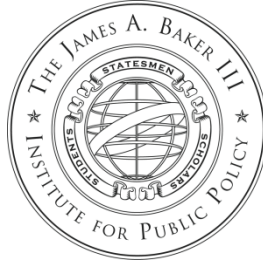


ENERGY MARKET CONSEQUENCES OF AN EMERGING U.S. CARBON MANAGEMENT POLICY

Emerging U.S. Climate Policy and Its Impact on U.S. Trade and Foreign Policy

Joe Barnes and James Coan



JAMES A. BAKER III INSTITUTE FOR PUBLIC POLICY
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EMERGING U.S. CLIMATE POLICY AND ITS IMPACT ON U.S. TRADE AND FOREIGN POLICY

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U.S. Climate Change Policy and Its Impact on U.S. Trade and Foreign Policy

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**ABOUT THE STUDY:
ENERGY MARKET CONSEQUENCES OF AN EMERGING
U.S. CARBON MANAGEMENT POLICY**

Emerging energy and climate policies in the United States are accelerating the pace of technological changes and prompting calls for alternative energy and stricter energy efficiency measures. These trends raise questions about the future demand for fossil fuels, such that some energy-producing nations are reluctant to invest heavily in the expansion of production capacity. The abundance of shale gas resources in North America could allow the United States to utilize more gas in its energy mix as a means of enhancing energy security and reducing CO₂ emissions. However, this will only occur if U.S. policies promote and allow the benefits provided by natural gas to be realized. To examine these issues and changing trends in the U.S. energy and climate policy, the Baker Institute organized a major study investigating the North American and global oil and natural gas market consequences of emerging U.S. policies to regulate greenhouse gas emissions, as well as the potential role of alternative energy in the U.S. economy.

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ABOUT THE ENERGY FORUM AT THE JAMES A. BAKER III INSTITUTE FOR PUBLIC POLICY

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Introduction¹

This paper addresses a) domestic factors shaping U.S. policy on climate change; b) the role of U.S. policy in international efforts to curb greenhouse gas (GHG) emissions; and c) possible alternatives should the United States fail to adopt a cap-and-trade regime to reduce GHGs.

We are not climate scientists. This paper accepts the findings of the International Panel on Climate Change (IPCC) as the best available science.² We are aware that those findings—as the IPCC readily admits—reflect uncertainty. We also know that the IPCC’s findings, however hedged, have been the subject of criticism ranging from the spurious to the thoughtful. They nonetheless represent a broad and growing scientific consensus, and they are the bases for this paper. Specifically, we accept the IPCC’s chief findings: that the global climate is changing; that this change is being driven, in large part, by man-made GHG emissions; that higher atmospheric concentrations of those emissions will lead, all other things being equal, to rises in global temperatures; and that those rises will have environmental effects ranging from the substantial to the potentially catastrophic. International efforts to date have been focused—with varying success—on first stabilizing and then reducing those emissions. These efforts embody what is generally referred to as “mitigation” strategies, in contrast to “adaptation” strategies aimed at reducing the consequences of climate change when it occurs. Though the latter are important and are briefly discussed in the paper—particularly if efforts to craft effective mitigation strategies fail—our focus will be on the former, which, at least for the present, is the subject of significant domestic and international debates.

Nor are we economists. We will not, for instance, address the relative economic merits of a carbon tax vs. a cap-and-trade system. Our focus will be on a U.S. cap-and-trade system for two reasons. Such a system more easily conforms to the existing Kyoto regime of national quantitative limits.³ It is possible, of course, that the international community may shift entirely

¹ The authors would like to thank the Baker Institute interns who researched many of the issues in this paper: Graham Johnson, Emilio Longoria, Ellory Matzner, Janey Myers, Adnan Poonawala, Kiri Whitton, and Joyce Yao.

² The IPCC’s fourth Assessment Report may be found at <http://www.ipcc.ch/index.htm>. It dates from 2007 and runs to four volumes. We recommend one of the four—the “Synthesis Report”—for a useful summary of the other three. A fifth assessment is currently under preparation.

³ Detailed information on the Kyoto Protocol may be found at http://unfccc.int/kyoto_protocol/items/2830.php

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to another approach—such as a carbon tax—to limiting GHG emissions. On balance, we consider this unlikely. An immense amount of negotiation has already gone into developing a framework for quantitative limits; the European Union (EU), a key player in international discussions, is committed to its own cap-and-trade system. We note that there was little talk of shifting toward a carbon tax at the December 2009 United Nations (UN) Climate Change Conference in Copenhagen. This does not mean that individual countries will not use various kinds of carbon taxes to supplement participation in a cap-and-trade regime.

Moreover, cap-and trade legislation—also known as the Waxman-Markey bill⁴—has already passed the U.S. House of Representatives; the U.S. Senate also tried but failed to pass such legislation. On balance, the prospects of the United States adopting a broad-based carbon tax appear slim.

We do note that comparisons of a theoretical carbon tax against actual cap-and-trade legislation, such as Waxman-Markey, are of limited use. The latter reflects—for better or, usually, for worse—the tradeoffs necessary to garner support for congressional passage. Any carbon tax legislation would be similarly shaped by political considerations; it, too, would diverge, perhaps sharply, from an ideal approach, and—like Waxman-Markey—provide special treatment for important political constituencies. The carbon tax proposed by French President Nicolas Sarkozy—rejected by France’s constitutional court—was, for instance, crippled with such special treatment.⁵

The Failure of Cap-and-Trade Legislation – 2008-2010

Whatever the scientific and economic merits of a cap-and-trade regime, its passage into law will be the result of a political process. The current environment is marked by perennial concerns about upcoming elections, in this case the 2010 midterms; sharp partisan polarization in the Congress; and, not least, a groundswell of conservative activism—the so-called “tea-party”

⁴ Formally, the American Clean Energy and Security Act of 2009. A good summary of its provisions may be found at <http://www.wri.org/stories/2009/04/brief-summary-waxman-markey-discussion-draft>

⁵ “Sarkozy’s Carbon Tax Goes Up In Smoke,” *The Wall Street Journal*, January 4, 2010. <http://online.wsj.com/article/SB10001424052748704065404574636470061766890.html>

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movement—stridently opposed to the policies of the Obama administration, including cap-and-trade legislation.

The Congress

The time seemed ripe for passage of cap-and-trade with large Democratic majorities in the House and Senate and a president eager to sign such legislation. Even with a substantial number of defections, the House leadership was able to convince or incentivize enough Democrats to pass the bill in the House despite overwhelming Republican opposition. The Senate—with its filibuster rule that effectively requires 60 votes for passage—became an insurmountable hurdle to overcome. Some Democrats from states with significant fossil fuel resources refused to support such a bill, requiring Republican support to reach 60 votes. Republicans who had previously supported legislation became lukewarm or opposed to the process by the end, and when Senate Majority Leader Harry Reid (D-NM) finally announced he would no longer pursue cap-and-trade legislation, he claimed to have the solid support of zero Senate Republicans.⁶

Before its ultimate failure, there were a number of Senate cap-and-trade proposals. In September 2009, Senators John Kerry and Barbara Boxer floated their “Clean Energy Jobs and American Power and Act.”⁷ It is very close to the Waxman-Markey bill that passed the House of Representatives in June 2009. Key differences include a more stringent 2020 emissions target (a 20 percent cut compared with a 2005 baseline, compared to a 17 percent cut under Waxman-Markey) and a greater emphasis on nuclear energy. In December 2009, Senators Kerry, Lindsay Graham, and Joe Lieberman announced that they are working on a “framework” on cap-and-trade legislation. It was an effort to adjust the Kerry-Boxer legislation in ways—a lower target for emissions reductions, increased offshore drilling for oil and gas—calculated to garner Republican and moderate Democratic support.⁸ It maintained cap-and-trade, though phases in

⁶ David Herszenhorn, “Democrats Abandon Sweeping Energy Plan,” The Caucus blog, *New York Times*, July 22, 2010, <http://thecaucus.blogs.nytimes.com/2010/07/22/democrats-pull-plug-on-sweeping-energy-bill/>

⁷ A good summary of the bill’s provisions may be found at <http://www.pewclimate.org/short-summary/clean-energy-jobs-american-power-act-chairmans-mark>

⁸ David A. Fahrenthold and Juliet Eilperin, “3 Senators Propose Cutting Greenhouse Gas Emissions About 17% by 2020,” *The Washington Post*, December 11, 2009. <http://www.washingtonpost.com/wp-dyn/content/article/2009/12/10/AR2009121002659.html> and “Kerry, Lieberman, Graham Release Framework for Climate Energy Independence Legislation,” John Kerry Senate Website, December 10, 2009. <http://kerry.senate.gov/cfm/record.cfm?id=320688>

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sectors subject to it (utilities in 2012, other industry in 2016). Late in 2009, Senators Maria Cantwell (D-WA) and Susan Collins (R-ME) proposed their own legislation, which they termed “a-cap-and-dividend” program. Its key feature was the return of 75 percent of all auction proceeds directly to consumers.⁹ Ideas for a utilities-only cap-and-trade program were floated in the weeks before Sen. Reid stopped pursuing the bill.¹⁰

In general, Democrats favor cap-and-trade legislation; Republicans oppose it. Waxman-Markey passed the U.S. House of Representatives on a narrow and largely partisan vote of 219 to 212. Forty-four Democrats voted no; only eight Republicans voted yes. The few Republicans who voted for the bill are from “blue” states that Obama easily won in the 2008 election (Washington, New York, New Jersey, Delaware, California, and Illinois). In terms of the Democrats who voted against, many were from areas with lots of manufacturing or heavily dependent upon fossil fuels; some members represent relatively conservative “swing” districts. A useful technique involves comparing the voting patterns between climate change and the first House of Representatives vote on health care in November 2009, another major piece of domestic legislation this year that also passed by a similar margin (220 to 215) with only one Republican in support.¹¹ Twenty-three Democrats voted against both bills, possibly suggesting some conservative ideology, and in fact, 18 of 23 come from states McCain won and 15 are from the South (two from Georgia, three from Alabama, two from Mississippi, two from Tennessee, two from North Carolina, and one each from Texas, Arkansas, Louisiana, and Virginia). Nineteen Democrats voted for health care but against cap-and-trade legislation, including quite a few from the rust belt (six: three from Indiana, two from Pennsylvania, one from Ohio—and 8 if two from Illinois are counted) and coal-dependent places (both Democrats from West Virginia). A look at the 16 Democrats who voted for cap-and-trade but against health care is less clear, but it involves a mix of members from swing districts without much industry and those who were incentivized to vote for climate change because of the special deals made in the bills (i.e., Rep. Rick Boucher in Virginia and deals made concerning coal).

⁹ “The Carbon Limits and Energy for America’s Renewal (CLEAR) Act,” Maria Cantwell Senate website. <http://cantwell.senate.gov/issues/CLEARAct.cfm>

¹⁰ Robin Bravender, “White House, Lieberman Considering Utility-Only Bill,” *ClimateWire*, June 21, 2009, <http://www.nytimes.com/cwire/2010/06/21/21climatewire-white-house-lieberman-considering-utility-on-13164.html?scp=2&sq=utility&st=cse>

¹¹ Voting accessed from *New York Times* website: <http://politics.nytimes.com/congress/votes/111/house/1/887> and <http://politics.nytimes.com/congress/votes/111/house/1/477>

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A more mathematical approach¹² was taken by statistically-oriented political blogger Nate Silver, who created a model and found the following issues were important, starting generally with the most important feature: ideology; partisanship of congressional district; lobbying money (if coal, against cap-and-trade; if nuclear or alternative energy, for—although no effects for oil and gas, public utility PACs, and agribusiness); carbon emissions; poverty rate (a lower poverty rate suggested more likely support for a cap-and-trade bill); employment in manufacturing, mining, or agriculture (significant at a 90 percent level). His model still mispredicted the votes of 30 members, only somewhat better than the number who switched party lines (52).

In terms of the Senate debate, there were at least two sources with extensive predictions of how Senators would vote.¹³ They were both correct in being fairly pessimistic about passage. Environment and Energy Daily divided senators into five categories: Yes (31), Probably Yes (12), The Fence Sitters (25), Probably No (10), and No (22).¹⁴ Nate Silver used his model of House voting to predict that 66 senators may be in play, although he only predicts that 52 have a 50 percent or better chance of voting for it. His categorization is divided into the groups Nearly certain yes (24 Senators, 99+ percent), Extremely likely yes (14, 95-99 percent), Highly likely yes (6, 90-95 percent), Likely yes (6, 80 percent-90 percent - running total=50), Possibly maybe (3 from 48 percent-78 percent), Problematic Democrats (9 from 10-46 percent), and Republican Long-shot Votes (4 from 4.6 percent-7.2 percent).¹⁵

Some prominent Senate Republicans reversed course and came to oppose cap-and-trade legislation that they had once supported, notably Senator John McCain (R-AZ), who had previously sponsored cap-and-trade legislation and was supportive of it in his 2008 presidential campaign.¹⁶ Republican Senator Lindsay Graham appeared to be a staunch advocate of cap-and-trade, but he reversed course days before the scheduled release of the plan he negotiated with

¹² Nate Silver, "Who Voted for the Climate Bill? (And Why?)," Five Thirty Eight, July 1, 2009, <http://www.fivethirtyeight.com/2009/07/who-voted-for-climate-bill-and-why.html>

¹³ These were conducted before the election of Rep. Scott Brown (R-MA), so the number supportive of cap-and-trade in each model is one less than indicated in the paper.

¹⁴ "E&E Analysis: 67 Senators in Play on Climate Bill," *Energy & Environment Daily*, October 23, 2009, <http://enviroknow.com/2009/10/23/ee-analysis-67-senators-in-play-on-climate-bill/>

¹⁵ Nate Silver, "How Can the Climate Bill Get to 60 Votes?" Five Thirty Eight, July 6, 2009, <http://www.fivethirtyeight.com/2009/07/how-can-climate-bill-get-to-60-votes.html>

¹⁶ Hal Bernton, "In Oregon, McCain Touts His Cap-and-trade System to Fight Global Warming," *The Seattle Times*, May 13, 2008, http://seattletimes.nwsourc.com/html/politics/2004409844_mccain13m.html

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Senators Kerry and Lieberman.¹⁷ Other possible Republican votes had been Olympia Snowe (R-ME), Susan Collins (R-ME) and Richard Lugar (R-IN), and it was possible although not assured that one or both of the Republicans from Maine may have voted for the bill had it come up for a vote. Interestingly, new senator Scott Brown (R-MA)—very much a darling in conservative circles since he took Ted Kennedy’s seat in an upset victory—opposes federal cap-and-trade legislation.

Certain concessions were sufficient to reach enough constituencies for passage in the House, but no amount of horse-trading could overcome the 60-vote requirement in the Senate. For instance, in the House debate, there were many concessions; two of the largest sets of concessions went to coal utilities and farmers, although there were other sometimes smaller concessions to particular groups based on the concerns of groups or individual legislators like the National Rural Electric Cooperative, refiners, and utilities worried about a stringent Renewable Portfolio Standard (RPS).¹⁸ In the agriculture debate, Rep. Collin C. Peterson became a vocal force, and although in early May 2009 he said, "I will not support any kind of climate change bill," he ultimately voted for it after the concessions were made.¹⁹ Yet with near-total Republican opposition, Senate leadership could not appease every single Senate Democrat. Cap-and-trade, unlike health care or financial reform, both of which ultimately saw unanimous support from Democrats in the Senate, also seems less central to the ideology of all Democratic legislators and raised more direct concerns about hurting the economy in a difficult economic period. Even back in 2009, *Politico* reported that moderate Senate Democrats—wary after the bruising health care debate and fearful of Democratic losses in the 2010 congressional races—were urging Obama to put cap-and-trade legislation on the back burner.²⁰

There had even been attacks on Waxman-Markey from the left. Some environmentalists—notably James Hansen, perhaps the nation’s most prominent climate scientist—have opposed it

¹⁷ Ben Geman, “Monday Climate Bill Rollout Scuttled as Graham Decides to Walk Away,” E2 Wire – *The Hill’s* Energy and Environment Blog, April 24, 2010, <http://thehill.com/blogs/e2-wire/677-e2-wire/94153-monday-climate-bill-rollout-scuttled-as-graham-walks-away-from-talks>

¹⁸ John M. Broder, “With Something for Everyone, Climate Bill Passed,” *The New York Times*, June 30, 2009.

¹⁹ Ben Geman and Darren Samuelsohn, “‘I Will Not Support Any Kind of Climate Change Bill’ – House Ag Chair,” *Greenwire*, May 6, 2009, <http://www.eenews.net/Greenwire/2009/05/06/1/>

²⁰ Lisa Lerer, “Senate Democrats to W.H.: Drop Cap and Trade,” *Politico*, December 27, 2009, <http://www.politico.com/news/stories/1209/30984.html>

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for being inadequate.²¹ On balance, though, strong liberal opposition to a Senate version of cap-and-trade did not lead to its legislative failure. However many misgivings liberal senators may have about proposed cap-and-trade legislation, they did not scuttle it—and they were particularly aware of the strong possibility of a reduced Democratic majority or even Republican takeover in the Congress after midterm elections in 2010. Democratic senators who are liberal, we note, repeatedly yielded to their more moderate colleagues during the debate on health care reform.

The Democrats' victory on health care legislation and financial reform did not provide significant momentum for passage of cap-and-trade. Their passage did not lead to a substantial boost in President Obama's approval rating, and Republicans did not see how opposing cap-and-trade could worsen their already bright election prospects bolstered by a weak economy and burgeoning tea party movement. Some commentators have argued that President Obama should have pushed cap-and-trade first before these other bills. Climate blogger Joe Romm has declared that "Future generations are likely to view Obama's choice of health care over energy and climate legislation as a blunder of historic proportions."²² We do not believe this approach would have made much of a difference and likely would have derailed much of the rest of Obama's agenda. Regardless of the popularity of Democrats in power, it was had always been difficult to see how the Senate could produce 60 votes in favor of cap-and-trade. Achieving universal healthcare for Americans has been a goal of Democratic presidents since Franklin Roosevelt and is absolutely central to the ideology of the vast majority of elected Democrats, so it would be nearly inconceivable for a Democrat not to pursue this longstanding goal with a Congress that had a once-in-a-generation Democratic tilt.

Industry

Industry was divided over whether to support cap-and-trade legislation, and some traditional energy companies were supportive of legislation. In a change from years past, relatively few companies publicly questioned the climate science, even those that opposed the legislation.

²¹ Madeline Ostrander, "James Hansen: Good Riddance, Copenhagen. Time for Better Ideas," *Yes!* December 22, 2009, <http://www.yesmagazine.org/planet/james-hansen-why-copenhagens-failure-is-a-blessing>

²² Joe Romm, "David Brooks: The Alternate History," *Climate Progress*, September 6, 2010, <http://climateprogress.org/2010/09/06/david-brooks-the-alternate-history/>

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Certain industry lobbying against the bill may have helped sway key moderate Democrats and Republicans, but their influence is unclear.

A business group supportive of cap-and-trade and a comprehensive government plan to address climate change is the U.S. Climate Action Partnership (USCAP). Founded in early 2007, it now boasts 23 major corporations and five top environmental organizations. It includes companies from a wide range of businesses including utilities (Duke Energy, NRG Energy, and Pacific Gas & Electric), automobile companies (Chrysler, Ford Motor Company, and General Motors), energy-intensive businesses (Alcoa, DuPont, and Rio Tinto), one oil company (Shell), as well as some image-conscious companies such as PepsiCo. Jeffrey Immelt, chairman and CEO of General Electric, another company in USCAP, has been a leader in encouraging many from the business community to support climate change legislation. In January 2009, USCAP released a *Blueprint for Legislative Action* that shares many features with the Waxman-Markey legislation passed by the House of Representatives, such as a cap-and-trade system with an emission-reduction target of 14 to 20 percent below 2005 levels by 2020 that initially allocates a significant number of free emission credits.²³

The strength of USCAP may be waning, however. In mid-February 2010, three companies chose not to renew their memberships: BP, ConocoPhillips and Caterpillar. This change leaves Shell as the only oil company in the group. Both BP and ConocoPhillips were concerned with Waxman-Markey's impacts on the oil refining business and publicly stated they wanted to focus more on specific issues, especially legislation concerning natural gas from shale.²⁴ They were conciliatory toward USCAP itself, saying that it has accomplished its purpose, but this is indicative of what is acceptable for companies to criticize (Waxman-Markey put together in a messy process on Capitol Hill) and what is not (USCAP and climate science). These departures suggest growing fissures between parts of the energy industry. Whereas utilities are somewhat divided on whether to push for cap-and-trade, oil companies are almost unanimously opposed or will remain silent.

²³ "Business and Environmental Leaders Release Landmark Blueprint for Climate Protection Legislation," United States Climate Action Partnership, January 15, 2009, <http://www.us-cap.org/pdf/USCAP-Blueprint-Release.pdf>

²⁴ Steven Mufson, "Conoco, BP and Caterpillar Drop Out of Climate Partnership," *Post Carbon*, February 16, 2010, http://views.washingtonpost.com/climate-change/post-carbon/2010/02/conoco_bp_drop_out_of_climate_partnership.html

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In contrast with USCAP, the U.S. Chamber of Commerce publicly opposed cap-and-trade legislation. Frustrated with the Chamber's stance on climate change, some companies decided in September and October 2009 not to renew membership or to resign from the Chamber's board. These include both some utilities (Pacific Gas & Electric, Exelon, and PNM Resources in New Mexico) and trend-setting companies (Apple and Nike). The companies expressed slightly different rationales for their decisions, with Pacific Gas & Electric²⁵ claiming the Chamber distorted climate science, Exelon²⁶ and PNM²⁷ arguing that it did not agree with the Chamber's opposition to climate legislation, and Apple²⁸ and Nike²⁹ expressing displeasure with the Chamber's desire to challenge the Environmental Protection Agency's (EPA) ability to regulate carbon dioxide—but their disagreement with the Chamber over climate issues was the deciding factor for them all.

Various companies that oppose cap-and-trade have tended to focus on economics and jobs to get their point across. In August 2009, some energy companies in Houston bused their employees to what was billed as the “Energy Citizens rally” against cap-and-trade legislation.³⁰ The American Petroleum Institute has flown in rank-and-file employees to Washington, D.C., to try to influence legislators with the argument that legislation could cost these people their jobs.³¹ Some businesses and organizations also promote analyses that show cap-and-trade to be much more costly than conventional estimates demonstrate. On its website, oil refiner Tesoro cites an industry-funded study by Science Applications International Corporation (SAIC) that gasoline prices could increase by \$1/gal by 2020 under Waxman-Markey compared with the Energy Information Administration, which predicts an increase of \$0.20/gal.³² Another study from the

²⁵Kate Galbraith, “Utility Leaves Chamber Over Climate Issue,” *New York Times*, September 22, 2009.

<http://greeninc.blogs.nytimes.com/2009/09/22/utility-leaves-chamber-over-climate-issue/>

²⁶Kate Galbraith, “Third Major Utility Pulls Out of Chamber,” *New York Times*, September 28, 2009.

<http://greeninc.blogs.nytimes.com/2009/09/28/third-major-utility-pulls-out-of-chamber/>

²⁷Kate Galbraith, “Chamber of Commerce Departures Continue,” *New York Times*, September 25, 2009.

<http://greeninc.blogs.nytimes.com/2009/09/25/chamber-of-commerce-departure-continues/>

²⁸David A. Fahrenthold, “Apple Leaves U.S. Chamber Over Its Climate Position,” *Washington Post*, October 6, 2009.

²⁹Nike left the board, while the other four companies all left the Chamber entirely. Kate Galbraith, “Nike Resigns from Chamber Board,” *New York Times*, September 30, 2009.

<http://greeninc.blogs.nytimes.com/2009/09/30/nike-resigns-from-chamber-board/>

³⁰Tom Fowler, “Energy Workers Rally Against Climate Plan,” *Houston Chronicle*, August 18, 2009.

³¹Jim Snyder and Silla Brush, “Some Firms Push Employees to Lobby,” *The Hill*, October 28, 2009.

<http://thehill.com/business-a-lobbying/65091-employees-become-lobbyists>

³²Ibid.

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National Association of Manufacturers and American Council for Capital Formation claimed that in 2030, the bill could result in the loss of up to 2.4 million jobs and average household income would fall up to \$1,248.³³ These results are much more pessimistic than what government agencies have found: \$83/year (Energy Information Administration); \$88-\$140/year (EPA); and \$175/year (Congressional Budget Office).³⁴

One notable aspect of the present opposition to cap-and-trade legislation is that it is quite rare for businesses to attack the climate science or take the position that the government should do nothing about climate change. Sponsors of the “Energy Citizens rally” said they supported reducing greenhouse emissions, developing alternative sources of energy, and promoting energy efficiency and conservation.³⁵ ExxonMobil, another company that opposes cap-and-trade legislation (but has expressed support for a carbon tax³⁶) has changed its position on climate science markedly since 2005, when Lee Raymond, an outspoken critic of science showing human-induced global warming, stepped down as chairman and CEO.³⁷ ExxonMobil’s website now endorses the position of the IPCC, and it funds serious research at many universities and institutes.³⁸

Public Opinion

The public had tepid support for cap-and-trade, with a few recent polls showing a roughly 10-point majority in favor of cap-and-trade legislation. The lack of strong support and even basic knowledge about the mechanism likely allowed Senators to oppose the bill without fearing electoral repercussions. Extensive polling has indicated that a plurality of Americans has never heard of cap-and-trade, and they demonstrate very inconsistent attitudes. Some support legislation without believing in solid evidence of man-made global warming or any warming at

³³ “State-by-State Analysis of Waxman-Markey Cap-and-trade Legislation Paints Dour Picture for Nation’s Economy,” National Association of Manufacturers, August 12, 2009.

http://www.acf.org/media/dynamic/3/media_381.pdf

³⁴ Fowler, “Energy Workers Rally”

³⁵ Ibid.

³⁶ Keith Johnson, “Exxon’s Tillerson: Give Me a Carbon Tax, Not Cap-and-Trade,” *The Wall Street Journal*, January 8, 2009. <http://blogs.wsj.com/environmentalcapital/2009/01/08/exxons-tillerson-give-me-a-carbon-tax-not-cap-and-trade/>

³⁷ Jad Mouawad, “Lee Raymond, Exxon Mobil’s Chief Since 1999 Merger, to Step Down at Year’s End,” *The New York Times*, August 5, 2005.

³⁸ “Energy and Environment,” Exxon Mobil. http://www.exxonmobil.com/Corporate/energy_climate.aspx

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all. Belief in global warming, anthropogenic or otherwise, has declined in recent years, and partisan differences have widened. The importance of climate change as a policy issue among U.S. citizens is relatively low and lags behind many other nations.

Various polling sources seem to indicate that about 10 percentage points more people support a cap-and-trade program than oppose it, as shown in the table in Appendix A. A few recent polls from 2009 that have asked quite straightforward questions about cap-and-trade, one from Ipsos/McClatchy in December and three from Washington Post/ABC News in June, August and November, all found an 10- or 11-point advantage in favor of the policy (52-53 percent in favor, 41-43 percent opposed).³⁹ However, these surveys then altered the wording to include benefits like green jobs or additional costs on electricity bills and generated dramatically different responses, ranging from 40-point support of cap-and-trade to 20-point opposition. For instance, Ipsos/McClatchy found that people were evenly split if a cap-and-trade bill would raise their electricity bills by \$10/month, but if it also created “a significant number of green jobs” in addition to raising electricity bills, 69 percent of respondents supported it. In general, a majority oppose legislation only if electricity bills would rise \$25/month.

Respondents show relatively strong partisan differences, as Democrats tend to favor the policy while Republicans oppose it. A survey conducted by the Pew Center for the People and the Press in late September and early October 2009 found a 22-point gap in support for legislation for limits on carbon dioxide emissions between Democrats and Republicans (58 percent of Democrats support compared with 36 percent of Republicans).⁴⁰ A November 2009 Washington Post/ABC News poll found a similar 27-point gap (66 percent of Democrats support compared with 39 percent of Republicans).⁴¹

³⁹ “Environment” Polling Report, Inc., January 21, 2010. <http://www.pollingreport.com/enviro.htm>

⁴⁰ The survey did not explicitly ask about a cap-and-trade program. However, it found an 11-point gap in favor of the policy (50 percent-39percent), which is exactly in line with the other surveys asking about cap-and-trade. The wording of the question was as follows: “Do you favor or oppose setting limits on carbon dioxide emissions and making companies pay for their emissions, even if it may mean higher energy prices?”

“October 2009 Political Survey: Final Topline,” Pew Research Center for the People & the Press, September 30-October 4, 2009. <http://people-press.org/reports/questionnaires/556.pdf>

⁴¹ <http://www.washingtonpost.com/wp-dyn/content/article/2009/11/24/AR2009112402989.html>

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In context, however, these differences are actually smaller than other partisan differences in public opinion. One poll from mid-January 2010 shows Democratic and Republican voters split by a 64-point margin on health care reform (75 percent of Democrats support compared with 11 percent of Republicans),⁴² and another from early January 2010 shows a 70-point gap between Democrats and Republicans in terms of whether they approve of the job President Obama is doing (84 percent approval among Democrats compared with 14 percent of Republicans).⁴³

One reason for the relative lack of partisan differences may be the low amount of knowledge Americans have about cap-and-trade. According to a February 2010 Pew Center for the People and the Press poll, only 17 percent said they have heard a lot about the policy, compared with a plurality (46 percent) who have heard *nothing* about it.⁴⁴ It is likely difficult for people to identify the policy with a particular party or set of ideological beliefs if they have never heard of it before. The small group who claim to have heard a lot about the policy are more likely to be Republicans (20 percent of Republicans compared with only 8 percent of Democrats), and they oppose the policy by a 2:1 margin. As more Republicans hear about cap-and-trade, possibly while disparaged as a “cap-and-tax” that would destroy over two million jobs per year, as climate skeptic Sen. James Inhofe (R-OK) claimed in June 2009,⁴⁵ partisan differences may widen.

The data from the 2009 Pew Center poll highlight an unusual phenomenon: many people claim to have an opinion about cap-and-trade without having ever heard of the policy in the past. Another surprising finding from the survey is that some people who do not believe in strong evidence of anthropogenic climate change, or even any climate change at all, still support limits on carbon dioxide. Forty-one percent of those who believe warming is due to natural patterns favor limits, as do 31 percent of those who do not believe any warming is occurring. As expected, these values are much lower than the 74 percent of those who support cap-and-trade

⁴²“Health Care Reform,” Rasmussen Reports, January 22, 2010.

http://www.rasmussenreports.com/public_content/politics/current_events/healthcare/september_2009/health_care_reform

⁴³ Lydia Saad, “Obama Starts 2010 With 50% Approval,” Gallup, January 6, 2010.

<http://www.gallup.com/poll/124949/approval-obama-starts-2010-shaky-spot.aspx>

⁴⁴ “Support for Alternative Energy and Offshore Drilling,” The Pew Research Center for the People & the Press, March 2, 2010. <http://people-press.org/report/593/energy-offshore-drilling>

⁴⁵ Senator James Inhofe, “Democrats’ Cap and Tax rush job: all economic pain, no climate gain,” *The Hill*, June 15, 2009. <http://thehill.com/special-reports/cap-and-trade-june-2009/8225-democrats-cap-and-tax-rush-job-all-economic-pain-no-climate-gain>

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who also believe that human activities have caused global warming, but they are still surprisingly high and very inconsistent with the overwhelming rationale for dealing with climate change: to reduce human emissions of greenhouse gases.

These results seem to indicate confusion in regard to climate change, but other explanations are possible. The Pew Center asked people to say if there was “solid evidence that the average temperature has been getting warmer over the past few decades,” and some may think that even if the evidence is not “solid,” it is still likely enough for government to address, and others may think that warming has not yet definitely happened but could in the future. This theory has support from comparing the Washington Post/ABC poll—which found 72 percent of people believe that the idea that the world’s temperature has been slowly going up over the past 100 years has “probably been happening”—with the question from the Pew Center that found only 57 percent believe that warming is a phenomenon with “solid evidence.” Another potential clue comes from a CNN/Opinion Research Corporation Poll from late April 2009, which found more people who supported a cap-and-trade program did so because of their belief that it would reduce air pollution in general rather than global warming directly.⁴⁶ These people are technically correct insofar as cap-and-trade legislation may tend to support electricity sources such as natural gas rather than coal, which emits more local air pollution, but this is a secondary benefit far from the primary goal of cap-and-trade legislation.

Although the link between strong beliefs in anthropogenic warming and support for cap-and-trade is weaker than expected, it is still a major factor in whether people support the policy. Beliefs about whether global warming is occurring are therefore important to track, and it is notable that significantly fewer people report believing in global warming in the past few years after expressing relatively stable beliefs for the past two decades, and the recent increase in skepticism generally helped to scuttle the bill.⁴⁷

⁴⁶ Polling Report, Inc., “Environment.” The question asked “Do you think the ‘cap and trade’ proposal would reduce global warming, or do you think it would help reduce air pollution in general but would not affect global warming directly?” 18 percent of the sample favored the policy for its global warming benefits compared to 23 percent who supported it in order to reduce air pollution. Another 51 percent opposed the policy altogether.

⁴⁷ Ted Nordhaus and Michael Shellenberger, “Apocalypse Fatigue: Losing the Public on Climate Change,” *Yale Environment* 360, November 16, 2009. <http://e360.yale.edu/content/feature.msp?id=2210>

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Quite a few polling organizations have tracked beliefs about whether global warming is occurring, and they find a decline in belief of between 10 and 15 percentage points over the past few years. The percentage of Americans who claim to believe in global warming varies quite significantly depending upon how questions are worded, but the declines are apparent when asking about global warming in general or whether humans are responsible for warming. A late December 2009 and early January 2010 study from Yale and George Mason University found 57 percent believe in global warming, down 14 percentage points from October 2008.⁴⁸ They also found a decline of 10 points in terms of the number of Americans who think global warming is caused by human activities, which fell to 47 percent. The Washington Post/ABC News survey found a decline of 13 percentage points from March 2006 to November 2009 in terms of the percentage believing that temperatures have been rising in the past 100 years, and the majority of the decline occurred in the past two years. Very similarly, the Pew Center found respective declines of 14 and 11 points in the last year in terms of belief as to whether there is solid evidence of warming and whether the warming is due to human activity. In the Pew Center survey, only 36 percent believe there is solid evidence that human activity is causing global warming.

The gap between Democrats and Republicans has widened in the past few years, although declines in belief have occurred across the political spectrum. The Washington Post/ABC News survey found a decline between 2006 and 2009 of 6 points among Democrats (from 92 percent to 86 percent) compared with 22 points for Republicans (from 76 percent to 54 percent). In the same time frame, the Pew Center found a decline of 16 points for Democrats (from 91 percent to 75 percent) compared with 24 points for Republicans (from 59 percent to 35 percent). As expected, Independents are consistently in between Democrats and Republicans. Gallup data indicate this process has been occurring for over a decade; back in 1997, there was no difference between Democrats and Republicans on whether the effects of global warming had already

⁴⁸Anthony Leiserowitz, Edward Maibach, and Connie Roser-Renouf, "Climate Change in the American Mind: Americans' Global Warming Beliefs and Attitudes in January 2010," Yale University and George Mason University, January 2010. <http://environment.yale.edu/uploads/AmericansGlobalWarmingBeliefs2010.pdf> The question was "Recently, you may have noticed that global warming has been getting some attention in the news. Global warming refers to the idea that the world's average temperature has been increasing over the past 150 years, may be increasing more in the future, and that the world's climate may change as a result. What do you think? Do you think that global warming is happening?"

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begun.⁴⁹ It is possible that cap-and-trade may continue to become a more partisan and ideological issue, and opposition to cap-and-trade, much like opposition to health-care reform, might become a litmus test for Republicans.

Only a couple of select groups may have defied the trend: political liberals and those aged 18 to 29. Gallup found that the percentage of political liberals and those 18 to 29 who believes the effects of global warming are already occurring actually increased slightly from March 2009 to March 2010.⁵⁰ While Pew found declines among these groups from 2008 to 2009, they were more modest than for the country as a whole.⁵¹

Many commentators have speculated on the cause of such precipitous declines in belief about climate change in a short period of time. The poor state of the economy has likely contributed somewhat to the decline, and Andrew Kohut, President of the Pew Research Center, notes the “priority that people give to pollution and environmental concerns and a whole host of other issues is down.”⁵² Some others agree with this assessment but say that other factors are also at play. Andrew Weaver, a professor of climate analysis at the University of Victoria in British Columbia, argues for a host of reasons, saying that “It’s a combination of poor communication by scientists, a lousy summer in the Eastern United States, people mixing up weather and climate and a full-court press by public relations firms and lobby groups trying to instill a sense of uncertainty and confusion in the public.”⁵³ Pointing out that the declines began before the most recent recession, Ted Nordhaus and Michael Schellenberger, best known for their controversial 2004 essay “The Death of Environmentalism,” blame loud and alarmed climate advocates for polarizing the issue and driving away moderates and conservatives.⁵⁴ They claim that demands for Americans to fundamentally change their way of life have led some to deny the necessity of

⁴⁹ Riley E. Dunlap, “Climate-Change Views: Republican-Democratic Gaps Expand,” Gallup, May 29, 2008. <http://www.gallup.com/poll/107569/climatechange-views-republicandemocratic-gaps-expand.aspx>

⁵⁰ Jeffrey M. Jones, “Conservatives’ Doubts About Global Warming Grow,” Gallup, March 11, 2010. <http://www.gallup.com/poll/126563/Conservatives-Doubts-Global-Warming-Grow.aspx?CSTS=alert>

⁵¹ “Fewer Americans See Solid Evidence of Global Warming – Modest Support for “Cap-and-Trade” Policy.” The Pew Research Center for the People & the Press. October 22, 2009. <http://people-press.org/report/556/global-warming>

⁵² “Fewer Americans Believe in Global Warming,” Associated Press, October 22, 2009. <http://www.cbsnews.com/stories/2009/10/22/tech/main5410089.shtml>

⁵³ Ibid.

⁵⁴ Nordhaus and Schellenberger, “Apocalypse Fatigue.”

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making such drastic changes and conclude that the climate science leading to such dramatic claims must be flawed. In support of this argument, Gallup found a record high 48 percent of Americans in March 2010 who believe that the seriousness of global warming is generally exaggerated in the news, up from 41 percent in 2009 and a relatively consistent level of around 30 percent found since the late 1990s.⁵⁵

Moreover, while Americans express some amount of concern about climate change, it has not been a top policy priority. Even with a recent decline, the Pew Center found 65 percent of Americans believed global warming is a somewhat serious or very serious problem in October 2009, with more calling it a very serious problem than a somewhat serious one.⁵⁶ However, in a March 2008 Gallup survey, Americans were asked about their level of worry on 12 different environmental issues, and global warming tied for ninth in terms of the percentage claiming they worry a great deal about it. It also recorded the second-highest percentage who worry only a little or not at all.⁵⁷ Gallup has also been surveying Americans on this issue for over a decade, and the percentage who believe it “will pose a serious threat” to them or their way of life in their lifetimes has fallen from its modest high point of 40 percent in 2008 to 32 percent in 2010.⁵⁸

Cross-national polls indicate Americans are less concerned about climate change and less willing to take steps to address it. The World Bank conducted a climate change poll from September and October 2009 of over 13,000 people in 15 countries that differ widely in terms of development and emissions.⁵⁹ The countries in the poll most similar to the United States were Japan and France. Compared with Japan, France, and the average of the residents surveyed in the 15

⁵⁵ Frank Newport, “American’s Global Warming Concerns Continue to Drop,” Gallup, March 11, 2010. <http://www.gallup.com/poll/126560/americans-global-warming-concerns-continue-drop.aspx>

⁵⁶ This question shows more partisan movement. While the percentage of the country as a whole calling it a “very serious” issue dropped 9 percentage points, those 18-29 and those considering themselves liberal Democrats bucked the trend and showed an increase in concern.

⁵⁷ Frank Newport, “Little Increase in Americans’ Global Warming Worries,” Gallup, April 21, 2008. <http://www.gallup.com/poll/106660/Little-Increase-Americans-Global-Warming-Worries.aspx> At that time, 37 percent were worried a great deal; two years later, only 28 percent report feeling a great deal of worry. Jeffrey M. Jones, “In U.S., Many Environmental Issues at 20-Year-Low Concern,” Gallup, March 16, 2010, <http://www.gallup.com/poll/126716/Environmental-Issues-Year-Low-Concern.aspx>

⁵⁸ Frank Newport, “American’s Global Warming Concerns Continue to Drop,” Gallup, March 11, 2010. <http://www.gallup.com/poll/126560/americans-global-warming-concerns-continue-drop.aspx>

⁵⁹ “Public attitudes towards climate change: findings from a multi-country poll,” World Development Report 2010 The World Bank, December 3, 2009. http://www.worldpublicopinion.org/pipa/pdf/dec09/ClimateChange_Dec09_rpt.pdf

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countries,⁶⁰ fewer Americans thought climate change is a somewhat serious problem or worse (a finding also found by Gallup, at least for Japan and France⁶¹), that it should be given priority even if it causes slower economic growth and some loss of jobs, and that it will harm people substantially. Fewer Americans believe scientists think the problem is “urgent and enough is known for action,” the country’s GHG emissions will go up even in the absence of new policy, and the effects will be worse for developing nations as compared to developed ones. Finally, in terms of policy, fewer Americans believe that the country itself has a responsibility to deal with climate change or contribute to international efforts to help poor countries with climate-induced change, and more believe the government is doing enough or too much to combat global warming. Quite shockingly, in response to the question, “Do you think that if our country takes steps to deal with the problem of climate change, other countries would then be more willing to act?” fewer Americans agree than any other country besides Russia, even though the United States is considered by most international experts to be the linchpin of international climate agreements. Other polls provide less nuanced but similar findings, with fewer U.S. residents believing the government should place a high priority on addressing climate change.⁶²

These results could be seen as indicators of the hopelessness of trying to reduce greenhouse gas emissions in the United States. However, residents of several European countries whose governments strongly support steps to reduce emissions are less sure that humans cause global warming. According to Gallup polling from 2007 and 2008 in 127 countries, both 49 percent of Americans and Danes (as well as those from Vietnam and Namibia) believe rising temperatures are a result of human activities, and this compares with even fewer who believe in anthropogenic warming in the United Kingdom (48 percent), the Netherlands (44 percent) and Iceland (38 percent).⁶³

⁶⁰ Other countries in survey: China, Russia, Mexico, Turkey, Iran, Egypt, Indonesia, India, Vietnam, Senegal, Bangladesh, and Kenya.

⁶¹ Anita Pugliese and Julie Ray, “Top-Emitting Countries Differ on Climate Change Threat,” Gallup, December 7, 2009. <http://www.gallup.com/poll/124595/Top-Emitting-Countries-Differ-Climate-Change-Threat.aspx#2>

⁶² “World Public Opinion Assessing Governments on Climate Change,” WorldPublicOpinion.org, July 29, 2009. http://www.worldpublicopinion.org/pipa/pdf/jul09/WPO_ClimateChange_Jul09_quaire.pdf

⁶³ Brett W. Pelham, “Awareness, Opinions about Global Warming Vary Worldwide,” Gallup, April 22, 2009. <http://www.gallup.com/poll/117772/awareness-opinions-global-warming-vary-worldwide.aspx#2>

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The Role of U.S. Policy in International Efforts to Curb GHG Emissions

It is difficult to overestimate the importance of U.S. participation in any international regime limiting GHG emissions. The United States is the world's second-largest emitter of greenhouse gasses.⁶⁴ While China may have surpassed us in total GHG emissions, our per capita emissions exceed China's by a factor of four-to-one. Our historical emissions—reflecting our early industrialization and significant use of hydrocarbon fuels for over century—exceed China's by a similar ratio.

Since the United States has not passed cap-and-trade legislation, it puts a future binding international agreement at risk. The decision to downplay the December 2009 meeting on climate change in Copenhagen was driven, in part, by the realization that the United States would not have passed a cap-and-trade system into law by that time. It is impossible to imagine already hesitant countries like China and India agreeing to limits if the United States were not to do so. It is noteworthy that China's most important commitment to date—not to quantitative limits but to national goals for carbon efficiency—occurred just one day after President Obama declared a target for U.S. emissions.⁶⁵

The December Copenhagen Summit—formally the 15th United Nations Climate Change Conference, or COP15—revealed the complex and contentious nature of international climate change negotiations.

The Copenhagen Summit produced very mixed results, indeed. In terms of public image, the Summit was far from edifying. The streets of Copenhagen were marked by disorder as Danish police battled environmental activists. The meeting itself was, at times, chaotic. It was marred by

⁶⁴ For instance, from the Netherlands Environmental Assessment Agency for the year 2006:

<http://www.pbl.nl/en/news/pressreleases/2007/20070622ChineseCO2emissionsinperspective.html>

or from the U.S. EIA for the year 2007:

<http://tonto.eia.doe.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=90&pid=44&aid=8> that shows the U.S. at 6,006.710 for CO2 emissions from the consumption of energy compared with 6,283.555 million metric tons for China

⁶⁵ There was rather less to China's pledge than met the eye. Beijing declared a goal of reducing the *intensity* of carbon dioxide emissions per unit of gross domestic product. Given China's high growth rates, achieving this goal may *not* mean an actual reduction in GHGs. Still, the pledge marks an important development in Beijing's approach to addressing climate change. See below.

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procedural delays, angry debates, and precipitate walkouts. The amount of aid to be provided by developed countries was a particularly nasty bone of contention. Only a last minute deal struck by President Barack Obama and the leaders of China, India, Brazil, and South Africa avoided a complete breakdown.⁶⁶ The document produced—the so-called “Copenhagen Accord”—is brief (only 12 paragraphs) and general in nature.⁶⁷

The Pew Center on Global Climate Change provides a concise summary of the accord:

“Key elements of the Copenhagen Accord include: an aspirational goal of limiting global temperature increase to 2 degrees Celsius; a process for countries to enter their specific mitigation pledges by January 31, 2010; broad terms for the reporting and verification of countries’ actions; a collective commitment by developed countries for \$30 billion in ‘new and additional’ resources in 2010-2012 to help developing countries reduce emissions, preserve forests, and adapt to climate change; and a goal of mobilizing \$100 billion a year in public and private finance by 2020 to address developing country needs. The accord also calls for the establishment of a Copenhagen Green Climate Fund, a High Level Panel to examine ways of meeting the 2020 finance goal, a new Technology Mechanism, and a mechanism to channel incentives for reduced deforestation.”⁶⁸

Reactions to the accord have varied sharply. The Obama administration, unsurprisingly, was upbeat. But even observers outside the administration noted some of the real accomplishments of Copenhagen: notably, a commitment by developing countries to be open in providing an inventory of their greenhouse gas emissions, a critical first step to an eventual legally binding, verifiable international regime.⁶⁹ In contrast, many environmentalists took a strongly negative

⁶⁶ Fiona Harvey, Ed Crooks and Andrew Ward, “Copenhagen: A Discordant Accord, *Financial Times*, December 20, 2009. <http://www.ft.com/cms/s/0/8fb70c48-ed9b-11de-ba12-00144feab49a.html?catid=176&SID=google>

⁶⁷ The text of the accord may be found at http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf

⁶⁸ “Fifteenth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change and Fifth Session of the Meeting of the Parties to the Kyoto Protocol,” Pew Center on Global Climate Change. <http://www.pewclimate.org/docUploads/copenhagen-cop15-summary.pdf>

⁶⁹ David Doniger, “The Copenhagen Accord: A Big Step Forward,” *Grist*, December 22, 2009. <http://www.grist.org/article/the-copenhagen-accord-a-big-step-forward>

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view.⁷⁰ Criticism of the accord focused on a number of areas: a goal limiting the global temperature increase to 2 degrees Celsius, rather than 1.5 degrees, a target promoted by some climate scientists; the absence of any legally binding commitments by developing or even developed countries; and insufficient funds to help poorer countries in their mitigation and adaptation efforts.

These criticisms are not without merit. But, in many ways, they reflect naiveté about the essentially political nature of the accord. Many major GHG emitters already considered meeting the 2 degrees C target difficult; formally embracing—as opposed to studying—a 1.5 degree C goal would surely have represented a bridge too far. There had never been any chance that countries like China or India would agree to binding quantitative limits; the Obama administration, with the prospects for domestic cap-and-trade legislation still very much in doubt even at the time, had also long signaled that there would be no U.S. agreement to binding limits at Copenhagen.

The Copenhagen agreement did, however, reveal a number of important trends that will surely shape future international efforts to address climate change. First, the United States is now fully part of the process—at least until the next presidential election in 2012. Under the leadership of President Obama, Washington has moved front and center in international negotiations. This stands in stark contrast to the largely adversarial role played by the United States under President George W. Bush. Second, major developing economies such as India, Brazil, and, especially, China have become even more important players in international negotiations. Increasingly, they will “own” the issue. The days of a common front among developing countries may be receding, with divisions emerging between major emerging economies—such as China, India, and Brazil—and less powerful developing countries. Third, Copenhagen also demonstrated the extent to which assistance flows are a major element of any global agreement on global climate change. Whether these flows are considered transfers necessary to fund needed mitigation and adaptation measures or merely “side payments” required to secure support, they are here to stay. And they will represent a special challenge to the United States, a country with a historically low level of

⁷⁰ See, for example, David Spratt and Damien Lawson, “A Climate Con: Analysis of the “Copenhagen Accord,” Climate Code Red blog, December 21, 2009. <http://climatecodered.blogspot.com/2009/12/climate-con-analysis-of-copenhagen.html>

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foreign developmental assistance as percentage of GDP. (U.S. official assistance was 0.16 percent of GDP in 2007, the lowest for any major developed country.)⁷¹ Fourth, Copenhagen demonstrated the extreme cumbersome nature of UN decision-making by consensus. In a technical sense, the countries attending the Copenhagen summit did not actually endorse the accord. They merely “noted” it. This was because a handful of countries representing 1.5 percent of the world’s population—Venezuela, Bolivia, Cuba, and Sudan—blocked unanimous adoption. The experience of Copenhagen might increase the attractiveness of smaller and, presumably, less cumbersome groups like the Major Economies Forum on Energy and Climate.⁷² It should be noted that the Forum has a very limited track record; it was formed in 2009 at the behest of the Obama administration.⁷³

Failure to enact cap-and-trade will damage Obama’s reputation and, perhaps, influence abroad. Interestingly, the Nobel Committee included a reference to climate change in its citation when awarding Obama the 2009 Peace Prize.⁷⁴ More generally, a failure to pass cap-and-trade would likely reduce Washington’s influence in future negotiations on climate change and, perhaps, reverse the rise in global trust in the United States noticeable since Obama became president.

Important as a strong international agreement on climate change may be to the Obama administration, it is hardly the administration’s sole—or even top—foreign policy objective. Negotiations occur against an international backdrop that includes the biggest financial collapse since the Great Depression, a sharp global recession, ongoing international efforts to limit the nuclear ambitions of Iran and North Korea, and potentially historic efforts to broker deep new cuts in U.S. and Russian strategic arsenals.

A future Republican president could reverse course from the Obama administration and be less willing to engage in international climate discussions. It is interesting to note that, when it comes

⁷¹ “Official Development Assistance,” *OECD Factbook 2009*.

<http://puck.sourceoecd.org/pdf/factbook2009/302009011e-10-03-03.pdf>

⁷² The forum’s member are: Australia, Brazil, Canada, China, the European Union, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the United Kingdom, and the United States. Together, they represent perhaps 80 percent of world GHG emissions.

⁷³ “Major Economies Forum on Energy and Climate,” U.S. Department of State.

<http://www.state.gov/g/oes/climate/mem/>

⁷⁴ “The Nobel Peace Prize 2009,” http://nobelprize.org/nobel_prizes/peace/laureates/2009/press.html

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to global climate change, U.S. Republicans part company with their conservative counterparts in Western Europe. German Chancellor Merkel, French President Sarkozy, and U.K. Prime Minister Cameron, all leaders of center-right parties, are staunch advocates of international agreements aimed at addressing global climate change. Conservatives in Australia, in contrast, resemble their U.S. counterparts; indeed, the leader of the Liberal Party (confusingly, for Americans, the country's center-right party) was voted out of office when he agreed to support then-Labour Prime Minister Kevin Rudd's cap-and-trade legislation.⁷⁵ Thus, whereas major European governments will likely support international negotiations regardless of the party in power, America and Australia may vary depending upon the administration.

A critical part of any future legislation will be a "carbon tariff" —a border tax levied to ensure that imports face the same carbon price as domestic producers. There is a plausible economic case for a carbon tariff.⁷⁶ Absent such a tariff, GHG-intensive manufacturing might simply shift away from countries that limit emissions through taxes or cap-and-trade regimes—a process known as "leakage."⁷⁷ Moreover, such a tariff, at least in theory, could be used as an incentive to encourage other countries to join a global cap-and-trade regime. There are also clear political advantages to a carbon tariff; it can be used to assuage fears by domestic industry that it will be left at a competitive disadvantage. Unsurprisingly, Waxman-Markey includes a provision permitting border adjustments beginning in 2020. So did, originally, the Boxer-Kerry proposal, though a border adjustment was subsequently cropped from their draft. Ten Democratic senators have written a letter to Obama saying that they will support no climate change legislation unless it includes a border adjustment.⁷⁸ The Cantwell-Collins proposal included a border carbon levy. So does the Kerry-Lieberman-Graham "framework." Even assuming that a border levy is compliant with the World Trade Organization (WTO), the scope for abuse of a border levy is substantial. Most free traders are, understandably, vehemently opposed to carbon tariffs. Not

⁷⁵ "Australia Opposition Vote Deals Climate Law Blow," *BBC News*, December 1, 2009, <http://news.bbc.co.uk/2/hi/8387653.stm>

⁷⁶ Joseph Stiglitz, "A New Agenda for Global Warming," *The Economists' Voice* 3(7), 2006.

⁷⁷ Paul Krugman, "Climate, Trade, Obama," *The Conscience of a Liberal Blog*, June 29, 2009, <http://krugman.blogs.nytimes.com/2009/06/29/climate-trade-obama/>

⁷⁸ Keith Johnson, "Cap and Trade: Will the Senate Go For Carbon Tariffs, Too?" *Environmental Capital Blog*, October 1, 2009, <http://blogs.wsj.com/environmentalcapital/2009/10/01/cap-and-trade-will-the-senate-go-for-carbon-tariffs-too/>

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only are there technical difficulties associated with assessing such a tariff, its enforcement raises the prospect of retaliation from countries such as China and, potentially, a trade war.

There is also the possibility that other countries might place a carbon tax on U.S. exports entering their markets. Western Europe—which already has its own cap-and-trade system in place—is one obvious possibility. Indeed, French President Nicolas Sarkozy has proposed precisely such a measure, though he has received scant support for the idea elsewhere in the EU.⁷⁹

The prospect of a border adjustment could raise tensions with oil exporters. The National Energy Technology Laboratory reports that on average, about 9 percent of the lifecycle GHG emissions from oil is produced during extraction and transport of the crude oil.⁸⁰ If imported, this embedded carbon dioxide would be subject to a border adjustment. Depending upon the extraction techniques and difficulty, the level of embedded carbon as a percentage of lifecycle emissions can vary greatly, from a low of only a few percent for oil from Saudi Arabia and Kuwait to over 20 percent in Nigeria, where gas flaring is common.

Possible Alternatives Given the Failure of Cap-and-Trade

Besides a carbon price, other policies to reduce greenhouse gases consist of various policy options to reduce demand or supply of highly-polluting energy, increase the supply of low-carbon energy, and study ways to reduce the impact of emissions.⁸¹ The path to limiting carbon emissions directly also may take a more circuitous route than passing national cap-and-trade legislation, as various groups of states are beginning their own cap-and-trade programs, and the EPA now technically has the right to regulate carbon dioxide (CO₂). The recent American

⁷⁹ “Sarkozy Wants EU-Wide Carbon Tax, Own Plans Dealt a Blow,” *New Europe*, January 10, 2010, <http://www.neurope.eu/articles/98341.php>

⁸⁰ Kristin J. Gerdes, “NETL’s Capability to Compare Transportation Fuels: GHG Emissions and Energy Security Impacts,” National Energy Technology Laboratory, April 2009, http://www.netl.doe.gov/energy-analyses/pubs/Petroleum%20Fuels%20GHG%20Modeling_Feb%2025a.pdf

⁸¹ Raymond J. Kopp and William A. Pizer, “Assessing US Climate Policy Options,” Resources for the Future, November 2007. http://www.rff.org/RFF/Documents/CPF_COMPLETE_REPORT.pdf

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Recovery and Reinvestment Act of 2009 (the stimulus bill) has increased funding, especially for the development of new low-carbon energy sources.

The Status Quo

The federal government supports many laws and programs to reduce energy use and create alternative energy programs. Over time, standards could be tightened and incentives increased or moved between technologies.

To reduce energy use, many appliances such as refrigerators and air conditioning units are now required to meet minimum efficiency standards.⁸² To provide customers with more information, the federal government's Energy Guide program mandates energy consumption data be available along with most appliances in showrooms, and the EnergyStar program identifies certain low-consumption models. Some customers can claim tax credits for buying energy efficient products. A significant part of the recent stimulus bill included money for weatherization of the homes of low-income individuals to make them more energy-efficient,⁸³ and there are some loan assistance programs that promote the construction of energy efficient homes and buildings. Inefficient incandescent light bulbs are being phased out of the market. On a larger scale, there are programs to improve industrial energy efficiency, and federal buildings are required to meet energy efficiency standards.

The government takes a similar approach to automobiles with its Corporate Average Fuel Economy standard, regulations mandating fuel economy information be printed on all vehicle stickers, and financial incentives for certain technologies such as plug-in hybrids, electric vehicles, and fuel cells.⁸⁴ The amounts of the incentives and the technologies covered have varied over time. For a couple of months in 2009, the U.S. government introduced the Car Allowance Rebate System ("Cash for Clunkers") program in which people with inefficient vehicles could buy more efficient new vehicles and receive a tax credit for doing so.⁸⁵

⁸² To read more about these programs discussed in this section, visit the Department of Energy, Energy Efficiency and Renewable Energy website at eere.energy.gov

⁸³ "DOE to Invest \$8 Billion in Weatherization and State Energy Grants," March 18, 2009. http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=12346

⁸⁴ "Laws/Regulations/Guidance," National Highway Traffic Safety Administration. <http://www.nhtsa.dot.gov/portal/fueleconomy.jsp>

⁸⁵ Car Allowance Rebate System, <http://www.cars.gov/>

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Local utilities and governments also have programs to reduce energy use.⁸⁶ Some utilities run demand-side management programs to reduce load, often paid for with “public benefit funds” that get revenue from small per-kilowatt-hour charges on consumer electricity bills; some locations have turned to “revenue decoupling” to reduce the incentive of utilities to maximize revenue by maximizing output. In addition, building codes are managed at a local level and can mandate minimum efficiency standards for new buildings.

On the supply side, the government has programs designed to facilitate the development and use of new technologies from initial basic science to production subsidies for commercial-scale facilities. The U.S. government has a set of national laboratories devoted to energy research, usually on a relatively basic level; the current secretary of energy, Dr. Steven Chu, formerly led one of the centers, Lawrence Berkeley National Laboratories.⁸⁷ The recent stimulus bill offered over \$5 billion for renewable energy and the transportation industry, \$3.4 billion for carbon capture and sequestration demonstration, and \$2 billion for scientific innovation in advanced energy technology research, and nearly all of this money has already been distributed.⁸⁸ The federal government has provided grants and loan guarantees to emerging technologies for pilot, demonstration-scale, and commercial-scale plants that have difficulty receiving bank loans.⁸⁹ The federal government also provides production subsidies to wind generators (now about 2.1 cents per kilowatt-hour) and has tax credits for the installation of solar panels among various green energy incentives. For biofuels, the federal government has a production mandate of 36 billion gallons by 2022 known as the Renewable Fuel Standard.

In order to facilitate the use of new technologies, the federal government included over \$3 billion in the stimulus bill for modernization of the electricity grid including “smart grid” technology that involves digital monitoring of transmission.⁹⁰ The government is trying to ensure that the

⁸⁶ “Convenient Guide to Climate Change Policy,” Duke University.

<http://nicholas.duke.edu/ccpp/convenientguide/PDFs/Vol%202%20Chap%203.pdf#page=41>

⁸⁷ “National Laboratories and Technology Centers,” U.S. Department of Energy.

<http://www.energy.gov/organization/labs-techcenters.htm>

⁸⁸ “Breakdown of Funding,” U.S. Department of Energy. <http://www.energy.gov/recovery/breakdown.htm>;

“Recovery.gov – Track the Money.” <http://www.recovery.gov>

⁸⁹ For more information, see the Department of Energy website at www.doe.gov

⁹⁰ “President Obama Announces \$3.4 Billion Investment to Spur Transition to Smart Energy Grid,”

<http://www.energy.gov/8216.htm>

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grid can handle the more variable loads from sources like wind and solar electricity and prepare for a possible future in which consumers sell their electricity from their electrified vehicles to the grid.

States are also encouraging renewable energy production. The majority of states have Renewable Portfolio Standards, which are very similar to the concept of the renewable fuel standards but instead mandate a minimum amount of renewable electricity.⁹¹ Some states provide incentives to renewable-energy companies to encourage them to locate in the state; some incentivize renewable sources, leading to unusual results in places like New Jersey, a small state without a particular good solar resource, but with the second-largest solar capacity in the country.⁹²

Status Quo Plus

While the United States has a fairly comprehensive set of policies to try to reduce global warming emissions, it could take more steps—some of which have been done in other areas, especially Europe. On the demand side, energy audits of new homes could become more common. As in Sweden, food labels could list the GHGs linked to its production.⁹³ According to a McKinsey & Company study, energy efficiency could significantly reduce emissions, and much of it could be done at a profit even without a price on carbon dioxide, as long as the inefficiencies could be targeted.⁹⁴

On the supply side, the most likely major change would be a national Renewable Portfolio Standard, which was already passed under Waxman-Markey legislation.⁹⁵ Several European countries have demonstrated other ways to encourage technology including a feed-in tariff, which is a long-term price guarantee for renewable energy producers. Another system, though rarely used, is known as a reverse auction. In a reverse auction, electricity generators using

⁹¹ “States with Renewable Portfolio Standards, U.S. Department of Energy.

http://apps1.eere.energy.gov/states/maps/renewable_portfolio_states.cfm

⁹² <http://www.nytimes.com/2009/07/16/science/earth/16solar.html>

⁹³ Rosenthal, Elisabeth. “To Cut Global Warming, Swedes Study Their Plates.” *New York Times*. October 22, 2009.

<http://www.nytimes.com/2009/10/23/world/europe/23degrees.html>.

⁹⁴ “Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?” McKinsey & Company, December 2007.

http://www.mckinsey.com/client-service/ccsi/pdf/US_ghg_final_report.pdf

⁹⁵ “House Passes Climate Bill Including National RPS,” RenewableEnergyWorld.com, June 29, 2009.

<http://www.renewableenergyworld.com/rea/news/article/2009/06/house-passes-climate-bill-including-national-rps>

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renewable energy sources place a bid for subsidy to produce a set amount of energy.⁹⁶ The United States could get more involved in international technology transfer to encourage renewable energy development worldwide, and forge an agreement similar to the one finalized by Obama and Chinese President Hu Jintao during Obama's November 2009 trip to Beijing; while there, Obama established initiatives such as a U.S.-China Clean Energy Research Center and a U.S.-China Electric Vehicles Initiative.⁹⁷

Rather than solely focusing on reducing emissions, the United States could try to devise and implement adaptation strategies to reduce the human toll of climate change, and to increase research and development of more unorthodox "geo-engineering" technologies that would reduce the levels or impact of greenhouse gases after emission. In terms of adaptation, there are both proactive (i.e., avoiding development on flood-prone lands) and reactive (i.e., rebuilding homes to be more flood-resistant after a disaster) solutions.⁹⁸ The Pew Center for Global Climate Change and the UN Development Program both have devised frameworks for adaptation, and a variety of projects are already underway, particularly in poorer areas worldwide.

The most widely known geo-engineering technique is carbon capture and sequestration, a technology the U.S. is working on relatively extensively, but there are other ideas, such as dumping iron in the oceans to stimulate plankton growth, injecting sulfur dioxide into the atmosphere, or putting a solar shield in space to reduce the solar radiation reaching the earth.⁹⁹ These three ideas may do more harm than good, but there is potential for some post-facto geo-engineering techniques to be useful.

⁹⁶ Duke University, "Convenient Guide"; "History of UK Wind Energy," British Wind Energy Association. <http://www.bwea.com/ref/history.html>

⁹⁷ "U.S.-China Clean Energy Announcements," U.S. Department of Energy, November 17, 2009. <http://www.energy.gov/news2009/8292.htm>

⁹⁸ "Adaptation to Climate Change," Pew Center on Global Climate Change. http://www.pewclimate.org/docUploads/PEW_Adaptation.pdf

⁹⁹ Marc Gunther, "Is Geoengineering Inevitable?" The Energy Collective blog, February 9, 2010. <http://theenergycollective.com/TheEnergyCollective/58501>

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The “Silver Bullet”

A number of individuals have recommended a “Manhattan Project” to develop new technologies to address climate change.¹⁰⁰ Research into “transformational technologies,” alternative energy sources that could dramatically change the marketplace, is currently being funded by the Department of Energy and the newly created Advanced Projects Research Agency-Energy (ARPA-E), which received \$400 million in federal funds in April 2009.¹⁰¹ It should be noted that the amount of money authorized to be spent on energy in the stimulus bill was actually larger than the cost of the Manhattan Project in 2008 dollars (approximately \$22 billion), and a Congressional Research Service report found that energy R&D efforts over 35 fiscal years since the 1973 oil shock have totaled \$118 billion.¹⁰²

Environmental Federalism

Various groups of American states have started or are planning to start cap-and-trade programs. The Regional Greenhouse Gas Initiative (RGGI), made up of 10 northeastern and mid-Atlantic states, began in early 2009 and aims to reduce CO₂ emissions from the power sector by 10 percent by 2018.¹⁰³ The Western Climate Initiative is slated to go into effect in 2012 with seven U.S. states and four Canadian provinces.¹⁰⁴ Six U.S. states and the Canadian province of Manitoba signed the Midwestern Greenhouse Gas Accord in November 2007; a draft final version of the recommendations of the plan’s design calls for a 20 percent reduction of 2005 emissions levels by 2020.¹⁰⁵

It is possible that these programs could link in the future and cover a significant part of the United States. However, they suffer from leakage problems, with electricity coming in from

¹⁰⁰ For instance, see “Forbes Introduces New Manhattan Project to Tackle Energy Dependence, Rising Gas Prices,” June 18, 2008, <http://forbes.house.gov/news/DocumentSingle.aspx?DocumentID=94607>; James Pethokoukis, “Do We Need an Energy ‘Manhattan Project’?” *U.S. News and World Report*, May 30, 2008.

<http://www.usnews.com/money/blogs/capital-commerce/2008/05/30/do-we-need-an-energy-manhattan-project>

¹⁰¹ “ARPA-E: About.” ARPA, 2010. <http://arpa-e.energy.gov/About.aspx>

¹⁰² Deborah D. Stine, “The Manhattan Project, the Apollo Program, and Federal Energy Technology R&D Programs: A Comparative Analysis,” Congressional Research Service, Report RL34645, June 30, 2009. <http://www.fas.org/sgp/crs/misc/RL34645.pdf>

¹⁰³ Regional Greenhouse Gas Initiative. <http://www.rggi.org/home>

¹⁰⁴ Western Climate Initiative. <http://www.westernclimateinitiative.org/>

¹⁰⁵ “Midwestern Greenhouse Gas Reduction Accord: Draft Final Recommendations of the Advisory Group.” <http://www.midwesternaccord.org/GHG%20Draft%20Advisory%20Group%20Recommendations.pdf>

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other states. For instance, Pennsylvania would be an obvious state geographically for RGGI, but it produces a significant amount of electricity from coal and decided not to participate. The prices in RGGI of roughly \$2-\$3/ton of CO₂ are also too low to stimulate much investment in green technologies.¹⁰⁶

Some of the largest impacts may come from California which, due to its market size and influence over other environmentally-minded state legislatures, could have a major influence on national legislation. California asked for an EPA waiver that would allow the state to set stricter vehicle emissions standards than the federal law required. Automakers adamantly opposed the idea of producing vehicles for California and the states that followed California's lead (generally those on the West Coast and in the Northeast), but the concern of having two distinct standards helped encourage the Obama administration to support a stricter national fuel economy standard of 35.5 miles per gallon by 2016 to bring the whole country up to California's proposed standards.¹⁰⁷

The Canadian Option

State-led initiatives such as the Western Climate Initiative and the Midwestern Greenhouse Gas Accord that already include at least one Canadian province are the first steps toward integrating U.S. and Canadian climate policy. In the future, the United States and Canada may share a national cap-and-trade program, though Canada does not have a cap-and-trade program, and is in some ways behind the United States. Canada's Conservative government decided against national cap-and-trade in 2006. Prime Minister Stephen Harper has insisted that the focus should be on developing technologies rather than setting targets to deal with climate change.¹⁰⁸ *Reuters* remarked in 2008 that "The Conservatives' approach to climate change to date has been much closer to that of President George W. Bush."¹⁰⁹

¹⁰⁶ "Results by Auction." <http://www.rggi.org/co2-auctions/results>

¹⁰⁷ Jim Motavalli, "Obama to Raise Fuel Economy Standards, May 19, 2009.

<http://wheels.blogs.nytimes.com/2009/05/19/obama-to-raise-fuel-economy-standards/>

¹⁰⁸ Steve Rennie, "Prime minister says Canada's climate plan won't change much going into Copenhagen summit," *The Canadian Press*, November 30, 2009.

http://www.google.com/hostednews/canadianpress/article/ALeqM5ij_1H4aummWVahZbMWyf86-mNeIQ

¹⁰⁹ David Ljunggren, "Canada wants North American Cap-and-Trade system," *Reuters*, November 19, 2008.

<http://www.reuters.com/article/idUSTRE4AI70120081119>

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Still, Canada did respond to the election of Obama and declared "We will work with the provincial governments and our partners to develop and implement a North America-wide cap-and-trade system for greenhouse gases."¹¹⁰ A potential issue is that 70 percent of Canada's electricity is from renewable sources (58 percent from hydro in 2003).¹¹¹

At present, the most important steps have been taken by the four provinces (Ontario, Quebec, Manitoba and British Columbia) that are scheduled to be part of the Western Climate Initiative. British Columbia has had a carbon tax of C\$10/metric ton of CO₂ rising by C\$5/year to C\$30 in 2012.¹¹²

The EPA to the Rescue?

In the landmark decision *Massachusetts vs. EPA* (2007), the U.S. Supreme Court ruled that the Clean Air Act gave the EPA the authority to regulate greenhouse gases; the high court also ruled the EPA could choose not to regulate only if it showed greenhouse gases were not harmful to public health and welfare.¹¹³ The Clean Air Act, passed by Congress in 1970, is itself a landmark piece of legislation that has been used to reduce emissions of harmful air pollutants such as ozone, nitrogen oxides (NO_x), and sulfur dioxides (SO_x).

The capability of the EPA to regulate GHGs could strongly influence the debate over cap-and-trade in the future. Regulation under the Clean Air Act is generally considered extremely economically inefficient, as it forces each pollution source to reduce emissions by the same amount regardless of differences in cost. However, Congress could institute a cap-and-trade program in the future that supersedes this command-and-control regulation, effectively pushing those currently against cap-and-trade to choose the lesser of two evils.¹¹⁴ Another possibility is

¹¹⁰ Ibid.

¹¹¹ "Canada's Electricity Industry Background and Challenges," Canadian Electricity Association http://www.electricity.ca/media/Electricity%20101%20Slide%20Deck_Jan%202010.pdf

¹¹² "Where Carbon is Taxed," Carbon Tax Center, November 28, 2009. <http://www.carbontax.org/progress/where-carbon-is-taxed/>

¹¹³ Linda Greenhouse, "Justices Say E.P.A. Has Power to Act on Harmful Gases," *The New York Times*, April 3, 2007.

¹¹⁴ Personal Interview by Joyce Yao with James Blackburn and Charles Irvine of the law firm Blackburn and Carter on November 23, 2009.

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that EPA regulations will actually be used as a primary mechanism for reducing emissions, possibly with some modifications to make it less economically damaging.

The EPA is bound to get sued over its proposed regulations, although absent an injunction the EPA can enforce regulations even during lawsuits.¹¹⁵ The major questions at present involve whether Congress will strip EPA of its authority, the likelihood of EPA regulation surviving the inevitable lawsuits, and when regulation could possibly begin.

Under the Obama administration, the EPA has taken steps to regulate GHG emissions. While the EPA has taken numerous actions since January 2009 in regard to climate change, the three most important from the standpoint of assessing the future of carbon mitigation are: 1) a finding that greenhouse gases endanger human health and welfare; 2) a rule to regulate CO₂ emissions from cars and trucks; and 3) a “tailoring rule” that would require certain facilities emitting 75,000 metric tons of CO₂e or more per year to reduce their emissions.¹¹⁶ The tailoring rule only would impact new stationary sources such as newly built natural gas or coal electricity generation facilities or those undergoing major modifications; all other existing facilities of that size would only need to report their emissions.¹¹⁷

These proposals could have an impact quite soon. The endangerment finding was finalized in early December 2009, immediately before COP15. The rulemaking for cars and trucks jointly designed with the National Highway Traffic Safety Administration (NHTSA) is designed to effectively raise fuel economy standards from 30.1 mpg in model year (MY) 2012 to 35.5 mpg in MY2016. The tailoring rule begins coming into effect in January 2011.

¹¹⁵ Personal Interview by Joyce Yao with Stephen Seidel from the Pew Center on Global Climate Change on November 30, 2009.

¹¹⁶ “Endangerment and Cause or Contribute Finding for Greenhouse Gases under Section 202(a) of the Clean Air Act,” U.S. Environmental Protection Agency, December 7, 2009. <http://www.epa.gov/climatechange/endangerment.html>; “EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks,” Environmental Protection Agency, April 2010, <http://www.epa.gov/oms/climate/regulations/420f10014.htm>; Robin Bravender, “EPA Issues Final ‘Tailoring’ Rule for Greenhouse Gas Emissions,” *Greenwire* for *The New York Times*, May 13, 2010, <http://www.nytimes.com/gwire/2010/05/13/13greenwire-epa-issues-final-tailoring-rule-for-greenhouse-32021.html>

¹¹⁷ Steve Seidel, “The Right Place for EPA to Start,” *Climate Compass: The Blog of the Pew Center on Global Climate Change*, October 2, 2009. <http://www.pewclimate.org/blog/seidels/right-place-epa-start>

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Some members of Congress are seeking to strip the EPA of some or all of its authority to regulate GHGs. In the Senate, the primary battleground for climate legislation the rest of the year, Senators Murkowski and Jay Rockefeller (D-WV) have introduced legislation designed to block or delay the EPA. Murkowski introduced a “disapproval resolution” that no EPA rule relating to the endangerment finding would go into effect. Although Republicans unanimously voted in favor, it failed 47-53 in the Senate.¹¹⁸ Rockefeller introduced a less ambitious measure to block the EPA from implementing climate-related stationary source rules for two years.¹¹⁹ While Majority Leader Reid had indicated he would allow a vote for Rockefeller’s plan when cap-and-trade was still being discussed, no vote has yet occurred.¹²⁰ In the House of Representatives, similar disapproval resolutions and a bill much like Rockefeller’s have been introduced.¹²¹ Even if any bill were to pass, President Obama would need to sign either bill, a very unlikely prospect for a president who supports cap-and-trade and the EPA’s rulemakings.

In addition to the congressional hurdles, the EPA’s actions are open to lawsuits once they have been finalized. As of March 2010, 16 lawsuits petitioning a federal appeals court to reconsider the endangerment finding have been filed from a variety of organizations including the U.S. Chamber of Commerce, the limited-government advocacy group Southeastern Legal Foundation, Inc., Massey Energy Company, and the National Beef Cattlemen’s Association, as well as the states of Texas, Alabama and Virginia,¹²² The petitions have been consolidated into one case, *Coalition for Responsible Regulation Inc., et al., vs. EPA*, and 14 other states have asked to join

¹¹⁸ Stacy Feldman, “Murkowski’s Bid to Repeal Science and Block EPA Fails in U.S. Senate: 53 to 47,” Solve Climate, June 11, 2010, <http://solveclimate.com/blog/20100611/murkowskis-bid-repeal-science-and-block-epa-fails-u-s-senate-53-47>

¹¹⁹ “Stationary Source Regulations Delay Act”, introduced March 4, 2010. http://www.nationaljournal.com/img/pdfs/100304_Rockefeller.pdf

¹²⁰ “Efforts to Block EPA’s Greenhouse Gas Regulations Back in Play,” *ClimateWire*, July 23, 2010, <http://www.nytimes.com/cwire/2010/07/23/23climatewire-efforts-to-block-epas-greenhouse-gas-regulat-50829.html>

¹²¹ “EPA Authority Could Become a Pawn in a Larger Game,” *E&E News*, March 3, 2010. <http://www.eenews.net/climatewire/2010/03/03/archive/4?terms=endangerment+finding>

¹²² Robin Bravender, “U.S. Chamber Petitions EPA to Reconsider Endangerment Finding,” *E&E News*, March 16, 2010. <http://www.eenews.net/Greenwire/2010/03/16/archive/5?terms=endangerment+finding>; Robin Bravender, “CLIMATE: Lawsuits Roll in as EPA ‘Endangerment’ Deadline Looms,” *E&E News*, February 15, 2010. <http://www.nytimes.com/gwire/2010/02/15/15greenwire-lawsuits-roll-in-as-epa-endangerment-deadline-46947.html>; Robin Bravender, “Texas, Skeptics Seek Court Review of EPA’s ‘Endangerment’ Finding.” February 16, 2010. <http://www.nytimes.com/gwire/2010/02/16/16greenwire-texas-skeptics-seek-court-review-of-epas-endan-12442.html>

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in opposition.¹²³ The petitioners will likely try to show that EPA's decision-making process was flawed rather than focus on the underlying science.¹²⁴ The U.S. Chamber of Commerce and the National Automotive Dealers Association also filed a suit in September 2009 to block the EPA waiver that allows California to set GHG limits for motor vehicles, part of the compromise that led to the previously mentioned EPA/NHTSA rulemaking to set national GHG limits for cars and trucks between MY2012 and MY2016.¹²⁵

It also appears as though the EPA will be challenged from liberal groups who do not think the EPA is acting aggressively enough. One tailoring rule lawsuit is coming from the Center for Biological Diversity, which is unhappy with the leniency of the 75,000 ton minimum level for regulation.¹²⁶ Additionally, the Sierra Club, Natural Resources Defense Council and Environmental Defense Fund wrote a letter to EPA Administrator Lisa Jackson in August 2010 encouraging her to issue New Source Performance Standards (NSPS) for stationary sources.¹²⁷ Unlike the tailoring rule, which only covers new sources or those undergoing significant renovations, NSPS would apply to existing sources as well and would therefore affect many more entities. As of September 2010, the groups are threatening legal action.

However, according to Brigham Daniels, a specialist in environmental law and professor at the University of Houston Law Center, the tailoring rule is much more vulnerable to a successful lawsuit than either the endangerment finding or the automotive rulemaking.¹²⁸ He does not believe any of the lawsuits submitted to date will be successful. The endangerment finding would likely be sustained in court because the U.S. Supreme Court's decision in *Massachusetts vs. EPA* requires the EPA to regulate GHGs unless it can find a legally defensible reason to not do so—such as a finding that GHGs do not endanger public health or welfare. The EPA would

¹²³Robin Bravender, "CLIMATE: States Take Sides In 'Endangerment' Legal Brawl," *Greenwire*, March 19, 2010. <http://www.eenews.net/Greenwire/2010/03/19/archive/2?terms=endangerment+finding>

¹²⁴ Bravender, "Lawsuits Roll"

¹²⁵ Colin Sullivan, "Climate: Industry Groups Sue to Block Calif. Auto Waiver," *E&E News PM*, September 10, 2009, <http://www.eenews.net/public/eenewspm/2009/09/10/3>

¹²⁶ Robin Bravender, "Enviro Group Sues EPA Over Greenhouse Gas 'Tailoring' Rule," *Greenwire*, August 2, 2010, <http://www.nytimes.com/gwire/2010/08/02/02greenwire-enviro-group-sues-epa-over-greenhouse-gas-tail-49225.html>

¹²⁷ Robin Bravender, "Groups Prod EPA to Set Carbon Limits for Power Plants," *E&E News*, September 8, 2010, <http://www.eenews.net/public/Greenwire/2010/09/08/3>

¹²⁸ Personal Interviews by Joyce Yao and James Coan with Brigham Daniels.

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need to be “arbitrary and capricious” in regard to the experts chosen to make the endangerment finding, an unlikely scenario given the overall consensus in the scientific community concerning global warming. In addition, 16 states and New York City have intervened on behalf of the EPA concerning the endangerment finding,¹²⁹ and automakers have generally supported the proposed automotive rulemaking because it guarantees one national standard through 2016.¹³⁰

The tailoring rule is more open to being challenged because the EPA tried to determine a reasonable level of 75,000 metric tons rather than sticking precisely to the letter of the law. The provision of the Clean Air Act used for the tailoring rule, the prevention of significant deterioration (PSD) in Section 165 of the bill, dictates that any source that emits more than 100 or 250 tons of an air pollutant needs to be regulated, so the legality of the EPA’s 75,000 metric ton emissions benchmark is very questionable.¹³¹

Actually adhering to the 100 or 250 ton limit for GHGs would have been absurd, requiring many tiny emitters to reduce their pollution levels. Yet courts rarely side with a regulatory agency on the basis that a congressional demand is absurd; agencies are required to fulfill their duties as Congress dictates. It may not matter that the EPA tried to make a reasonable judgment by considering various possible thresholds from 1,000 to 100,000 metric tons/year. At 1,000 metric tons/year, it found that the number of covered entities would increase by an order of magnitude, hitting tens of thousands of small businesses. A threshold of 10,000 metric tons/year would have approximately doubled the number of entities while increasing national emissions coverage by one percent, and the chosen level of 25,000 metric tons/year would cover approximately 85 percent of U.S. emissions.¹³²

The time frame for legal challenges is unclear and may actually be very brief. Daniels describes a plausible scenario in which the challenges to the endangerment finding and proposed vehicle emission standards are quickly dismissed, and certain challenges to a finalized tailoring rule are

¹²⁹ Bravender, “CLIMATE: States”

¹³⁰ Broder, “EPA”

¹³¹ Brigham Daniels, Hannah Polikov, Timothy Profeta, and James Salzman, “Regulating Climate: What Role for the Clean Air Act?” Duke Law Scholarship Repository, 2009. February 2, 2010.
http://scholarship.law.duke.edu/faculty_scholarship/2004/

¹³² “Mandatory Reporting of Greenhouse Gases; Final Rule”, 40 CFR Parts 86, 87, 89 et al., *Federal Register*, October 30, 2009. <http://www.epa.gov/climatechange/emissions/downloads09/GHG-MRR-Full%20Version.pdf>

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successful. It is possible that no case will go to a full trial. Still, such a legal fight could have profound political and—despite the favorable 2007 Supreme Court decision—potentially constitutional ramifications as courts decide the scope of allowable EPA action.

Any future EPA actions after the upcoming legal battles are unknown. Assuming the tailoring rule does not pass judicial scrutiny, the Obama administration may choose to appeal, yet it has other options besides abandoning any effort to regulate. The EPA is examining the possibility of setting up its own carbon-trading system,¹³³ an idea supported in a paper available from the Center for Climate Change Law at Columbia University.¹³⁴ The EPA could rewrite the tailoring rule to cover all entities from 100 to 250 metric tons, but such a maneuver would surely anger Congress and increase the likelihood of bills such as the disapproval resolution.

Over time, it will matter which administration is in power. If Obama wins a second term, the EPA will very likely continue to try to find ways to regulate GHGs, assuming no cap-and-trade system is implemented; it would have until early 2017 to fight legal battles. Yet if a Republican were to win in 2012, the EPA could refuse to regulate carbon dioxide—a stand it took during the administration of George W. Bush. EPA administrator Stephen L. Johnson even wrote what became known as the “Johnson memo,” establishing a policy that the EPA could issue permits for emissions from coal-fired power plants without directly regulating them.¹³⁵

Even if the tailoring rule clears judicial scrutiny, it may have a limited effect on emissions. As written, it only regulates new plants or those undergoing major renovations. Additionally, the nature of the “Best Available Control Technology” that that regulated plants will be required to install will not be announced until fall 2010.¹³⁶ In the absence of carbon capture and sequestration, this technology may be relatively ineffective at significantly reducing emissions.

¹³³ Simon Lomax, “EPA Studying Own Carbon-Trading System, Official Says,” *Business Week*, March 15, 2010.

¹³⁴ Hannah Chang, “Cap-and-Trade Under the Clean Air Act?: Rethinking Section 115,” Columbia Law School Center for Climate Change Law, March 2010.

¹³⁵ Johnson, Stephen L. “EPA’s Interpretation of Regulations that Determine Pollutants Covered By Federal Prevention of Significant Deterioration (PSD) Permit Program.” United States EPA, 18 December 2008. http://www.epa.gov/NSR/documents/psd_interpretive_memo_12.18.08.pdf

¹³⁶ Robin Bravender, “Will Hill Hopes Dashed, Advocates Circle Wagons at EPA,” *GreenWire*, August 25, 2010, <http://www.eenews.net/public/Greenwire/2010/08/25/2>

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Short and Long-term Policy Projections

Short-term

Before the midterm elections, the only bills even tangentially related to energy policy that have a chance of passing, however remote, are President Obama's recent proposals to create a \$50 billion infrastructure bank,¹³⁷ permanently extend the R&D tax credit¹³⁸ and allow companies to write off 100 percent of their new investment in plant and equipment this and next year.¹³⁹ None is specifically about energy, but some of the infrastructure money would finance railroads, the R&D tax credit would effectively subsidize energy-related R&D, and the tax write-off could help with the construction of new renewable generation. In order to pay for these proposals, the administration wants to increase taxes on oil and gas companies and close corporate tax loopholes.¹⁴⁰ Finding acceptable ways to pay for these programs is likely going to be difficult, and Thomas E. Mann of the Brookings Institution thinks the proposals "are unlikely to go anywhere" in the current political climate.¹⁴¹

More traditional energy-specific legislation could be considered in the lame duck session after the November elections. After declaring in July that he would no longer pursue cap-and-trade, Majority Leader Reid announced very stripped-down legislation with only two main parts that were directly related to reducing emissions: funding residential energy efficiency retrofits with a program known as HomeStar and incentivizing the use of natural gas vehicles, particularly for heavy duty trucks.¹⁴² It also included provisions responding to the Deepwater Horizon spill, and because a couple of Democratic senators opposed removing the liability cap on damages oil companies pay after spill or other disasters, the bill could not get 60 votes before Congress went

¹³⁷ William A. Galston, "Infrastructure Bank Proposal Would Spur Economic Growth," Brookings Institution Up Front Blog, September 7, 2010, http://www.brookings.edu/opinions/2010/0907_infrastructure_bank_galston.aspx

¹³⁸ "Expanded, Simplified and Permanent Research and Experimentation Tax Credit, September 8, 2010, http://www.whitehouse.gov/sites/default/files/fact_sheet_re-credit_9-8-10.pdf

¹³⁹ Peter Slevin, "Obama, in Campaign Mode, Defends Policies and Offers New Proposal for Transportation Spending," *The Washington Post*, September 6, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/09/06/AR2010090602161.html?hpid=topnews>

¹⁴⁰ Ibid., Anne E. Kornblut and Lori Montgomery, "Obama to Call for Business Tax Credit," *The Washington Post*, September 6, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/09/05/AR2010090503752.html>

¹⁴¹ Thomas E. Mann, "Congress Returns to Washington," Brookings Institution Up Front Blog, September 13, 2010, http://www.brookings.edu/opinions/2010/0913_congress_mann.aspx

¹⁴² "Short Summary of the Clean Energy Jobs and Oil Company Accountability Act," *The Washington Independent*, July 2010, <http://washingtonindependent.com/wp-content/uploads/2010/07/Reid-bill-draft.pdf>.

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on its August recess.¹⁴³ Since then, Senator Bingaman says he doubts Congress will pass any bill, including energy legislation, until after the November elections.¹⁴⁴

Many environmentalists and Democratic Senators were angered that a Renewable Energy Standard (RES) had been stripped from the bill. A RES would mandate that a certain percentage of electricity be produced from qualifying renewable sources, although previous versions have also allowed some of the target to be met with improved efficiency, generally as a way to not overly burden states that have lackluster renewable resources. A RES had been part of the Waxman-Markey legislation as well as an energy bill reported out by the Senate Energy and Natural Resources Committee in June 2009 called the American Clean Energy Leadership Act (ACELA) that received the support of four Republicans.¹⁴⁵ In the days after the failure of cap-and-trade and Reid's announcement of his modest energy package, 27 Democratic Senators sent Reid a letter arguing to reinstate an RES, although Reid said in July that he did not think it could attract 60 votes.¹⁴⁶ Senator Sam Brownback (R-KS), who is generally considered quite conservative but did vote to report ACELA out of committee, reiterated his support for ACELA's RES in July 2010, potentially signaling some Republican interest in the proposal.¹⁴⁷

The public is definitely more supportive of other types of energy legislation under consideration than it is of cap-and-trade, which roughly 50 percent support. The World Bank poll discussed before indicated the following were all more popular: preserving or expanding forested areas (75 percent), gradually increasing the requirements for fuel efficiency in automobiles (71 percent), limiting the rate of constructing coal-fired power plants, even if it increases energy costs (64 percent), and gradually reducing government subsidies that favor private transportation (62

¹⁴³ Katie Howell, "Oil-State Democrats Offer Separate Offshore Liability Bills After Failing to Compromise," *GreenWire*, August 6, 2010, <http://www.nytimes.com/gwire/2010/08/06/06greenwire-oil-state-democrats-offer-separate-offshore-li-34390.html>

¹⁴⁴ Darren Samuelsohn, "Bingaman: No Bills Before November," *Politico*, August 13, 2010, <http://www.politico.com/news/stories/0810/41025.html>

¹⁴⁵ Ben Geman, "Senate Committee Approves Broad Energy Package," *GreenWire*, June 17, 2009, <http://www.eenews.net/public/Greenwire/2009/06/17/1>

¹⁴⁶ Ben Geman, "Dems Press Reid to Put Renewable Power Standard in Energy Bill," *E2 Wire – The Hill's Energy & Environment Blog*, July 26, 2010, <http://thehill.com/blogs/e2-wire/677-e2-wire/110921-twenty-seven-dems-press-reid-to-put-renewable-power-standard-in-energy-bill>

¹⁴⁷ "Brownback Supports Renewable Energy Standard Title," Office of U.S. Senator Sam Brownback, July 26, 2010, <http://brownback.senate.gov/public/press/record.cfm?id=326696>

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percent).¹⁴⁸ It also found 82 percent of Americans thought the country has a responsibility to deal with climate change, with 73 percent agreeing even in the absence of a global accord. In addition, 62 percent were willing to pay at least 0.5 percent of GDP more on energy and products, 58 percent said the government is not doing enough to combat it, and 53 percent of Americans were willing to deal with the problem “even if it causes slower economic growth and some loss of jobs.” The annual Gallup Environmental poll conducted in March 2009 found 77 percent believing the government should increase financial support and incentives for producing alternative energy sources, such as wind and solar,¹⁴⁹ and 59 percent supporting nuclear power.¹⁵⁰ A Yale-George Mason poll from June 2010 found majorities of Americans in favor of various policies—87 percent for funding renewable energy research, 83 percent for providing tax rebates for efficient cars and solar panels, and 61 percent for requiring utilities to produce 20 percent clean energy.¹⁵¹ The only option that did not receive 50 percent support was a proposal to increase the tax on gasoline by 25 cents, which only 37 percent favored.

These levels of support match or exceed support for offshore drilling, especially in the wake of the Deepwater Horizon disaster. Before the Deepwater Horizon disaster, Americans showed increasing support for efforts to expand traditional fossil fuel production. For the first time, the 2010 Gallup Environmental poll, also taken in March, found more Americans who support the development of U.S. energy supplies (even if the environment suffers to some extent) than those who believe the protection of the environment should take precedence (even at the risk of limiting the amount of energy supplies such as oil, gas and coal).¹⁵² In the past 25 years, Americans always have supported more environmental protection, usually by about a 10-point margin, although the gap narrowed significantly last year. A December 2009 Rasmussen poll

¹⁴⁸ “Public,” 2009.

¹⁴⁹ Jeffrey Jones, “Americans on Energy: Promote Both New Sources and Old,” Gallup, March 13, 2009.

<http://www.gallup.com/poll/116713/americans-energy-promote-new-sources-old.aspx>

¹⁵⁰ Jeffrey Jones, “Support for Nuclear Energy Inches Up to New High,” Gallup, March 20, 2009.

<http://www.gallup.com/poll/117025/support-nuclear-energy-inches-new-high.aspx>

¹⁵¹ A. Leiserowitz, E. Maibach, C. Roser-Renouf, and N. Smith. “Climate Change in the American Mind: Public Support for Climate & Energy Policies in June 2010.” Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication.

<http://environment.yale.edu/climate/files/PolicySupportJune2010.pdf>

¹⁵² Jeffrey Jones, “Americans Prioritize Energy Over Environment for First Time,” Gallup, April 6, 2010.

<http://www.gallup.com/poll/127220/Americans-Prioritize-Energy-Environment-First-Time.aspx>

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found 60 percent of voters believed oil drilling should be allowed within 50 miles of the coast,¹⁵³ and the Pew Center has found between 63 and 68 percent in favor of allowing more offshore oil and gas drilling in U.S. waters.¹⁵⁴ This support for traditional sources of energy does have its limits. While a majority of Americans support more access to drilling, only 39 percent in Gallup's 2009 Environmental poll supported increasing financial support and incentives to traditional sources like oil and gas.¹⁵⁵

After the Deepwater Horizon disaster, support for offshore drilling fell slightly to 62 percent from 67 percent in the June 2010 Yale-George Mason poll.¹⁵⁶ The Gallup environment question asking Americans to balance the environment and the economy showed a dramatic reversal in late May during the Deepwater Horizon spill, with 55 percent believing the environment should be given priority.¹⁵⁷

There is a reasonable chance that the Senate will pass something before the new Congressional session begins in January. Waxman-Markey that the House passed is loaded with a tremendous number of provisions that traditionally have not been partisan, often because nobody other than the most devoted, obsessed lobbyists and wonks know they exist, and if the Senate passes any of them, President Obama can sign the legislation. However, the provisions ultimately passed may be quite insignificant. In this way, an analogy with COP15 is appropriate—at the end of the day, Obama and the Democratic leadership may be able to point to some energy-related accomplishment, but it will pale in comparison with the original goals.

Medium and Long-term

Democrats are guaranteed to lose a significant number of seats in the November midterm elections, and their losing control of one or both houses is a real possibility. With fewer

¹⁵³ "68% Favor Offshore Oil Drilling," Rasmussen Reports, December 16, 2009.

http://www.rasmussenreports.com/public_content/politics/current_events/offshore_drilling/68_favor_offshore_oil_drilling

¹⁵⁴ "Pew Research Center for the People & the Press: February 2010 Political Survey Final Topline," February 3-9, 2010. <http://people-press.org/reports/questionnaires/593.pdf>

¹⁵⁵ Jones, "Americans on Energy"

¹⁵⁶ A. Leiserowitz et al. 2010.

¹⁵⁷ Jeffrey M. Jones, "Oil Spill Alters Views on Environmental Protection," Gallup, May 27, 2010, <http://www.gallup.com/poll/137882/Oil-Spill-Alters-Views-Environmental-Protection.aspx>

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Democrats in Congress, there seems to be little chance that cap-and-trade will pass in the next two years. Pressures to take away power from the EPA will almost certainly increase. Only certain particular aspects of energy legislation with substantial Republican backing such as additional support for nuclear power would likely have any chance of passage in 2011 and 2012.

In the long-run, demographic changes suggest that support for cap-and-trade should increase over time. Those aged 18-29 are more likely to believe in human-induced global warming and think it is a very serious problem. In October 2009, Pew found that compared with the population as a whole, those aged 18-29 were 7 percentage points more likely to believe in solid evidence of warming (64 percent to 57 percent) and 11 percentage points more likely to believe the warming was due to human activities (47 percent to 36 percent) and that global warming was a very serious issue (46 percent to 35 percent).¹⁵⁸ Compared with senior citizens, the age group least likely to believe in or have strong concerns about warming, Pew found these gaps widened to between 14 and 22 percentage points. Gallup also found in March 2010 that those aged 18-29 were 11 percentage points less likely than the entire population to believe that news of climate change is exaggerated (36 percent to 47 percent). When ABC News/Washington Post in April 2009 asked whether greenhouse gases should be regulated, a policy that requires less knowledge to understand, those under 30 were somewhat more likely to agree than the population as a whole (80 percent to 75 percent).¹⁵⁹

Nevertheless, it is unclear how young adults' heightened concern translates into policy preferences. Pew found in October 2009 that those under 30 were no more likely to favor cap-and-trade and less likely to have heard anything about the policy. One issue may have been that a quite shocking 70 percent of those 18-29 had heard nothing of cap-and-trade.

Attitudes toward cap-and-trade may be fickle, and the current tendency for younger voters to support more liberal positions and consider themselves Democrats may not last. The gap between young adults and the public in terms of beliefs and concerns about global warming

¹⁵⁸ Detailed Tables for Fewer Americans See Solid Evidence of Global Warming – Modest Support for “Cap-and-Trade” Policy.” The Pew Research Center for the People & the Press. October 22, 2009. <http://people-press.org/reports/tables/556.pdf>

¹⁵⁹ “Changing Views on Social Issues: Allemande Left. Allemande Right.” ABC News/Washington Post. April 30, 2009. <http://abcnews.go.com/images/PollingUnit/1089a6HotButtonIssues.pdf>

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appears to be a quite recent phenomenon, only strongly appearing in 2009. Back in 2006, Pew found that while slightly more 18 to 29-year-olds believed climate change was due to human activity, fewer believed in solid evidence for warming.¹⁶⁰ A 2008 Pew survey found fewer who thought global warming was a very serious problem.¹⁶¹ Gallup polls from 2008 also found very few age-related differences.¹⁶²

At this point, the generational differences are not so large as to make it demographically inevitable that the government will eventually address carbon emissions directly. In contrast, many consider a policy like same-sex marriage to be inevitable in many parts of the country because those under 30 are so much more likely to support it—19 percentage points more likely than the public at large, according to a May 2009 Gallup poll (59 percent to 40 percent).¹⁶³ Some of the recent increased concern about global warming could also be a result of higher acceptance of Obama's policies; in the first half of 2010, those under 30 were about 10 percentage points more likely to approve of Obama's performance than the overall public.¹⁶⁴ Yet identification as a Democrat among adults born in 1981 or later dropped from 62 percent in 2008 to 54 percent in the fourth quarter of 2009, a much steeper fall than was seen among other age groups.¹⁶⁵

The data, despite the uncertainties, tend to support the notion that younger people are more concerned with climate change and more willing to address it. This suggests that even if legislation does not pass this year, it will remain on the agenda in the future. However, the differences by age group are small enough that relying on demographic change alone to reach a cap-and-trade bill may take decades.

¹⁶⁰ "Little Consensus on Global Warming." The Pew Research Center for the People & the Press. July 12, 2006. <http://people-press.org/report/280/little-consensus-on-global-warming>

¹⁶¹ Detailed Tables 2009.

¹⁶² Jones 2010.

¹⁶³ Jeffrey M. Jones, "Majority of Americans Continue to Oppose Gay Marriage." Gallup. May 27, 2009. <http://www.gallup.com/poll/118378/majority-americans-continue-oppose-gay-marriage.aspx> and Ben Smith "Is Gay Marriage 'Inevitable'?" *Politico*. December 9, 2009. <http://www.politico.com/news/stories/1209/30377.html>

¹⁶⁴ Gallup. <http://www.gallup.com/poll/124922/Presidential-Approval-Center.aspx>

¹⁶⁵ "Democrats' Edge Among Millennials Slips: A Pro-Government, Socially Liberal Generation," Pew Research Center for the People & the Press, February 18, 2010, <http://pewresearch.org/pubs/1497/democrats-edge-among-millennials-slips>

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Conclusions

The complexities of forging a global regime to address climate change are, to put it mildly, daunting. The technical obstacles are formidable. Governmental outlays will be significant. The economic costs of mitigation and adaptation—though the subject of analytic controversy—will be substantial.¹⁶⁶ The issue raises acute—and in many ways intractable—questions of equity between countries and over generations. The obstacles to international agreement are formidable: the absence of any robust international body to adjudicate disputes and impose sanctions creates powerful incentives to free ride. Crafting an effective global climate change regime surely represents one of the most difficult—and important—collective action problems in human history. International negotiations on global climate change, it must be stressed, do not occur in isolation. Sino-American cooperation on climate change, for instance, is just part of a broader bilateral relationship that includes economic tensions and geopolitical suspicion. WTO negotiations—currently stalled—will certainly not be made easier by differences on such issues as a carbon tariff.

The interplay of domestic and international policies makes the coordination problem all the more complex. The future of any climate change agreement depends, decisively, upon the balance of domestic political forces in major emitting countries, not least the United States. Here, the level of polarization bears huge risks. It lowers the possibility of a broadly bipartisan approach to climate change and raises the chances that any major proposal, even if passed, could be repudiated at a future date.

Policy Recommendations

In the past, the United States has successfully used a cap-and-trade regime to reduce acid rain.¹⁶⁷ The EU's experience with cap-and-trade has, admittedly, been mixed. The initial allocation of

¹⁶⁶ See <http://www.rff.org/documents/RFF-DP-06-06.pdf> for a primer on key issues related the economics of global climate change and mitigation. Important – and divergent – studies notably include the Stern Review on the Evidence of Climate Change (2006), a study sponsored by the British Government, available at <http://www.occ.gov.uk/activities/stern.htm>, and *Warming the World: Economic Models of Global Warming* by William D Nordhuas and Joseph Boyer (MIT Press: 2003).

¹⁶⁷ “Reducing Acid Rain,” U.S. EPA. <http://www.epa.gov/acidrain/reducing/index.html>

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permits was far too liberal and led to a collapse in the price of carbon. Though problems remain, the price of carbon per metric ton is now in the 10-15 Euro range—perhaps not high enough to suit environmentalists but still a substantial implicit levy on GHG emissions.¹⁶⁸ Were the United States to implement a cap-and-trade system, it would allow the U.S. to more easily participate in a global trading system. Not least, the absence of the U.S. cap-and-trade system would surely impair future efforts to encourage major less-developed countries to join a global regime of quantitative limits on GHG emissions. Existing cap-and-trade legislation—like Waxman-Markey—may be far less than optimal. It is riddled with special treatment for specific sectors and industries. In other words, it is the typical imperfect product of a legislative process.

The United States should be prepared to work for the second-best in international negotiations. Major developing GHG emitters such as China and India remain firmly opposed to binding absolute quantitative limits. But they can surely be encouraged to reduce the carbon intensity of their economies. Indeed, China has set targets to do so.

In addition, the U.S. should be prepared to explore alternatives to the current UN-centered approach to climate change negotiations. There is, needless to say, great value in the legitimacy conferred by consensus decision-making. But as the Copenhagen summit revealed, it can also be extraordinarily clumsy. Moises Naim, the editor of *Foreign Policy*, has endorsed a concept called “minilateralism.”¹⁶⁹ The idea is simple: bringing to the table the smallest number of players with the biggest possible impact. The Major Economies Forum on Energy and Climate, mentioned earlier, surely fits the bill. At a minimum, the Forum could be used to hammer out differences between major emitters before global summits. The idea of taking a multi-tiered approach to complex and sensitive foreign policy issues is hardly new. The United States, for instance, has long pursued trade policy through bilateral, regional, and global negotiations. This admittedly creates a very “messy” process at times. But the world is, when all is said and done, a very messy place.

¹⁶⁸ “EU ETS Intervention Call Howled Down,” Carbon Positive, February 9, 2010.

<http://www.carbonpositive.net/viewarticle.aspx?articleID=1873>

¹⁶⁹ Moises Naim, “Minilateralism: The Magic Number to Get Real International Action,” *Foreign Policy*, July/August 2009. <http://www.foreignpolicy.com/articles/2009/06/18/minilateralism>

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Appendix A

Table 1: Support for Cap-and-Trade

| Organization | Date | Number of Respondents | Percent Support | Percent Oppose |
|---|------------------|-----------------------|-----------------|----------------|
| Ipsos/McClatchy (4) | 12/3 – 12/6/09 | 1,120 | 52 | 41 |
| Ipsos/McClatchy (5) | 12/3 – 12/6/09 | 567 | 50 | 48 |
| Ipsos/McClatchy (6) | 12/3 – 12/6/09 | 567 | 69 | 29 |
| Ipsos/McClatchy (7) | 12/3 – 12/6/09 | 553 | 43 | 55 |
| Ipsos/McClatchy (8) | 12/3 – 12/6/09 | 553 | 60 | 36 |
| Associated Press/Stanford University (9) | 11/17 – 11/29/09 | 503 | 58 | 37 |
| Associated Press/Stanford University (10) | 11/17 – 11/29/09 | 502 | 50 | 47 |
| Washington Post/ABC News (1) | 11/12 – 11/15/09 | 1,001 | 53 | 42 |
| CNN/Opinion Research Corporation (2) | 10/16 – 10/18/09 | 1,038 | 60 | 37 |
| Washington Post/ABC News (1) | 8/13 – 8/17/09 | 1,001 | 52 | 43 |
| Washington Post/ABC News (3) | 8/13 – 8/17/09 | 500 | 58 | 40 |
| Washington Post/ABC News (11) | 8/13 – 8/17/09 | 500 | 39 | 59 |
| Washington Post/ABC News (1) | 6/18 – 6/21/09 | 1,001 | 52 | 42 |
| Washington Post/ABC News (3) | 6/18 – 6/21/09 | 500 | 56 | 42 |
| Washington Post/ABC News (11) | 6/18 – 6/21/09 | 500 | 44 | 54 |
| CNN/Opinion Research Corporation (12) | 4/23 – 4/26/09 | 1,014 | 44 | 51 |
| Washington Post/ABC News (1) | 7/23 – 7/28/08 | 1,001 | 59 | 34 |
| Washington Post/ABC News (3) | 7/23 – 7/28/08 | 500 | 57 | 41 |
| Washington Post/ABC News (11) | 7/23 – 7/28/08 | 500 | 47 | 51 |

Source: Polling Report, Inc., “Environment”

Guide: Green for surveys showing majority support for cap-and-trade and red for those with majority opposition

- (1) "There's a proposed system called 'cap-and-trade.' The government would issue permits limiting the amount of greenhouse gases companies can put out. Companies that did not use all their permits could sell them to other companies. The idea is that many companies would find ways to put out less greenhouse gases, because that would be cheaper than buying permits. Would you support or oppose this system?"
- (2) "Under a proposal called 'cap-and-trade,' the federal government would limit the amount of greenhouse gases that companies could produce in their factories or power plants. If companies exceeded those limits, they would either pay a fine or pay money to other companies that produced smaller amounts of greenhouse gases. Would you favor or oppose this proposal?"
- (3) "What if a cap-and-trade program significantly lowered greenhouse gases but raised your monthly electrical bill by 10 dollars a month? In that case would you support or oppose it?"
- (4) "There's a proposed system called 'cap-and-trade' that some say would lower the pollution levels that lead to global warming. With Cap and Trade, The government would issue permits limiting the amount of greenhouse gases companies can put out. Companies that did not use all their permits could sell them to

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- other companies. The idea is that many companies would find ways to put out less greenhouse gases, because that would be cheaper than buying permits. Would you support or oppose this system?"
- (5) "What if a cap-and-trade program significantly lowered greenhouse gases but raised your monthly electrical bill by 10 dollars a month? In that case would you support or oppose it?"
 - (6) "What if a cap-and-trade program raised your monthly electrical bill by 10 dollars a month but also created a significant number of 'GREEN' jobs in the United States? In that case would you support or oppose it?"
 - (7) "What if a cap-and-trade program significantly lowered greenhouse gases but raised your monthly electrical bill by 25 dollars a month? In that case would you support or oppose it?"
 - (8) "What if a cap-and-trade program raised your monthly electrical bill by 25 dollars a month but also created a significant number of 'GREEN' jobs in the United States? In that case would you support or oppose it?"
 - (9) "There's a proposed system called 'cap-and-trade.' The government would issue permits limiting the amount of greenhouse gases companies can put out. Companies that did not use all their permits could sell them to other companies. Companies that need more permits can buy them, or these companies can pay money to reduce the amount of greenhouse gases that other people or organizations put out. This will cause companies to figure out the cheapest way to reduce greenhouse gas emissions. Would you favor or oppose this system?"
 - (10) "There's a proposed system called 'cap-and-trade.' The government would issue permits limiting the amount of greenhouse gases companies can put out. Companies that did not use all their permits could sell them to other companies. The idea is that many companies would find ways to put out less greenhouse gases, because that would be cheaper than buying permits. Would you favor or oppose this system?"
 - (11) "What if a cap-and-trade program significantly lowered greenhouse gases but raised your monthly electrical bill by 25 dollars a month? In that case would you support or oppose it?"
 - (12) "A proposal called 'cap-and-trade' would allow the federal government to limit the emissions from industrial facilities such as power plants and factories that some people believe cause global warming. Companies that exceed the limit could avoid fines or higher taxes by paying money to other companies that produced fewer emissions than allowed. Would you favor or oppose this proposal?"