral" by 2020.

What Qualifies a Law Firm to Practice in this Field?

The wide range of legal issues arising from climate change and global warming requires a multi-disciplinary approach to the subject. The Climate Change and Sustainable Development practice group at my law firm, Wiggin and Dana LLP, has eighteen lawyers from various dedicated practice groups: business, which includes tax, private equity, and finance; intellectual property; insurance; litigation; energy and electric utilities; real estate; and environmental. We meet monthly, if not more frequently, to acquaint one another with what we are doing, so we can share with them our clients' issues and developments about which they ought to be aware.

This area of law does not specifically require scientific knowledge or training. Although I have colleagues with backgrounds in math and sciences, I was an English major in college, and I am constantly learning. One need not have a background in engineering, chemistry, or the earth sciences to practice climate change law successfully. An interested researcher can find an abundance of source material in periodic literature and on the Internet, written understandably, and an intelligent professional should be able to maintain a sophisticated practice, particularly if he or she understands when it is necessary to seek guidance from those with more expertise.

The need to turn to experts to fill in missing knowledge and experience depends on the circumstance. A broad client base that requires different representation from various legal disciplines or subject matter helps provide access to the necessary expert information.

Conclusion

Sensitivity to climate change and policies directed toward achieving environmentally responsible standards of development makes good business sense and requires top-flight legal representation. This chapter has aimed to present the diversity, complexity, and importance of climate change and sustainable development issues and the important role lawyers play in advising clients in confronting those issues. We have touched on international, federal, regional, state, and local efforts to limit the emission of greenhouse gases and the creation of cap-and-trade schemes designed to prevent and ameliorate the adverse effects of global warming. Our discussion of regulatory controls has included fair trade laws and rules on shareholder reporting for public companies. The discussion has also included the reaction to climate change and sustainable development issues in real estate and business transactions, and in how climate change and sustainable development may give rise to litigation and the creation of and claims under new insurance products. Finally, we offered some observations on continuing client interest in the subject and the qualifications of a law firm to serve those clients.

This chapter has not attempted to provide a laundry list of typical cases or engagements, but has rather used some specific examples to illustrate general principles. Before ending, however, I have listed below some of the kinds of representation that a law firm may anticipate with regard to climate change and sustainable development:

- Commercial, corporate, and tax: The establishment, financing, and tax implications of ventures addressing climate change and sustainable development issues
- Real estate and land use: Representing clients facing pressures from governmental entities (zoning and entitlements linked to a carbon-neutral footprint) and purchasers and lessees who demand contractual commitments to "enviro-friendly" development, construction, and operation; working with developers and communities on sustainable development projects in industrial, commercial, residential (including affordable housing), and mixed-use projects; reconciling rehabilitation, renovation, and historic preservation with green development
- Environmental: Advice with regard to brownfield remediation and financing, performing due diligence for clients involved in projects raising climate change and sustainable development issues, and advising clients on meeting regulatory compliance standards
- Energy and utilities: Providing advice with regard to compliance with carbon cap-and-trade programs and assisting clients with regard to distributed generation and alternative and renewable energy issues
- Intellectual property: Providing counseling and services related to climate change and sustainable development technology
- Litigation: Advising clients concerned with National Environmental Policy Act lawsuits that charge inadequate consideration of alternative projects with less severe climate change consequences; claims by parties whose injuries allegedly arise from climate change or climate change technology; commercial litigation arising from the development,

commercialization, technology transfer, use, misuse, and failure of climate change and sustainable development methodologies

- Compliance and white-collar: Advising clients on mandatory reporting requirements with regard to climate change and similar issues for publicly traded companies
- Insurance: Advising insurers and insureds on the issuance of policies with coverage for or exclusion of claims related to these issues
- Health care, educational, and other not-for-profit institutions: Providing a panoply of services dealing with all the above concerns that may be issue-specific to those institutions

This multi-disciplinary experience benefits not only a firm and its clients. It also promises to provide to the individual lawyers who participate in these representations the important yet unquantifiable non-economic reward of knowing that by working on climate change and sustainable development issues, they form an important part of the solution to a global problem.

Barry J. Trilling is the partner in charge of the Climate Change and Sustainable Development inter-disciplinary practice group at Wiggin and Dana LLP. Clients call on Mr. Trilling to assist on a wide variety of matters with regard to the environment and green business and real estate issues. These include business and real estate transactions, due diligence investigations, site remediation, brownfields development, regulatory compliance counseling, governmental relations, legislation, rule-making, National Environmental Policy Act (NEPA) matters, and both administrative and judicial litigation. Mr. Trilling's cross-disciplinary experience includes the interaction of environmental law with affordable housing, borrowing and lending, business formation, corporate disclosure, estates and trusts, insurance, innovative technology, land use, officer/director liability, and tax incentive policy.

Having practiced law since 1971, Mr. Trilling has dealt with legal issues from the perspectives of industry, government, and the environmental interest community. As an attorney for the U.S. Department of Justice, he supervised the federal government's team of lawyers in the litigation concerning cleanup of the infamous Love Canal hazardous waste site in western New York State.

Mr. Trilling has participated as an active member of the environmental sections of local, state, and the American Bar Associations, as well having served on the governing councils of some of those organizations. He has served as the chair of the Policy and Legislation Committee of the Connecticut Chapter of the National Brownfield Association (NBA) and has presented testimony on behalf of NBA to Congress with regard to Connecticut brownfield issues. He has served on the board of directors of the Pennsylvania Environmental Council and is a founding member of the Western Pennsylvania Brownfields Forum.

Mr. Trilling has chaired the Environmental Subcommittee of the Public Affairs Committee of the 16,500-member National Association of Industrial and Office Properties (NAIOP) and is a member of that organization's Urban Redevelopment National Forum. In 2007, he served as president of NAIOP's New York City/Westchester County/Fairfield County Chapter (comprising members from the New York-New Haven metro area). He acted as NAIOP's representative on the twenty-five-member Federal Advisory Committee Act committee assembled by the U.S. Environmental Protection Agency for regulatory negotiation of the "all appropriate inquiry" standard required by the Small Business Liability and Brownfields Revitalization Act. That standard governs how a party may assert certain defenses to actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or "Superfund"). He has also advised NAIOP and its membership on a wide variety of real estate issues related to the environment, climate change, and sustainable development, and has represented the organization before legislative bodies, including both houses of the U.S. Congress and the Pennsylvania and Connecticut legislatures, state and federal regulatory agencies, including the U.S. Environmental Protection Agency, and in judicial actions.

Writing and speaking extensively on environmental issues, particularly with regard to cleanup and redevelopment of contaminated properties, Mr. Trilling is also the principal author of the annually updated Wiggin and Dana Manual on Legislative, Regulatory, and Financial Assistance Tools for Brownfields Development in Connecticut. *The Sixth Edition (2008) of the* Chambers USA America's Leading Lawyers for Business *named Mr. Trilling in "Band 1" (i.e., the top five) of leading individuals practicing environmental law in Connecticut.*

Mr. Trilling earned a J.D. at the University of California, Berkeley in 1971, and a B.A. at the University of California, Los Angeles in 1968.

Dedication: *I would like to acknowledge the assistance and cooperation of all members of the Climate Change and Sustainable Development practice group at Wiggin and Dana, and particularly to Scotia Ryer, with regard to statutory cap and trade programs; Mark Kaduboski and David Recht, with regard to the reporting obligations of public companies; Anika Singh Lemar on affordable housing; Aaron Singer on insurance issues; and Sharon Siegel for her overall editorial advice.*

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