



In Brief:
The Business Case for Climate Legislation

I. Introduction

In recent years, leading businesses have emerged as some of the strongest advocates for passage of national climate and energy legislation that mandates reductions in greenhouse gas (GHG) emissions. While many have cheered this business engagement, others have been left confused and at times suspicious of why businesses would support such a policy.

In many ways, the confusion is understandable. Environmental politics in this country have often pitted business interests against environmental advocates in a binary struggle over the need for new or more stringent regulations. But today, major corporations cutting across a range of industries are allying themselves with nongovernmental organizations (NGOs), unions, national security hawks, and even religious groups to urge enactment of legislation that requires reductions in GHG emissions. To some observers on the left and the right, business backing for new legislation is a foreign, if not completely counterintuitive, concept, and the strange bedfellows of the climate change issue have left many scratching their heads.

This is partly because climate change is not strictly an environmental issue. Instead, it is a multi-faceted problem, encompassing national security, international diplomacy, and most crucially for business, economic policy. On a fundamental level, the companies supporting climate and energy legislation have made a simple determination: the presence of a coherent national policy is better for the economy and their business than the status quo. Put another way, the absence of such a policy creates uncertainty, which is a hindrance to sustained economic growth and an obstacle to the development of new markets and business opportunities.

This brief lays out the business case for national climate and energy policy, and explains why leading companies have decided that legislation that limits GHG emissions is good for their industries. While the details of individual companies' policy positions will vary based on their own specific circumstances, broadly speaking there are three main reasons businesses support legislation that addresses climate change:

- **The need for regulatory certainty.** Most companies understand that some form of climate policy is inevitable, but they do not know exactly what it will look like or what will be required of them. Today, when businesses look to the horizon they see an uneasy mix of evolving state and regional climate programs and burgeoning U.S. Environmental Protection Agency (EPA) regulations. It is unclear how these policy initiatives will unfold and interact with one another. This creates uncertainty, which hobbles business planning, especially for industries, such as electric utilities, that build and operate long-lived, capital-intensive assets. A clear, long-term, legislative framework for reducing GHG emissions would alleviate much of this uncertainty, allowing for more intelligent business planning.

- **The economic opportunities arising from climate solutions.** Clean energy is projected to be one of the great global growth industries of the 21st century. Policy support can accelerate growth in these industries, and help U.S. companies compete against foreign firms that are quickly establishing dominant positions in these important markets.
- **The reputational benefits of supporting public policies that combat climate change.** Customers, shareholders, employees, and other stakeholders are increasingly pushing companies to demonstrate social responsibility and environmental stewardship. For many companies, support for mandatory policies that promote clean energy, improve energy efficiency, and reduce GHG emissions has become an important plank in their broader corporate social responsibility (CSR) agendas.

Some companies are driven by all three of these reasons, while others are compelled by just one or two of them. Regardless of the specific reasons, one thing is clear: more companies today support climate legislation than ever before. Companies that make everything from computer chips to potato chips, search engines to jet engines, rubber tires to rubber soles, have publicly stated their support for legislation that caps carbon

A QUESTION OF AMERICAN LEADERSHIP

How will America take back control of its energy future while enhancing our national security?
 When will the U.S. economy regain its competitive edge instead of letting other countries corner the emerging global clean energy market?
 How can we get the U.S. back on track by creating American jobs in the new low-carbon economy?
 How can we protect our natural resources and future generations from climate change?

These are the questions we're asking our policy makers as America faces a once-in-a-century opportunity to lower greenhouse gas emissions and become the world's leader in a burgeoning clean energy economy.

We are a broad and diverse group of leading businesses, environmental organizations, national security experts, veterans' organizations, labor unions and faith-based groups.

We believe it's time for Democrats and Republicans to unite behind bi-partisan, national energy and climate legislation that increases our security and limits emissions, as it preserves and creates jobs.

It's a question of American leadership.

A message from the above organizations.

Versions of the "Leadership Ad" ran in the *Wall Street Journal*, *Washington Post* as well as other media outlets. The latest ad lists 93 organizations, the majority of which are major businesses, calling on Congress to pass climate and energy legislation.

dioxide (CO₂) emissions¹ (see “Leadership Ad” on previous page for a list of some of these companies). Trade associations representing electric utilities² and auto manufacturers³ are on record supporting national climate policy. The remainder of this brief provides additional detail on why this is the case.

II. Regulatory Certainty

Perhaps the strongest driver behind business support for national climate legislation is the need for regulatory certainty. Businesses make investment decisions based on expectations about the future. Assumptions about economic growth, consumer preferences, trade patterns, and labor and material costs—to name just a few—are all considered as executives plan their strategies to design, build, and ultimately market new products and services. Assumptions about government policy are also critical. In the case of carbon-heavy, capital-intensive industries that build and operate long-lived assets, assumptions about the nature and shape of future climate policy can be the determinative factor in deciding what type of plant to build. But without a clear, climate policy framework in place, companies today face a real dilemma. There is a general consensus among businesses that climate change regulations are coming,⁴ but significant uncertainty remains regarding the precise form and timing of the rules. This uncertainty has a crippling effect on business planning and investment decisions.

The electric utility industry provides perhaps the best example of this conundrum. The industry may need to invest up to \$2 trillion over the next 20 years to replace an aging fleet and help meet the energy needs of a growing population.⁵ These investment decisions will be extraordinarily consequential, both in terms of the dollar amounts involved as well as the longevity of the assets produced. Commercial scale coal power plants can cost up to \$2 billion to build,⁶ while a one-gigawatt nuclear plant can cost up to \$6 billion,⁷ and both can last for 50 years or more. Faced with a suite of fuel choices and generation options, a price on carbon and other regulatory details could mean the difference between building a new coal plant or a natural gas facility, or investing in wind, solar, or other low-carbon alternatives.

Many in the utility industry are thus urgently calling for rules of the road to help guide their investments over the next couple of decades and avoid spending billions of dollars on power plants that need to be shut down or retrofitted as a result of future regulatory shifts. This is what Duke Energy CEO Jim Rogers calls “stroke of the pen risk,” or “the risk that a regulator or congressman signing a law can change the value of our assets overnight.”⁸ In the face of this uncertainty, many executives have decided that the smart investment decision is to simply wait: “With billions of dollars at stake, many utilities are holding off as long as possible before committing themselves to massive, long-term investments,” says Peter Darbee, CEO of PG&E Corporation, speaking about the electric industry at large.⁹

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In short, regulatory uncertainty delays investments and drags down growth at individual businesses and across the economy. While electric utilities provide a stark example of this effect, they are not alone. Carmakers have also suffered from the absence of a clear national climate and energy policy. In this industry, it can take up to seven years to bring a product to the market¹⁰, and the technology development process can take even longer, sometimes up to a dozen years.¹¹ This means that auto engineers are currently designing vehicles for the 2017 market at the earliest—a market that will undoubtedly look very different than today’s. As a result, automakers are calling

for a longer-term regulatory framework to help guide their investment decisions over the next few decades.¹² Such a framework would help automakers more intelligently assess the relative costs and benefits of various low-carbon options including electrification, lightweighting, biofuels, and hydrogen fueling, and lower the probability of making expensive bets on the wrong technology.

Still, some companies continue to believe it is in their best interests to try and beat back climate change rules for as long as possible. Permanent abandonment of GHG regulation provides its own sense of certainty, or so the thinking goes. But it is naïve to think the climate issue will just go away, even if opponents are successful in blocking new federal legislation this year or the next. The evidence is clear that in the absence of federal legislation policymakers will continue to address climate change, but they will be forced to do so in ways that may be less consistent, more costly, and potentially less effective. States, for example, are establishing their own climate programs,¹³ and while there is an effort underway to coordinate these regional efforts, concern exists that conflicting standards could drive up costs and complexity for businesses that operate throughout the country. EPA is also moving forward with regulations, as directed by the Supreme Court.¹⁴ Regulation will require the agency to use existing legal authorities which may be less flexible and have fewer economic safeguards than new legislation could provide. In the meantime, legal challenges based on common law nuisance claims are being filed against GHG emitters;¹⁵ the U.S. Securities and Exchange Commission has issued guidance on carbon-related risk disclosure (both regulatory and potential physical damage);¹⁶ foreign countries are taking increasingly aggressive action on climate change (driving investment dollars in low-carbon, clean energy technology overseas);¹⁷ and investors are filing a record number of climate change-related shareholder resolutions seeking to pressure companies to take more aggressive action on climate change.¹⁸

Much of this action is undergirded by the fact that, despite some recent overblown controversy, the science behind global warming is more compelling than ever.¹⁹ This provides businesses with further justification for supporting policy action today: future legislation could be much more

costly. The longer society waits to address climate change, the more severe the problem becomes. This means steeper, more abrupt GHG cuts will have to be made to avert the most dangerous impacts of climate change, leading to significantly higher costs to businesses that need to meet the more ambitious targets. There is also a very real risk that a climate change-related natural disaster—such as a more intense hurricane, prolonged drought, or severe flood—could create a knee-jerk reaction among policymakers and lead to highly aggressive and potentially punitive GHG control measures in the future.²⁰

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III. Clean Technology Market Opportunities

Markets for clean technologies, which include renewable sources of energy, energy-efficient technologies, and other low-emitting goods, have exploded in recent years.²¹ Prior to the global economic downturn, which caused business investment to decline virtually across the board, the clean technology sector was attracting record levels of capital. Investments in clean energy reached \$148 billion in 2007, which was 60 percent higher than the previous year's level.²² The figure climbed again in 2008, albeit at a slower rate, to \$178 billion, before falling off in 2009 due to the economic downturn.²³ There is already evidence that the rebound in this sector will be swift,²⁴ which makes sense as the drivers for expansion are clear and compelling. Population growth and rising standards of living in the developing world are adding to global demand for conventional energy resources, leading to higher and more volatile energy prices. At the same time, governments around the world are pursuing policies to conserve energy and reduce GHG emissions. As a result, clean energy markets are expected to continue to grow rapidly into the future. The International Energy Agency (IEA) projects that even without any additional policy support, cumulative global investments in clean power generation technologies²⁵ between 2010 and 2020 will total about \$1.55 trillion, a number that expands significantly when the IEA builds in assumptions about future policy support.²⁶

Many U.S. companies have the desire and capability to tap into these new markets, and many are in fact doing so. PG&E, for example, is investing aggressively in energy efficiency, renewable energy sources, and smart grid technologies. But the absence of a clear policy framework that incentivizes the development of low-carbon technologies has left U.S. firms at a disadvantage vis-à-vis their international competitors.²⁷ Consider that among the top five biggest wind turbine companies in the world only one is American. Similarly, there is only one U.S. company among the top 10 solar

companies, and only two among the top 10 advanced battery manufacturers.²⁸ The Pew Environment Group noted recently that relative to the size of their economies, Spain last year invested five times more in clean technologies than the United States, with China, Brazil and the United Kingdom investing three times more.²⁹

The fact is that the longer the United States waits to enact comprehensive climate and energy legislation, the further American businesses will fall behind their foreign competitors in the race to develop clean energy technology. This concern has been raised by American businessmen and political leaders alike. “If our country doesn’t get an energy vision and start incentivizing alternative sources of energy, this whole international movement to clean up the planet is going to pass us by, and we’re going to be following China instead of leading China,” said Sen. Lindsey Graham (R-SC).³⁰

A few examples help illustrate this point:

- **American Electric Power (AEP)**, one of the largest domestic coal-burning utilities, is working with **Alstom**, a French manufacturer of power plant and transportation systems with significant operations in the United States, on a pilot program to test carbon capture and sequestration (CCS) at one of AEP’s facilities in Mountaineer, West Virginia. Buoyed by early success at Mountaineer, AEP CEO Mike Morris has grown increasingly optimistic about the prospects of ramping up CCS elsewhere in his coal fleet, but has made clear that the United States needs to put in place a price on carbon before the technology can be widely deployed.³¹ Commercialization of CCS would present significant business opportunities for companies not just in the United States, but around the world, especially in China, which relies heavily on coal to meet its electricity needs.
- **GE** has invested billions of dollars in building up a successful suite of renewable energy and energy-efficient technologies. Further, its Energy Financial Services unit has invested over \$4 billion in renewable energy projects and companies.³² It is eager



Photo courtesy DOE/NREL

to do more, but CEO Jeff Immelt cites the U.S. government's climate and energy policies—mainly the lack of a clear national framework—as the company's "principal obstacles to success."³³

- **Applied Materials** is the global leader in nanomanufacturing technology, which has broad applications, notably in the production of computer chips and solar photovoltaic panels. The firm's solar business, in particular, is flourishing. In just the last two years it has built 14 new solar panel factories. But despite being headquartered in Silicon Valley, all 14 of these new plants have been constructed overseas.³⁴ This is due largely to the fact that other countries have put in place more aggressive policies to support domestic demand for renewable energy. "We need to be where the customers are," said Howard Clabo, a spokesman for Applied Materials.³⁵

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—Sen. Lindsey Graham

American companies are successfully pushing low-carbon innovations and deployment forward, but much of what is being deployed is occurring in anticipation of a future climate policy framework. Without a predictable policy framework in place, large-scale domestic investment will not occur. With assets such as leading scientific research institutions, a world class higher education system, and an entrepreneurial culture that values creativity and rewards risk taking, there is no reason why the United States cannot dominate these new clean technology markets. The only missing ingredient is intelligently designed policy.

IV. Corporate Social Responsibility (CSR)

Support for national climate policy has recently emerged as an important component in many companies' broader CSR agendas. In effect, policy support can bolster a company's corporate reputation by demonstrating a commitment to broad societal change, as opposed to the more narrowly targeted, company-specific initiatives that characterized many previous CSR efforts. This CSR rationale for supporting climate policy is typically most compelling for consumer product companies with strong brand images.³⁶

Generally speaking, demonstrating social responsibility is important for companies seeking to build brand value, avoid negative public relations, and maintain customer loyalty. Broadly defined, CSR



covers a number of different business issues, including: protecting workers' rights; respecting local communities; contributing to philanthropic ventures; and promoting environmental sustainability.

Environmental sustainability in particular has moved up the list of CSR priorities. According to a 2010 survey by the Economist Intelligence Unit, 86 percent of companies polled said operating sustainable environmental practices was either a very or somewhat important goal, while 87 percent agreed with the statement that "sustainability will become considerably more important to my company over the next three years."³⁷ A separate McKinsey & Co. survey found that consumers and business executives both

anticipate that environmental concerns will be the sociopolitical issue that will attract the most attention over the next five years—more so than demand for healthier and safer products, stronger human rights standards, and improved workplace conditions.³⁸

Within the category of environmental sustainability, climate change has clearly received the most attention. Media exposure, pressure from NGOs and shareholders, and consumer demands have focused business attention on the need to reduce GHG emissions and offer products and services that help reduce energy use, promote clean energy, and generally help solve climate change. Today, companies are going a step further by including support for strong climate change policy as part of their overall CSR efforts. The rationale is simple: voluntary commitments alone will not be sufficient to reduce GHG emissions to safe levels. If companies truly want to demonstrate commitment to protecting the climate, they should be pushing for strong mandatory policies that reduce emissions throughout the economy.

As Auden Schendler, executive director of sustainability at the Aspen Skiing Company, puts it: "[A] company might be incorporating recycled fiber into its product. That's great, but it shouldn't be the thrust of a company's green efforts. The company should be in Washington working to ensure we get strong policy on climate change. That's what matters. Everything else is dinking around the edges."³⁹

Some companies are also finding that support for climate change policy helps insulate them from accusations of greenwashing. In effect, policy support demonstrates an additional level of seriousness on the issue, making it more difficult for critics to dismiss a company's environmental initiatives as public relations puffery. Negative, or even neutral, stances on policy can also attract unwanted attention from NGOs and investor activists. The Carbon Disclosure Project (CDP)⁴⁰

recently began asking the thousands of companies that receive its climate risk questionnaire about the companies' specific policy stances, while some investor activists are filing shareholder resolutions demanding that companies adopt climate change principles that include support for national policy.⁴¹

VII. Conclusion

Businesses support climate change policy largely due to the need for regulatory certainty, an eagerness to tap new markets, and a desire to burnish their CSR credentials. Not all companies are driven by all three factors, and some companies are motivated by additional, sometimes highly personal reasons. For example, Wayne Leonard, CEO of Entergy, the New Orleans-based electric utility, said Hurricanes Katrina and Rita were a wake-up call to his company on the dangers of climate change. Such storms could become routine if GHG emissions are left unabated, he said. In explaining his company's support for national climate change policy, Leonard stated: "I believe that allowing the probability of such monstrous consequences is simply unacceptable."⁴²

Whatever the reasons, the trend is clear: more companies today support strong national climate change policy than ever before (see addendum below for a listing of business-NGO coalitions that support mandatory climate policies). General support for climate policy, however, will not necessarily translate into unanimous business support for specific pieces of legislation addressing the issue. Climate policy is inevitably complex; the goal is to reduce multiple types of greenhouse gases, transition our economy to one powered on low carbon energy, and do this over a time frame that extends beyond any one CEO's or policymaker's tenure. Legislation introduced so far has contained numerous detailed components that affect different industries, and even different companies within the same industries, in very different ways.

As a general rule, though, policies that achieve the greatest level of emission reductions at the lowest possible cost will attract the greatest level of business support. For this reason, companies have largely coalesced around cap-and-trade as the preferred policy mechanism for reducing GHG emissions.^{43,44} Most economic analyses project that the costs of a well designed GHG cap-and-trade program will be quite small.⁴⁵ A growing number of businesses have made the decision that these costs are manageable, especially in light of the clear business benefits of regulatory certainty, expanded markets for clean energy technology, and public support for companies to demonstrate climate and corporate social responsibility. Additionally, many companies have had positive experiences with voluntary GHG reduction targets, often meeting or surpassing these targets and enjoying significant cost savings along the way due to energy efficiency improvements.⁴⁶

VIII. Addendum: Policy Focused Business-NGO Coalitions

Demonstrating the growth in business support for climate policy, a number of business-NGO coalitions have formed in recent years that either advocate or express general support for policy solutions to global warming. These groups are not completely aligned on the details of climate policy, and some are more active than others from an advocacy perspective, but they all agree on the need for mandatory approaches to reducing greenhouse gas emissions.

- The Pew Center’s Business Environmental Leadership Council (BELC): With 46 companies, the Pew Center’s BELC is the largest U.S.-based association of companies dedicated to business and policy solutions to climate change. While not a lobbying organization, companies in the BELC agree to four principles, including: “The United States should significantly reduce its GHG emissions through economy-wide, mandatory approaches, which may vary by economic sector and include a flexible, market-based cap-and-trade program.” For more information on the BELC, see: http://www.pewclimate.org/companies_leading_the_way_belc.
- U.S. Climate Action Partnership (USCAP): USCAP is a group of leading companies and nongovernmental organizations (NGOs) that have come together to advocate for enactment of mandatory climate and energy legislation at the earliest possible date. The coalition supports cap-and-trade as the cornerstone of policy efforts to reduce emissions, but also supports a number of complementary policy options. USCAP is made up of 23 companies and five NGOs. For more information on USCAP, see: <http://www.us-cap.org/>.
- Business for Innovative Climate & Energy Policy (BICEP): Organized by the environmental group Ceres, BICEP is a group of 17 largely consumer product companies that are advocating for climate and energy legislation that reduces emissions 80 percent below 1990 levels by 2050. BICEP supports a cap-and-trade system to reduce emissions, while also advocating for a national renewable energy target, and aggressive energy efficiency targets. For more information on BICEP, see: <http://www.ceres.org/bicep>.

Notes

¹ For examples of companies supporting clean energy and climate change legislation, please see “A Question of American Leadership” advertisement that ran in the Wall Street Journal, Washington Post and other media outlets through 2010 (available at: <http://www.pewclimate.org/american-leadership-ad>, accessed April 23, 2010), and the Web site of American Businesses for Clean Energy (<http://www.americanbusinessforcleanenergy.org/en>, accessed April 23, 2010).

² See policy statement from the Edison Electric Institute, available at: http://www.eei.org/ourissues/TheEnvironment/Climate/Documents/EEI_Climate_Points_of_Agreement.pdf, accessed April 23, 2010.

³ See policy statement from the Alliance of Automobile Manufacturers, available at: <http://www.autoalliance.org/index.cfm?objectid=2AFD7A22-1D09-317F-BBF4EFFC2A4ABA43>, accessed April 23, 2010.

⁴ 90 percent of companies that participated in a 2006 Pew Center survey said they believed that government regulation of GHG emissions was imminent (in Hoffman, A. “Getting Ahead of the Curve: Corporate Strategies That Address Climate Change.” October 2006). In another Pew survey conducted in 2009, all but one company agreed that climate change legislation that mandates GHG reductions would pass in the near future (in Prindle, W. “From Shop Floor to Top Floor: Best Business Practices in Energy Efficiency.” April 2010. Pew Center on Global Climate Change: Arlington, VA. Available at: <http://www.pewclimate.org/energy-efficiency/corporate-energy-efficiency-report>, accessed April 28, 2010).

⁵ Darbee, P. “If Congress Leads, Industry Follows.” Feb. 8, 2010. *Politico*. <http://www.politico.com/news/stories/0210/32645.html>, accessed April 21, 2010.

⁶ “Addressing Emissions from Coal Use in Power Generation.” Congressional Policy Brief. Pew Center on Global Climate Change. November 2008. Available at: <http://www.pewclimate.org/docUploads/Coal.pdf>, accessed April 21, 2010.

⁷ Pew Center on Global Climate Change. Climate TechBook. Nuclear Power. August 2009. Available at: <http://www.pewclimate.org/database/factsheet/nuclear>, accessed April 21, 2010.

⁸ In Hoffman, A. “Getting Ahead of the Curve: Corporate Strategies That Address Climate Change.” October 2006.

⁹ Darbee, P. “If Congress Leads, Industry Follows.” Feb. 8, 2010. *Politico*.

¹⁰ Alliance of Automobile Manufacturers. “Automakers Support President in Development of National Program for Autos.” Press Release. May 18, 2009. Available at: <http://www.autoalliance.org/index.cfm?objectid=55B4BAFF-1D09-317F-BBB0DA0B7783C956>, accessed April 21, 2010.

¹¹ Alliance of Automobile Manufacturers. “Automakers Support President in Development of National Program for Autos.” Press Release. May 18, 2009. Available at: <http://www.autoalliance.org/index.cfm?objectid=55B4BAFF-1D09-317F-BBB0DA0B7783C956>, accessed April 21, 2010.

¹² Alliance of Automobile Manufacturers. "MPG/CO₂ Program: Look to 2017 and Beyond." Available at: <http://www.autoalliance.org/index.cfm?objectid=2F89A484-1D09-317F-BB23E408F0CD1EBA>, accessed May 3, 2010.

¹³ For more information, see the U.S. States and Regions section of the Pew Center's web site, available at: <http://www.pewclimate.org/states-regions>, accessed April 23, 2010.

¹⁴ For more information, see: "Sequence of Events Leading to Regulation of Greenhouse Gases through EPA." Pew Center on Global Climate Change. March 2010. Available at: <http://www.pewclimate.org/federal/epa/timeline-of-action>, accessed April 23, 2010.

¹⁵ For more information, see: Seidel, S. "The Federal Courts Once Again Weigh in on Climate Change." Climate Compass: the Blog of the Pew Center on Global Climate Change. Oct. 5, 2009. Available at: <http://www.pewclimate.org/blog/seidels/federal-courts-once-again-weigh-climate-change>, accessed April 23, 2010.

¹⁶ Efstathio, J. "SEC Sets Corporate Climate-Change Disclosure Standard." *Bloomberg*. Jan. 27, 2010. Available at: <http://www.bloomberg.com/apps/news?pid=20601103&sid=aj7R1g1QkliQ>, accessed May 20, 2010.

¹⁷ For more information, see "In Brief: Clean Energy Markets: Jobs and Opportunities." Pew Center on Global Climate Change. April 2010 Update. Available at: http://www.pewclimate.org/docUploads/Clean_Energy_Update_Final.pdf, accessed May 21, 2010.

¹⁸ Investor Network on Climate Risk. "Investors File a Record 95 Climate Change-Related Resolutions: a 40% Increase Over 2009 Proxy Season." Press Release. March 4, 2010. Available at: <http://www.incr.com/Page.aspx?pid=1222>, accessed May 3, 2010.

¹⁹ For more information, see: "Realities Versus Misconceptions about the Science of Climate Change." Pew Center on Global Climate Change. August 2009. Available at: <http://www.pewclimate.org/science-impacts/realities-vs-misconceptions>, accessed May 17, 2010, and "America's Climate Choices: Advancing the Science of Climate Change." The National Academy of Sciences. May 2010.

²⁰ A number of major U.S. environmental laws were passed in response to significant environmental disasters. For example, the 1969 oil spill off the coast of Santa Barbara, CA, led in part to passage of the National Environmental Policy Act and a federal moratorium on offshore oil drilling along the U.S. coast (see Del Barco, M. "Lessons Learned from Santa Barbara Spill." *National Public Radio*. June 23, 2008. Available at: <http://www.npr.org/templates/story/story.php?storyId=91808345>, accessed May 3, 2010). Many observers see the April 2010 oil spill in the Gulf Coast leading to similar additional restrictions on offshore oil exploration (see Soraghan, M. "Oil Companies Brace for Political Whirlwind." *Greenwire*. April 29, 2010. Available at: <http://www.eenews.net/Greenwire/2010/04/29/archive/1?terms=offshore+drilling>, accessed May 3, 2010).

²¹ For more information, see "In Brief: Clean Energy Markets: Jobs and Opportunities." Pew Center on Global Climate Change. April 2010 Update.

²² "Global Trends in Sustainable Energy Investment 2009: Analysis of Trends and Issues in the Financing of Renewable Energy and Energy Efficiency." United Nations Environment Programme and New Energy Finance Ltd. 2008. Available at: http://sefi.unep.org/fileadmin/media/sefi/docs/publications/Global_Trends_2009_July_09_ISBN.pdf, accessed May 18, 2010.

- ²³ “Clean Energy League Tables.” Bloomberg New Energy Finance. March 2010. Available at: <http://www.newenergymatters.com/UserFiles/File/WhitePapers/Bloomberg%20New%20Energy%20Finance%20League%20Table%20Results%202010.pdf>, accessed: May 21, 2010.
- ²⁴ In the first quarter of 2010, clean technology venture capital investments in North America, Europe, China, and India, totaled \$1.9 billion, up 29 percent from the previous quarter and 83 percent from the same quarter a year ago, according to The CleanTech Group and Deloitte. The number of venture deals in the first quarter of 2010 set a new record, beating the previous high set in the fourth quarter of 2009 (see, The CleanTech Group. “Record Number of Clean Technology Venture Deals in 1Q 2010, Finds Cleantech Group and Deloitte.” March 31, 2010. Available at: <http://cleantech.com/about/pressreleases/Q1-2010-release.cfm>, accessed May 21, 2010).
- ²⁵ The IEA includes renewable sources of energy, such as wind and solar, as well as nuclear power and carbon capture and sequestration technologies, in its definition of clean power generation technologies.
- ²⁶ International Energy Agency (IEA) 2009. “World Energy Outlook.” Available at: <http://www.worldenergyoutlook.org/>, accessed April 28, 2010.
- ²⁷ See “In Brief: Clean Energy Markets: Jobs and Opportunities.” Pew Center on Global Climate Change. February 2010.
- ²⁸ Testimony of Dan Reicher, Director, Climate and Energy Initiatives, Google. United States Senate Committee on Environment and Public Works full committee hearing. “Legislative Hearing on S.1733, Clean Energy Jobs and American Power Act,” Wednesday, October 28, 2009.
- ²⁹ “Who’s Winning the Clean Energy Race? Growth Competition and Opportunity in the World’s Largest Economies.” The Pew Charitable Trusts. March 2010. Available at: http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Global_warming/G-20%20Report.pdf?n=5939, accessed April 21, 2010.
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- ³¹ Marshall, C. “CEO of a Major U.S. Utility Sees Coal ‘Breakthrough’ in Retrofit.” *ClimateWire*. Dec. 18, 2010. Available at: <http://www.eenews.net/climatewire/2009/12/18/archive/3?terms=AEP+Mountaineer>, accessed April 21, 2010.
- ³² For more information, see GE’s Ecomagination Web site, available at: <http://ge.ecomagination.com/our-impact/investment.html>, accessed April 23, 2010.
- ³³ Doerr, J. Immelt, J. “Falling Behind on Green Tech.” *Washington Post*. Aug. 3, 2009. Available at: <http://www.washingtonpost.com/wp-dyn/content/article/2009/08/02/AR2009080201563.html>, accessed April 21, 2010.
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- ³⁵ Friedman, T. “Failure Is Not an Option.” *The New York Times*. April 27, 2010. Available at: <http://www.nytimes.com/2010/04/28/opinion/28friedman.html?hp>, accessed April 27, 2010.
- ³⁶ See, for example, the companies involved in the Business for Innovative Climate and Energy Policy (BICEP) coalition. More information on BICEP is available here: <http://www.ceres.org/bicep>.
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- ⁴⁰ For more information on CDP, see the CDP Web site: <http://www.cdproject.net>.
- ⁴¹ For more information on these types of shareholder resolutions, see the Investor Network on Climate Risk's Web site: <http://www.incr.com>.
- ⁴² Leonard, J.W. "Facing the Risk." *Electric Perspectives*. January/February 2008 (Vol. 33 No. 1). Available at: <http://www.eei.org/magazine/Pages/ElectricPerspectivesArticle.aspx?Article=57>, accessed April 27, 2010.
- ⁴³ With cap-and-trade, government sets the limit on GHG emissions and firms have the flexibility to meet their compliance obligations by reducing their own emissions or trading with those who can do it more cheaply. The cap guarantees the environmental outcome, trading ensures that the objective is reached in a cost effective manner.
- ⁴⁴ See forthcoming Pew In-Brief on the Case for a Market Based Policy Approach (May 2010)
- ⁴⁵ For more information, please see: "Economic Insights from Modeling Analyses of H.R. 2454—the American Clean Energy and Security Act (Waxman-Markey)." Pew Center on Global Climate Change. January 2010. Available at: <http://www.pewclimate.org/docUploads/economic-insights-hr2454.pdf>, accessed April 27, 2010.
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Pew Center on Global Climate Change

2101 Wilson Blvd., Suite 550

Arlington, VA 22201

Phone (703) 516-4146

www.pewclimate.org

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