

June 9, 2009

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The Honorable Mary Schapiro
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The Honorable Nancy Sutley
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Washington, D.C. 20503

**Re: EPA and SEC Coordination on Greenhouse Gas Emissions Information;
EPA Docket No. HQ-OAR-2008-0508 and SEC Petition Docket No. 04-547**

Dear Ms. Jackson, Ms. Schapiro and Ms. Sutley:

Providing the public with accurate information about the volume of greenhouse gases a business emits is an essential part of the United States Environmental Protection Agency's responsibilities in carrying out national climate policies. This same information also serves a critical role in evaluating how publicly traded companies are carrying out their disclosure responsibilities for investors under federal securities law administered by the United States Securities and Exchange Commission. The EPA's rulemaking governing the national reporting of greenhouse gases provides a valuable opportunity for the Agency and the Commission to coordinate their respective responsibilities for providing the public and investors with this important information. See 74 Fed. Reg. 16,448 (April 10, 2009) ("Mandatory Reporting of Greenhouse Gases").

This type of collaboration is smart government and would help protect the investing public. For example, the United States Government Accountability Office has previously called for the Agency and the Commission to coordinate their efforts regarding the tracking and transparency of corporate environmental disclosure: "We recommend that the Chairman [of the] SEC . . . explore opportunities to take better advantage of EPA data that may be relevant to environmental disclosure and examine ways to improve its usefulness." See U.S. Government Accountability Office, *Environmental Disclosure: SEC Should Explore Ways to Improve Tracking and*

Transparency, GAO 04-0808, at 37 available at <http://www.gao.gov/new.items/d04808.pdf> (July 14, 2004). Additionally, a coalition of the nation's largest institutional investors has requested Commission guidance clarifying that public companies must disclose the material financial impacts they face as a result of their own greenhouse gas emissions, including their current and projected volumes of greenhouse gases. See, e.g., Petition for Interpretive Guidance on Climate Risk Disclosure, Sept. 18, 2007 available at <http://sec.gov/rules/petitions/2007/petn4-547.pdf>.

Across the nation smart solutions are being forged to reduce global warming pollution and expand investments in America's clean energy economy. As public and private institutions alike respond to these challenges, investors have a right to know which businesses are forging innovative solutions and which are lagging behind. Two new studies – an in-depth look at SEC filings in 2008 as well as a multi-year longitudinal study – show companies are seriously deficient in meeting the needs of investors (attached and available at www.ceres.org):

- *Climate Risk Disclosure in SEC Filings*, prepared by The Corporate Library for Ceres and EDF, assesses climate risk disclosure in the 10-K and 20-F reports filed in 2008 by 100 global companies in five sectors: electric utilities, coal, oil & gas, transportation and insurance. The study found limited disclosure: 59 of the 100 companies made no mention of their greenhouse gas emissions or public position on climate change; 28 had no discussion of climate-related risks they face; and 52 failed to disclose actions and strategies for addressing climate-related business challenges. Even more telling, the very best disclosure for any of the 100 companies could only be described as "fair," and only a handful of companies achieved this ranking.
- *Reclaiming Transparency in a Changing Climate* by CEES, Ceres and EDF reviews over 6,000 SEC filings by S&P 500 companies from 1995 to 2008. While the study finds some modest improvement in climate risk disclosure since 1995, in 2008 75% of annual reports filed by S&P 500 corporations failed to even mention climate change, and only 5% articulated a strategy for managing climate-related risks.

Transparency and accountability are the hallmarks of a fair marketplace. We reiterate our call for the Securities and Exchange Commission to shed sunlight on the marketplace as the nation confronts the climate crisis. And we respectfully ask the Agency and the Commission to collaborate to ensure EPA's mandatory greenhouse reporting requirements will help the SEC efficiently provide investors with information on corporate climate risks and opportunities.

Respectfully submitted,

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Climate Risk Disclosure in SEC Filings

An Analysis of 10-K Reporting by Oil and Gas, Insurance, Coal, Transportation and Electric Power Companies

June 2009

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Ceres and Environmental Defense Fund commissioned this report from The Corporate Library.

Ceres is a national coalition of investors, environmental groups and other public interest organizations working with companies to address sustainability challenges such as global climate change. Ceres directs the Investor Network on Climate Risk, a group of more than 80 institutional investors from the US and Europe managing approximately \$7 trillion in assets.

Environmental Defense Fund (EDF) is a leading national nonprofit organization representing more than 500,000 members. Since 1967, EDF has linked science, economics, and law to create innovative, equitable, and cost-effective solutions to society's most urgent environmental problems.

The Corporate Library is an independent research firm that provides corporate governance information products, research services, ratings and data to a broad variety of clients including institutional investors, corporations, D&O liability insurers, and accounting firms. The Corporate Library is also a leading publisher of corporate governance reports and studies, which its analysts compile using its extensive database of over 3,200 public companies and over 47,000 executives and directors.

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Foreword

America is moving forward. We are working to revitalize our economy and to address the climate crisis. Across the nation smart solutions are being forged to reduce global warming pollution and expand investments in America's clean energy economy. As public and private institutions alike respond to these challenges, investors have a right to know which businesses are forging innovative solutions for the Twenty-First Century.

This report examines corporate disclosure of climate risks and opportunities in Securities and Exchange Commission filings, as well as the SEC's responsibility to protect investors in a changing climate. The Commission must do its part to reclaim a fair marketplace that protects the interests of all investors from Wall Street to Main Street. This report shows that far too often investors receive insufficient disclosure about companies' responses to a changing climate.

Transparency and accountability are the hallmarks of a fair marketplace. Investors must know which companies are leading and which are lagging behind in addressing the risks and opportunities associated with climate change. Investors have a right to know which companies are well-positioned for a changing climate.

In September 2007, we joined the nation's largest institutional investors in asking the SEC to clarify climate-related disclosure obligations for publicly traded companies. We reiterate that call for the Commission to shed sunlight on the marketplace as the nation confronts the climate crisis.

The Securities and Exchange Commission must do its part. The lessons learned from the current economic downturn leave no doubt. Reclaiming transparency and accountability in the marketplace will help secure lasting prosperity for our nation.

Mindy S. Lubber, President, Ceres, and Director, Investor Network on Climate Risk
Fred Krupp, President, Environmental Defense Fund

Foreword

This year, the California Public Employees' Retirement System is asking the Securities and Exchange Commission for a number of corporate governance reforms to improve corporate risk management, including guidance to ensure robust corporate disclosure of material environmental and governance risks, including climate change-related risks. Because inadequate corporate responses to climate change pose significant financial risks to our investments, improved disclosure is needed for investors to properly assess these risks.

CalPERS has a widely diversified portfolio that is impacted by all segments of the economy. The fund also has a long-term perspective, since it must meet beneficiaries' retirement needs now, and long into the future. As such, we must be aware of shifting conditions and liabilities affecting companies in our portfolio.

Climate change presents bottom-line risks that must be disclosed to ensure a fair and transparent marketplace. The economic case for promptly assessing and disclosing climate risks is clear. Climate risks may include profound physical risks to companies' capital assets and operations, as well as regulatory and litigation risks. CalPERS wants its portfolio companies to be well positioned to avoid these risks and to capitalize on new opportunities such as alternative energy technologies.

As a member of the Investor Network on Climate Risk, a network of 80 investors managing \$7 trillion in assets, CalPERS has repeatedly advocated for full disclosure of corporate climate risks in securities filings, and for action from the SEC to ensure that this occurs.

In 2007, CalPERS joined a petition, drafted by Ceres and Environmental Defense Fund, which called on the SEC to ensure that publicly traded companies disclose material financial risks from global warming in securities filings, as required under existing securities law. CalPERS helped draft the Global Framework for Climate Risk Disclosure and then integrated the Framework into its Core Principles of Accountable Corporate Governance. These disclosure initiatives, which are consistent with the highest fiduciary standards, are designed to help CalPERS achieve positive financial returns while fostering energy savings, sustainable growth and sound environmental practices.

Despite these efforts, this report is powerful evidence that corporate climate disclosure falls far short of what CalPERS and other investors need to carry out their fiduciary duties.

Although voluntary climate risk disclosure guidelines have been refined over the last 10 years, the information that is voluntarily reported often lacks the information required by a reasonable investor to properly assess risks. The lack of SEC guidance, including a standardized format for climate risk disclosure, have resulted in reporting with little consistency in the format or level of detail presented.

As we've recently seen, an emphasis on short-term thinking, and a failure of private and public accountability mechanisms, can severely damage investors and financial markets. We need to take a prudent, long-term view to address systemic risks like climate change. Given the significance of climate risks for corporations' financial position in a carbon-constrained economy, reporting on climate issues in SEC filings is a necessity.

The 10-K report will remain the gold standard for reporting information to investors. It is the most efficient and effective way for investors to access climate-related information. Investors require that all material information relevant to investment decisions be included in 10-Ks. As the federal protector of investors' interests, we call on the SEC to ensure that information regarding climate change effects are accessible and delivered to investors.

Anne Stausboll, Chief Executive Officer, California Public Employees' Retirement System

Executive Summary

For decades, investors have relied on SEC filings to learn how publicly traded companies are evaluating and managing risks material to their operations and performance. Robust corporate risk disclosure is the hallmark of a transparent and fair marketplace in which investors can make informed decisions. The current financial turmoil is a painful reminder of how markets can fail when transparency and accountability are neglected.

Climate change is for many companies a material risk. Rising seas and stronger storms will severely damage physical infrastructure, placing capital investments at risk, requiring costly adaptation measures, and threatening the profitability of insurance providers. Policy responses to slow climate change's impact will require pollution reductions for industries that are major emitters of greenhouse gases, such as the electric power, coal, oil and gas and transportation sectors.

Securities law mandates that publicly traded corporations disclose material risks. But few companies currently provide information about how climate change will impact their business.

This Ceres/Environmental Defense Fund report evaluates the current state of climate risk disclosure by 100 global companies in five sectors that have a strong stake in preparing for a low carbon future: electric utilities, coal, oil and gas, transportation and insurance. It assesses climate risk disclosure in the SEC filings made by these companies in Q1 2008, and finds very limited disclosure. Fifty-nine companies made no mention of their greenhouse gas emissions or their position on climate change, 28 had no discussion of climate risks they face, and 52 failed to disclose actions to address climate change. Even more telling, the very best of disclosure for any of the companies could only be described as “Fair”—and only a handful of companies achieved this ranking.

This poor disclosure highlights the critical need for SEC guidance on appropriate disclosure of material climate risks. Investors are clearly not getting the depth of disclosure they need to make wise investment decisions, even though they have been requesting it for years.

Investors have filed hundreds of shareholder resolutions with individual companies seeking better climate risk disclosure. They have developed a protocol, the Global Framework for Climate Risk Disclosure, to encourage standardized reporting and to make it easier for companies to disclose and for investors to analyze risks. And in September 2007, a coalition of the nation's largest institutional investors, representing \$1.5 trillion in assets, sent a petition to the SEC urging it to clarify that material climate risks must be disclosed under existing law.

Regulators too are demanding better disclosure of climate risks. In 2007, the New York State Attorney General subpoenaed five major energy companies requesting disclosure of material risks from climate change, and in March 2009 the National Association of Insurance Commissioners issued mandatory disclosure requirements for all major insurers.

Despite the demand for appropriate disclosure of climate risks, the SEC has yet to issue guidance on climate disclosure or to properly oversee climate disclosure practices. Absent SEC action, investors are left in the dark about companies' plans for evaluating and managing material risks in a changing climate.

Report Findings by Industrial Sector

This report uses the Global Framework for Climate Risk Disclosure to evaluate the disclosure of the 100 companies studied. It assesses company filings in three main categories: 1) emissions and climate

change position, 2) risk assessment, and 3) actions to address climate risks and opportunities. The report also includes case studies, in Appendix A, providing deeper analysis of current climate disclosure practices. Among the key findings of this report:

Electric Utilities: Disclosure was widespread but minimal. None of the 26 companies studied achieved a “Fair” rating on disclosure of emissions and climate change position, only 3 out of 26 companies (12%) ranked “Fair” on climate risk assessment, and only 2 out of 26 companies (8%) provided “Fair” disclosure of actions to address climate change. Seven of the companies studied provided no information on actions to address climate change. Nevertheless, the electric power sector ranked higher than the other sectors and had three of the highest disclosing companies in the study—AES, Xcel, and PG&E.

Coal: All six coal companies surveyed included some disclosure of climate change issues in their 10-K filings, though only one achieved a “Fair” score in any of the three categories analyzed. Coal companies’ strongest disclosure was in the area of risk assessment; five of the companies provided disclosure in this category that was rated “Limited” or “Fair.” Rio Tinto provided the best disclosure, including valuable information on emissions, while Yanzhou Coal Mining Co. performed the worst overall.

Oil and Gas: The majority of the 23 companies studied provided some disclosure on climate risk assessment, but disclosure was weak with none ranking “Fair” and 22 out of 23 (96%) scored as “Limited” or “Poor.” Disclosure in the other two categories was even more limited. Twelve out of 23 companies (52%) provided no disclosure on actions to address climate change, while 17 out of 23 companies (74%) disclosed no information on their emissions or climate change position. Apache, Exxon Mobil and Anadarko were noted for particularly weak overall disclosure, while Shell scored best across the board.

Transportation: Companies in this sector provided minimal disclosure in SEC filings. Only 5 of 19 (26%) disclosed their emissions or their climate change position, and none were ranked as “Fair” for this disclosure. General Motors was the only company to provide information on past emissions from its operations, while not a single company disclosed emissions associated with vehicle use. Transportation companies provided somewhat more informative disclosure on climate risk and actions to address climate change, with 68% providing some disclosure in each of these categories. The disclosure was weak, however, and did not meet investors’ needs. Only 3 companies scored “Fair” on climate risk assessment and 2 scored “Fair” on their actions to address climate risks. Honda, Daimler and General Motors scored the highest overall.

Insurance: Although prudent risk assessment is the basis for a viable insurance industry, the 27 companies studied in this sector provided the least disclosure across the board compared to other sectors. Eighteen out of 27 companies (67%) had no mention of climate change or related risks anywhere in their SEC filings. Twenty-three out of 27 companies (85%) failed to disclose their emissions or a statement on climate change, while 24 out of 27 companies (89%) omitted disclosure on actions to address climate change, despite the wide range of opportunities for new, climate-related insurance products. The handful of companies that did provide more informative disclosure—Swiss Re, Munich Re and Zurich Financial—were all non-U.S. companies.

Taken together, these findings are strong evidence that investors are not getting the information they need in SEC filings, even from industries facing clear, immediate risks from climate change.

Climate change is a serious issue and investors have a right to know which companies are responding and which are lagging behind, particularly for the five sectors evaluated in the report. Despite scientific consensus on the urgent need for action and the momentum building for

comprehensive climate policy in the U.S., the report finds that major corporations are still falling short on disclosing the risks and opportunities they face from a changing climate.

This report affirms that the SEC must move swiftly to improve climate risk disclosure in SEC filings.

As the SEC formulates its direction to companies, it should incorporate investor guidance on proper climate risk disclosure as outlined in the Global Framework for Climate Risk Disclosure. The 2007 investor climate risk petition is another useful benchmark for the SEC, as it includes wide-ranging evidence about the risks and opportunities climate change poses to businesses, and discusses how climate-related disclosure fits into existing SEC regulations.

Until the SEC acts, companies can begin to meet investor needs by using the Global Framework for Climate Risk Disclosure as a guide for reporting on their climate-related risks and opportunities. The Framework consists of the following four elements of disclosure, which are discussed in detail in Appendix B:

- Total historical, current, and projected greenhouse gas emissions
- Strategic analysis of climate risk and emissions management
- Assessment of physical risks of climate change
- Analysis of risk related to the regulation of greenhouse gas emissions

Responding to a Changing Climate

Over the past several years, the scientific consensus around climate change has solidified, providing a compelling body of evidence that human activity is contributing to the Earth's warming. In 2007, the Intergovernmental Panel on Climate Change (IPCC), a scientific body established by the World Meteorological Organization and the United Nations Environment Programme, released its "Fourth Assessment Report." Among other conclusions, the IPCC found that evidence of warming is unequivocal, and that most of the observed increase in temperatures since the mid-20th century is "very likely" due to an increase in greenhouse gas (GHG) concentrations caused by human activity.¹

The Fourth Assessment Report describes substantial changes in the physical environment that will likely occur over the next few decades as a result of unmitigated climate change. Global mean temperatures can be expected to increase by two to five degrees Celsius by sometime between 2030 and 2060, with some studies showing a 20% chance that temperatures will increase by more than five degrees Celsius unless corrective action is taken. Precipitation patterns will change substantially, increasing the likelihood of droughts and floods as well as the intensity (and possibly the number and location) of hurricanes. Climate change will increase the "risk of abrupt and large-scale changes in the climate system," including significant sea level rise.²

Indeed, recent studies show that impacts from climate change may be occurring at a rate even faster than previously predicted. Published studies have found that sea ice loss is occurring at a faster rate than predicted,³ sea level rise is also occurring at a rate faster than predicted,⁴ and significant impacts on human health and ecosystems can occur more rapidly than previously believed.⁵

Policy Actions Implemented to Address Climate Change

Policy makers have responded to the scientific evidence by adopting measures designed to mitigate climate change. Foremost among these is the Kyoto Protocol to the UN Framework Convention on Climate Change, an international treaty. The Protocol requires the 37 developed countries that have ratified the treaty to reduce their emissions of six greenhouse gases (GHGs) by various amounts from 1990 levels, to result in a 5.2% aggregate reduction by 2012.⁶ One hundred eighty-four parties have ratified the Kyoto Protocol as of March 2009, including the major European economies.⁷ A negotiating mandate for a successor treaty to Kyoto, which runs until 2012, was agreed upon in December 2007, with a goal of agreeing on a new treaty by December 2009.⁸

Countries and the one non-country party (the European Union) that have ratified the Kyoto Protocol have implemented measures to meet emissions reduction targets. For example, in 2005, the EU Greenhouse Gas Emissions Trading program created a trading market for GHG emissions applicable to over 10,000 facilities in six industry sectors in 25 EU member countries. Emitters are allocated emission allowances; those whose emissions exceed their limits must buy allowances to make up the difference, while those whose emissions are below their limits may sell the excess allowances.⁹

In the United States, there have been significant climate policy developments at the federal, regional and state levels. As of July 2008, lawmakers in the 110th Congress had introduced over 235 bills, resolutions and amendments addressing climate change and GHG emissions.¹⁰ Federal climate policy has shifted under the Obama administration, as President Obama has stated that his

presidency “will mark a new chapter in America’s leadership on climate change that will strengthen our security and create millions of new jobs in the process.”¹¹ He has announced a goal of reducing carbon dioxide emissions to 14% below 2005 levels by 2020, and to approximately 83% below 2005 levels by 2050.¹² In his proposed 2010 budget, President Obama stated that his Administration “will work expeditiously with key stakeholders and Congress to develop an economy-wide emissions reduction program to reduce GHGs.”¹³

Already, the Environmental Protection Agency (EPA) has proposed a national system for reporting GHG emissions, which many view as the first step in regulating emissions under existing law.¹⁴ And in April 2009, the agency issued a proposed finding that greenhouse gases endanger public health and welfare.

Momentum towards a national climate policy is growing. President Obama has signaled his strong support for the rapid establishment of a national cap-and-trade policy.¹⁵ Business coalitions have formed to press for federal action on climate change. For example, the U.S. Climate Action Partnership (USCAP) and Business for Innovative Climate and Energy Policy (BICEP), two national coalitions including major multinational corporations with billions of dollars in annual revenue, have both released legislative recommendations supporting comprehensive federal action to combat climate change.^{16,17} In Congress, the House Energy and Commerce Committee recently passed out of committee the American Clean Energy and Security Act of 2009, which includes a wide range of measures to reduce global warming pollution, including a cap-and-trade program that would significantly reduce carbon emissions from covered entities.¹⁸

Moreover, several regional initiatives to limit GHG emissions have been established. The Regional Greenhouse Gas Initiative is an effort by ten Northeastern and mid-Atlantic states to reduce emissions from the power sector by 10% by 2018 using a cap-and-trade approach.¹⁹ This binding cap took effect in January 2009. The Western Climate Initiative is a collaboration of seven U.S. governors and four Canadian Premiers, whose objective is “to identify, evaluate, and implement collective and cooperative ways to reduce greenhouse gases in the region, focusing on a market-based cap-and-trade system.”²⁰ Nine Midwestern governors and two Canadian premiers agreed to participate in or observe the Midwestern Greenhouse Gas Reduction Accord, which aims, among other goals, to set GHG reduction goals and develop a cap-and-trade emissions reduction program.²¹

Finally, more than half of the states have implemented measures aimed at mitigating climate change.²² Twenty-nine states have adopted standards requiring that a specified proportion of electricity be generated by renewable sources.²³ Twenty-one states have established GHG emission reduction targets.²⁴ California’s Global Warming Solutions Act of 2006 requires the California Air Resources Board (CARB) to develop regulations and market mechanisms that will ultimately reduce the state’s GHG emissions to 1990 levels by 2020.²⁵ In June 2008, CARB issued a scoping plan that outlined the main strategies California will use to reach these goals and reduce global warming pollution, including a statewide cap-and-trade system.²⁶

Policies are also being established to address global warming pollution from motor vehicles. On May 19, 2009, President Obama announced a nation-wide policy aimed at both increasing fuel economy and reducing greenhouse gas pollution for all new cars and trucks sold in the United States.²⁷ In 2005, the U.S. Conference of Mayors unanimously endorsed a Climate Protection Agreement; since then over 900 mayors have signed on to the agreement committing their cities to reduce GHG emissions in their cities to 7 percent below 1990 levels by 2012.²⁸

Financial Risks and Opportunities for Companies and Investors

Climate change and measures adopted to address it can affect companies in myriad ways, depending on the nature and location of their businesses, their near-term capital expenditure needs, the regulatory environments where they operate and their strategic plans. Generally, climate risks and opportunities for companies and their investors fall into four categories:

- Physical risk from climate change
- Regulatory risks and opportunities related to existing or proposed GHG emissions limits
- Indirect regulatory risks and opportunities related to products or services from high emitting companies
- Litigation risks for emitters of greenhouse gases

Unmitigated climate change is likely to have severe physical impacts on companies with exposed assets or business operations. In particular, the increasing incidence of extreme weather under a warming climate is already placing major strains on the insurance industry.²⁹ One example of a climate change impact that may increase claims and strain the profitability of insurance companies is more intense hurricane activity in North America, which has already been linked to rising temperatures. Just last year, Cincinnati Financial faced a difficult combination of significant catastrophe claims together with major investment losses.³⁰

Physical risks also affect companies outside the insurance sector. Increasing frequency of extreme weather events could impact a wide range of infrastructure investments. Observed and predicted increases in the number of Category 4 and 5 hurricanes and ongoing sea level rise will put coastal physical assets at risk, including major energy, industrial and manufacturing facilities.³¹ In Alaska, thawing permafrost is making oil pipeline installation and maintenance more costly, and warmer temperatures may disrupt petroleum exploration and extraction by shortening the season for low impact operations on ice roads and pads.³² A wide variety of other ongoing and expected consequences of climate change—including water shortages, increased numbers and intensity of heat waves, and changes in precipitation—may pose risks for specific industries and firms.³³

Policies to limit greenhouse gas emissions and stem the dangerous impacts of unmitigated climate change have major implications for companies in a number of sectors. In high emitting sectors, companies that develop low-carbon products, clean energy technologies and efficient manufacturing and shipping processes could gain competitive advantage, while companies that are slow to innovate may lose market share.

For example, existing and imminent carbon regulations will create incentives for emission reductions from the electric utilities industry, which was responsible for almost 35% of global warming pollution emitted in the U.S. in 2007.³⁴ Policy-makers, responding to scientific consensus on the need for urgent action to combat climate change, have adopted various policies to reduce greenhouse gas emissions from power generation, such as the Regional Greenhouse Gas Initiative cap and trade system, state emission performance standards for power generators, and new mandates for renewable energy resources.³⁵

These policies create market opportunities for producers who generate electricity with lower greenhouse gas emissions, compared to utilities that rely on carbon intensive generation facilities. Awareness of the climate risks related to power generation projects has already led to the adoption of the Carbon Principles, a roadmap for banks and utilities to evaluate and mitigate climate risks in financing electricity generation projects, by five of the world's largest commercial and investment banks.³⁶ Concerns like these about the long-term viability of high-emitting electricity generation could increase the cost of financing, if lenders demand more favorable terms to compensate them for potential liability or avoid financing high-emitting generation.

In contrast, utilities that are investing in energy efficiency and renewable energy may face fewer material risks related to climate change regulation. For example, numerous utilities and independent power producers are making significant wind power investments: over 1,300 MW of wind power was installed in the U.S. between July and September of 2008, bringing the total installed wind generation capacity in this country to 21,017 MW.³⁷ Because wind generation does not produce greenhouse gas emissions, electric utilities with substantial wind investments can reduce their carbon intensity and their exposure to regulatory risk. With new federal and state policies to limit greenhouse gas emissions, companies in any sector that develop low-emitting strategies may benefit.

Companies and investors may also be affected by indirect regulatory risks, such as new regulations which lead to increased demand for energy efficient products and manufacturing processes.

Companies that develop low-carbon products, clean energy technologies and efficient manufacturing and shipping processes could gain competitive advantage, while companies that are slow to innovate may lose market share.

Improved disclosure will help provide the accountability that investors need to make informed, prudent decisions in a fair and transparent marketplace.

For example, stronger fuel economy regulations will lead automakers to provide more fuel-efficient vehicles. Companies may also be exposed to indirect risks through their procurement decisions, according to the findings of a recent report which surveyed corporate efforts to identify and mitigate indirect risks stemming from greenhouse gas emissions and energy use in their supply chains.³⁸

In addition, companies may be at risk from climate change related litigation. The number of climate-related lawsuits filed in the U.S. has grown steadily in recent years, with a total of approximately 100 climate-related lawsuits filed through 2007.³⁹ Many lawsuits have focused on corporations that are major emitters of global warming pollution; some seek to make such companies pay damages for their contributions to climate change, creating clear risks to performance.⁴⁰

In addition, climate risk disclosure has drawn the attention of state regulators. In 2007, New York State Attorney General Andrew Cuomo subpoenaed five large energy companies—AES Corp, Dominion Resources, Xcel Energy, Dynegy Inc, and Peabody Energy—to investigate whether the companies had adequately disclosed their risks from climate change in SEC filings.⁴¹ In 2008, Attorney General Cuomo announced groundbreaking agreements with Xcel Energy and Dynegy that require the companies to improve their disclosure of climate risks in SEC filings.⁴² These agreements should improve the usefulness of the companies' climate risk disclosure for investors.

Climate change—through both its impacts and efforts to prevent it—has major implications for a variety of companies and investors in those companies. For publicly traded companies, climate-related risks and opportunities may be material to financial performance. Where the risks of a changing climate are material, companies must disclose how they are recognizing and responding to these risks. Improved disclosure will help provide the accountability that investors need to make informed, prudent decisions in a fair and transparent marketplace.

Investor Demand for Climate-Related Information

The availability of complete disclosure on climate risks and opportunities supports institutional investors' abilities to fulfill their fiduciary duties.

As investors have come to better understand the financial risks and opportunities created by climate change, they have begun to demand that companies be more transparent about the financial impacts of climate change on their businesses. High-quality disclosure regarding these impacts, which are likely to be material in the case of many companies, serves several functions for investors.

First, it allows investors to take climate risks and opportunities into account when making decisions about buying or selling securities. An investor may wish to invest only in companies that are proactively positioning themselves to profit in a carbon-constrained world. Or an investor may wish to eliminate from its portfolio those companies that are lagging in this regard. An investor might view disclosure regarding climate risks and opportunities as essential to ensuring adequate diversification of portfolio risk. An investor or fund concerned about climate risk could screen out companies whose current practices do not include a proactive stance on climate change.

Second, disclosure on climate change may be relevant to an investor's proxy voting decisions. For instance, in voting on the election of directors, an investor could take into account incumbent directors' oversight of corporate strategy, including responses to climate change. Indeed, some Exxon Mobil shareholders have recently argued that the company's board is not attuned enough to the risks inherent in the company's exclusive strategic focus on oil and gas, which could leave the company poorly positioned in a carbon-constrained economy.^{43,44}

In each case, the availability of complete disclosure on climate risks and opportunities supports institutional investors' abilities to fulfill their fiduciary duties. Institutional investors that invest on others' behalf are governed by rules that, generally speaking, require them to act in the best interests of beneficiaries. These rules may be imposed by state trust law, or they may arise under a federal statutory scheme applicable to a specific type of entity, such as the Investment Advisers Act (registered investment advisers) or the Employee Retirement Income Security Act (pension funds). Whatever the source of the obligation, access to full information improves the quality of the decisions institutions can make on behalf of their clients and beneficiaries.

Company disclosure falls into two main categories: voluntary and mandatory. Voluntary disclosure is not made in response to any legal mandate and may be contained in a corporate social responsibility or sustainability report, or in a report submitted in connection with a specific voluntary disclosure initiative. Companies make mandatory disclosures because they are required to do so by law or regulation.

Growth in Voluntary Disclosure Demonstrates Need for Climate Risk Information

The amount of voluntary disclosure of climate risks and opportunities has grown significantly in recent years. Many companies disclose this information on corporate websites or in sustainability reports produced in accordance with the Global Reporting Initiative reporting guidelines. Companies also disclose climate risks in response to shareholder resolutions asking for disclosure, which are almost always non-binding. The Carbon Disclosure Project, which sends a climate change question-

naire to corporations annually, has seen the number of companies responding rise from 235 in 2003 to 1,550 in 2008.⁴⁵ Participation by companies in the S&P 500 increased from 263 in 2006 to 336 in 2008.⁴⁶

Climate change is often discussed in corporate social responsibility or sustainability reports. A 2008 study by KPMG found that of the Global Fortune 250 companies, 79% issued a corporate social responsibility report; among those companies, over 60% discussed climate change in some way. Disclosure on climate change was most common in the mining, utilities, metals, oil and gas, and chemicals sectors. KPMG did not track mentions of climate change in its previous survey, which was published in 2005, but it seems likely that discussions of the subject have increased, given the overall jump in corporate social responsibility reporting from 52% of Global Fortune 250 companies in 2005.⁴⁷ A 2007 study by KPMG and the Global Reporting Initiative (GRI) on a sample of 50 sustainability reports found that 45 companies mentioned climate change or global warming, while 33 had a separate section or chapter on climate change.⁴⁸

Although it can be useful to investors, voluntary disclosure has several important shortcomings. First, because it is voluntary, companies without a positive story to tell can simply decide not to disclose. In this way, disclosure will be skewed toward companies that are better positioned to address the risks and opportunities presented by climate change. Second, voluntary disclosure tends to focus on opportunities related to climate change while omitting or downplaying the risks. The 2007 KPMG/GRI study found that in sustainability reports “companies reported far more on potential opportunities than financial risks for their companies from climate change.”⁴⁹ Third, voluntary disclosure is not uniform, frustrating efforts to benchmark companies against one another. Fourth, companies making voluntary disclosure tend not to quantify the financial impact of risks and opportunities.⁵⁰ Finally, voluntary disclosure lacks the enforcement mechanism that comes with mandatory disclosure requirements.

Voluntary disclosure is not uniform, frustrating efforts to benchmark companies against one another.

Strengths of a Mandatory Disclosure Framework

Mandatory disclosure, by contrast, applies to everyone and establishes uniform requirements, allowing comparisons among companies and imposing consequences for non-disclosure. In the U.S., the primary source requiring mandatory corporate disclosure regarding climate change is the federal securities laws, which apply only to companies whose shares are sold to the public through a process of registration and which satisfy certain other criteria related to the size of the public market for their securities.

Specific securities law requirements are discussed below in more detail. In general, they mandate that a company disclose, at the time securities are first offered to the public and periodically thereafter, material information about its business, including the competitive environment and costs of complying with regulations; litigation; risk factors; and known trends, uncertainties or other factors that are reasonably likely to have a material impact on financial position or results. These disclosure requirements are enforced both through private litigation, in which investors sue for damages caused by faulty disclosure, and through actions brought by the Securities and Exchange Commission (SEC), which is tasked with interpreting and enforcing the federal securities laws.

Investor Requests for Improved SEC Disclosure

Over the past six years, investors have vigorously lobbied the SEC to improve the quality of mandatory disclosure through more robust enforcement of existing disclosure requirements and the issuance of guidance clarifying how those requirements apply in the context of climate risks and opportunities.

In September 2007, a group of 22 institutional investors and investment fiduciaries with \$1.5 trillion in assets under management joined several environmental organizations to petition

Mandatory disclosure...applies to everyone and establishes uniform requirements, allowing comparisons among companies...

the SEC to issue an interpretive release affirming the applicability of the existing disclosure rules to the risks and opportunities created by climate change.⁵¹ The petition led to a hearing in October 2007 before the U.S. Senate Banking Committee's Subcommittee on Securities, Insurance and Investment, at which the chief investment officer of the California Public Employees' Retirement System testified that "reporting on climate issues is no longer a mere virtue, but a legal obligation and a necessity for investors."⁵² On June 12, 2008, the signatories submitted a petition supplement, describing developments since the original petition was filed.⁵³

At the same time the original petition was filed, the investor group also sent a letter to the Director of the Division of Corporation Finance, the division of the SEC that reviews and evaluates the adequacy of companies' periodic filings. The letter explained that current disclosure requirements compel disclosure of climate risks and opportunities and asked the Division to "systematically incorporate attention to climate disclosure into its review of registrants' disclosures."⁵⁴

Although the securities laws and regulations account for most mandatory disclosure regarding climate risks and opportunities, state insurance regulators recently began requiring climate-related reporting. The National Association of Insurance Commissioners⁵⁵ voted in March 2009 to mandate that insurers with annual premiums of at least \$500 million report to state insurance regulators on a number of climate risk issues, including "how they are altering their risk-management and catastrophe-risk modeling in light of the challenges posed by climate change steps they are taking to engage and educate policymakers and policyholders on the risks of climate change, as well as whether and how they are changing their investment strategies."⁵⁶

Investors have developed protocols and other measures to inform and enhance the voluntary and mandatory disclosure provided by companies. In 2006, a group of 14 institutional investors and organizations released the Global Framework for Climate Risk Disclosure, a "statement of investor expectations for comprehensive corporate disclosure," both voluntary and mandatory. The Global Framework aims to "encourage standardized climate risk disclosure to make it easy for companies to provide and for investors to analyze and compare companies." The four major components of disclosure under the Global Framework are GHG emissions, strategic analysis of climate risk and measures to manage emissions, physical risks and an analysis of the effects of regulation.⁵⁷

Investors have also sought better disclosure from companies by using a mechanism—the shareholder resolution—that allows shareholders to put matters to a vote of shareholders using the company's own proxy statement.⁵⁸ Shareholder resolutions are an inexpensive way for shareholders to register sentiment on various issues and are used to advocate many kinds of changes in corporate behavior. Although resolutions are almost always non-binding, meaning that if they receive support from a majority of shares the board is not bound to take the requested action, failure to implement a proposal that receives a great deal of support from shareholders can harm a company's reputation and erode shareholder support for directors.

Climate change has been the subject of a large number of shareholder resolutions. Most proposals ask companies to disclose more information about their GHG emissions, describe actions they are taking to improve energy efficiency or analyze the risks and opportunities created by climate change. For the 2008 proxy season, a record 67 shareholder proposals on climate change were submitted to U.S. and Canadian companies. Although companies in high-emitting sectors tended to be targeted, proponents have broadened their focus to include homebuilders and retailers, which account for a significant amount of indirect emissions.⁵⁹

Shareholder support for resolutions on climate change has climbed steadily over the past several years. In 2005, climate change resolutions averaged 10.8% support; by 2007, that number had risen to 18.7%. The average vote for resolutions dealing with energy efficiency increased from 18.4% in 2006 to 22% in 2007.⁶⁰ In 2008, resolutions asking for GHG emissions reports averaged 30.6% support.⁶¹

A resolution may never go to a vote if the proponent and company agree to a settlement. Indeed, 20 of the 64 resolutions submitted for the 2008 proxy season had been withdrawn by May 6, 2008, after companies made positive commitments to respond to the proxy requests.⁶² Settlements have

brought about significant disclosure improvements at some companies. For example, in 2004, American Electric Power, a major utility with among the highest carbon dioxide emissions in the world, settled a proposal submitted by the Connecticut Retirement Plans and Trust Funds and several co-sponsors by agreeing to disclose the impact of proposed federal regulation on AEP's business (including scenario analysis) and the actions AEP could take to mitigate those effects.⁶³ The agreement was considered a template for future settlements.⁶⁴

SEC Disclosure Requirements

The overriding purpose of the disclosure requirements imposed by the securities laws is to remedy “information asymmetries” between current or potential investors and company insiders.⁶⁵ To that end, the rules aim to “provide sufficient information so that largely market-driven segments of the economy can work.”⁶⁶ To avoid inundating investors with insignificant information, the securities laws focus on disclosure of “material” information. Materiality is determined not with reference to a bright-line quantitative benchmark, but instead by evaluating the significance of the information to the reasonable investor. Information is material if “there is a substantial likelihood that [the fact] would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of information made available.”⁶⁷

The securities rules require companies to include financial statements prepared in accordance with Generally Accepted Accounting Principles (GAAP) in some SEC filings, including annual filings on Form 10-K and quarterly filings on Form 10-Q. For some companies, GAAP may require climate-related disclosure in the financial statements. Specifically, Statement of Financial Accounting Standards 5 (FAS 5), Accounting for Contingencies, mandates that a company record a liability if a loss is probable and the amount of the loss can be reasonably estimated.⁶⁸ If both of those requirements are not met, but there is a reasonable possibility that the loss will occur, footnote disclosure should be made.

Outside the financial statements, companies may be obligated to make narrative disclosure regarding climate risks and opportunities. Regulation S-K supplies the main narrative disclosure requirements; its provisions are incorporated by reference into certain registration statements, the filings companies make when they initially offer securities to the public, and periodic filings. Periodic filings are made by companies with registered securities that also satisfy requirements relating to the size of the public market for those securities. Periodic filings are intended to keep market participants up-to-date regarding a company's financial condition and business.

The following items of Regulation S-K may require disclosure of climate risks and opportunities:

Item 101: The company must describe its business, including the sources and availability of raw materials, competitive conditions in the business, and the material effects of compliance with environmental laws.⁶⁹ A company with operations in a jurisdiction that has imposed emissions limits would be required to disclose the effects of those limits on its business, if they are material. Similarly, changes in the price of an input or raw material as a result of climate change or rules aimed at mitigating it might require disclosure under this item.

Item 103: The company must describe any “material pending legal proceedings,” other than routine litigation incidental to the business, to which the company is a party or its property is subject.⁷⁰

Item 303: The company must discuss its financial condition, changes in its financial condition and results of operations, including “known trends or uncertainties that have had or that the registrant reasonably expects will have a material favorable or unfavorable impact on net sales or revenues or income from continuing operations.” This discussion, which is included in the Management's Discussion and Analysis (MD&A) section of SEC filings, is intended to allow investors to “look at the company through the eyes of management.”⁷¹

The SEC has stated that the MD&A should “provide insight into material opportunities, challenges and risks, such as those presented by known material trends and uncertainties, on which the company’s executives are most focused for both the short and long term, as well as the actions they are taking to address these opportunities, challenges and risks.”⁷² The SEC’s staff has emphasized that the “requirement to discuss uncertainties in MD&A encompasses both financial and non-financial factors that may influence the business, either directly or indirectly.”⁷³

The risks and opportunities created by climate change clearly fit within the range of factors to which Item 303 applies. The scientific consensus and improved ability for scientists to quantify likely climate change impacts preclude an argument that climate change is not a “known” trend or uncertainty. The rapidly changing regulatory environment introduces the possibility that past financial results will not be indicative of future results, and the effect is certainly material for many companies.

Methodology: Evaluating Corporate Climate Risk Disclosure

Companies were evaluated on their absolute levels of disclosure on climate risks and opportunities relative to the Global Framework for Climate Risk Disclosure.

The purpose of this report is to assess the current state of climate risk disclosure in SEC filings by companies in industries affected by climate change and regulations related to climate change. The report uses a systematic method for evaluating the quality, depth, and clarity of climate risk disclosure in selected 10-K reports, filed in 2008 to cover fiscal year 2007, in order to assess whether current disclosure practices are adequate. Because Fiscal Year 2008 filings were not available during the research period for this report, any improvements in disclosure in 2008 annual filings were not captured by this report.

Companies were evaluated on their absolute levels of disclosure on climate risk relative to the Global Framework for Climate Risk Disclosure (Appendix B); we did not take a best-of-class approach in which companies were ranked relative to one another. According to this method, if all the companies in a given industry group were to have weak disclosure, we would rate them all poorly, and would make no attempt to create a “normal distribution” or “bell curve” based on small differences among the companies.

Companies were selected for this study based on their involvement in the coal, electric utilities, oil and gas, insurance, and transportation industries. Those industries were chosen because they have a high level of exposure to climate risks and opportunities. Companies were then sorted by market capitalization and by annual revenues, to identify those that were the largest in their sectors. The resulting list of 100 companies included a representative cross-section of corporations within the aforementioned industries.⁷⁴

Table 1
Overview of Assessment Methodology for Coal, Electric Utilities, Oil and Gas, and Transportation Companies

Emissions & Climate Change Position Disclosure
Company discloses GHG emissions data in SEC filings
SEC filings mention climate change or state the company's position
Risk Assessment Disclosure
Physical plant risks disclosed in SEC filings
Regulatory risks disclosed in SEC filings
Business model/strategic risks disclosed in SEC filings
Litigation risks disclosed in SEC filings
Disclosure of Actions to Address Climate Risk
Climate change-related opportunities disclosed in SEC filings
GHG emissions reduction pledges disclosed in SEC filings
Risk management and mitigation measures disclosed in SEC filings

For U.S. companies, we reviewed 10-K filings for the 2007 fiscal year, which were submitted to the SEC in 2008. For non-U.S. companies covered by this study, 20-F or 40-F annual filings, if available, were reviewed in place of 10-K filings. In some cases, 20-F or 40-F filings incorporated by reference separate documents, including the company's Annual Report to shareholders. Where an Annual Report was incorporated by reference in a company's 20-F or 40-F filing, that report was reviewed for this study. In cases where there was no 20-F or 40-F filing for a non-US company, the company's Annual Report was reviewed in place of an SEC filing.

Analysis of the companies involved extracting information related to climate change and climate risks and opportunities within the filings using keyword searches and manual reviews of each document. This disclosure was then reviewed according to an evaluation framework developed jointly by The Corporate Library, Ceres and Environmental Defense Fund based on the Global Framework for Climate Risk Disclosure, a statement of investor expectations for comprehensive, standardized corporate disclosure, to make it easy for companies to provide information and for investors to analyze and compare companies (Appendix B).

For the purposes of this study, the Global Framework's criteria were divided into three main areas of disclosure: 1) emissions and climate change position disclosure, 2) risk assessment disclosure, and 3) disclosure of actions to address climate risk. Within these broad categories, specific issues were identified, and companies were evaluated on the extent to which their disclosure addressed these issues. Companies in all industries were evaluated on the same basis, with the exception of insurance. As explained in detail in Tables 1 and 2, the specific items we looked for within each of three main categories were different for the insurance industry versus other industries due to the unique nature of its exposure to climate risk.

To illustrate how this framework was applied, a hypothetical company in the coal, electric power, oil and gas or transportation sectors with comprehensive disclosure on emissions and climate change would have reported its past, current, and projected future GHG emissions, as well as provided background information on emissions attributed to its industry as a whole. This would give investors context for how companies in that industry are tracking emissions, provide year-to-year comparisons, illustrate emissions reductions benchmarks, and indicate where the company ranks compared to its industry's average. In addition, a company with sufficient disclosure in this area would also provide information about whether it has developed a climate change position, and the details of that policy.

Table 2
Overview of Assessment Methodology for Insurance Companies

Emissions and Climate Change Position Disclosure
Company discloses GHG emissions data in SEC filings
SEC filings mention climate change or state the company's position
Risk Assessment Disclosure
Underwriting climate risks disclosed in SEC filings
Investment climate risks disclosed in SEC filings
Enterprise risks related to climate change disclosed in SEC filings
Litigation risks related to climate change disclosed in SEC filings
Disclosure of Actions to Address Climate Risk
Climate change-related opportunities disclosed in SEC filings
Enterprise risk management strategies related to climate change disclosed in SEC filings
Loss control measures related to climate change disclosed in SEC filings

Across the board, disclosure by all 100 companies was lacking; only two companies in the study disclosed more than half of the information requested by the Global Framework. As a result, we have described the companies' disclosure ... as "None," "Poor," "Limited," or "Fair," with "Fair" indicating the highest quality disclosure.

In the risk assessment category, a company which provides good disclosure would describe physical risks to its operations resulting from climate change, and would attempt to quantify these risks for investors to the extent possible. This company would also disclose regulatory risks, describe current and pending future climate change regulations that would impact its business, and include a scenario analysis estimating potential impacts. The company would also disclose indirect regulatory and litigation risks that it might face related to climate change, and would aim to quantify the scale of these risks as well as efforts to mitigate them.

Finally, a company with full disclosure on its actions to address climate risk would identify opportunities to enter new markets as a result of climate change, and describe new products it has launched in response to climate change or R&D investments it has made in this area. This company would also disclose public pledges to reduce emissions that include quantitative reduction targets, a timeframe for meeting these goals, specific actions it is taking to meet reduction targets, and participation in voluntary and other emissions reduction programs. The company would include discussion of risk management and mitigation measures that include measures to safeguard its physical plants from climate impacts, engagement with climate-related organizations, and targets to shift its business model based on future expectations of climate impacts.

The above evaluation framework was applied to all industries in the study except for insurance. For this industry, the evaluation methodology was derived from the National Association of Insurance Commissioners' (NAIC) new mandatory requirement that insurance companies disclose to regulators the financial risks they face from climate change.

Accordingly, for the insurance industry, a company with sufficient disclosure on emissions reporting would disclose its emissions data and its plans to mitigate its emissions, and would acknowledge anthropogenic climate change and its challenges. It should be noted, however, that less emphasis was given to emissions disclosure for the insurance industry, given its comparatively low emissions levels from operations.

Full insurance company disclosure on climate risk assessment would involve detailed discussion of underwriting risks. Commentary would include a description of these risks, as well as a discussion of the company's use of computer modeling to test various climate risk scenarios. The company would also disclose its investment risk and related impacts, possibly quantifying them. The company would also describe the relationship between underwriting and investment risks. Underwriting risks are related to the risk that premiums may not be sufficient to cover future losses incurred from climate change, whereas investment risks are related to the possibility that the value of an insurance investment might decline due to a decrease in the value of the underlying assets as a result of catastrophic climate change-related events. In addition, full disclosure would include implications for reinsurance costs, loss reserves, and liquidity needs due to climate change. Finally, the company would disclose litigation risk it could face from concerned shareholders, policyholders, and other third parties that have been impacted by climate change.

With regard to actions to address climate risk, good disclosure by an insurance company would identify opportunities related to climate change for entering new markets and developing new products, and would discuss new product lines that have already been launched. The company would include discussion of enterprise risk management, including a climate change policy with respect to risk management, noting structures in place to manage these risks and an internal climate change team including representatives from both the underwriting and investment sides of the business. Lastly, disclosure would include discussion of loss control from climate change, including measures taken to assist policyholders in loss prevention, identification and description of coverage in geographic areas that are prone to catastrophic climatic events, and steps the company has taken to engage key constituencies on climate change.

Company performance in each of the three disclosure areas—emissions and climate change position disclosure, risk assessment disclosure, and disclosure of actions to address climate risk—is described in a table for each industry in this report. Across the board, disclosure by all 100 companies was lacking; only two companies in the study disclosed more than half of the information requested by the Global Framework. As a result, we have described the companies' disclosure in each area as "None," "Poor,"

“Limited,” or “Fair,” with “None” being the lowest quality disclosure and “Fair” indicating the highest quality disclosure found in the report.

These assessments are displayed in tables in each industry section of the report, which show at a glance the levels of each type of disclosure prevailing in the group, and at individual companies. Readers should note, though, that these tables provide an overview of disclosure, and should not be used to precisely rank companies relative to each other. To help readers understand the meaning of the ratings in depth, each section begins with a discussion of climate risks and opportunities facing each sector and proceeds to analyze the industry’s disclosure on each topic area.

In addition, Appendix A includes case studies examining climate risk disclosure from one company from each of the sectors examined in this report. These case studies assess and compare disclosures from both voluntary sources and SEC filings for each company, providing some examples of what companies disclose and where they disclose it, and providing insights into how voluntary and mandatory disclosure differ.

FINDINGS

Electric Power Industry

Few companies in the electric utilities group disclosed information on GHG emissions in SEC filings.

Climate risk disclosure for the electric utilities industry is particularly important to investors. Existing fossil fuel-fired power plants are the single largest source category of greenhouse gases in the U.S. and policies to stabilize the climate will need to address these emissions. Further, building new fossil fuel-fired power plants involves high capital costs and long planning horizons (plants may be operational for thirty years or more). Accordingly, useful disclosure for investors could include utilities not only describing potential regulations in SEC filings, but also attempting to quantify regulatory risks and opportunities. Plants in locations vulnerable to increases in extreme weather events will also face physical risk.

Indeed, of all the sectors included in this report, utilities had the most climate risk disclosure in SEC filings. In particular, their disclosure of regulatory risks was the strongest of all five sectors. Many companies discussed pending legislation, as well emissions reductions and renewable energy initiatives.

The utilities sector is already among the most regulated with regard to emissions of various kinds, including greenhouse gases. Regulations require reporting on emissions of nitrogen and sulfur oxides, as well as mercury. Since the mid-1990s, reporting of carbon dioxide emissions has been required at the federal level as well. These requirements have primed utility companies to better disclose their preparedness for increased regulation of GHG emissions.

Existing fossil fuel-fired power plants are the single largest source category of greenhouse gases in the U.S., and a number of states and regions already have policies to reduce emissions from the power sector. The most significant of these is the Regional Greenhouse Gas Initiative, a cap-and-trade program designed to reduce carbon dioxide emissions from power plants in ten states—New York, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, Rhode Island, and Vermont. Under the program, emissions will be capped starting in 2009 at current levels, and then reduced to 10 percent below 2009 levels by 2019.

In California, a 2006 law sets a GHG emissions standard for electricity generating units at a rate no higher than that for combined-cycle natural gas baseload generation; Washington enacted a similar standard in 2007. The California law allows for carbon sequestration as a means of emissions reduction. Similarly, Montana has prohibited the approval of new electric generating units that are primarily fueled by coal unless at least half of the resulting carbon emissions are captured and sequestered. Without setting an emissions limit, Iowa has adopted a law requiring utilities to quantify potential GHG emissions as part of their permit applications.

Renewable portfolio standards (RPSs), which require utilities to generate a certain percentage of their electricity from renewable sources, have also been established in 29 states as well as the District of Columbia. These clean energy generation requirements are now in place for states covering 60% of the U.S. population and over 65% of U.S. gross domestic product (GDP).

In addition to laws requiring generation from renewables, all but nine states have net metering programs, which give consumers credit for electricity they generate themselves from renewable sources and return to the grid. In 21 states, net metering has been established statewide. Nearly half of U.S. states manage funds collected through utility contributions or electrical bill charges that support renewable energy or energy efficiency initiatives.

Overall, the large numbers of regional, state, and voluntary initiatives to reduce emissions in this sector, in comparison to other sectors examined in this report, suggest that full disclosure of climate risks and opportunities for utility companies is particularly important for investors.

Disclosure of Emissions and Climate Change Position

This study found that few companies in the electric utilities group disclosed information on GHG emissions in SEC filings. AES, National Grid, and Xcel provided the best disclosure on emissions. AES reported its past emissions and provided some industry-level information on GHG emissions. In its Annual Report to shareholders, National Grid disclosed its past emissions and emissions for 2007. The company also stated that climate change is an important issue and it is “fully integrating climate change considerations into [its] business decisions.” Xcel not only disclosed past CO₂ emissions reductions, but also projected future emissions. The company stated that its “current electric generating portfolio includes coal- and gas-fired plants that are projected to emit approximately 67 million tons of CO₂ in 2007 ... There has been a combined cumulative reduction of over 18.5 million tons of CO₂ since 2003.” This type of specific information is helpful for investors to understand the context of reduction levels.

Utilities’ disclosure on actions they are taking to minimize climate risks and take advantage of new opportunities was weak compared to the information outlined in the Global Framework for Climate Risk Disclosure.

Disclosure of Risk Assessment

Every electric power company reviewed in this study disclosed some level of regulatory risk in SEC filings, making this the strongest area of disclosure for utilities. However, disclosure usually provided only a general description of risks. Ten out of 26 companies studied (38%) scored in the poor ranking for this category and 13 out of 26 (50%) scored in the limited category. Three out of 26 (12%) received a ranking of fair, the highest level of disclosure found in the study.

Most companies described general impacts of proposed climate change legislation, whereas others included information about the impact of regulation on their business and descriptions of the regulations. This disclosure from Ameren represents a typically general discussion of regulatory risk: “[T]he impact on us of future initiatives related to greenhouse gas emissions and global warming is unknown. Although compliance costs are unlikely in the near future, our costs of complying with any mandated federal or state, where our Non-rate-regulated Generation coal-fired plants are located, greenhouse gas program could have a material impact on our future results of operations, financial position, or liquidity.”

Few companies tried to quantify regulatory impacts, which would give investors more information to make prudent investment decisions. Most companies simply described the future of regulations as “uncertain.” Xcel disclosed key factors for its exposure to regulatory risk, for example stating “[a]n important factor is Xcel Energy’s ability to recover the costs incurred to comply with any [climate change] regulatory requirements that are ultimately imposed.” Only AES and Ameren Corporation quantified their exposure to regulatory risk.

Only five of the 26 electric utilities mentioned any business model or strategic risks resulting from climate change, with the strongest discussions coming from companies with the most comprehensive overall disclosure. Six utilities described risks from climate change litigation.

Finally, only four companies discussed physical risk to their operations resulting from climate change: AES, Xcel, PG&E, and Exelon. AES included a discussion of the possible sources for physical risks related to climate change, as well as the impacts of these risks on its business.

Disclosure of Actions to Address Climate Risk

Generally speaking, utilities’ disclosure on actions they are taking to minimize climate risks and take advantage of new opportunities was weak compared to the information outlined in the Global

Framework for Climate Risk Disclosure. While 11 out of 26 companies (42%) had at least limited disclosure of actions taken, 7 out of 26 companies (27%) omitted any discussion.

Many companies mentioned renewable energy programs, efforts to reduce emissions, or investments in new technologies for generating power. Others, notably PG&E and National Grid, provided some discussion of energy efficiency and demand-side management programs that provide financial incentives and other benefits to participating customers who curtail their peak energy use.

Xcel disclosed that it was investing in research to mitigate climate change impacts, and was looking increasingly to renewable energy to offer customers carbon-free energy. FPL Group discussed its involvement in the U.S. Climate Action Partnership and other voluntary climate change engagement groups such as the Clinton Global Initiative and the EPA Climate Leaders program (through which it sets emissions reduction targets). The company also announced plans to invest up to \$1.5 billion in new solar generating facilities in Florida and California by 2014 and to provide enhanced energy management capabilities to its customers.

Company Rankings

While this industry had a number of the highest ranking companies...even those companies failed to disclose key pieces of information requested by investors, such as emissions data or a regulatory risk assessment.

Three companies in this group—AES, Xcel, and PG&E—had the most extensive overall disclosure of all 100 companies reviewed in the study. AES and Xcel had similar levels of disclosure, except AES quantified its exposure to regulatory risks, while Xcel did not. AES was also one of only two companies (along with Ameren) to quantify regulatory risks in its 10-K. FPL, Calpine, Dominion, Exelon, and Duke all produced disclosure in the top half of this group.

At the other end of the spectrum, DTE Energy had almost no climate change disclosure. The company's sole mention of climate change was a very general statement that "there may be legislative action" on the issue, and the business impact of such action was impossible to predict.

Table 3
Electric Utilities: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
AES Corp.	Limited	Fair	Limited
Ameren Corporation	Poor	Limited	Limited
American Electric Power Company, Inc.	Poor	Limited	Poor
Berkshire Hathaway	Poor	Poor	None
Calpine Corporation	Limited	Limited	Limited
CenterPoint Energy, Inc.	Poor	Poor	None
Consolidated Edison, Inc.	Limited	Poor	Poor
Constellation Energy Group, Inc.	Poor	Poor	Poor
Dominion Resources Inc.	Poor	Limited	Limited
DTE Energy Company	None	Poor	None

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Table 3

Electric Utilities: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
Duke Energy Corporation	Limited	Limited	Limited
Edison International	Poor	Limited	Limited
Entergy Corporation	Limited	Limited	None
Exelon Corporation	Limited	Limited	Limited
FirstEnergy Corp.	None	Limited	None
FPL Group, Inc.	None	Poor	Fair
Integrus Energy Group, Inc.	Poor	Poor	None
National Grid	Limited	Poor	Limited
Pepco Holdings, Inc.	Poor	Poor	Poor
PG&E Corp.	Poor	Fair	Fair
Progress Energy, Inc.	Poor	Limited	Poor
Public Service Enterprise Group Incorporated	Limited	Limited	Poor
Reliant Energy, Inc.	Poor	Limited	Poor
Sempra Energy	Poor	Poor	None
Southern Company	None	Limited	Poor
Xcel Energy	Limited	Fair	Limited

EVALUATION KEY

None: Climate risk is not mentioned at all in annual filing.

Poor: Climate risk is discussed, but is not analyzed in terms of its impact on the company's business.

Limited: Annual filing includes limited discussions or analyses of climate risk as it applies to the company's business.

Fair: Annual filing includes fuller discussions or analyses of the impact of climate risk on the company's business, but disclosure still does not meet the requirements of the Global Framework for Climate Risk Disclosure.

*For Fiscal Year 2007.

Several major commercial and investment banks have adopted the Carbon Principles, a set of guidelines which should... address the financial risks associated with investments in new coal-based generation.

Conclusion

The quality of climate risk disclosure by electric power companies was low compared to the Global Framework's standards. While this industry had three of the highest ranking companies in the entire study, even those companies failed to disclose key pieces of information requested by investors, such as emissions data or a regulatory risk assessment.

Much of the disclosure provided was general in nature, providing an incomplete picture of climate risks and opportunities facing these companies. In the emissions data and climate change position category, no company provided sufficient disclosure to achieve a "fair" rating. Annual emissions data would be a particularly useful metric for investors to help assess and compare utility performance, and the absence of such disclosure was notable.

Only 3 out of 26 companies (12%) achieved a "fair" rating in their disclosure of risk assessment, although all companies provided at least some disclosure. Information on actions to address climate

change was inadequate, with only 2 out of 26 companies reviewed (8%) attaining a “fair” rating and 7 out of 26 (27%) providing no information whatsoever.

Climate change presents a wide range of risks and opportunities for the electric utilities sector. While the overwhelming majority of surveyed utilities included some discussion of these issues, few provided additional detail that would help investors identify which utilities are leading and lagging in addressing climate change.

FINDINGS

Coal Industry

All coal companies surveyed demonstrated some disclosure of climate change... but only 1 out of 6 achieved a "Fair" rating in any of the three disclosure categories.

This report analyzes SEC annual filings submitted in 2008 from six Coal Extraction and Production companies, including four U.S. and two foreign companies. Extraction, transport and combustion of coal generate extensive volumes of greenhouse gas emissions,⁷⁵ as well as causing land, water, and air quality impacts. Coal combustion is the nation's single largest contributor to greenhouse gas emissions.⁷⁶

Policy-makers are taking a number of steps to address the high emissions from coal-fired electricity generation. National and multi-state policy initiatives would establish a declining cap on global warming pollution that encompasses the emissions from coal-based power. The Regional Greenhouse Gas Initiative, a ten-state cap and trade program to limit emissions from fossil-fuel based electricity generation, is in effect in the Northeastern and Mid-Atlantic United States.⁷⁷ States have also established greenhouse gas limits on new coal-fired power plants or have declined to issue construction permits for proposed coal plants that fail to mitigate their global warming pollution.⁷⁸

States are also expanding reliance on low emitting renewable energy resources and energy efficiency as an alternative to reliance on fossil fuels. Over two dozen states have policies to increase renewable energy or energy efficiency.⁷⁹ Power companies are also evaluating the range of energy generation resources across their portfolios, retiring fossil fuel-based power and replacing the resources with lower emitting technologies.⁸⁰ And electric utilities are spurring the development and deployment of advanced technologies to capture and store carbon dioxide to address the extensive emissions from conventional coal combustion technologies.⁸¹

Several major commercial and investment banks have adopted the Carbon Principles, a set of guidelines which should provide a consistent approach for evaluating climate risk in financing electric power plants and examining clean energy alternatives, to address the financial risks associated with investments in new coal-based generation.⁸²

Because coal is a carbon intensive fuel and is a principal contributor to global warming, the industry faces increasing national, regional and state policy action to limit its greenhouse gas emissions. These policies involve regulatory limits on pollution, as well as incentives for companies that harness innovations to limit emissions through clean energy alternatives and advanced combustion technologies.

Disclosure of Emissions and Climate Change Position

Disclosure levels on emissions and climate change position were low in the coal industry, as one company had no disclosure, and five had disclosure evaluated as poor or limited. Only two companies disclosed GHG emissions data, a significant shortcoming in a sector facing regulatory risks because of its carbon dioxide emissions intensity. Rio Tinto's disclosure was notably comprehensive, and discussion on GHG emissions was found throughout the company's filing, including a mention of its past and projected future emissions. Massey Energy disclosed some industry-level emissions information but no emissions data specific to the company. Peabody Energy's disclosure did not provide any factual information on emissions, and noted only a neutral, broad mention of the occurrence of climate change. Arch Coal and CONSOL Energy both had some climate change disclosure, but the discussion they provided was less comprehensive than Peabody and Massey.

Both companies mentioned that climate change is occurring, but neither disclosed any information regarding its GHG emissions.

Disclosure of Risk Assessment

Risk assessment was the strongest area of disclosure for coal companies, with four companies providing limited disclosure, and one providing fair disclosure. However, all companies provided substantially less information and analysis than the practices outlined by investors in the Global Framework.

Rio Tinto did not cite climate change as a risk to its physical operations, but it did state that it could face regulatory risks due to potential legislation on climate change, and that it faces possible strategic risks related to its business model. Massey stated the potential for regulatory risk. Peabody also offered a description of potential climate change-related legislation, but did not provide details on its implications. The company also stated that there could be potential impacts to its physical operations as a result of climate change, but it did not elaborate.

Neither Arch nor CONSOL disclosed potential physical risks to their operations resulting from climate change, but both companies reported possible risks from climate change legislation and litigation, as well as risks to their business models. For example, CONSOL noted that “on February 4, 2008 three of Wall Street’s largest investment banks announced that they had adopted climate change guidelines for lenders to evaluate carbon risks in the financing of utility power plants which may make it more difficult for utilities to obtain financing for coal-fired power plants.”

The extent to which the companies elaborated on potential risks to their businesses varied, which is concerning given the considerable contribution of the coal sector to overall greenhouse gas emissions. For example, Peabody Energy included some background discussion on the findings of the IPCC, and noted that concerns about the changing climate could affect demand for its products. Massey mentioned the possibility of risk to its business model if public concerns about climate change continue to increase, but did not elaborate further.

Disclosure of Actions to Address Climate Risk

Disclosure of actions to address climate risk was the weakest area of coal company disclosure, with three out of six companies providing no disclosure. In its annual filing, Rio Tinto mentioned the following actions: exploring new markets for expansion, investing in research and development to address climate change challenges, and developing new product lines. It reported a commitment to being a “leading advocate of, and investor in, the sustainable future uses of coal and uranium.” The company disclosed its emission reduction pledges and some actions to reduce emissions in the future, and stated that it is engaged with some climate-related organizations on how to mitigate its impacts. Notably, Rio Tinto included some information on climate change and GHGs for each segment that it operates in.

Peabody and Massey were the only companies other than Rio Tinto in this group to discuss opportunities related to climate change, mentioning investments in developing advanced coal combustion and carbon capture technologies.

The rest of the companies in this group had no disclosure in the areas of opportunity identification, emissions reductions pledges or efforts to mitigate or manage climate risks, leaving investors in the dark regarding how and whether the companies plan to proactively address climate risks and opportunities.

Company Rankings

In general, coal companies in this study had fairly weak disclosure, with U.K.-based mining company Rio Tinto achieving the highest level of climate risk disclosure. Yanzhou Coal Mining Company, based

Table 4

Coal: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
Arch Coal	Poor	Limited	None
CONSOL	Poor	Limited	None
Massey Energy	Limited	Limited	Poor
Peabody Coal	Poor	Fair	Poor
Rio Tinto	Limited	Limited	Limited
Yanzhou Coal	None	Poor	None

EVALUATION KEY

None: Climate risk is not mentioned at all in annual filing.

Poor: Climate risk is discussed, but is not analyzed in terms of its impact on the company's business.

Limited: Annual filing includes limited discussions or analyses of climate risk as it applies to the company's business.

Fair: Annual filing includes fuller discussions or analyses of the impact of climate risk on the company's business, but disclosure still does not meet the requirements of the Global Framework for Climate Risk Disclosure.

*For Fiscal Year 2007.

in China, provided the weakest disclosure. The latter company's only reference to climate change in its annual filing was to note that there is potential regulatory risk in the future.

Conclusion

Coal-fired power generation is a major source of GHG emissions and, as a result, the coal industry faces substantial climate risks. All coal companies surveyed demonstrated some disclosure of climate change issues in their 10-K or similar filings, but only 1 out of 6 achieved a "fair" rating in any of the three disclosure categories: emissions and climate change position, risk assessment, and actions to address climate risk.

Climate disclosure by the coal companies was strongest in the category of risk assessment, where 5 out of the 6 companies (83%) earned a "limited" or "fair" rating. These disclosures typically mentioned regulatory, physical or litigation risks, but included little discussion of the implications of these risks.

Despite the substantial GHG emissions associated with coal production and use, 4 out of 6 companies (67%) disclosed no GHG emissions data. Rio Tinto's 20-F form did provide valuable information on GHG emissions, including a mention of its past and projected future emissions. More widespread disclosure of such information would help investors compare and assess coal companies' relative exposures to climate risks and efforts to manage them.

FINDINGS

Oil and Gas Industry

Climate change poses major risks and opportunities for companies whose primary focus is the extraction and production of oil and natural gas. These fuels emit significant amounts of carbon dioxide when burned, and oil and gas production itself causes significant emissions. Many of these companies already operate in countries covered by the Kyoto Protocol, and have therefore begun to experience carbon regulation. As regulatory oversight of carbon dioxide increases, these companies will have to manage their operations to meet emissions reductions targets. As a result, companies in this industry should be taking significant steps to not only describe potential regulations they may face, but also to attempt to quantify their exposure to regulatory risks for investors, to outline efforts to manage these risks, and to disclose new business opportunities.

The climate risk issues facing this industry are intensified because many companies are turning to unconventional sources of oil, including tar sands and oil shale, whose exploitation has a significantly greater climate change impact than traditional drilling. In response to concerns over the lifecycle GHG emissions of fuels derived from these unconventional sources, a number of government entities have begun to take action. For example, California's Low Carbon Fuel Standard, established by executive order in 2007, requires a declining GHG emissions intensity for the state's fuel mix going forward, and the U.S. Conference of Mayors resolved in 2008 to create guidelines for the lifecycle emissions of fuels purchased by municipalities.⁸³ These developments have the potential to materially impact the businesses of companies involved in exploiting these new oil resources.

In addition, oil and gas companies often operate in locations, such as the U.S. Gulf Coast, which are prone to extreme weather events. Last year's Hurricanes Ike and Gustav, for example, caused about \$40 billion in economic losses, demonstrating the vulnerability of coastal resources to one type of extreme weather event that is predicted to intensify with climate change. Companies in these areas should disclose the extent to which extreme weather induced by a changing climate can affect their operations.

Disclosure of Emissions and Climate Change Position

Disclosure of greenhouse gas emissions and companies' climate change position in this sector was very low. In particular, the companies reviewed disclosed minimal data on their emissions, though this information would be particularly valuable for investors given the emissions intensity of this industry. Shell had the highest level of disclosure in this group, reporting its past and current emissions and noting that climate change is occurring and is caused by human activity. None of the other companies in the oil and gas group reported on emissions, while five others mentioned that climate change is occurring but did not mention human activity as a cause of climate change.

Disclosure of Risk Assessment

Similar to the Electric Power group, companies in this industry made their strongest disclosures about regulatory risk. However only one company, Canadian Oil Sands Trust, included any

quantification of this risk. The company described the costs it will incur as it contributes to a technology fund in order to meet the targets of the Canadian Regulatory Framework for Air Emissions, disclosing that “Compliance with the new requirements would allow contribution to a technology fund until 2017 at a rate of \$15 per tonne from 2010 to 2012, increasing to \$20 per tonne and escalating by the rate of GDP growth from 2013 to 2017.” Most oil and gas companies stated the implications of potential climate change regulations in general terms, but did not describe specific bills or the impacts those bills, if passed, could have on the company. Anadarko and ExxonMobil made only a brief mention of climate risk. In a list of potential risks to its business, ExxonMobil cited “laws and regulations related to environmental or energy security matters, including those addressing alternative energy sources and the risks of global climate change.”

Despite the potential for major physical risks to operations for oil and gas companies, no company described these risks. This information would be useful for investors, given the major operations of these companies around the globe in areas that have significant potential to be affected by extreme weather, sea level rise, and other events related to climate change.

Few companies included discussion on business model risks resulting from climate change. Shell noted that increased attention to climate change leads to a number of risks, which in turn could “affect its operational performance and financial position.”

Only one company cited litigation as a potential climate risk. Suncor stated, “[O]ur business could be affected by the potential for lawsuits against greenhouse gas emitters, based on links drawn between greenhouse gas emissions and climate change.”

Disclosure of Actions to Address Climate Risk

Eleven of the 23 oil and gas companies reviewed disclosed actions to address climate risk. Overall, these companies had low quality disclosure on actions they are taking to address climate change and take advantage of new opportunities, given the climate-related risks and opportunities they face.

Shell had the most comprehensive disclosure, with discussion on new climate-friendly markets it aims to enter, investments and research into alternative energy, and new product lines in low-carbon energy. Shell also disclosed emissions reductions pledges and included a timeframe for meeting reductions targets. The company also described specific actions in place to reduce carbon emissions, and participation in carbon emissions trading programs.

BP, Statoil and Chevron’s disclosure on actions to mitigate climate risk was primarily related to new investments and research on alternative energy and other carbon-reducing technologies as well as new product lines they are offering in alternative energy.

Table 5
Oil and Gas: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
Anadarko Petroleum Corporation	None	Poor	Poor
Apache Corporation	None	None	None
BP	Poor	Poor	Limited
Canadian Natural Resources Limited	None	Poor	Poor

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Table 5

Oil and Gas: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
Canadian Oil Sands Trust	None	Limited	Poor
Chesapeake Energy Corporation	None	Poor	None
Chevron Corporation	Poor	Poor	Poor
ConocoPhillips	Poor	Limited	None
Devon Energy Corporation	Poor	Poor	Poor
EnCana Corporation	None	Poor	Poor
Exxon Mobil Corporation	None	Poor	None
Husky Energy Inc.	None	Poor	None
Imperial Oil Limited	None	Poor	None
Marathon Oil Corporation	None	Poor	None
Nexen Inc.	None	Poor	None
Petro-Canada	None	Poor	None
Shell	Limited	Limited	Fair
Statoil	None	Poor	Limited
Suncor Energy Inc.	None	Limited	Poor
Sunoco, Inc.	None	Limited	None
Tesoro Corporation	None	Poor	None
TOTAL SA	Poor	Poor	Poor
Valero Energy Corporation	None	Poor	None

EVALUATION KEY

None: Climate risk is not mentioned at all in annual filing.

Poor: Climate risk is discussed, but is not analyzed in terms of its impact on the company's business.

Limited: Annual filing includes limited discussions or analyses of climate risk as it applies to the company's business.

Fair: Annual filing includes fuller discussions or analyses of the impact of climate risk on the company's business, but disclosure still does not meet the requirements of the Global Framework for Climate Risk Disclosure.

*For Fiscal Year 2007.

Disclosure levels in this industry were far below what investors require, and the absence of reporting on climate risk related to exploitation of unconventional oil sources was especially striking.

Company Rankings

Disclosure levels in this industry were far below what investors require, and the absence of reporting on climate risk related to exploitation of unconventional oil sources was especially striking. The top five disclosers in this group were non-U.S. companies.

Exxon Mobil and Anadarko had very little information in their 10-Ks, making very general statements on the potential for risk related to climate change regulations. Apache had no disclosure whatsoever in its 10-K. Shell had by far the most comprehensive climate risk disclosure, followed by BP, Statoil, Canadian Natural Resources, and TOTAL. All but one company disclosed information related to regulatory risk.

Conclusion

In the oil and gas sector, the majority of companies disclosed some information about climate risks, but little to no information in the categories of actions to address climate change, or emissions and climate change position.

In the risk assessment category, a nominal level of disclosure was nearly universal; 22 out of the 23 companies surveyed (96%) had disclosures categorized as “poor” or “limited.”

Disclosure in the two other categories was even weaker. Twelve out of 23 companies (52%) disclosed no information about actions to address climate change, and 17 out of 23 companies (74%) had no disclosure about emissions and their climate change position. In particular, few companies discussed emission reduction pledges or new investment strategies to mitigate risks from climate change, and only one oil and gas company disclosed information on its GHG emissions.

The low level of disclosure in this industry leaves investors without crucial pieces of information necessary to gauge oil and gas companies’ preparedness for current and future climate change impacts.

FINDINGS

Transportation Sector

This study reviewed climate risk disclosure from 19 companies involved in transportation. This group includes companies in the automobile manufacturer, heavy truck manufacturer, trucking transportation, auto rental and shipping and logistics subsectors.

Policies are being established to address global warming pollution from motor vehicles. For example, on May 19, 2009, President Obama announced a nation-wide policy aimed at both increasing fuel economy and reducing greenhouse gas pollution for all new cars and trucks sold in the United States.⁸⁴

Accordingly, climate disclosure that would help investors understand and assess risks and opportunities facing these companies would likely focus on reductions of greenhouse gas emissions and related future regulations, investment in more fuel efficient cars, opportunities for the sale and use of alternative vehicles, and changes in shipping and transportation patterns in a carbon-constrained economy.

Disclosure of Emissions and Climate Change Position

Only five of the 19 companies in this group disclosed their emissions or mentioned a climate change position. Four were automobile manufacturers—Honda, Daimler, General Motors, and Toyota—and the fifth was shipping and logistics company FedEx.

Of this group, General Motors was the only one to disclose its past emissions from operations, stating, “[We] set a 2006 target of an 8% reduction in carbon dioxide (CO₂) emissions from our worldwide facilities compared to 2005 emission levels. By 2006, we had reduced CO₂ emissions from our worldwide facilities by 22% compared to 2000 levels. Several of our facilities are included in the European emissions trading regime, which is being implemented to meet the European Community’s greenhouse gas reduction commitments under the Kyoto Protocol.” Although this is useful information, full disclosure would include emissions data on GM’s cars, a primary area of climate risk for automobile manufacturers.

Disclosure of Risk Assessment

Nine companies in this group had no disclosure of climate risk assessments in their annual filings. The strongest reporting of climate risk assessment was again attributed to the automobile manufacturers, along with FedEx.

None of the companies in the transportation group disclosed any physical risks to their operations resulting from climate change. This is surprising given that many of these companies have significant manufacturing operations that could be exposed to the physical impacts of climate change.

Nine transportation companies disclosed regulatory risks related to climate change. Four mentioned that they could be impacted by regulatory changes, but did not describe any of the potential impacts of regulations. For example, FedEx noted that possible future regulations could impact its business, but did not elaborate. The company stated that, “increased regulation regarding GHG emissions,

especially aircraft or diesel engine emissions, could impose substantial costs on us, especially at FedEx Express.” Additional analysis of the potential impacts of regulations could better inform investors of current and future risks to performance.

Four companies did offer more detailed descriptions of the regulatory landscape, providing both summaries of the proposed regulations and descriptions of the implications for their businesses, but none quantified these impacts. Navistar, Tata, and Ryder System made only passing mention to potential risks from climate change regulations.

Daimler, Ford, FedEx, and Cummins included some description of business risks they face related to climate change. Ford describes “[a]n increase in or acceleration of market shift away from sales of trucks, sport utility vehicles, or other more profitable vehicles, particularly in the United States” as a risk to its business.

Only Daimler, Ford and General Motors disclosed litigation risk related to climate change. In particular, General Motors cited environmental litigation as a risk to its business, and also disclosed a lawsuit in California that was brought by that state’s Attorney General against the company and other automobile manufacturers for damages sought as a result of their vehicles’ GHG emissions.

Disclosure of Actions to Address Climate Risk

Thirteen transportation companies disclosed some actions to address climate risk and take advantage of new opportunities, with four companies including some description of efforts to reduce GHG emissions.

In this group, Honda provided notable disclosure about new climate-related opportunities and actions it is taking to address climate risk. Honda discussed new vehicles that it is bringing to market, including a fuel cell vehicle, as well as activities in the solar cell business. The company disclosed its specific emissions reductions targets as a percentage of 2001 emissions per unit produced for its automobiles, motorcycles and power products. However the company did not disclose past, current, or projected future emissions. Toyota also included discussion of alternative vehicles and hybrid engines as actions that it is taking to address climate change. The company stated a commitment to building “environmentally sound” vehicles, and it highlighted its research and development focus on hybrids, fuel cells and clean diesel technology.

Honda mentioned emissions both from the production and use of their vehicles, which is more helpful to investors than disclosure on production alone since vehicle use is a much larger contributor to GHG emissions than vehicle production, and therefore an important opportunity for emissions reductions. Honda’s annual filing stated, “[T]he most important environmental issue is the reduction of CO₂ emissions, which is a means of protecting the natural environment on a global scale. Recognizing this, Honda has proactively announced global CO₂ reduction targets for 2010 for both its products and manufacturing activities.”

Navistar and Paccar did not disclose any actions to mitigate climate change, but Cummins reported that it is involved in new investments and research on products that are more climate-friendly, such as lower emissions trucks, and clean diesel technologies. In general, trucking transport companies had very little disclosure on actions to address climate change, with Landstar and CH Robinson showing no climate risk disclosure at all. In the only example of its climate risk disclosure, JB Hunt notes, “Increasingly, our customers are seeking energy-efficient transportation solutions to reduce both cost and greenhouse-gas emissions. Our intermodal service addresses both demands. We are also beginning to customize dedicated solutions aimed at minimizing transportation-related carbon emissions.”

Company Rankings

The companies in this group with the strongest disclosure were automobile manufacturers. Several of the companies with the strongest disclosure were non-U.S. companies, though GM was the only

The companies in this group with the strongest disclosure were automobile manufacturers. Honda and Daimler had the strongest disclosure in the group, along with General Motors.

Table 6

Transportation: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
AMERCO	None	None	Poor
Avis	None	None	None
C.H. Robinson Worldwide, Inc.	None	None	None
Caterpillar	None	None	Poor
Cummins	None	Poor	Limited
Daimler AG	Poor	Fair	Limited
FedEx Corporation	Poor	Limited	Limited
Ford	None	Fair	Poor
General Motors	Poor	Fair	Limited
Hertz Global Holdings, Inc.	None	None	None
Honda Motor Co., Ltd.	Limited	Poor	Fair
JB Hunt Transport Services	None	None	Poor
Landstar System	None	None	None
Navistar	None	Poor	None
Nissan	None	None	Limited
Paccar	None	None	None
Ryder System, Inc.	None	Poor	Poor
Tata Motors	None	Poor	Poor
Toyota Motor Corporation	Poor	Limited	Fair

EVALUATION KEY

None: Climate risk is not mentioned at all in annual filing.

Poor: Climate risk is discussed, but is not analyzed in terms of its impact on the company's business.

Limited: Annual filing includes limited discussions or analyses of climate risk as it applies to the company's business.

Fair: Annual filing includes fuller discussions or analyses of the impact of climate risk on the company's business, but disclosure still does not meet the requirements of the Global Framework for Climate Risk Disclosure.

*For Fiscal Year 2007.

company to include data on past GHG emissions from operations. Honda and Daimler had the strongest disclosure in the group, along with General Motors. Five companies in the transportation group had no climate risk disclosure at all, including two rental car companies, Avis and Hertz, truck manufacturer Paccar, and two trucking transport companies, CH Robinson and Landstar.

Ryder made no mention of climate change specifically, but stated, “We have adopted pro-active environmental strategies that have advanced business growth and continued to improve our performance in ways that reduce emission outputs and environmental impact.” The company mentioned its environmental policies and objectives, but did not provide any specifics. Hertz, the auto rental company, stated even less and received no credit for climate risk disclosure in the study. The company only noted, “The use of cars and other vehicles is subject to various governmental requirements designed to limit environmental damage, including those caused by emissions and noise. Generally,

these requirements are met by the manufacturer, except in the case of occasional equipment failure requiring repair by us.”

Conclusion

The transportation companies in this report provided very little climate risk disclosure in their financial filings compared to the information required by investors, as outlined in the Global Framework.

Five out of the 19 companies surveyed in this sector (26%) included no disclosure of any climate-related information in their 10-K or similar filings. Emissions associated with vehicle use, a key source of GHG emissions from the transportation sector, were not disclosed by any company, although one company disclosed emissions associated with vehicle production.

A number of companies discussed actions or strategies to address climate change, with 13 out of 19 companies (68%) providing some disclosure in this category. Several filings included valuable descriptions of efforts to increase the fuel efficiency of vehicles or transportation services.

FINDINGS

Insurance Industry

Investors have been seeking information on companies' underwriting risks and investments risks.... Our review of company filings suggest that U.S. companies have so far provided relatively little disclosure....

The context for climate risk disclosure in the U.S. insurance industry has recently changed dramatically. In March 2009, the National Association of Insurance Commissioners (NAIC) approved a groundbreaking mandatory requirement that insurance companies disclose to regulators the financial risks they face from climate change, as well as actions the companies are taking to respond to those risks.

Under the new regulations, insurance companies with annual premiums over \$500 million will be required to fill out an Insurer Climate Risk Disclosure Survey every year, with the first reporting deadline being May 1, 2010. The surveys must be submitted in the state where the insurance company is headquartered and reports its largest volume of insurance premiums, and will be aggregated and disclosed publicly on the NAIC's website.

The NAIC's action came after years of engagement with Ceres and institutional investors, who recognize that the insurance industry has a uniquely multifaceted exposure to climate change. On the one hand, many branches of the industry face the risk of increased claims. Property and casualty insurers are already seeing more claims due to severe weather, and may find that entire regions, such as coastal areas, become unprofitable to insure. Health insurers may be eventually be affected by the increased spread of disease resulting from climate change. If climate-related litigation is filed against companies that are arguably responsible for climate change, writers of directors' and officers' liability coverage may also be impacted. Reinsurers, meanwhile, are exposed to all of these losses when insurers pass on to them a portion of their risk exposure.

At the same time, insurance companies are exposed to climate risk in their capacities as institutional investors. Insurance companies' business models rely on investing their customers' premiums and earning returns large enough to make a profit after paying all claims. If the climate risk embedded in these enormous portfolios decreases returns at the same time that climate-related claims are rising, the spread between investment income and claims payments will shrink, threatening the industry's financial viability.

Along with this two-sided risk exposure, however, the insurance industry may have a greater potential than any other both to benefit from climate change and to mitigate it. For example, if insurers begin to offer policies covering climate litigation risk, they may advise their clients on how to lower their risk (and premium) levels by reducing their climate-damaging activities. Insuring renewable energy facilities may also be both a profitable business line and an essential contribution to the development of that industry.

Given these industry characteristics, investors have been seeking information on companies' underwriting risks and investment risks, the actions they are taking to reduce both, and their efforts to develop innovative climate-related lines of coverage. Our review of company filings suggests that U.S. companies have so far provided relatively little disclosure of this kind, and that for most of them, compliance with the NAIC regulations will require them to enter uncharted territory.

Disclosure of Emissions and Climate Change Position

Reinsurance companies Swiss Re, Munich Re, and Zurich Financial all disclosed plans to mitigate their operational emissions, and Swiss Re also disclosed its actual emissions data in its annual report. This

information is helpful to investors but was not weighted as heavily as emissions disclosures by companies in the other four sectors covered by this report, because insurers are not emissions-intensive companies.

Swiss Re, Munich Re, and Zurich Financial also mentioned that climate change is a growing issue of concern around the globe that needs to be addressed. Munich Re stated, “Climate change represents one of the greatest risks of change for the insurance industry, but it also opens up many business opportunities.”

Disclosure of Risk Assessment

Several companies provided some discussion of underwriting risk. The only U.S. companies to do so were Allstate and CNA Financial. Allstate disclosed that climate change could “impact the affordability and availability of homeowners insurance. To the extent that climate change impacts mortality rates and those changes do not match the long-term mortality assumptions in our product pricing, our Allstate Financial segment would be impacted.” CNA Financial reported that “longer-term natural catastrophe trends may be changing and new types of catastrophe losses may be developing due to climate change, a phenomenon that has been associated with extreme weather events linked to rising temperatures, and includes effects on global weather patterns, greenhouse gases, sea, land and air temperatures, sea levels, rain, and snow.”

European insurers provided more nuanced discussions of underwriting risk that contained valuable information for investors. Swiss Re explained that there is “increasing evidence that climate variability and climate change are affecting the catastrophe perils market.” Munich Re disclosed its approach to underwriting risk, noting that its “business is inextricably linked with ecological aspects ... [and is] directly affected by environmental impacts, such as the greater frequency and intensity of weather-related natural catastrophes.” Munich Re also explained that this link is the driver for its approach to addressing climate change in its business.

Zurich Financial’s disclosure focused on the climate-related risks to its customers and developing insurance products that meet those needs. Without providing further detail, the company noted that many of its customers look to Zurich for guidance on risks driven by climate change, and therefore it aims to address them through research and an internal Climate Office that “will be embedded” in its underwriting infrastructure.

In contrast to underwriting risk, climate-related investment risk was rarely disclosed. Only CNA Financial mentioned climate-related investment risks in their annual filing. CNA noted that it faces risks to its equity positions in the event of an extreme weather catastrophe possibly resulting from climate change.

Chubb, Cincinnati Financial and Hartford only made passing remarks on climate risk. For example, in reference to its reinsurance program, Cincinnati Financial stated that “we also continue to evaluate information provided by our reinsurance broker. These various sources explore and analyze credible scientific evidence, including the impact of global climate change, which may affect our exposure under insurance policies.” The company did not elaborate further on how it evaluates climate change as a risk factor.

The three companies with the best disclosure, Swiss Re, Munich Re, and Zurich Financial, were non-U.S. and had substantially more discussion of climate risk than U.S. companies.

Disclosure of Actions to Address Climate Risk

Swiss Re, Munich Re, and Zurich Financial showed the most widespread discussion of actions they are taking to address climate risk. All three described research programs on the issue of climate change, efforts to model risks related to climate change so that they can adapt their pricing models, and possible new insurance products that would take advantage of opportunities related to climate change. U.S. companies were substantially behind the European reinsurers in disclosing climate risk evaluation and actions.

In discussing climate-related opportunities, Zurich Financial reported that its “internal Climate Office ... will help to develop risk products and solutions.” Also the company disclosed an applied research program that advises the company’s management on strategic and operational risks related to climate change. Swiss Re discussed a number of investments it has made—in areas such as alternative energy, forestry, and carbon credits—as strategies to benefit from opportunities that climate change

will present. The company also disclosed the launch of a Climate Adaptation Development Programme that is focused on climate change adaptation in emerging markets. Munich Re's annual filing stated, "Besides analysing and evaluating risks, advising underwriters and clients, and developing new service tools, this centre of competence also addresses all climate-change issues of relevance to Munich Re in its new Corporate Climate Centre." Another area the company discussed in its report was its Kyoto Multi Risk Policy, which the company noted was developed to address risks in emissions trading.

These companies also discussed some collaborations with climate related organizations, such as the UN's Environment Programme Finance Initiative, which promotes an understanding of climate change in the finance sector.

Company Rankings

In this group, only nine out of 27 had any climate risk disclosure in their annual filings, indicating that investors are rarely receiving the information they need to assess climate risks to insurance companies. The three companies with the best disclosure, Swiss Re, Munich Re, and Zurich Financial, were non-U.S. and had substantially more discussion of climate risk than the U.S. companies. U.S. based CNA Financial had some discussion regarding climate risk, whereas Ace Limited, Allstate Corp., Chubb Corp., Cincinnati Financial and Hartford Financial each had only a brief reference to climate risk.

Risk assessment is a key foundation of the insurance industry, but the major risks associated with climate change were largely unexamined and not disclosed by U.S. insurance companies.

Table 7

Insurance: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
ACE Limited	None	Poor	None
Allianz SE	None	None	None
Allstate Corporation	Poor	Poor	None
American International Group, Inc.	None	None	None
Aon Corporation	None	None	None
AXA	None	None	None
Berkshire Hathaway	None	None	None
China Life Insurance Company	None	None	None
Chubb Corporation	None	Poor	None
Cincinnati Financial Corporation	None	Poor	None
CNA Financial Corporation	None	Limited	None
Everest Re Group, Ltd.	None	None	None
Hartford Financial Services Group, Inc.	None	Poor	None
Lincoln National	None	None	None
Manulife	None	None	None

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Insurance: Quality of Climate Risk Disclosure in Annual SEC Filings (filed in 2008*)

	Disclosure of Emissions and Climate Change Position	Disclosure of Risk Assessment	Disclosure of Actions to Address Climate Risk
Marsh & McLennan Companies, Inc.	None	None	None
Metlife	None	None	None
Munich Re	Limited	Poor	Limited
Nationwide	None	None	None
Progressive Corporation	None	None	None
Prudential Financial	None	None	None
Prudential PLC	None	None	None
Sun Life Financial	None	None	None
Swiss Re Group	Limited	Limited	Limited
Travelers Companies, Inc.	None	None	None
XL	None	None	None
Zurich	Limited	Poor	Limited

EVALUATION KEY

None: Climate risk is not mentioned at all in annual filing.

Poor: Climate risk is discussed, but is not analyzed in terms of its impact on the company's business.

Limited: Annual filing includes limited discussions or analyses of climate risk as it applies to the company's business.

Fair: Annual filing includes fuller discussions or analyses of the impact of climate risk on the company's business, but disclosure still does not meet the requirements of the Global Framework for Climate Risk Disclosure.

*For Fiscal Year 2007.

Conclusion

Risk assessment is a key foundation of the insurance industry, but the major risks associated with climate change were largely unexamined and not disclosed by U.S. insurance companies. In March 2009, the National Association of Insurance Commissioners took one step to address this, issuing a mandatory requirement that insurance companies disclose to regulators the financial risks they face from climate change, as well as actions the companies are taking to respond to those risks. The disclosure requirements reflect the climate risks insurers face, and cover topics including insurers' risk-management and catastrophe-risk modeling, engagement with policymakers and policyholders on the risks of climate change, and changes to their investment strategies.⁸⁵

Despite the substantial climate risks facing this sector, our report found that climate risk disclosure levels were lower in the insurance sector than in any other sector we examined. Eighteen out of 27 insurance companies surveyed (67%) had no mention of climate change or climate risk anywhere in their annual SEC filing. In all three areas of our assessment, insurance companies reported at a lower level than any of the other sectors analyzed.

These low levels of disclosure indicate that many insurance companies are leaving investors uninformed about basic business decisions related to climate risk, such as whether companies are incorporating climate change projections into catastrophe risk modeling.

Summary of Findings

This report found limited climate risk disclosure in SEC filings in all the sectors we examined. Out of 100 companies covered in this report, 28 had no discussion of risk assessment, 52 described no actions to address climate change, and 59 made no mention of emissions or a climate change position.⁸⁶ Many companies in the insurance and transportation sectors provided no disclosure whatsoever of any climate change-related information.

Only two companies in the report disclosed slightly more than half of the information requested by investors in the Global Framework for Climate Risk Disclosure, so the highest levels of disclosure were described as “Fair.” No companies provided “Fair” disclosure of emissions and a climate change position, only 7 companies provided “Fair” disclosure of risk assessment, and only 5 companies ranked “Fair” on their disclosure of actions taken to address climate change.

While some climate risk disclosure was common in the electric power, coal, and oil and gas industries, most filings in these sectors lacked the level of detail that investors require. Disclosure in the insurance sector was especially weak, with two thirds of the companies failing to provide any climate risk disclosure. Performance in the transportation sector was also markedly inadequate, with no companies disclosing GHG emissions associated with vehicle use, a key risk.

Climate change presents a multitude of risks and opportunities, particularly for the sectors evaluated in this report. Despite the clarity of climate science and the host of policies being enacted to combat global warming’s ill effects, our analysis found that disclosure in SEC filings of the implications of climate change for corporate performance still falls short. Investors require standardized, comprehensive climate risk disclosure in SEC filings to adequately assess climate risks and opportunities in their investments. We understand that some companies have taken steps to improve climate risk disclosure in their 2008 annual filings, and we encourage companies to move forward with providing investors with the depth of disclosure as outlined in the Global Framework.

Climate risk disclosure in SEC filings is insufficient to meet investors’ needs largely because the SEC has failed to take actions to highlight its importance. Although pressure from investors has clearly had some effect upon companies’ disclosure practices, companies are unlikely to comprehensively disclose climate risks and opportunities in SEC filings in the absence of clear guidance from the SEC.

APPENDIX A

Case Studies: Comparisons of Voluntary and Mandatory Disclosure

CASE STUDY/XCEL ENERGY

Annual Filing with the SEC

Xcel Energy had one of the highest levels of 10-K disclosure relative to the Global Framework on Climate Change in this study; however, its disclosure still reported on only about half of the Global Framework criteria. The company also disclosed information on climate risk and opportunity in its response to the Carbon Disclosure Project (CDP) and in its Triple Bottom Line sustainability report.

In September 2007, the New York State Attorney General issued subpoenas under the New York State Martin's Act to several companies seeking information and documents related to climate risk and disclosure, stating that utilities seeking to expand their production of coal-based energy should take steps to inform shareholders about the implications for their investment in the company. The Attorney General specifically cited construction of a new coal-fired power plant by Xcel as an increased risk for the company that is material and should be disclosed to shareholders. According to the Attorney General's letter to Xcel's CEO, "The increase in CO₂ emissions from the operation of this unit will subject Xcel to increased financial, regulatory, and litigation risks. We are concerned that Xcel has not adequately disclosed these risks to shareholders, including the New York State Common Retirement Fund, which is a significant holder of Xcel stock."

In a landmark settlement, Xcel reached an agreement with the Attorney General's office to expand the discussion of climate risks in its 10-K report. Following the settlement, the company disclosed more information about climate risks than almost all of the companies examined in this report.

Voluntary Disclosure

Xcel also published climate risk information through the Carbon Disclosure Project (CDP). In its CDP response covering year 2007, Xcel Energy included discussion of regulatory risks, weather risks (and thus physical risks), economic risks, and changes in consumer attitudes. The company also discussed a number of opportunities related to climate change, including power generation from renewables (noting that it is the largest utility provider of wind energy), customer conservation programs, and new technologies like integrated gasification combined cycle (IGCC), where CO₂ is captured and stored in the process of power generation from coal.

The company's CDP response also included a strategy to mitigate climate risks and take advantage of new opportunities that included engagement in the national policy discussion, resource planning, financial forecasting, performance measurement and development of renewable energy. In its

introductory statement, Xcel said “We believe a comprehensive approach is needed to address concerns about climate change, and our company is taking actions today. That includes greatly increasing our use of resources that produce lower or no GHG emissions, increasing energy conservation opportunities for our customers, exploring new generating technologies that could reduce environmental impact, and participating in carbon sequestration research and development.”

The company’s CDP disclosure also included its GHG emissions in a much more detailed manner than its 10-K. This disclosure included data back to the year 2000, as well as discussion of operating costs related to power generation from fossil fuels. This information could be used by investors to forecast exposure to direct and indirect regulatory risks and to assess efforts to manage climate risks.

Xcel Energy also publishes a “Triple Bottom Line” report. The company’s 2007 report followed the voluntary Global Reporting Initiative (GRI) guidelines for reporting on non-financial data. Regarding climate change, the company included in-depth discussion on efforts to reduce carbon emissions, and estimated future emissions. Beyond reporting on emissions, Xcel Energy discussed resource planning and how it is incorporating reductions of carbon dioxide into its plans for expanding capacity for energy production. The company disclosed generation goals related to expansion of renewables, energy efficiency programs, as well as retirement of older coal plants.

Overall

Xcel’s disclosure of climate issues varied depending on the type of document concerned. In its 10-K, the company’s disclosure focused on an explanation of climate risks, in particular those related to regulation and litigation. The company’s response to the CDP questionnaire was focused more on emissions and renewable power generation. Its Triple Bottom Line report was the most narrative example and provided investors with a depth and breadth of climate disclosure that the other reports did not, in particular addressing in greater depth the company’s opportunities related to climate change and emissions reductions.

Xcel’s 10-K report had strong disclosure as compared to the other companies in this study; however, its disclosure still only covered just over half of all Global Framework criteria. The additional information and analysis on emissions and climate opportunities from its voluntary filings would add significantly to the depth of information in Xcel’s 10-K.

CASE STUDY/PEABODY ENERGY

Annual Filing with the SEC

In this study, Peabody Energy’s climate risk disclosure performed poorly overall, providing information on only a small number of Global Framework criteria. However, of the US-based coal companies reviewed, Peabody had the most climate risk disclosure in its SEC filing.

The company’s 10-K disclosure focused on the attention being paid to climate change and the potential regulatory changes in the US. The company stated: “Further developments in connection with legislation, regulations or other limits on greenhouse gas emissions and other environmental impacts from coal combustion, both in the United States and in other countries where we sell coal, could have a material adverse effect on our results of operations, cash flows and financial condition.” The 10-K’s disclosure of regulatory risk also described some of the proposed legislation, and discussed a subpoena it received from the New York Attorney General requesting that the company disclose climate risk information in its public filings to investors. The company also voiced its support for commercialization of advanced coal technologies.

While Peabody’s 10-K did acknowledge that the company faces climate risks, the level of discussion was very general and lacked the specificity needed by investors.

Voluntary Disclosure

For year 2007, Peabody did not fully respond to the Carbon Disclosure Project questionnaire, but instead sent a letter highlighting some of its climate initiatives. In the letter, the company stated that due to rising demand for energy related to population expansion and growth in developing nations, coal use is critical and expected to double in the next 25 years. Accordingly, the company noted that it “is pursuing the ultimate goal of near-zero emissions and carbon management for coal-based energy through a number of voluntary and industry-based initiatives.” Peabody also disclosed its three-step approach of building out new high efficiency coal-fired power plants, commercializing new integrated gasification combined cycle (IGCC) technology that is coupled with carbon capture, and pursuing carbon dioxide sequestration at existing pulverized coal plants. The company explained that governments should support the development of these and other advanced coal technologies as well as support voluntary GHG emissions reductions programs. Peabody’s incomplete response to the questionnaire focused on continued opportunities for coal power and did not include discussion of the implications of climate policy for its performance.

The Public Responsibility section of the company’s Corporate Social Responsibility report also included some discussion focused on greenhouse gas emissions and its advanced coal initiatives by emphasizing the world’s energy needs and the role coal can play in meeting them. Peabody’s report stated: “In the next quarter century, global energy use will increase by more than half and world electricity generation will nearly double, based on forecasts by the International Energy Agency’s World Energy Outlook. Around the world, coal is driving enormous economic development in the largest and fastest-growing population centers.” The company’s report discussed its focus on technology development first, followed by carbon management.

Overall

Peabody’s disclosure focused on the role that coal-fired generation could play with increasing energy demand, but included little information on the impacts of climate change. In light of the coal industry’s major contribution to global warming pollution, Peabody’s discussion in both its SEC and voluntary disclosures gives an incomplete picture of the climate risks that the company faces.

Peabody’s discussion fails to meaningfully examine the risks associated with the greenhouse gas emissions from coal-based power or its business plan for addressing these risks. In addition, the company does not provide investors with sufficient information about the risks it, along with the electric power industry, faces from initiatives like the Carbon Principles, in which several Wall Street banks have committed to “examine financings involving potential new fossil fuel generation through the Enhanced Environmental Diligence Process...to identify potential risks posed by the recognized cost of CO₂ emissions.” As a result, while the company’s disclosure performance was stronger than other U.S. coal companies, its performance fell far short of investors’ need for thoughtful, comprehensive disclosure of the risks and opportunities from a changing climate.

CASE STUDY/ROYAL DUTCH SHELL

Annual Filing with the SEC

Royal Dutch Shell’s disclosure of the significant climate risks it faces from its investments, particularly those in non-conventional fuels, did not provide the range of information needed by investors as outlined in the Global Framework. However, the company had the best climate risk disclosure in this study’s review of oil and gas companies, indicating the low level of disclosure in this sector.

A global group of energy and petrochemical companies based in The Netherlands, Shell files an annual form 20-F with the SEC, which was examined for its level of climate risk disclosure. As one of the largest energy companies in the world, Shell has operations in countries as far reaching as Canada and Nigeria, and is involved in upstream exploration and production, as well as downstream refining and marketing. The company also has some divisions that develop renewable energy products.

Notably, Shell is also one of the largest operators of tar sands (also known as oil sands) sites in Canada. Tar sands are oil-saturated deposits of sand and clay. In order to extract the oil, tar sands are liquefied by injections of steam. This requires both a large quantity of water and large amounts of natural gas, which is burned to heat the water. The oil obtained then needs to be upgraded before it can be refined—another process requiring large amounts of water and natural gas.

The climate change impacts of this process are multi-faceted and severe. Because of the high energy inputs required, it is three to five times more GHG emissions intensive than conventional oil production. In addition, the water used (about three times the volume of oil produced) cannot be recycled after use, worsening concerns about freshwater scarcity caused by climate change. Furthermore, mining of the tar sands often involves removal of the forest and peat covering them, which act as carbon sinks. Canada's boreal forest, which is being damaged by tar sands production, is the largest terrestrial carbon storehouse in the world. Tar sands production is a major reason Canada has failed to meet its Kyoto targets for emissions reductions, and has instead seen its carbon emissions increase significantly since 1990.⁸⁷

Because of the substantial greenhouse gas emissions from tar sands and their contribution to global warming, their development presents a considerable climate risk to Shell and its shareholders. In its 20-F the company stated: "The extent of greenhouse gas legislation in Canada as a whole remains uncertain. However, the current Alberta Provincial Government has introduced, and the federal government intends to introduce, legislation that requires reductions in allowable emissions of CO₂ in relation to oil sands' production. Reductions in allowable emissions could impact current production and future expansions."

Shell is also actively engaged in securing government leases in the Western U.S. for development of oil shale, another unconventional oil resource. Oil shale development shares tar sands' high greenhouse gas intensity, and also requires significant water resources.⁸⁸ In its 10-K annual filing, Shell did not address how its oil shale investment fits within plans to mitigate global warming pollution.

Voluntary Disclosure

Shell published a Sustainability Report covering year 2007 that devoted some discussion to climate change and tar sands development. In a discussion of how Shell reconciles the need for emissions reductions with a strategy that includes a heavier reliance on more CO₂-intensive resources like oil sands, the report stated that it is committed to developing these carbon-intensive resources responsibly, and that "scenarios indicate that a supply crunch for conventional sources could appear around 2015. Greater efficiency, biofuels and other renewables will help, but won't be enough on their own." The report acknowledged that public policy will have a role in determining what role all energy sources will play, including oil sands, but did not provide a fully informative discussion of the implications for Shell's performance.

Shell's Sustainability Report did include a GHG reduction pledge. The company stated that its oil sands "operation has a greenhouse gas management plan [that was] developed with the help of Shell Canada's independent Climate Change Advisory Panel that includes an aggressive voluntary target to reduce CO₂ emissions by 50% by 2010."

In the company's response to the Carbon Disclosure Project, Shell reported information that was also contained in its Sustainability report, stating that "The Athabasca Oil Sands Project...has a voluntary GHG reduction target: to make the combined CO₂ emissions from producing and using its petrol lower than those for petrol from the imported oil it replaces by 2010. The reductions are being sought in energy efficiency improvements and CO₂ capture and storage at [its] oil sands facilities, and

in mitigation measures outside the project that offset its emissions. [The company is] continuing to improve oil sands technology...It reduces energy and CO₂ emissions from the step in the production process when the oil is separated from the sand, by 10% compared to previous technology.”

Overall

In aggregate, the company’s statements in its three forms of climate risk disclosure (20-F, Sustainability Report, and CDP response) focused on oil sands as an important component of the world’s energy future. In its 20-F, Shell states, “As easy-to-access oil gets rarer, unconventional resources such as Canada’s oil sands will become increasingly important sources of energy.” This disclosure did not fully address the concern that tar sands development will release extensive quantities of greenhouse gases.

Shell did disclose information on how it plans to make oil sands mining compatible with Shell’s emissions reductions efforts; however, the company acknowledged that many of the reductions will have to be implemented as separate projects in the form of offsets for emissions produced at oil sands operations. Shell’s disclosure of information on unconventional fuels failed to provide clear, comprehensive information that investors can use to judge Shell’s exposure to and management of climate risks.

CASE STUDY/HONDA MOTORS

Annual Filing with the SEC

Honda had the highest levels of climate risk disclosure in this study for the Transportation group and some of the highest levels of disclosure in the study overall. However, while the company’s disclosure met some investor needs for understanding climate risk, it missed providing information in a number of categories. For this study, Honda’s 20-F annual filing was reviewed. Given the company’s international focus, the company’s filing contained discussion on regulatory implications of climate change in Japan, Europe, and other regions.

The company did not disclose its past or projected future GHG emissions in its annual filing, but it did lay out worldwide goals for reducing CO₂ emissions. Honda stated that it “believes that the most important environmental issue is the reduction of CO₂ emissions, which is a means of protecting the natural environment on a global scale.” In particular, Honda stated that it aims to reduce automobile CO₂ emissions per unit of production by 10% in 2010, using a baseline of fiscal year 2001 emissions. While these emissions intensity goals are valuable, a focus on the total amount of emissions would be most useful for investors to assess Honda’s exposure to and management of climate risks. Furthermore, without any disclosed data on Honda’s absolute level of emissions, it is difficult for investors to track the company’s performance. Honda also discussed its new products, like its latest hybrid vehicles and a fuel cell vehicle that it anticipated bringing to market in some regions, providing helpful information on Honda’s efforts to take advantage of new climate-related opportunities.

Voluntary Disclosure

The company’s Environmental Report focused on reducing carbon dioxide and contained Honda’s most extensive climate risk disclosure. The report discussed reducing carbon dioxide emissions (both operational and from end product use) and enhancing fuel efficiency. In the report, Honda stressed again that climate change is the most important challenge of the present time, and detailed its strategies for addressing it. The report stated “In the United States, Honda advocates national standards and a national industry policy for mobile sources. Honda has provided Congressional

testimony in support of higher fuel economy standards, set and monitored by the appropriate regulatory bodies. Honda has also advocated selected use of incentives to promote new technologies that improve fuel efficiency and reduce GHG emissions.” Honda disclosed its perspective on the viability of various alternative fuels, and also discussed emissions reductions and other environmental impacts of its operations, products, and supply chain.

In addition, the company participated in the Carbon Disclosure Project, but its response has not been made public. This lack of a public response to CDP makes it impossible for all investors to view Honda’s response to this questionnaire.

Overall

The thrust of Honda’s climate risk disclosure focused on the importance of addressing climate change through its lower-emissions vehicles and other motorized products like watercraft, engines, and all-terrain vehicles, as well as operational emissions cuts. For example, Honda’s Environmental Report, noted that “[t]he greatest immediate opportunity to reduce the company’s CO₂ emissions will come by improving the energy efficiency of Honda products and the factories that build them. Together, these factors account for roughly 80 percent of a Honda product’s life-cycle CO₂ emissions. Accordingly, in May 2006, Honda established voluntary targets to further reduce CO₂ emissions from its products and manufacturing activities globally by 2010.” This disclosure provided valuable information to investors about the scope and focus of Honda’s climate risk mitigation efforts.

Honda could further improve its disclosure practices by providing additional information on any physical risks, business model risks, and litigation risks related to climate change, or by disclosing its past or projected future emissions. While it did disclose emissions reductions targets relative to the number of units it produces, the company did not benchmark what relative emissions were in 2001 or what it strives to reach in 2010 in specific measurements of CO₂. These pieces of information would help investors to better judge Honda’s exposure to climate risks, its efforts to manage those risks, and its business opportunities in a changing climate.

CASE STUDY/THE HARTFORD FINANCIAL

The Hartford Financial, a U.S.-based investment and insurance company, offers investment products such as annuities, mutual funds, and college savings plans, as well as life insurance, group and employee benefits, automobile and homeowners’ insurance, and business insurance. The company provided substantial voluntary climate risk disclosure in several formats but included almost no climate risk disclosure in its 10-K filing covering fiscal year 2007.

Annual Filing with the SEC

The Hartford Financial’s annual 10-K filing included almost no climate risk disclosure. Similarly, most U.S.-based insurers in this report had very limited or no climate risk disclosure in their 10-Ks. Several foreign reinsurers had significantly more climate risk disclosure in their SEC filings.

Voluntary Disclosure

The Hartford’s “Company Statement on Climate Change,” available online, discussed the company’s concerns related to climate change, as well as the risks the company faces. The company’s statement emphasized the growing attention being paid to climate change on the part of scientific experts and

others, and it discussed the forecasted implications of climate change, such as temperature fluctuations, rising sea levels and increased extreme weather events.

In addressing specific risks it faces, the company stated, “The Hartford’s general account investment portfolio holds predominately fixed-income assets. Therefore, its primary risks are credit-related: corporate and sovereign debt obligations, commercial real estate mortgage loans, and a variety of asset-backed fixed-income securities. Nonetheless, the global and regional consequences of climate change can play a role in [its] evaluation of the creditworthiness of specific issuers and industries.” This disclosure helps inform investors of The Hartford’s risk assessment practices. Without providing details, the company acknowledged that consumer demand, legislative activity, and technological advancements related to climate change may enhance value for shareholders.

The Hartford also participates in the Carbon Disclosure Project (CDP), where it disclosed a range of useful insights on climate risks and opportunities facing the company. In its CDP response covering year 2007, The Hartford disclosed its GHG emissions and also noted that it follows scientific literature regarding climate change “and, as with all risk factors, works to ensure that climate change is fully taken into account in [its] modeling of catastrophic risk. The potential for increased frequency and severity of weather-related catastrophes represents the most significant climate change-related commercial risk The Hartford faces, though that risk can be mitigated by risk-based pricing as well as by the adoption of effective risk-mitigation techniques.”

The company’s CDP response also highlighted potential opportunities related to climate change, such as an enhanced capacity for The Hartford to match pricing to risk with a better understanding of climate change impacts, and new products that it can bring to market to meet customers’ changing needs in the face of increased extreme weather events. The company noted that it expects “to see more public policy attention paid to such risk mitigation techniques as better land use planning, improved building codes and more rigid enforcement combined with eliminating subsidies and other incentives that promote development in areas most exposed to natural disasters. The Hartford sees an opportunity in establishing itself as a recognized leader in the assessment and management of climate change-related risks.”

Overall

The Hartford’s voluntary disclosures include valuable information on the implications of climate risk for the company’s business. Nevertheless, the voluntary disclosure that the company engaged in, while positive, did not go so far as to explore and evaluate the specific underwriting, investment and correlated risks.

Although voluntary climate risk disclosure like The Hartford’s is a step in the right direction and helps provide information to investors, it does not substitute for effective mandatory reporting. As there is no standardized format or objective for voluntary disclosure, nor is there verification by any third party or government entity, voluntary reporting does not help investors to make comparisons between companies, or allow for benchmarking based on common principles.

APPENDIX B

Global Framework for Climate Risk Disclosure

A group of leading institutional investors and other organizations worldwide, organized by Ceres, released the Global Framework for Climate Risk Disclosure—a statement of investor expectations for comprehensive corporate disclosure—in October 2006. Investors require this information in order to analyze a company’s business risks and opportunities resulting from climate change, as well as the company’s efforts to address those risks and opportunities. The Framework encourages standardized climate risk disclosure to make it easy for companies to provide and for investors to analyze and compare companies.

The investors supporting this Framework urge:

- Companies to use existing disclosure mechanisms to provide information that meets investors’ expectations and serves their analytical needs.
- Securities regulators and governments to ensure that corporate climate risk disclosure in financial statements adheres to the Framework.
- Other investors and financial analysts to insist that corporations disclose the information called for in the Framework and then incorporate this information in their analysis.

The Steering Committee that created the Framework included representatives from:

- California Public Employees’ Retirement System
- California State Controller’s Office
- California State Teachers’ Retirement System
- Carbon Disclosure Project
- Ceres and the Investor Network on Climate Risk (INCR)
- Connecticut State Treasurer’s Office
- Global Reporting Initiative
- Institutional Investors Group on Climate Change
- Investor Group on Climate Change
- United Nations Environment Programme Finance Initiative
- United Nations Foundation
- United Nations Fund for International Partnerships
- Universities Superannuation Scheme

Global Framework for Climate Risk Disclosure

While each sector and company may differ in its approach to disclosure, the most successful corporate climate risk disclosure will be transparent and make clear the key assumptions and methods used to

develop it. Companies should directly engage investors and securities analysts in disclosing climate risk through both written documents and discussions.

Investors expect climate risk disclosure to allow them to analyze a company's risks and opportunities and strongly encourage that the disclosure include the following elements:

1 Emissions. As an important first step in addressing climate risk, companies should disclose their total greenhouse gas emissions.⁸⁹ Investors can use this emissions data to help approximate the risk companies may face from future climate change regulations.

Specifically, investors strongly encourage companies to disclose:

- Actual historical direct and indirect emissions since 1990;
- Current direct and indirect emissions; and
- Estimated future direct and indirect emissions of greenhouse gases from their operations, purchased electricity, and products/services.⁹⁰

Investors strongly encourage companies to report absolute emissions using the most widely agreed upon international accounting standard—Corporate Accounting and Reporting Standard (revised edition) of the Greenhouse Gas Protocol, developed by the World Business Council for Sustainable Development and the World Resources Institute.⁹¹ If companies use a different accounting standard, they should specify the standard and the rationale for using it.

2 Strategic Analysis of Climate Risk and Emissions Management. Investors are looking for analysis that identifies companies' future challenges and opportunities associated with climate change. Investors therefore seek management's strategic analysis of climate risk, including a clear and straightforward statement about implications for competitiveness. Where relevant, the following issues should also be addressed: access to resources, the timeframe that applies to the risk, and the firm's plan for meeting any strategic challenges posed by climate risk.

Specifically, investors urge companies to disclose a strategic analysis that includes:

- **Climate Change Statement.** A statement of the company's current position on climate change, its responsibility to address climate change, and its engagement with governments and advocacy organizations to affect climate change policy.
- **Emissions Management.** Explanation of all significant actions the company is taking to minimize its climate risk and to identify opportunities. Specifically, this should include the actions the company is taking to reduce, offset, or limit greenhouse gas emissions. Actions could include establishment of emissions reduction targets, participation in emissions trading schemes, investment in clean energy technologies, and development and design of new products. Descriptions of greenhouse gas reduction activities and mitigation projects should include estimated emission reductions and timelines.
- **Corporate Governance of Climate Change.** A description of the company's corporate governance actions, including whether the Board has been engaged on climate change and the executives in charge of addressing climate risk. In addition, companies should disclose whether executive compensation is tied to meeting corporate climate objectives, and if so, a description of how they are linked.

3 Assessment of Physical Risks of Climate Change. Climate change is beginning to cause an array of physical effects, many of which can have significant implications for companies and their investors. To help investors analyze these risks, investors encourage companies to analyze and disclose material, physical effects that climate change may have on the company's business and its operations, including their supply chain.

Specifically, investors urge companies to begin by disclosing how climate and weather generally affect their business and its operations, including their supply chain. These effects may include the impact of changed weather patterns, such as increased number and intensity of storms; sea-level rise; water availability and other hydrological effects; changes in temperature; and impacts of health effects, such as heat-related illness or disease, on their workforce. After identifying these risk exposures, companies should describe how they could adapt to the physical risks of climate change and estimate the potential costs of adaptation.

4 Analysis of Regulatory Risks. As governments begin to address climate change by adopting new regulations that limit greenhouse gas emissions, companies with direct or indirect emissions may face regulatory risks that could have significant implications. Investors seek to understand these risks and to assess the potential financial impacts of climate change regulations on the company.

Specifically, investors strongly urge companies to disclose:

- Any known trends, events, demands, commitments, and uncertainties stemming from climate change that are reasonably likely to have a material effect on financial condition or operating performance. This analysis should include consideration of secondary effects of regulation such as increased energy and transportation costs. The analysis should incorporate the possibility that consumer demand may shift sharply due to changes in domestic and international energy markets.
- A list of all greenhouse gas regulations that have been imposed in the countries in which the company operates and an assessment of the potential financial impact of those rules.
- The company's expectations concerning the future cost of carbon resulting from emissions reductions of five, ten, and twenty percent below 2000 levels by 2015. Alternatively, companies could analyze and quantify the effect on the firm and shareowner value of a limited number of plausible greenhouse gas regulatory scenarios. These scenarios should include plausible greenhouse gas regulations that are under discussion by governments in countries where they operate. Companies should use the approach that provides the most meaningful disclosure, while also applying, where possible, a common analytic framework in order to facilitate comparative analyses across companies. Companies should clearly state the methods and assumptions used in their analyses for either alternative.

Endnotes

- 1 See <http://www.ipcc.ch/ipccreports/ar4-wg1.htm> 5, 9, 10.
- 2 Ibid.
- 3 <http://www.agu.org/journals/gl/>
- 4 DOI: 10.1126/science.1136843. <http://www.sciencemag.org/cgi/content/abstract/1136843>
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- 54 <http://www.incr.com//Document.Doc?id=185>
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- 57 Available at <http://www.incr.com//Document.Doc?id=167>
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- 91 Available at <http://www.ghgprotocol.org>

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Ceres is a national coalition of investors, environmental groups, and other public interest organizations working with companies to address sustainability challenges such as climate change. Ceres also directs the Investor Network on Climate Risk, a group of more than 80 institutional investors from the U.S. and Europe managing approximately \$7 trillion of assets. The purpose of INCR is to promote better understanding of the risks of climate change among institutional investors. For more information, please visit www.ceres.org and www.incr.com.

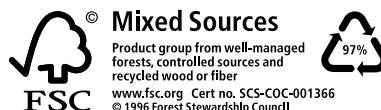
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Reclaiming Transparency in a Changing Climate: Trends in Climate Risk Disclosure by the S&P 500 from 1995 to the Present

Kevin L. Doran, Elias L. Quinn and
Martha G. Roberts



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Foreword

The Center for Energy and Environmental Security and the Environmental Defense Fund have performed a valuable public service by co-sponsoring this important Report that assesses trends in disclosures to investors by publicly-traded companies about the potential effects of climate change and related public-policies on their businesses.

The role the Securities and Exchange Commission, and the federal securities laws it administers, should play in mandating disclosures about environmental matters has been controversial since the concept was first proposed a generation ago.¹ But, today an ever-increasing number of public companies recognize that efforts to combat climate change will affect their businesses in material ways. As recently observed, “Regulating the temperature of the planet by adjusting the mix of gases in our atmosphere is the most ambitious undertaking yet attempted by human beings.”² For many companies, the changes that will ensue in their businesses and operations will be profound. And yet, as the Report documents, some companies that loudly trumpet their commitment to protecting the environment and to clean energy in their institutional advertising and sustainability reports have nonetheless been slow to discuss the business implications for their investors.

Climate change creates opportunities as well as challenges for many businesses, and both the positive and the negative implications should be discussed when they can reasonably be expected to have a material effect on the company’s business and its prospects for the future.

One need not agree with each of the authors’ conclusions in order to recognize that this Report makes a highly valuable contribution to advancing an important public policy debate. Unlike prior assessments, this one drills beneath the surface. It does more than merely count the percentage of companies that mention climate change; it evaluates whether the discussions are substantial and nuanced. The authors also make numerous constructive suggestions for how companies can improve their discussion of climate change in the future.

We congratulate the authors and the sponsoring organizations, and we commend their work to those who are interested in protecting the environment, or improving SEC-disclosure obligations—but most especially to those, like us, who care about both.

Harvey L. Pitt

Chief Executive Officer, Kalorama Partners, LLC
Former Chairman, Securities and Exchange Commission

E. Donald Elliott

Partner, Willkie Farr & Gallagher LLP
Former Assistant Administrator and General Counsel,
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¹ Theodore Sonde & Harvey Pitt, *Utilizing Federal Securities Laws to Clear the Air! Clean the Sky! Wash the Wind!*, 16 How. L.J. 906 (1971).

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Foreword

Our nation currently faces two major challenges: the dramatic turmoil in our financial markets, and the dangerous prospect of a changing climate.

These challenges may appear distinct, but in fact they are closely linked. Climate change will have a profound impact on corporate performance, with ill-prepared corporations missing new opportunities and suffering from shifting markets and new physical risks. Addressing these dual challenges will require America to come together to implement a range of solutions. In the near term, one immediate opportunity is to tackle the widespread inadequacy of climate risk disclosure.

A key origin of our current financial crisis has been inadequate and inconsistent regulation of financial markets, and particularly the insufficient availability of accurate information on risk exposure. As President Obama said in his inaugural address, “this crisis has reminded us that without a watchful eye, the market can spin out of control.” Lax oversight allowed corporations to take on excessive risks, and permitted poor disclosure practices that left investors in the dark regarding the dangers lurking in their portfolios.

In the current market crisis, investors have suffered from inadequate disclosures of unexpected risks from mortgage and credit markets. But investors are also at risk due to the poor and inconsistent information available on corporate risks from climate change. As this report highlights, corporations have not adequately disclosed material climate risks and opportunities despite the clear implications climate change has for corporate bottom lines.

Investors need accountable, consistent information regarding which companies are ready to seize new market opportunities spurred by climate policy, and which are falling behind. This report underscores the immediate need for the new SEC administration to restore transparency regarding corporate management of climate risks and opportunities by issuing guidance that clarifies appropriate climate disclosure practice.

Robert Repetto

Senior Fellow, United Nations Foundation

Executive Summary

The current global economic crisis has underscored the crucial importance of thoughtful, effective oversight of corporate risk management and disclosure by our nation's financial institutions. Mary Shapiro, the new Chair of the Securities and Exchange Commission (SEC), affirmed this mission upon her swearing in: "We will work to deepen the SEC's commitment to transparency, accountability, and disclosure while always keeping the needs and concerns of investors front and center."¹

Despite the clear imperative for prudent oversight, the SEC has failed to protect investors from enduring inadequacies in corporate disclosure concerning the material risks and opportunities posed by climate change. This report—the most exhaustive empirical analysis of climate disclosure conducted to date—is based on a systematic analysis of nearly 6,400 10-K filings by S&P 500 companies spanning 1995 through the present,² finds that there is an alarming pattern of non-disclosure by corporations regarding climate risks.

International executives name climate change as the societal issue most likely to affect shareholder value in the next five years.³ The recent Fourth Assessment Report of the Intergovernmental Panel on Climate Change,⁴ the Supreme Court's affirmation of the Environmental Protection Agency's authority to regulate greenhouse gases in *Massachusetts v. EPA*,⁵ and the emergence of numerous state, regional and federal greenhouse gas policies all underscore the growing certainty of significant physical impacts from and regulatory responses to climate change.⁶

Under existing SEC disclosure requirements, a public corporation is required to fully and fairly disclose facts about its operations that are "material" to a shareholder's investment decision. But despite the growing evidence of climate change's broad range of impacts, 76.3% of annual reports filed in 2008 by S&P 500 corporations failed to even mention climate change.⁷ The true test of proper climate risk disclosure will be its quality, assessed using existing frameworks like the Global Framework for Climate Risk Disclosure.⁸ Simply including a climate change keyword is not an adequate assessment of climate change risk. But the fact that the large majority of S&P 500 companies fail to even mention climate change demonstrates the fundamental failure to implement securities law and protect investors.

The stark discrepancy between corporate awareness of the risks presented by climate change and disclosures intended to inform investors about these risks is highly troubling. The observed pattern of non-disclosure uncovered in this study reaffirms the need for the SEC to provide accountable, standardized guidance on reporting requirements for climate risk disclosure.

The following are among the key findings of the study:

- ▶ ***The vast majority of S&P 500 companies remain silent with respect to the risks and opportunities posed by climate change.*** 76.3% of annual reports filed by S&P 500 companies in 2008 failed to include any mention of climate change (see Chart 1).
- ▶ ***While there has been an increase in the quantity of 10-K filings that contain discussions of climate risks and opportunities, the quality of these discussions is low.*** Only 5.5% of annual reports filed by the S&P 500 in 2008 identified at least one risk posed by climate change and articulated a strategy for managing and mitigating that risk.⁹
- ▶ ***Less than 10% of S&P 500 companies in the financial sector discussed climate change in 10-K reports filed in 2008.*** This anemic reporting rate is particularly troubling given the enormous risks posed by climate change to the insurance industry, and the role of major banks in financing infrastructure projects. In 2008 the global advisory firm of Ernst & Young indicated that "climate change is the greatest strategic risk currently facing the property/casualty insurance industry."¹⁰

- **The utilities sector led all other S&P 500 sectors in discussing climate change in 10-K reports filed in 2008.** Only 3.2% of utilities sector companies failed to mention climate change in 10-K reports filed in 2008. Despite this low *failure-to-mention* rate, however, utilities sector disclosures still failed to provide high informational value to investors.

This study is part of a larger research project entitled ClimatePledges (www.climatepledges.org) run by the Center for Energy and Environmental Security. As part of this larger project, the dataset for this study has been placed online as a fully searchable database. The Coyote 10-K Database covers 750 companies that are current or former members of the S&P 500, 6,354 10-K filings, and 79,012 associated exhibits from 1995 to the second quarter of 2008. The resource is located at <http://coyote.climatepledges.org>.

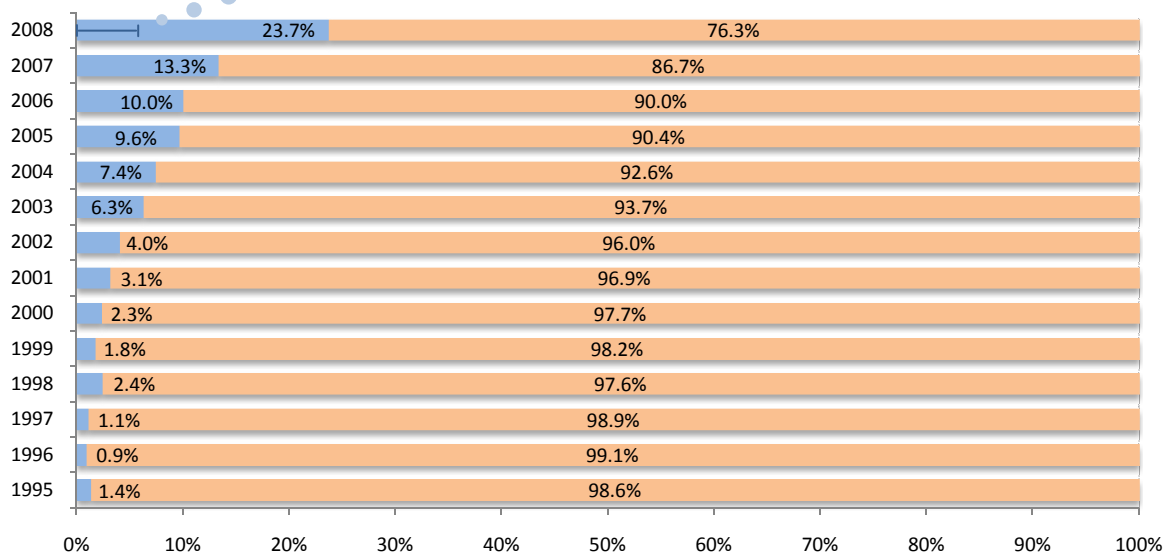
Chart 1. Trends in Mentions of Climate Change in SEC 10-K Filings by S&P 500 companies, 1995 – Present*

Only 5.5% of companies in 2008 both identified a risk and discussed a management strategy for the risk.



■ % of companies that used one or more climate “key phrases” in a 10-K filing

■ % of companies that failed to mention climate change in a 10-K filing



* All 6,354 10-Ks were searched for the presence of one or more of the following climate key phrases: “climate change”; “global warming”; and “greenhouse gas.” The search was constructed to capture variations on each phrase.

Table 1. Mentions of Climate Change by S&P 500 Sector for 10-K filings in 2008

<i>Economic Sector</i>	<i>% of Companies Failing to Mention Climate Change</i>	<i>% Identifying 1 Risk and an Associated Management Strategy</i>
Utilities	3.2%	35.5%
Energy	37.1%	28.6%
Materials	44.0%	5.7%
Consumer Products	10.3%	2.1%
Industrials	85.0%	2.1%
Financials	90.6%	0.0%
Information Technology	93.5%	0.0%
Telecommunications	100.0%	0.0%
All Sectors	23.7%	5.5%

Introduction

Current turmoil in financial markets has highlighted the shortcomings of corporate self-policing of risk assessment practices. The new Chair of the U.S. Security and Exchange Commission (SEC), Mary Shapiro, highlighted the need for the SEC to execute its oversight role and secure transparent and accountable disclosure during her swearing in ceremony.¹¹

This analysis finds that a longstanding and ongoing pattern of inadequate disclosure of the material risks and opportunities from climate change has endured in the absence of clear guidance and accountability for climate disclosure practices. In this report, we review the results of a systematic study of climate disclosure in nearly 6,400 10-K filings made by S&P 500 companies between 1995 and the present. We also introduce the Coyote Database, a searchable database of 10-K reports that provided the basis for this analysis and is available for public use at <http://coyote.climatepledges.org>.

Despite compelling evidence of climate change's broad range of impacts, our analysis demonstrates that last year, 76.3% of S&P 500 corporations failed to even mention climate change in the required SEC filings relied upon by investors. Simply including a climate change keyword is not an adequate assessment of climate change risk. But the fact that the large majority of S&P 500 companies neglect to even mention climate risk demonstrates the fundamental failure to implement securities law and protect investors.

These findings underscore the imperative for SEC action to secure transparent and accountable climate risk disclosure practices to protect investors.

Existing securities law requires public corporations to disclose material information

Under Securities and Exchange Commission disclosure requirements, a public corporation is required to fully and fairly disclose facts about its operations that are "material" to a shareholder's investment decision. A fact is defined as material if "there is a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available."¹² Under Regulation S-K and the Statement of Financial Accounting Standards No. 5 (FAS 5), corporations are responsible for narrative disclosures of material risks that cannot be quantified, and must disclose any reasonably estimable and material contingent liabilities on their balance sheets.¹³

Voluntary climate disclosure, through annual reports or institutions like the Carbon Disclosure Project, can provide additional information for the marketplace. But these forums are no substitute for the standardized, regulated disclosure mandated in SEC filings. As stated by Jeff Smith, a leading legal expert on securities disclosure, in testimony before the Senate Subcommittee on Securities, Insurance and Investment, "Because there is no agreed-upon format or objective for these [voluntary] reports . . . they do not create ready basis for comparison among and between themselves, or an accessible measurement against a recognized benchmark vetted through well-recognized channels under well-established principles."¹⁴ Moreover, voluntary disclosures lack the accountability essential for investor certainty and protection.

Many corporations face material risks and opportunities from climate change

Climate change presents a host of risks and opportunities for corporations. From electric utilities profiting from prudent investments in renewable energy generation to insurance companies coping with rising disaster risks in coastal communities, many major corporations in a variety of sectors are likely to incur significant impacts on their bottom line from current and future climate change. Current examples of climate risks and opportunities include:

- A recent report by the U.S. Environmental Protection Agency highlighted the host of threats to coastal infrastructure and private property from sea level rise.¹⁵

- A recent report highlighted the wide variety of new climate change product offerings by the insurance sector, including weather insurance for renewable energy producers and new insurance products for energy service providers.¹⁶
- 4,200 megawatts of wind power were added to the U.S. grid in the first nine months of 2008.¹⁷
- The Environmental Protection Agency is currently reconsidering California's waiver request for its Clean Cars program, and reevaluating whether new coal-fired power plants are subject to greenhouse gas emissions standards.¹⁸

Investors are calling for clarification of proper climate disclosure practices

For many corporations, the risks and opportunities presented by a changing climate clearly fall under the definition of materiality. Nonetheless, repeated studies have found that climate risk disclosure practices are inadequate and inconsistent.¹⁹ Investors have repeatedly asked the SEC to remedy this problem by clarifying how corporations should suitably and consistently disclose material climate risks:

Investors petition the SEC for guidance. On September 18th, 2007, a coalition of major institutional investors, large asset management firms, state officials and environmental organizations petitioned the SEC to clarify that publicly traded firms must disclose risks and opportunities related to climate change under existing law.²⁰ The petition signatories represented over \$1.5 trillion in assets under management.

Senate committee of jurisdiction calls for action. In a December 6, 2007 letter to former SEC Chairman Christopher Cox, Banking Committee Chairman Senator Christopher Dodd, and Securities, Insurance, and Investment Subcommittee Chairman Senator Jack Reed requested that the SEC issue an interpretive release to clarify publicly traded corporations' obligations to disclose material climate risks.²¹ The letter stemmed in part from an October 31st hearing held by the Securities, Insurance, and Investment Subcommittee on "Climate Disclosure: Measuring Financial Risks and Opportunities."

Insurance industry approves mandatory climate disclosure requirements. In March, the National Association of Insurance Commissioners approved the nation's first mandatory climate disclosure requirements.²² The disclosure requirements highlighted concerns about "the potential impact of climate change on insurer solvency and insurance availability and affordability across all major categories of insurance."²³

This report demonstrates the continued need for SEC guidance to clarify proper climate disclosure practices

This report analyzes the trends in climate risk disclosure practices in the 10-K filings of S&P 500 members since 1995. The analysis identified mentions of climate risk by searching for three climate change keywords: greenhouse gas, global warming, and climate change. For all 10-Ks in which a reference to climate change occurred, the study then proceeded to manually assess the informational value of the reference or references using the methodology described at Appendix A.

While some gains have been made, this analysis demonstrates that significant improvements in disclosure rates and disclosure quality are still urgently needed. The following pages detail findings for individual sectors of the economy: utilities; energy; materials; industrials; financial; consumer products; and information technology. The inadequate levels of disclosure found highlight the need for accountable, transparent disclosure practices that provide certainty for businesses and accountability for investors. It is vital that the SEC reassert its appropriate leadership role and clarify climate risk disclosure guidelines.

Sectoral Analysis of S&P 500 10-K Filings: Utilities

Sector Description: This sector includes the following five industry groups: electric utilities; gas utilities; multi-utilities; water utilities; and independent power producers and energy traders.²⁴

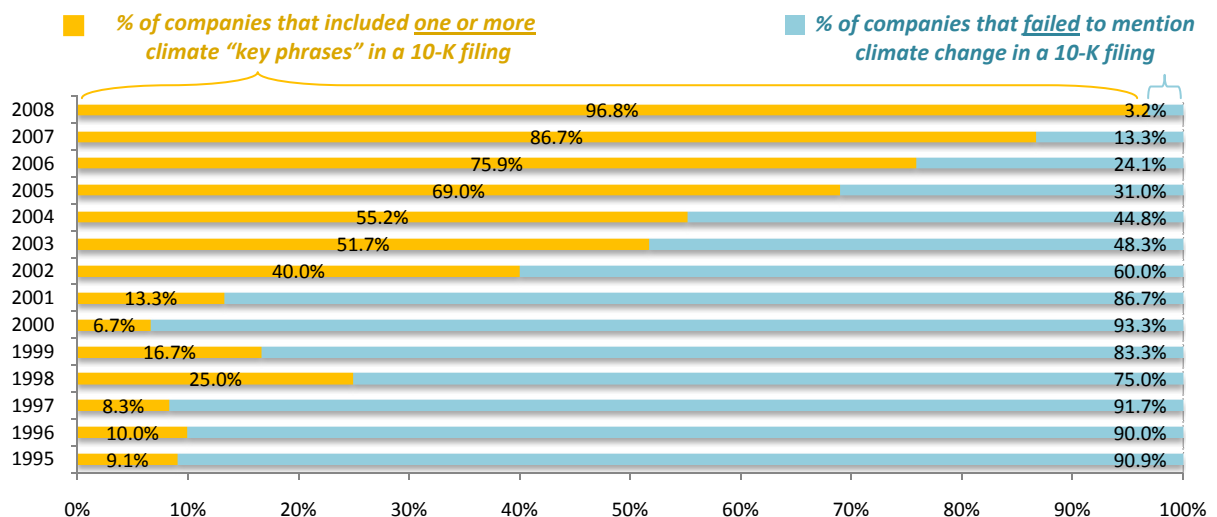
Potential Climate Impacts: Electric utilities are among the largest emitters of greenhouse gases. The potential regulatory and legal ramifications of limitations on greenhouse gases are therefore likely to have a particularly significant impact on electric utilities and energy producers. Utilities' extensive physical plant investments are also vulnerable to the increasing frequency of extreme weather events.

Climate Disclosure Examples in Sector 10-K's: Discussions included numeric goals and achievements in reducing greenhouse gas emissions, efforts to seek additional renewable power resources in order to comply with renewable portfolio standards and expected comprehensive climate policy, the need for regulatory certainty in order to appropriately plan and invest in energy efficiency and new resources, and participation in climate policy development efforts.

Key Findings

- ▶ 35.5% of the sector met the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in 10-K reports filed in 2008.
- ▶ 3.2% of S&P 500 energy companies failed to mention climate change in 10-K reports filed in 2008.

Chart 2. Trends in Utility Sector Mentions of Climate Change in SEC 10-K Filings, 1995 – Present



Evaluating and Improving Utility Disclosure Quality

Utilities face a broad range of climate risks, necessitating thoughtful, detailed disclosure practices. Nonetheless, our analysis found that the majority of utilities in the S&P 500 failed to meet even basic indicators of disclosure quality. Only 35.5% of 10-Ks filed by utilities in 2008 identified one or more distinct climate risks and discussed the management of at least one risks.

Recent settlement agreements between the New York State Attorney General's Office and two utilities, Xcel Energy and Dynegy, Inc., can provide guidance on appropriate climate risk disclosure practices for utilities. These agreements lay out components of comprehensive, consistent climate disclosure, requiring that Xcel and Dynegy disclose risks stemming from present and probable climate policies, climate change related litigation, and the physical impacts of climate change. In particular, the agreements require information on current and projected greenhouse gas emissions, and corporate strategy to mitigate emissions. More information on these agreements is available at <http://www.oag.state.ny.us/bureaus/environmental/feature.html>.

Overall Quality of Disclosure: Low

35.5%

% of S&P 500 utility sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

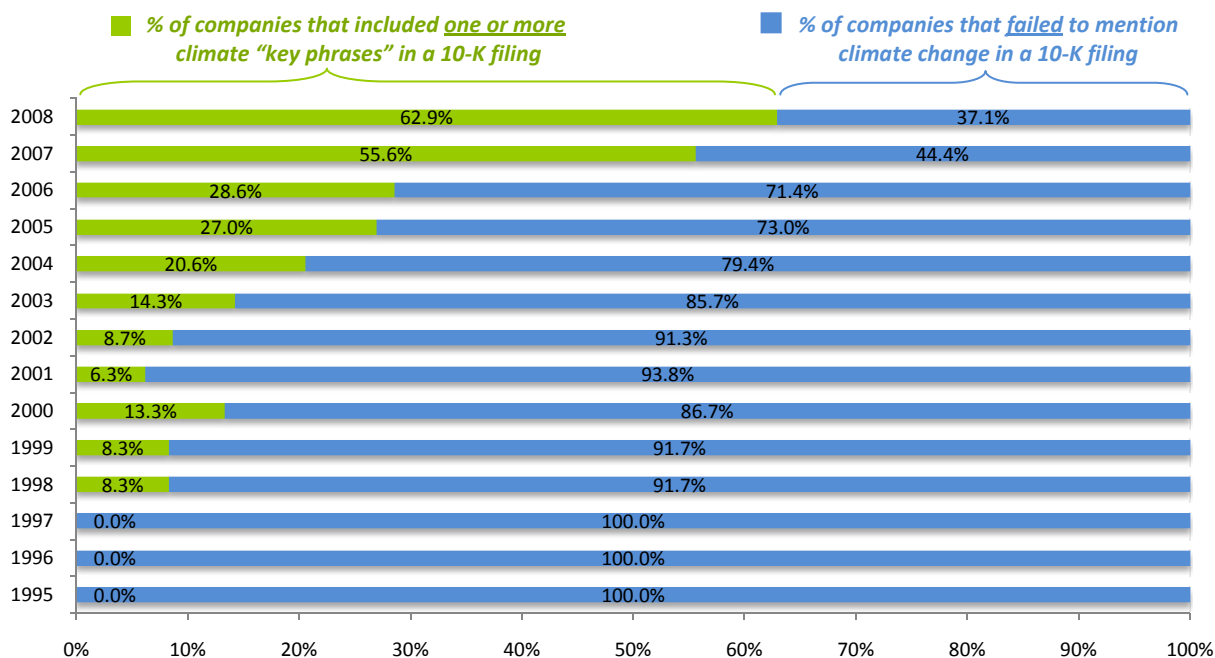
Sectoral Analysis of S&P 500 10-K Filings: Energy

Sector Description: This sector includes the following industry groups: oil and gas drilling; oil and gas equipment and services; integrated oil and gas; oil and gas exploration and production; oil and gas refining and marketing; oil and gas storage and transportation; and coal and consumable fuels.²⁵

Potential Climate Impacts: The energy sector is a major emitter of greenhouse gases and therefore particularly vulnerable to the legal and regulatory risks and opportunities posed by climate change. For example, carbon mitigation policies could spur rapid deployment of low-emitting clean energy resources. The sector is also vulnerable to the physical risks posed by climate change, including infrastructure damage and operational breakdown due to extreme weather events. Warming conditions could also have a major impact on natural gas demand for winter heating.

Climate Disclosure Examples in Sector 10-K's: Disclosures included review of the range of state, federal and international climate policies with which energy companies must comply, the potential for reduced demand for carbon-intensive energy products, and climate change related litigation.

Chart 3. Trends in Energy Sector Mentions of Climate Change in SEC 10-K Filings, 1995 – Present



KEY FINDINGS

- ▶ 37.1% of S&P 500 energy companies failed to mention climate change in their 2008 10-K filing.
- ▶ References to climate change by energy sector companies first occurred in 1998 with 8.3% of the sector providing some treatment of the issue.

Overall Quality of Disclosure: Very Low

5.7%

% of S&P 500 energy sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

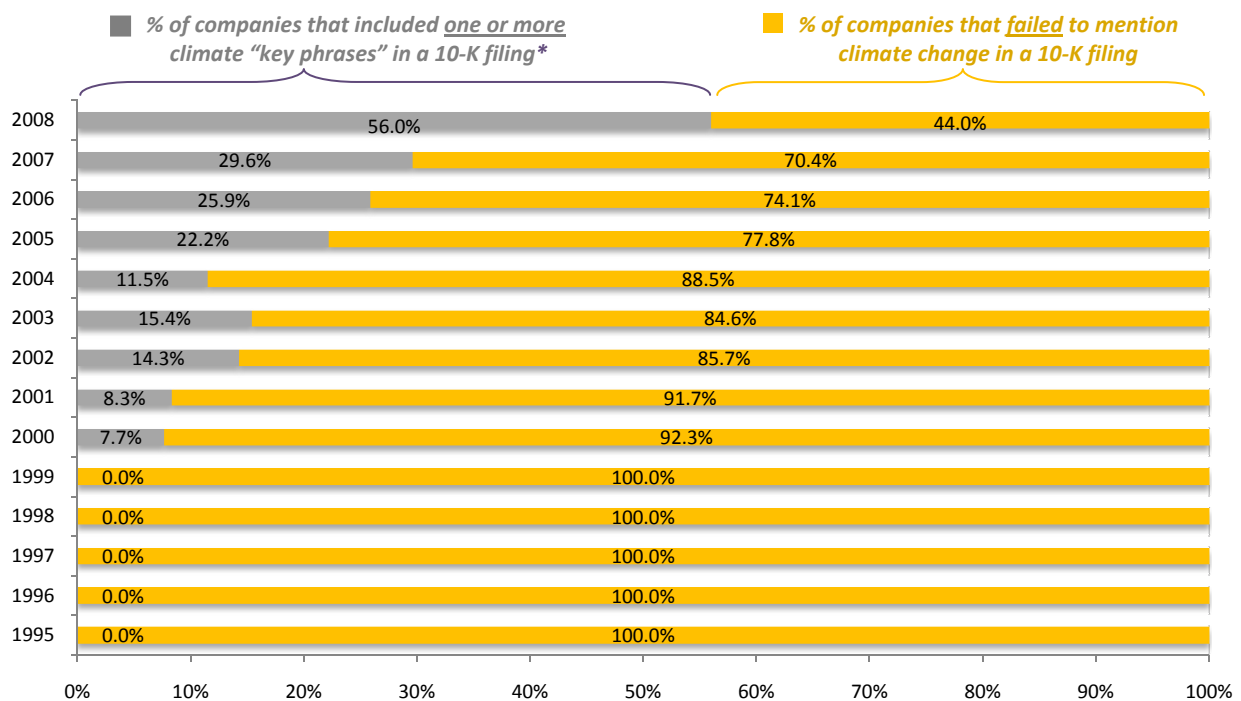
Sectoral Analysis of S&P 500 10-K Filings: Materials

Sector Description: This sector covers companies engaged in a wide range of commodity-related manufacturing, including the following industries: chemicals; construction materials; containers and packaging; metals and mining; and paper and forest products.²⁶

Potential Climate Impacts: Materials companies rely on a wide range of natural resources and use chemical processes that consume significant amounts of energy and release greenhouse gases. Cement companies alone account for 5% of global carbon dioxide emissions.²⁷ Potential climate impacts on the materials sector include reduced supply of natural resources impacted by changing climatic conditions and increased competitive advantage for firms with efficient manufacturing processes.

Climate Disclosure Examples in Sector 10-K's: Disclosures included information about quantitative goals and achievements in reducing greenhouse gas emissions, efforts to increase manufacturing efficiency and develop new products that help reduce greenhouse gas emissions, and discussions of risks associated with their business model and strategic investments.

Chart 4. Trends in Materials Sector Mentions of Climate Change in SEC 10-K Filings, 1995 – Present



KEY FINDINGS

- ▶ 44% of materials companies failed to mention climate change in their 2008 10-K filing.
- ▶ References to climate change by materials sector companies first occurred in 2000 with 7.7% of the sector providing some treatment of the issue.
- ▶ Between 2007 and 2008 the percentage of companies mentioning climate change in 10-Ks grew from 29.6% to 56%.

Overall Quality of Disclosure: Low

28.6%

% of S&P 500 materials sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

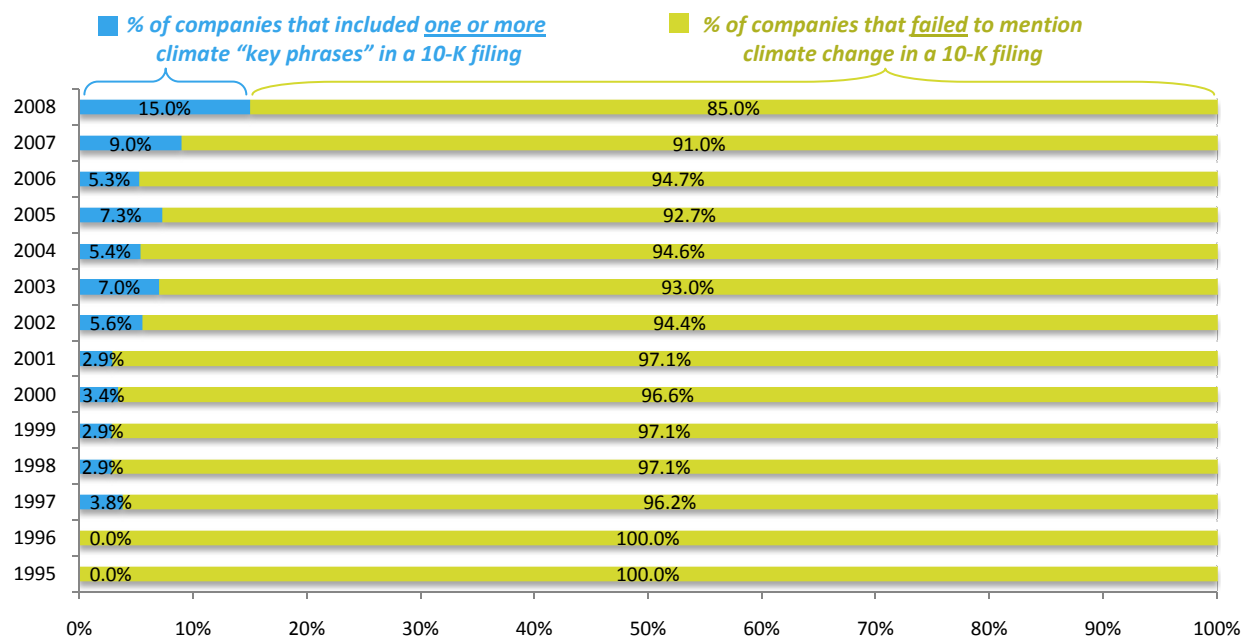
Sectoral Analysis of S&P 500 10-K Filings: Industrial

Sector Description: This sector includes the following industries: airlines, aerospace and defense; building products; construction and engineering; electrical equipment; industrial conglomerates; machinery; trading companies and distributors; commercial services and supplies; professional services; air freight and logistics; marine; road and rail; and transportation infrastructure.²⁸

Potential Climate Impacts: Most industrial corporations use significant amounts of fuel and electricity. Potential climate impacts on the industrial sector include increased demand for energy efficient products and services as well as impacts on physical plants and infrastructure investments from extreme weather events and sea level rise.

Climate Disclosure Examples in Sector 10-K's: Disclosures included the potential for changing consumer preferences for goods and services relating to renewable energy and energy efficiency, development of new products that address global warming, including energy efficiency and renewable energy products, and litigation risks stemming from climate change.

Chart 5. Trends in Industrial Sector Mentions of Climate Change in SEC 10-K Filings, 1995 – Present



KEY FINDINGS

- ▶ 85% of S&P 500 industrial companies failed to mention climate change in their 2008 10-K filing.
- ▶ References to climate change by S&P 500 industrial sector companies first occurred in 1997 with 3.8% of the sector providing some treatment of the issue.
- ▶ Between 2007 and 2008 the percentage of companies mentioning climate change in 10-Ks grew from 9% to 15%.

Overall Quality of Disclosure: Very Low

2.1%

% of S&P 500 industrial sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

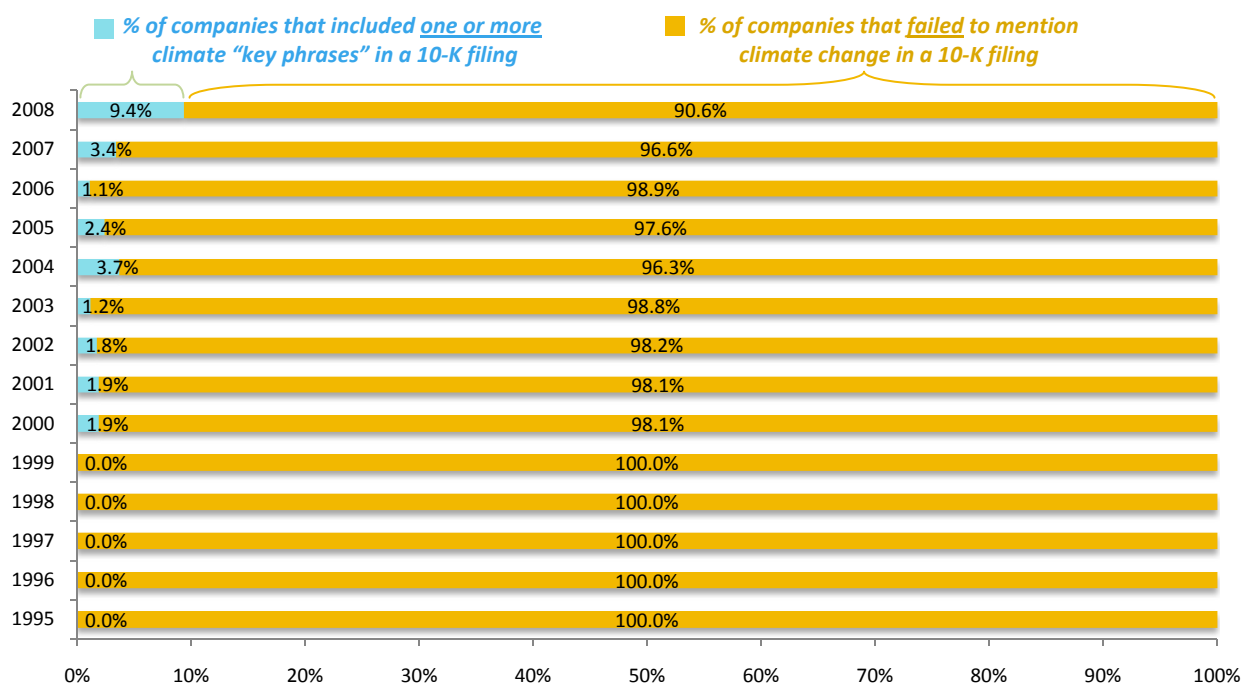
Sectoral Analysis of S&P 500 10-K Filings: Financial

Sector Description: This sector includes the following industries: commercial banks; thrifts and mortgage finance; diversified financial services; consumer finance; capital markets; insurance; real estate; real estate investment trusts; and real estate management and development.²⁹

Potential Climate Impacts: Insurance companies face serious risks to their financial stability from the increasing frequency of costly, extreme weather events. The banking industry also faces climate risks through investments in other sectors. For example, many major banks recently signed on to the Carbon Principles, a set of guidelines that aims to evaluate and mitigate the climate risks associated with investing in high-emitting energy generation.³⁰

Climate Disclosure Examples in Sector 10-K's: Discussions included how climate change will increase the frequency of extreme weather events, making it more difficult to manage risk exposure in insurance policies, provide affordable insurance products, and adversely impacting the ability of borrowers to repay loans.

Chart 6. Trends in Financial Sector Mentions of Climate Change in SEC 10-K Filings, 1995 – Present



KEY FINDINGS

- ▶ 90.6% of S&P 500 financial companies failed to mention climate change in their 2008 10-K filing.²⁶
- ▶ References to climate change by S&P 500 financial sector companies first occurred in 2000 with 1.9% of the sector providing some treatment of the issue.
- ▶ Between 2007 and 2008 the percentage of companies mentioning climate change in 10-Ks grew from 3.4% to 9.4%.

Overall Quality of Disclosure: Very Low

0.0%

% of S&P 500 financial sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

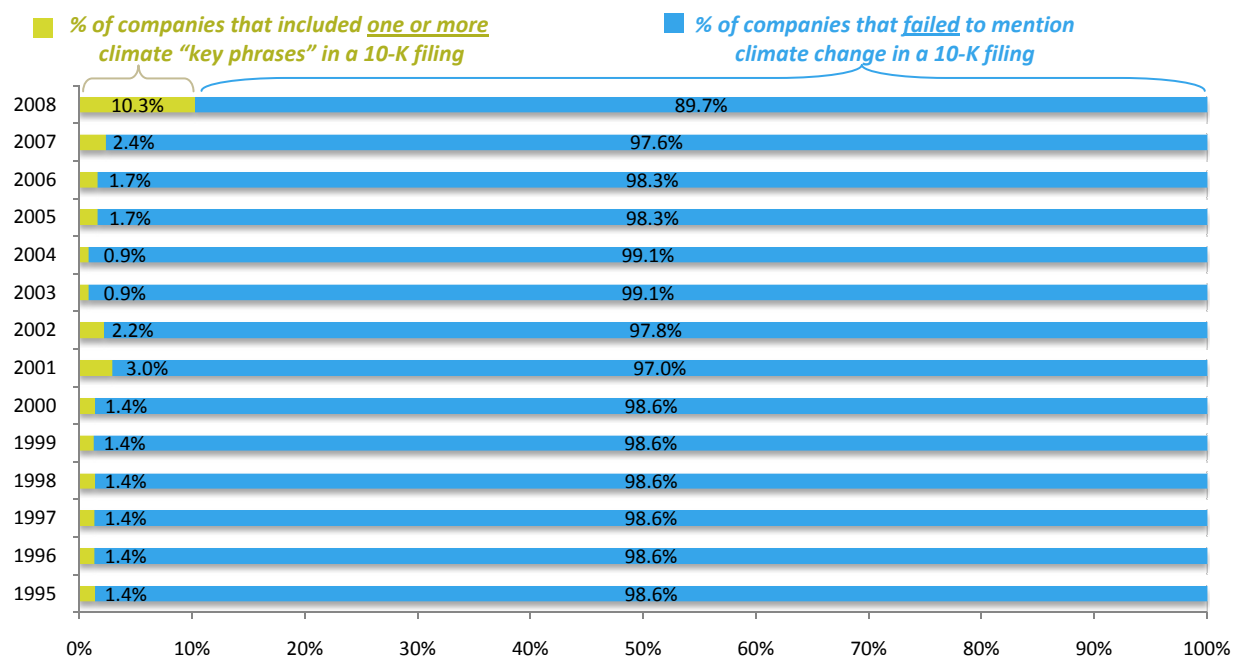
Sectoral Analysis of S&P 500 10-K Filings: Consumer Products

Sector Description: This section contains the combined results for both the consumer staples and the consumer discretionary sectors, including industries such as automobiles, food and staples, retailing, and household products.³²

Potential Climate Impacts: Consumer product companies rely on a wide range of natural resources and often depend on transportation systems and production processes that release substantial amounts of greenhouse gases. Potential climate risks for the consumer products sector include reduced supply of agricultural products and natural resources due to changing climatic conditions as well as increased competitive advantage for firms with efficient manufacturing, transportation and packaging practices.

Climate Disclosure Examples in Sector 10-K's: Disclosures included potential disruptions to supply chains and damages to property caused by adverse climate changes and extreme weather events, litigation seeking monetary damages from global warming induced by company products, and requirements to meet new climate policies.

Chart 7. Trends in Consumer Products Sector Mentions of Climate Change in SEC 10-K Filings, 1995 – Present



KEY FINDINGS

- 89.7% of S&P 500 consumer products companies failed to mention climate change in their 2008 10-K filing.
- The only S&P 500 consumer products companies to even mention climate change in their 10-K filings prior to 2008 were the auto manufacturers Ford and General Motors.

Overall Quality of Disclosure: Very Low

1.4%

% of consumer products sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

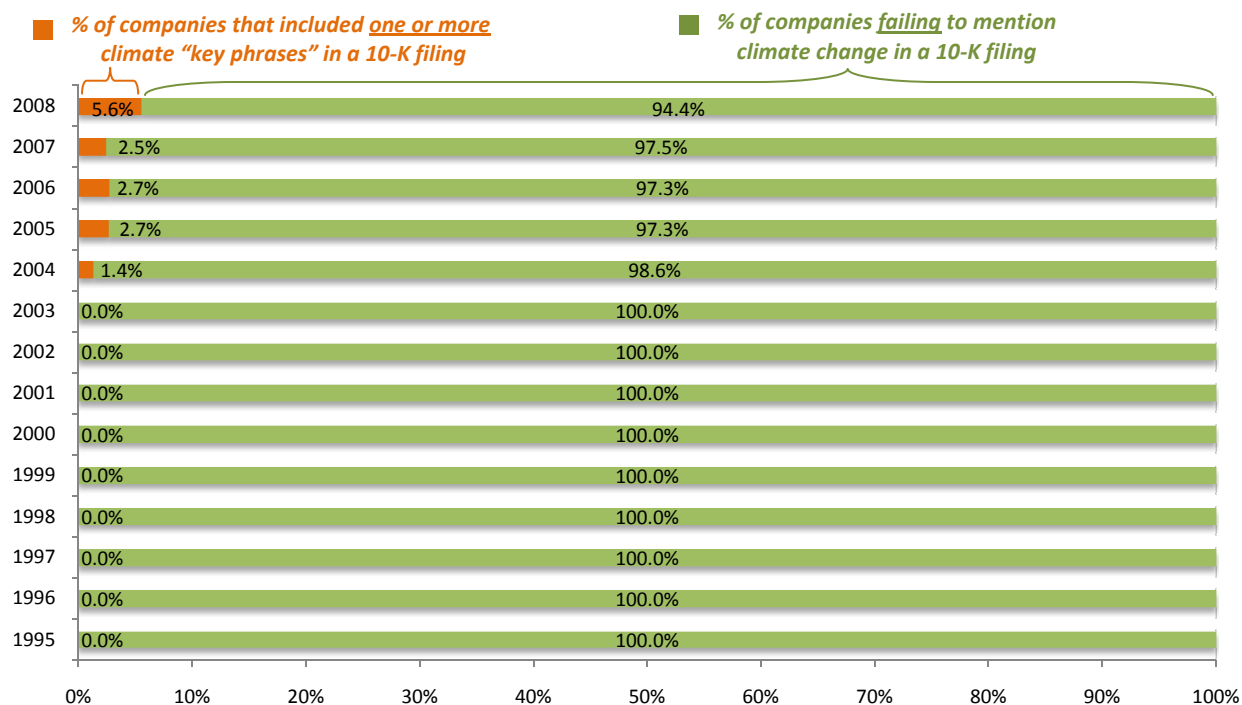
Sectoral Analysis of S&P 500 10-K Filings: IT & Telecommunications

Sector Description: This section combines results from the information technology sector, which includes industries such as software, computers and peripherals, and internet services, with results from the telecommunications services sector.³³

Potential Climate Impacts: Information technology and telecommunications firms use enormous amounts of power to maintain server farms and vast telecommunications networks.³⁴ Carbon policies will create a significant competitive advantage for companies able to increase the efficiency of the energy-intensive portions of their operations or to expand reliance on low-emitting energy resources.

Climate Disclosure Examples in Sector 10-K's: Discussions highlighted efforts to set and achieve greenhouse gas reductions goals, and initiatives to increase the energy efficiency of manufacturing, products, and services, particularly in relation to competitors' products.

Chart 7. Trends in Mentions of Climate Change in SEC 10-K Filings by the IT and Telecomm. Sectors, 1995 – Present



KEY FINDINGS

- ▶ 86.9% of S&P 500 IT and telecommunications companies failed to mention climate change in their 2008 10-K filing.
- ▶ In 2008 only one sector—Telecommunication Services—had a zero percentage reporting rate for climate change in 10-K filings. Since 1995, no company in the Telecommunication Services sector has ever discussed climate change in a 10-K filing.

Overall Quality of Disclosure: Very Low

2.1%

% of S&P 500 IT and telecommunications sector companies meeting the standard of identifying at least one climate change risk and articulating a management or mitigation strategy for that risk in a 2008 10-K filing.

Appendix A: Data Set and Methodology

This report describes the results of a comprehensive study of S&P 500 10-K annual reports filed with the SEC between 1995 and the second quarter of 2008. The 10-Ks included in this study provide information on the preceding fiscal year. However, because there is no uniform filing date for the covered 10-Ks, not all reports cover the same time period. For instance, Wal-Mart filed a 10-K with the SEC on March 31, 2008 that covers the fiscal year ending January 31, 2008. In contrast, H&R Block filed a 10-K with the SEC on June 30, 2008 that covers the fiscal year ending April 30, 2008.

The study analyzed 6,354 10-K filings and associated 10-K exhibits for references to climate change. For all 10-Ks filed in 2008 in which a reference to climate change occurred, the study then proceeded to assess the informational value of the reference or references.

[1] **Database Population:** The results reported here are based on an analysis of 10-K filings and their attached exhibits, collected into a CEES database that is available to the public at <http://coyote.climatepledges.org>. We focused on the Standard & Poor's 500, a cross-economy index of high market-cap companies, for our analysis. However, because the list of companies shifts, with new companies added and others dropped from the index over time, we expanded our review to all companies that were or had been listed in the S&P 500 any time from January 2000 to June 2008. The total number of companies whose filings were examined was 742. We then collected the 10-K annual reports for each of these companies, filed between 1995 and the second quarter of 2008, from the SEC's online database.³⁵

[2] **Key Phrase Search:** A script was composed to search all 10-K filings in the database for certain "key phrases" that would indicate a discussion of climate change within the documents. The phrases used for this study were "climate change," "global warming," and "greenhouse gas." The script was constructed to capture variations on each phrase, such as "climate changes," or "greenhouse gases." However, the script would not detect mentions that included some grammatical error.

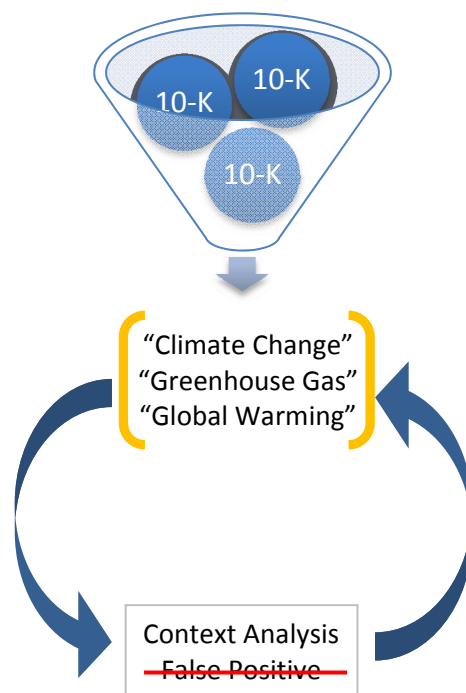
[3] **Iteration to Refine Phrase List:** The database was searched for several other key phrases before the list of three phrases used here was finalized. Phrases such as "carbon dioxide," "GHG," and "renewable energy" resulted in a large number of false positives, which raised concerns about data integrity. However, the legitimate results flagged by these search phrases were wholly duplicative of those revealed by the three listed above, so these additional search phrases were abandoned.

[4] **Context Analysis:** The results of the key phrase search were then reviewed to protect against false positives. For example, some early 10-Ks discussed things like the changing business climate, but did not discuss global climate change. Such results were expelled and then the remaining results were tabulated.

[5] **Analysis of 1 Risk, 1 Strategy metric:** For 10-K reports filed in 2008 that contained one or more climate key phrases, we evaluated the company's discussion of climate change using a metric of 1 risk, 1 strategy. This indicator assessed if the company (1) identified at least one climate risk to the company's performance, whether a physical, regulatory, business model, litigation, or other climate risk; and (2) articulated a management and mitigation strategy for at least one of the identified risks.

Further discussion of this study and its results can be found in Kevin Doran & Elias L. Quinn, *Climate Change Risk Disclosure: A Sector By Sector Analysis of SEC 10-K Filings from 1995–2008*, 34 N.C. J. INT'L L. & COM. REG. 101 (forthcoming).

Figure 1. Project Methodology



Appendix B: Resources on Climate Disclosure

This analysis demonstrates how poor climate risk disclosure practices are today and how far we have to go to ensure investors have consistent and thoughtful information on corporate risks from climate change. We found that even bare mentions of climate change were infrequent, and our assessment of disclosure quality found that the large majority of companies fell short even by our limited measure of discussing one specific risk and one specific mitigation strategy. The true test of proper climate risk disclosure will be its quality, assessed using existing, widely respected frameworks.

SEC guidance is necessary to establish consistent, comprehensive guidelines for appropriate, accountable disclosure of climate risks. In the absence of such guidance, a range of materials are available to help investors evaluate climate disclosure performance, and to inform companies in providing appropriate disclosure of risks from climate change. This appendix highlights four key resources:

Coyote 10-K Database

The database used for this study is available for public use at <http://coyote.climatepledges.org>. The Coyote 10-K Database includes 750 companies and 6,354 10-K filings, covering reports filed between the beginning of calendar year 1995 and the end of the second quarter of 2008. The database facilitates analysis of climate risk disclosure by public U.S. companies, though the tool is not restricted to climate or environmental risk analysis. Users can search the database for key phrases such as “global warming” or “climate change.” The database also allows the use of search operators. For instance, users can query the database for 10-Ks that contain [("climate change" OR "global warming") AND litigation]. Once a user has retrieved a 10-K filing or exhibit, the browser can then be used to generate pinpoint searches of specific terms.

The Global Framework on Climate Risk Disclosure

The Global Framework was created by an international group of leading institutional investors as a statement on necessary and expected information companies should include in climate risk disclosures. The Framework outlines four elements of disclosure: historical, current, and projected greenhouse gas emissions; strategic analysis of climate risk and emissions management; assessment of physical risks of climate change; and analysis of risk related to the regulation of greenhouse gas emissions. Investors identified these elements as critical for analyzing a company’s business risks and opportunities resulting from climate change, as well as the company’s efforts to address those risks and opportunities. A full copy of the Global Framework is available here: <http://216.235.201.250//Document.Doc?id=73>.

Investor Petition to the SEC on Climate Risk Disclosure

On September 18, 2007, investors representing over 1.5 trillion dollars in assets under management joined with state officials and non-profit organizations to request that the Securities and Exchange Commission issue guidance clarifying that corporations must disclose material climate risks under existing law. The Petition reviews relevant securities law, key developments in climate science and policy, the wide scope of investor efforts to acquire information on climate risks, and appropriate climate disclosure practices. A copy of the Petition is available here: <http://www.sec.gov/rules/petitions/2007/petn4-547.pdf>.

New York Attorney General’s agreements with Xcel Energy and with Dynegy, Inc.

Recent agreements by the New York Attorney General’s Office with Xcel Energy and with Dynegy, Inc., negotiated in response to a subpoena duces tecum seeking information regarding disclosure practices, provide useful insights into comprehensive, consistent disclosure practices for electric utilities. The agreements require the companies to disclose information on regulatory, physical and litigation risks stemming from climate change, including: data on current and projected carbon emissions; company strategies for managing emissions and expected reductions from these actions; analyses of financial risks related to the present and probable climate policy; climate-change related litigation; physical impacts of climate change; and corporate governance actions related to climate change. Information on the agreements is available here: <http://www.oag.state.ny.us/bureaus/environmental/feature.html>.

Endnotes

- ¹ Securities and Exchange Commission, Press Release, *Mary Schapiro Sworn In as Chairman of SEC* (Jan. 27, 2009), available at <http://www.sec.gov/news/press/2009/2009-11.htm>.
- ² This analysis examined all S&P 500 10-K annual reports filed with the SEC between 1995 and the second quarter of 2008. The 10-Ks included in this study provide information on the preceding fiscal year. However, because there is no uniform filing date for the covered 10-Ks, not all reports cover the same time period. For instance, Wal-Mart filed a 10-K with the SEC on March 31, 2008 that covers the fiscal year ending January 31, 2008. In contrast, H&R Block's filed a 10-K with the SEC on June 30, 2008 that covers the fiscal year ending April 30, 2008.
- ³ See The McKinsey Quarterly, *From Risk to Opportunity: How Global Executives View Sociopolitical issues* (Sept. 2008).
- ⁴ Intergovernmental Panel on Climate Change, *Climate Change 2007: Synthesis Report – Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_frontmatter.pdf.
- ⁵ *Massachusetts v. EPA*, 549 U.S. 497 (2007).
- ⁶ See SEC Petition Supplement, available at <http://www.ceres.org/NETCOMMUNITY/Document.Doc?id=358>.
- ⁷ All reported values for filings in year 2008 are based on filings in the first two quarters of the year. However, analysis performed on the first two quarters of filings provides far more than half a year's available data; 421 of the S&P 500 companies (84.2%) filed their 10-Ks with the SEC in quarters Q1 and Q2 of 2008. "Mention" of climate change, here and throughout the paper, is defined as using one of the three phrases—"climate change," "global warming," and "greenhouse gas"—at least once in the company's 10-K filing or connected exhibit documents.
- ⁸ See Ceres, *The Global Framework for Climate Risk Disclosure* (2006), available at <http://216.235.201.250//Document.Doc?id=73>.
- ⁹ This number was arrived at by examining 2008 10-Ks filed through Q2 according to the methodology described in Appendix A.
- ¹⁰ Ernst & Young, *Strategic Business Risk 2008: Insurance* (2008).
- ¹¹ Securities and Exchange Commission, Press Release, *Mary Schapiro Sworn In as Chairman of SEC* (Jan. 27, 2009), available at <http://www.sec.gov/news/press/2009/2009-11.htm>.
- ¹² SEC Staff Accounting Bulletin No. 99, 64 Fed. Reg. 45,150 (Aug. 12, 1999) (quoting *TSC Industries v. Northway, Inc.*, 426 U.S. 438, 449 (1976)).
- ¹³ The SEC has proposed changes to FAS 5 that could require increased detail and background in disclosures and accounting for loss contingencies. The currently proposed changes would require disclosure of all applicable loss contingencies except those where "the likelihood of loss is remote." Financial Accounting Standards Board, *Exposure Draft of a Proposed Statement of Financial Accounting Standards: Disclosure of Certain Loss Contingencies, An Amendment of FASB Statements No. 5 and 141(R)*, No. 1600-100, 2-3, (June 5, 2008).
- ¹⁴ Jeffrey A. Smith, Testimony of Jeffrey A. Smith Before the Subcommittee on Securities, Insurance and Investment of the Committee on Banking, Housing and Urban Affairs, U.S. Senate, *Regarding Climate Disclosure: Measuring Financial Risks and Opportunities* (Oct. 31, 2007).
- ¹⁵ U.S. Climate Science Program, *Synthesis and Assessment Product 4.1: Coastal Sensitivity to Sea Level Rise: A Focus on the Mid Atlantic Region*, U.S. Environmental Protection Agency, available at <http://www.epa.gov/climatechange/effects/coastal/SAP%204.1%20Final%20Report%2001.15.09.pdf>.
- ¹⁶ Evan Mills, *From Risk to Opportunity: 2007: Insurer Responses to Climate Change*, Ceres (Nov. 2007), available at <http://www.ceres.org//Document.Doc?id=225>.
- ¹⁷ American Wind Energy Assn. 3rd Quarter 2008 Market Report, available at www.awea.org/publications/reports/3Q08.pdf.
- ¹⁸ U.S. Environmental Protection Agency, California State Motor Vehicle Pollution Control Standards; Greenhouse Gas Regulations; Reconsideration of Previous Denial of a Waiver of Preemption, 74 Fed. Reg. 7040 (Feb. 12, 2009). Letter from Lisa P. Jackson, Administrator, U.S. Environmental Protection Agency, to

David Bookbinder, Chief Climate Counsel, Sierra Club (Feb. 17, 2009), *available at* <http://www.epa.gov/air/nsr/documents/20090217LPJlettertosierraclub.pdf>.

19 See Michelle Chan-Fishel, *Fourth Survey of Climate Change Disclosure in SEC Filings of Automobile, Insurance, Oil & Gas, Petrochemical, and Utilities Companies*, Friends of the Earth Report (Sept. 2005).

20 See Petition for Interpretive Guidance on Climate Risk Disclosure (United States Securities and Exchange Commission, Sept. 18, 2007), *available at* <http://www.incr.com/NETCOMMUNITY/Document.Doc?id=187>.

21 Letter from Christopher J. Dodd, Chairman, U.S. Senate Committee on Banking, Housing, and Urban Affairs, and Jack Reed, Chairman, U.S. Senate Subcommittee on Securities, Insurance and Investment, to Christopher Cox, Chairman, United States Securities and Exchange Commission (Dec. 6, 2007), *available at* http://dodd.senate.gov/multimedia/2007/120607_CoxLetter.pdf.

22 See the National Association of Insurance Commissioners, Climate Change and Global Warming Task Force, *available at* http://www.naic.org/committees_ex_climate.htm.

23 National Association of Insurance Commissioners, Draft 12/12/08: Insurer Climate Risk Disclosure Survey (2008).

24 See S&P file at http://www2.standardandpoors.com/spf/xls/index/GICS_English_083108.xls (hereinafter S&P File).

25 *Id.*

26 *Id.*

27 See Energy Information Administration, *Emissions of Greenhouse Gases Report* (Dec. 3, 2008), *available at* <http://www.eia.doe.gov/oiaf/1605/ggrpt/carbon.html>.

28 See S&P File, *supra* note 24.

29 *Id.*

30 For more information, see the Carbon Principles homepage at <http://carbonprinciples.org/>.

31 For an in-depth discussion of insurance companies and their management of climate change related risks, see Christina Ross, Evan Mills, & Sean B. Hecht, *Limiting Liability in the Greenhouse: Insurance Risk-Management Strategies in the Context of Global Climate Change*, 43A STAN. J. INT'L L. 251 (2007) and Sean B. Hecht, *Climate Change and the Transformation of Risk: Insurance Matters*, 55 UCLA L. REV. 1559 (2008).

32 The complete list of industries in these two sectors is as follows: auto components; automobiles; household durables; leisure equipment and products; textiles, apparel and luxury goods; hotels, restaurants and leisure; diversified consumer services; media; distributors; internet and catalog retail; multiline retail; specialty retail; food and staples retailing; beverages; food products; tobacco; household products; and personal products. S&P File, *supra* note 24.

33 The information technologies sector includes the following industries: internet software and services; IT services; software; communications equipment; computers and peripherals; electronic equipment, instruments and components; office electronics; and semiconductors and semiconductor equipment. The telecommunications services sector includes the following industries: diversified telecommunication services; wireless telecommunication services; and other related industries. See S&P File, *supra* note 24.

34 In 2003, the telecommunications network in the United States was estimated to draw between 29 and 34 TWh/yr, or roughly a full 1% of the nation's electricity consumption. H. S. Matthews, *Electricity Use Of Wired and Wireless Telecommunications Networks in the United States*, ISEE Proceedings of the Electronics and the Environment, 2003. on IEEE International Symposium, Pages 131-136 (2003). One commentator estimates that in 2005 total electricity usage by information technology equipment in data centers, including electricity for cooling and power distribution, was 1% of world's total electricity consumption. Jonathan Koomey, *Worldwide Electricity Used In Data Centers*, ENVIRONMENTAL RESEARCH LETTERS, Vol. 3 (2008), *available at* <http://iopscience.iop.org/1748-9326/3/3/034008/?ejredirect=.iopscience>. In 2005 global data center power demand was "equivalent (in capacity terms) to about seventeen 1000 MW power plants." *Id.*

35 As some of the companies included within the CEES database have since merged with other companies or gone out of business, a 10-K filing is not available for every company for every year of the survey. The total number of 10-Ks analyzed for each year fluctuates from between roughly 375 and 620.