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NOVA LAW REVIEW

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INTRODUCTION:

CLIMATE DISRUPTION AND GOVERNMENTAL ACTION: APPROACHES, OBSTACLES, AND OPPORTUNITIES

JOEL A. MINTZ*

On February 6th and 7th, 2014, Nova Southeastern University and the Center for Progressive Reform co-sponsored a symposium on *New Directions in Energy Law and Policy, Climate Disruption and Sea Level Rise*. The gathering—which was held in Fort Lauderdale, Florida—featured presentations by an outstanding interdisciplinary group of scientists, legal scholars, federal, state and local government officials, representatives of non-governmental organizations and others, along with thoughtful questions and comments from the audience. Preparation of a written law review article was not made a prerequisite to speaking at the symposium, and—primarily due to other professional commitments—most of those who spoke on symposium panels chose not to summarize or expand their oral comments in a written piece. Nonetheless, three distinguished, nationally prominent legal scholars—Professors David Driesen, Joseph Tomain, and Thomas McGarity—followed up by submitting the articles that comprise this important issue of the *Nova Law Review*. In this brief symposium introduction, I will summarize some of the key points advanced by each of the article authors, note two themes that are common to their pieces, and discuss a few of the implications of their perceptive work.

In *Phasing Out Fossil Fuels*, David Driesen advances a powerful case for a planned and reasonably rapid phase out of fossil fuels. Noting that carbon dioxide ("CO2") emissions account for fully eighty percent of all greenhouse gas emissions—both in the United States and globally—that once emitted CO2 remains in the atmosphere for centuries, and that fossil fuels cause immense problems wholly apart from their impacts on climate, Driesen argues that the predicted and possible consequences of climate disruption are simply too serious to permit a very gradual shift to a carbon free economy.

Professor Driesen soundly rejects the theory that any phase out of fossil fuels should set emission targets or prices designed to equalize costs and benefits at the margins. He perceptively observes that cost-benefit analysis does not provide a useful guide to policy since the costs and benefits of particular mitigation measures cannot be quantified with precision; and it is morally unacceptable to refuse to prevent deaths in developing—and some developed—countries because prevention would be too costly. Instead,

Driesen calls for a focus on *distribution* of the costs of phasing out fossil fuels, including particularly the hardships this needed policy might create for individuals who are employed in the fossil fuels industry, and for energy consumers. He advocates the use of emission trading to phase out fossil fuels. He also suggests the enactment of an *environmental competition statute*—legislation that would allow facilities reducing their carbon emissions to collect the cost of their emission reductions from competitors with higher carbon emissions—as a spur to technological innovation in the control of CO2.

With regard to the politics of phasing out fossil fuels, Professor Driesen advises environmental leaders to make the phasing out of fossil fuels part of a rhetorical strategy that prepares the American public for much more significant changes than are now politically feasible. However, he concedes that it is not possible for anybody to *prove* a view about what political strategy is best, and he views his own strategic recommendation as simply a starting point for further discussion.

In contrast with David Driesen's article, Professor Thomas McGarity's illuminating piece, *The Disruptive Politics of Climate Disruption*, focuses less on the normative question of what the energy policy approach of the United States *should* be, and far more on the sobering realities of national climate disruption politics. In a remarkably comprehensive, detailed, and well-documented way he describes five failed attempts by supporters of a federal program to reduce greenhouse gas emissions to move legislation through Congress. These include the Clinton administration's proposed BTU tax, Senator Jim Jeffords' four pollutant bill, the Lieberman-Warner proposal, and the Waxman-Markey and Kerry-Lieberman-Graham bills. In each instance, Professor McGarity demonstrates coordinated, well-funded, ideologically-driven campaigns—conducted by the business community, a small coterie of conservative funders, and various foundations and institutions that they created—that successfully forestalled the passage of climate disruption legislation.

McGarity carefully analyzes the lessons to be learned by environmental advocates from these successive legislative defeats. He observes that the political *infrastructures* that the business community has erected over the past thirty-five years have had a powerful influence on both public opinion and the sentiments of federal elected officials. Due to those efforts, America is now deeply divided on numerous issues—certainly including climate disruption; and many Americans are now persuaded that climate disruption is neither caused by humans nor a genuine threat, and that the government should not interfere in private economic arrangements. The business community has adeptly taken advantage of regional differences and made effective use of ginned up *grassroots* organizations. Moreover,

although they have experienced internal difficulties, business interests have generally remained unified in their political positions regarding climate disruption legislation.

McGarity notes that—like the general public—the two major national political parties are now substantially divided along ideological lines. While Democratic leaders in Congress have experienced great difficulty corralling enough votes to get mandatory climate disruption bills through committees and past floor votes, Republican congressional leaders have been able to persuade nearly all of their party's members to vote against all such proposals as a bloc. Additionally, major environmental organizations supporting anti-climate disruption bills have been repeatedly *outgunned and outclassed* by the sophisticated, well-resourced efforts of lobbyists and public relations experts working to further the positions of industry. Furthermore, notwithstanding its profoundly harmful impacts, climate disruption is too gradual a process to create the sort of crisis atmosphere among the public that is likely to generate Congressional action.

Given these various considerations, Professor McGarity concludes that Congress is not likely to enact national anti-climate disruption legislation for some time to come. And even if such legislation somehow does emerge, it will probably contain a jumble of conflicting provisions that may not actually reduce greenhouse gas emissions in an effective way.

Unlike the Driesen and McGarity articles, Professor Joseph Tomain's well-reasoned article concentrates on investor owned electric utility companies and state public utility commissions. He argues that the utilities must recognize the realities of enormous shifts in the electricity market, create new business models, and join with state regulators to create a new regulatory compact.

As Professor Tomain's piece lucidly describes, the demand for centrally generated electricity has fallen very considerably since the early 1990s, and it is projected to decline much further in coming years. This trend is the result of a combination of factors, including competition from new technologies, increases in energy efficiency, lifestyle changes among energy consumers, and certain shifts in federal and state regulatory requirements. At the same time, electric utilities are now called upon to make significant new investments in order to upgrade the current grid, to develop and use new technologies, and to promote interconnections with renewable resources. To meet these new challenges, Tomain contends, a new set of regulatory principles is now urgently needed.

More specifically, Joseph Tomain proposes five new precepts as a general guide to state regulation of utilities. First, he writes, utilities should not be required to incur "stranded costs," i.e. excess costs due to regulatory or policy changes that force utilities to lose customers. Simultaneously,

however, universal electric service must be maintained by the utilities. Third, traditional cost-of-service rulemaking should not be used to allow utilities to build coal-fired plants or projects based on nuclear power. Fourth, competition and the development of innovative energy technologies—including technologies friendly to distributed generation of energy and the development of solar, wind, and other renewable energy projects—must be encouraged. Finally, public utility commissions should encourage electric utilities to adopt new business models that are more in sync with a rapidly shifting electricity marketplace.

Professor Tomain argues for some significant departures from traditional ratemaking practices. He favors rate designs that base utility rates on factors other than the volume of electricity sales, such as the number of customers that a utility serves, and the sums that the utility has invested in smart grids, energy audits, smart meters, and the like. He also favors regular, mandatory reviews of the *prudence* of utility capital investments, and state regulatory assessments of the need for power, before investments are made in new large-scale utility construction projects.

Finally, Tomain urges investor-owned utilities to place their emphasis on distribution and customer service instead of on generating electricity. In his view, utilities should evolve into the managers of a modern infrastructure system. In the future, their focus should be on providing financial products for firms that wish to install distributed energy technology, develop and provide energy storage, and promote distributed generation and energy efficiency retrofits.

Although the three articles that form this symposium issue concern quite disparate aspects of the policy and politics of climate disruption, upon close examination two common themes are evident. First, each of the article authors either identifies or presumes a very clear need for a change in the status quo. Professor Driesen identifies a need for a reasonably rapid phasing out of fossil fuels at the national level and assays its implications. Professor Tomain urges a new regulatory regime and a new business model for electric utilities that responds to the realities of climate disruption. And, although his article is primarily historical and empirical, Professor McGarity also identifies a need for new legislation to curb climate disruption, writing that the impact of human greenhouse gas emissions "may well be the most profound environmental problem that the civilized world has ever encountered."

Secondly, all three authors note the need for a meaningful *governmental* role in curbing climate disruption. Driesen takes the view that climate disruption poses *problems of coordination* that make it *unsolvable* without a significant government role; and he proposes profound changes in our national approach to energy policy. McGarity assesses the prospects for

national legislative change through the enactment of a federal statute to curb greenhouse gas emissions; and Tomain argues for new directions in state administrative regulation of electric utilities.

Beyond these similarities, the three fine articles in this symposium issue also imply some less obvious conclusions. Given the dismal prospects for the enactment of federal legislation to curb climate disruption demonstrated in Professor McGarity's piece, it may well be that those concerned with this grave and burgeoning threat should focus, to an increased extent, on pressing for policy changes among the *states*, rather than at the national level. Professor Tomain's recommendations, of course, already emphasize a need for regulatory reforms by state electric utility regulators and state legislatures. Although Professor Driesen's provocative energy policy recommendations would clearly be most effective on a national—if not an international—level, their adoption by state legislators and regulators, and environmental non-governmental organizations, would nonetheless count as a forward step toward a carbon free economy.

In addition, given the ongoing political obstacles to reforming governmental energy policies among some U.S. states and in the federal government, these symposium articles seem to imply a need for climate disruption opponents to concentrate more on persuading non-governmental actors to make helpful changes. Thus, for example, environmental advocates may wish to improve their relationship with the news media generally and with television weather reporters in particular. Much of what the public learns about disastrous climate disruption-related events is gleaned from the reports of television meteorologists. If weathercasters noted that particular severe droughts, floods, and cyclonic storms are consistent with well-supported scientific studies that predict an increase in human caused weather-related disasters—even though no individual weather event may be directly linked to climate disruption—public awareness of the perils of climate disruption may be significantly increased. Patient relationship-building with television weather reporters, and their editors and producers, might persuade some of them to adopt that progressive approach.

Anti-climate disruption advocates will also do well to *friend raise* among business enterprises that already recognize the acute dangers posed by global climate disruption. Even though few such companies have thus far been willing to break openly with the anti-regulation/anti-government positions espoused by the business community, over time some anti-climate disruption business leaders may find the courage to do so. Their political support would certainly be of benefit. Along the same lines, quiet discussions with leaders of electric utility companies might persuade a number of them to modernize their business models along the sensible lines recommended by Professor Tomain.

All in all, the outstanding articles contained in this symposium issue provide a rich sampling of the sorts of careful research, thorough analysis, and creative thought that is much needed in discussions of climate disruption and public energy policy. Each one is a valuable contribution to the field. I hope these top-notch symposium articles will provoke your thought, stir your conscience, and benefit your work.

THE DISRUPTIVE POLITICS OF CLIMATE DISRUPTION

THOMAS O. MCGARITY*

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I. INTRODUCTION

The impact of anthropogenic emissions of carbon dioxide and other greenhouse gases ("GHG"s) on the Earth's climate may well be the most profound environmental problem that the civilized world has ever encountered. Since the United States has until quite recently been the largest emitter of greenhouse gases, its efforts to ameliorate climate disruption by reducing those emissions have been of considerable interest to its citizens

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and the rest of the world's inhabitants.[1] Yet, it has done very little to reduce GHG emissions until very recently, and even those initial steps have been tiny in comparison to what reputable scientists say is needed to mitigate climate change. In the years since climate disruption became a serious political issue in the late 1980s, supporters of a federal program to reduce GHG emissions have made five serious attempts to move legislation through Congress—the Clinton Administration's British Thermal Unit ("BTU") tax in the 103rd Congress, Senator Jim Jeffords' four-pollutant Bill in the 107th Congress, the Lieberman-Warner Bill in the 110th Congress, and the Waxman-Markey and Kerry-Lieberman-Graham Bills in the 111th Congress.[2] All five of these efforts failed.[3]

This article will examine these five major legislative initiatives with an eye toward extracting lessons for future efforts to enact major environmental legislation. While there are many reasons for Congress' failure to enact climate disruption legislation, including concerns about the underlying science and the efficacy of proceeding ahead in the absence of commitments from other massive GHG emitters like China and India,[4] I will argue that one powerful explanation lies in a thirty-five-year war against government regulation waged by the business community, several prominent conservative foundations, and the institutions that they created and nourished. I will show how these institutions played a prominent role in defeating climate disruption legislation, even when the business community's solid opposition to climate disruption appeared to be dissolving as some companies accepted the reality of climate disruption and amended

1. Anup Shah, *Climate Change and Global Warming Introduction*, GLOBAL ISSUES (Nov. 11, 2013), http://www.globalissues.org/article/233/climate-change-and-global-warming-introduction.

2. *See infra* Part III.

3. Stephen Power, *Senate Halts Effort to Cap Emissions—Democrats Forgo Centerpiece of President Obama's Energy Plan, As Cap-and-Trade Fails to Lure Broad Poiltical Support*, WALL ST. J., July 23, 2010, at A3 [hereinafter Power, *Senate Halts Effort to Cap Emissions*]; *Death of Energy Tax Makes Carbon Levy, Other Environmental Taxes Less Likely*, UTIL. ENV'T REP., Aug. 6, 1993, at 12, *available at* http://www.lexisnexis.com; Eric Pooley, *Why the Climate Bill Failed*, TIME (June 9, 2008), http://content.time.com/time/nation/article/0,8599,1812836,00.html; *S. 556 (107th): Clean Power Act of 2002: Overview*, GOVTRACK.US, https://www.govtrack.us/congress/bills/107/s556 (last visited Mar. 30, 2014); *111th Congress Climate Change Legislation*, CENTER FOR CLIMATE & ENERGY SOLUTIONS, http://www.c2es.org/federal/congress/111 (last visited Mar. 30, 2014).

4. *See* James Parker-Flynn, *The Fraudulent Misrepresentation of Climate Science*, 43 ENVTL. L. REP. 11098, 11118 (2013); Juliet Eilperin & David A. Fahrenthold, *Missteps Weigh on Agenda for Climate; Academic Breaches, Flaws in Seminal Report Feed Doubts on Warming*, WASH. POST, Feb. 15, 2010, at A1; David Bennett, *Cap and Trade—Tough Questions*, DELTA FARM PRESS (July 30, 2009), http://deltafarmpress.com/print/management/cap-and-trade-tough-questions.

their business models accordingly, while others saw opportunities to profit or gain competitive advantage from such legislation.[5]

My thesis is that the institutions that trade associations and conservative funders created and continue to create have by-and-large remained true to a laissez faire minimalist prescription for the nation's economy, and they are therefore unalterably opposed to legislation that would subject greenhouse gas emitters to government-imposed controls, even when such controls might serve the economic interests of a substantial number of businesses. This adamant opposition, which has in turn influenced members of Congress from both political parties, has effectively forestalled climate disruption legislation. I will further argue that the presence of these powerful negative voices in the legislative debates proved to be of great strategic value to companies that preferred that Congress not enact any legislation, but wanted a place at the table when Congress was shaping the bills that would greatly affect their interests if they became law. Hence, the fractures in the business community are not likely to affect the vitality of these institutions in the foreseeable future.

Part II of this article will briefly describe the Laissez-Faire Revival that I document in my book—*Freedom to Harm*—by highlighting the institutions that the business community and conservative funders created to resist progressive governmental initiatives like climate disruption legislation.[6] Part III will describe the five attempts to enact climate disruption legislation and detail the role those institutions played in defeating each of those initiatives. Part IV will explore some of the lessons that we can learn from these failed attempts. The article reaches the rather discouraging conclusion that strong climate disruption legislation is not likely to emerge from a deeply divided Congress that reflects the deep divisions in the current political culture over the proper role of government in today's economy.

II. THE LAISSEZ FAIRE REVIVAL

The Laissez Faire Revival began in the late 1970s as a reaction against the progressive legislation that Congress enacted during the late 1960s and early 1970s to protect consumers, workers, and the environment

5. *See* Reena Jana, *The Business Benefits of Going Green*, BLOOMBERG BUSINESSWEEK (June 22, 2007), http://www.businessweek.com/stories/2007-06-22/the-business-benefits-of-going-greenbusinessweek-business-news-stock-market-and-financial-advice.

6. THOMAS O. MCGARITY, FREEDOM TO HARM: THE LASTING LEGACY OF THE LAISSEZ FAIRE REVIVAL 6 (2013).

from risky products and business practices.[7] Several wealthy conservative benefactors spent millions of dollars to create an *idea infrastructure* consisting of think tanks and free enterprise centers in universities and law schools.[8] Financed largely through conservative foundations and corporate contributions, this idea infrastructure conducted an *air war* against federal regulation in books, scholarly journals, magazines, white papers, internet blogs, op-ed columns, media interviews, and talk shows.[9] Three think tanks that played prominent roles in the climate disruption battles were the Heritage Foundation, the Competitive Enterprise Institute ("CEI"), and the George C. Marshall Institute.[10]

The business community also created an *influence infrastructure* to conduct the *ground war* against regulation in the regulatory agencies and Congress.[11] The most visible of the ground troops during the climate wars were the U.S. Chamber of Commerce ("CoC") and the National Association of Manufacturers ("NAM").[12] Less visible, but still highly influential were the so-called *astroturf* grassroots organizations that trade associations and conservative funders created to run advertising campaigns in the districts of *swing* members of Congress, sponsor local rallies, and generate phone calls, letters, and emails to members of Congress.[13] Some of these organizations, like the American Energy Alliance ("AEA"), Citizens for a Sound Economy ("CSE"), and Americans for Prosperity, were permanent institutions that fought in many wars.[14] Others were created on an *ad hoc* basis by public relations firms working for companies and trade associations to conduct focused campaigns against particular legislative initiatives.[15] Another critical component of the influence infrastructure was an extremely effective media echo chamber for influencing the content of news and political commentary at both the national and local levels.[16] Two highly influential

7. *Id.* at 5.
8. *Id.* at 40.
9. *See id.* at 41–56.
10. *Id.* at 247; Parker-Flynn, *supra* note 4, at 11100.
11. MCGARITY, *supra* note 6, at 57.
12. *Id.* at 60.
13. *Id.* at 58–59.
14. *See id.* at 59; Robert Parry, *What Wouldn't Bob Do for Koch Oil?*, NATION, Aug. 26–Sept. 2, 1996, at 11, 13–14; Peter H. Stone, *Grass-Roots Goliath*, NAT'L J., July 13, 1996, at 1529, 1530. "Established in 1984 by George Mason University economics professor Richard Fink with funding from the David H. Koch Foundation," CSE was a sophisticated Astroturf grassroots operation committed to "'lower taxes, less spending, less regulation, and free trade.'" MCGARITY, *supra* note 6, at 58; Stone, *supra* note 14, at 1530.
15. MCGARITY, *supra* note 6, at 33.
16. *See* KATHLEEN HALL JAMIESON & JOSEPH N. CAPPELLA, ECHO CHAMBER: RUSH LIMBAUGH AND THE CONSERVATIVE MEDIA ESTABLISHMENT 20 (2008); JOHN MICKLETHWAIT & ADRIAN WOOLDRIDGE, THE RIGHT NATION: CONSERVATIVE POWER IN

pro-business media outlets were Rupert Murdoch's News Corporation and David Smith's Sinclair Broadcast Group, both of which hosted commentators, like Rush Limbaugh and Steve Milloy, who preached a populist-flavored laissez faire minimalist message to millions of viewers and listeners and provided ready access to conservative think tank scholars.[17]

With strong idea and influence infrastructures in place, the business community launched three powerful assaults on the protective governmental infrastructure that Congress established during the Progressive Era, New Deal Era, and Public Interest Eras.[18] Those assaults have thus far failed to achieve their fundamental goal of repealing the landmark environmental and consumer protection statutes of the 1970s, but the business community's idea infrastructure has been remarkably successful in shaping public attitudes toward government regulation in society.[19] After a 35-year barrage of anti-regulation rhetoric, many Americans have lost faith in the capacity of government to protect it from the vicissitudes of the marketplace.

The business community has never been monolithic in its opposition to federal regulation.[20] Pollution control technology vendors, for example, have not always been strong supporters of the CoC's fierce attacks on Environmental Protection Agency ("EPA") regulations.[21] Indeed, the fact that the bedrock regulatory statutes have survived may, in part, be attributable to an understanding on the part of influential members of the business community that the appearance of a protective governmental infrastructure is necessary to maintain the public's perception that it is not wholly at the mercy of unconstrained economic forces, and that perception, in turn, is necessary to maintain a stable economic structure within which businesses can thrive.[22] During the past few years, there has been a highly visible split in the business community on the issue of global warming that

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AMERICA 162 (2004); Patricia J. Williams, *The Disquieted American*, NATION, May 26, 2003, at 9. *Compare Distorting Climate Change Findings on KCOL, James Guest Said Gore's "Global Warming Crusade Is a Lot Like Eugenics Was in the '20s and '30s,"* MEDIA MATTERS FOR AM. (Oct. 24, 2007, 5:02 PM), http://www.mediamatters.org/research/2007/10/24/distorting-climate-change-findings-on-kcol-jame/141487, *with Company Profile*, SINCLAIR BROADCAST GROUP, http://www.sbgi.net/about/profile.shtml (last visited Mar. 30, 2014).

17. DAVID BROCK, THE REPUBLICAN NOISE MACHINE: RIGHT-WING MEDIA AND HOW IT CORRUPTS DEMOCRACY 171 (2004); JAMIESON & CAPPELLA, *supra* note 16, at 46; MICKLETHWAIT & WOOLDRIDGE, *supra* note 16, at 162; *Distorting Climate Change Findings on KCOL, James Guest Said Gore's "Global Warming Crusade Is a Lot Like Eugenics Was in the '20s and '30s," supra* note 16.

18. MCGARITY, *supra* note 6, at 6, 60–61.

19. *See id.* at 61.

20. *See id.* at 39–40, 61.

21. *See* Elizabeth Williamson, *Climate Issues Divide U.S. Chamber of Commerce, Big Members*, WALL ST. J., Apr. 17, 2008, at A6.

22. *See* MCGARITY, *supra* note 6, at 5–6.

goes deeper than the fraying at the edges that might be expected in any large organization putatively devoted to a single cause.[23] The following description of the battles over climate change legislation will highlight these divisions and evaluate their significance.

III. THE ASSAULTS ON CLIMATE CHANGE REGULATION

Climate disruption became a salient public policy issue in the mid-1980s as scientists verified the reality of human activity-induced global warming and called for increased energy efficiency to reduce GHG emissions.[24] During his 1988 campaign to be the nation's first *environmental president*, candidate George H.W. Bush promised to take action to address global warming.[25] Soon after his inauguration, the EPA delivered a report to Congress proposing bold action, including fees on coal, oil, and natural gas to discourage future use of those fossil fuels in producing electricity.[26] A panel of experts assembled by the National Academies of Sciences urged the federal government to take concrete steps to reduce GHG emissions, including raising energy taxes and enacting mandatory efficiency standards.[27]

The business community responded to these developments with a coordinated campaign to sew doubt in the minds of policymakers and the public about the scientific basis of global warming predictions.[28] Relying heavily on think-tanks and a small group of mostly industry-funded scientists in academia, the electric utility and manufacturing industries sponsored an effective public relations campaign to persuade Congress not to enact legislation requiring mandatory GHG reductions.[29] The Global Climate

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23. *Industry Fractures on Climate Policy*, ELECTRICITY J., Dec. 2009, at 1, 1, 5–6.

24. *See* Erik Eckholm, *New Predictions See Rise in CO2 Transforming Earth*, N.Y. TIMES, Aug. 7, 1984, at C1; Philip Shabecoff, *Major 'Greenhouse' Impact Is Unavoidable, Experts Say*, N.Y. TIMES, July 19, 1988, at C1 [hereinafter Shabecoff, *Major 'Greenhouse' Impact Is Unavoidable, Experts Say*].

25. MCGARITY, *supra* note 6, at 108.

26. Philip Shabecoff, *E.P.A. Proposes Rules to Curb Warming*, N.Y. TIMES, Mar. 14, 1989, at C7.

27. Rudy Abramson, *Prompt Action to Curb Global Warming Urged Environment: Science Panel Says U.S. Could Cut 'Greenhouse' Pollution 40% with Little Economic Cost*, L.A. TIMES, Apr. 11, 1991, at 1.

28. ROSS GELBSPAN, THE HEAT IS ON: THE CLIMATE CRISIS; THE COVER-UP; THE PRESCRIPTION 9, 19, 31 (1998); SHELDON RAMPTON & JOHN STAUBER, TRUST US, WE'RE EXPERTS! HOW INDUSTRY MANIPULATES SCIENCE AND GAMBLES WITH YOUR FUTURE 272 (2001).

29. GELBSPAN, *supra* note 28, at 9, 19, 31; RAMPTON & STAUBER, *supra* note 28, at 270.

Coalition ("GCC") was created in 1989, comprising of the CoC, the NAM, and the auto and energy industries to lobby against climate change legislation.[30] In 1991, the National Coal Association ("NCA"), the Western Fuels Association, the Edison Electric Institute ("EEI"), and trade associations for the coal, oil and gas, and electric utility industries, created a group called the Information Council on the Environment ("ICE") which "launched a[n] . . . advertising and public relations [effort] to . . . 'reposition global warming as theory—not fact.'"[31] The public relations firm it hired arranged for the sympathetic scientists on its advisory board to appear in broadcast appearances, op-ed pages, and newspaper interviews.[32] Faced with this strong opposition from the business community, the Bush Administration did not seriously attempt to fulfill the president's campaign promise.[33]

Toward the end of the Bush Administration, however, a thin fracture line began to develop in the business community's opposition to climate disruption regulation as the American Gas Association ("AGA")—a trade association of natural gas producers and distributors—joined the Solar Energy Industries Association in sponsoring a study concluding that the United States could reduce GHG emissions and increase employment by moving rapidly to natural gas-fired power plants, renewable energy, and high-efficiency technologies.[34]

A. *The BTU Tax in the 103rd Congress*

The Clinton Administration hit the ground running with a proposal for a tax on energy consumption as part of the Administration's broader legislative effort to balance the federal budget and stimulate the economy.[35] During the first two weeks of January 1993, transition officials debated whether the tax should be on the carbon content of all fuels—a *carbon tax*—or the heating value of all fuels—a *BTU tax*.[36] The BTU tax offered a weaker incentive to move toward renewable energy than a carbon tax, which would not have affected dams, solar energy generators, or nuclear power

30. RAMPTON & STAUBER, *supra* note 28, at 270; Margaret E. Kriz, *Warm-Button Issue*, NAT'L J., Feb. 8, 1992, at 319, 322 (1992) [hereinafter Kriz, *Warm-Button Issue*].

31. RAMPTON & STAUBER, *supra* note 28, at 272.

32. *Id.* at 272–73.

33. Kriz, *Warm-Button Issue*, *supra* note 30, at 319, 320.

34. Margaret E. Kriz, *The New Eco-nomics*, NAT'L J., May 30, 1992.

35. *Gas a Winner in Tax Debate*, PLATTS INT'L GAS REP., Feb. 5, 1993, *available at* http://www.lexisnexis.com.

36. David Hage & Sara Collins, *Pointing to Tax Increases*, U.S. NEWS & WORLD REP., Feb. 8, 1993, at 46; *Gas a Winner in Tax Debate*, *supra* note 35.

plants.[37] Environmental groups therefore favored the carbon tax.[38] The coal industry and coal-burning utility companies, however, strongly opposed the carbon tax, arguing that it would result in substantial price increases for coal compared to natural gas and sources of energy that did not burn fossil fuels.[39] Both energy taxes were more attractive to the incoming administration than an addition to the federal gasoline tax, which would have been immediately noticeable to consumers.[40] Since the Democratic Party controlled the White House and both houses during the 103rd Congress, supporters of an energy tax were optimistic.[41]

Both the energy industry and industries that were large consumers of energy were united in their opposition to any new energy taxes.[42] The EEI, the primary trade association for the electric utility industry, prepared a set of economic analyses of several variations of energy taxes and presented them to members of the transition team and incoming Energy Secretary Hazel O'Leary.[43] The industry argued that any tax capable of reducing GHG emissions would have to be so high that it would have an undesirable impact on the economy and a disproportionate impact on the poor.[44] The CoC also took an uncompromising stand against any energy tax.[45] Long before the Clinton Administration drafted proposed legislation, industry lobbyists and Astroturf grassroots groups were meeting with—and phoning and sending emails to—White House officials and members of Congress, urging them to stop the energy tax in its tracks.[46] The President publicly complained that

37. Hage & Collins, *supra* note 36; Matthew L. Wald, *Pondering an Energy Tax That Can't Please All the People: Experts See Three Practical Ways to Levy a 'Broad-Based' Tax*, N.Y. TIMES, Jan. 31, 1993, at F10.

38. Hage & Collins, *supra* note 36; Wald, *supra* note 37.

39. Hage & Collins, *supra* note 36 (referencing coal-producing state opposition); Wald, *supra* note 37.

40. Eric Pianin & Thomas W. Lippman, *Energy Tax Suggestions Propel Opponents to the Barricades; Coalitions of Interests Make Enactment Difficult, Analysts Say*, WASH. POST, Feb. 5, 1993, at A10; David Wessel & Rick Wartzman, *Energy Interests Mobilize Against a New Tax, But Real Fight May Focus on What Form It Takes*, WALL ST. J., Jan. 26, 1993, at A16.

41. Michael Weisskopf & Steven Mufson, *Lobbyists in Full Swing on Tax Plan; Some Groups Already Have Shaped Policy*, WASH. POST, Feb. 17, 1993, at A1.

42. Viveca Novak, *An Energy Tax? Ok, If It's Not on Us*, NAT'L J., Feb. 13, 1993; Wessel & Wartzman, *supra* note 40.

43. *Industry Repeats Opposition to Taxes as White House Floats Trial Balloon*, UTIL. ENV'T REP., Feb. 5, 1993, at 3, *available at* 1993 WLNR 1739616.

44. *Id.*; *Utilities, Automakers Note Comments by O'Leary That Energy Tax May Be Delayed*, NAT'L ENV'T DAILY (BNA), Jan. 25, 1993 (quoting Alan Richardson, American Public Power Association).

45. Pianin & Lippman, *supra* note 40.

46. Weisskopf & Mufson, *supra* note 41; Michael Wines, *Clinton Makes Lobbyists a Target in Opening Battle over Tax Rise*, N.Y. TIMES, Feb. 17, 1993, at A15.

opponents of the carbon tax "ha[d] already lined the corridors of power with high-priced lobbyists."[47]

In late January, Secretary of Treasury Lloyd Bentsen announced that the incoming Administration was considering an energy tax, and the major players in the business community's influence infrastructure sprang into action to shoot down the trial balloon.[48] The American Petroleum Institute ("API") hosted a well-attended gathering for all interested companies and trade associations at which the message was "[l]et's not fight each other."[49] The GCC circulated reports concluding that an energy tax would increase unemployment and precipitate an economic downturn.[50] A brand new association of public utility companies calling itself the Alliance Against a Carbon Tax conducted grassroots organizing and lobbying against the tax.[51] A Denver-based think tank called the Center for a New West contracted for studies concluding that a carbon tax would cause regional imbalances and put more than 600,000 jobs at risk.[52] Nearly all electric utility companies opposed any tax on electrical energy,[53] but Southern California Edison—a large utility company that had already invested heavily in natural gas facilities—supported a BTU tax.[54]

On February 17, 1993, President Clinton announced a *four-year blueprint* for stimulating the American economy that included, among its many revenue-enhancing provisions, a BTU tax on nearly all fuels.[55] The decision to go with a BTU tax, rather than a carbon tax, reflected the Administration's determination to make the proposal as palatable as possible to Democrats from coal-producing states by spreading the burden to other

47. Wines, *supra* note 46.

48. *Industry Repeats Opposition to Taxes as White House Floats Trial Balloon*, *supra* note 43; Pianin & Lippman, *supra* note 40.

49. Novak, *supra* note 42.

50. *Id.*; Pianin & Lippman, *supra* note 40.

51. Novak, *supra* note 42.

52. *Carbon Tax Could Harm Economy, Environment, Think Tank Studies Claim*, NAT'L ENV'T DAILY (BNA), Feb. 16, 1993.

53. *See Death of Energy Tax Makes Carbon Levy, Other Environmental Taxes Less Likely*, *supra* note 3.

54. *AES' Sant Backs Energy Tax, Citing Environmental, Efficiency Benefits*, UTIL. ENV'T REP., Apr. 2, 1993, at 13, *available at* http://www.lexisnexis.com.

55. Thomas W. Lippman, *Energy Tax Would Touch All; Yearly Cost Estimated at Up to $150 Per Household*, WASH. POST, Feb. 18, 1993, at A1 [hereinafter Lippman, *Energy Tax Would Touch All*]; Ruth Marcus & Ann Devroy, *Asking Americans to 'Face Facts,' Clinton Presents Plan to Raise Taxes, Cut Deficit*, WASH. POST, Feb. 18, 1993, at A1.

fuels, including nuclear and hydroelectric power.[56] Yet, in a victory for environmental groups, the proposal exempted wind and solar power from the tax.[57] The Bill also included additional funding for the federal low-income energy assistance program to offset some of the adverse effect on low-income Americans.[58] Since the tax would be hidden in gas, electric, and fuel bills, most Americans would probably not notice that they were paying it.[59] The Department of Energy ("DOE") predicted that the tax would result in the reduction of GHG emissions by about 25 million tons per year.[60]

Environmental groups supported the proposal.[61] Although they favored a carbon tax, they were persuaded by Treasury Secretary Bentsen that it was politically infeasible.[62] They worried that the tax rate was too low to result in a reduction of GHG emissions to 1990 levels by 2000, but they decided that any increase in the cost of fossil fuels would encourage power plants to consider moving to renewable sources of energy.[63] And they were pleased that President Clinton had chosen the BTU tax over a gasoline tax.[64] Consumer groups were dubious about the tax because of its regressive effects on low-income consumers.[65] But they applauded the provisions in the proposal ensuring that low-income consumers did not bear a disproportionate burden of the tax.[66] They warned regulated utility companies that if they tried to persuade state public utility commissions to allow them to pass the tax through to consumers, the groups would argue that the companies already

56. Margaret Kriz, *A Green Tax?*, NAT'L J., Apr. 17, 1997; *Energy Tax Focuses on Raising Money, Ignores Costs, Officials Growl*, PLATTS INSIDE FERC, Feb. 22, 1993, at 1, *available at* 1993 WLNR 1748628.

57. Lippman, *Energy Tax Would Touch All*, *supra* note 55.

58. *Id.*; *Clinton Plan: BTU's Bearing the Brunt*, PLATTS OILGRAM NEWS, Feb. 18, 1993, at 1, *available at* http://www.lexisnexis.com.

59. Lippman, *Energy Tax Would Touch All*, *supra* note 55.

60. *Clinton Plan: BTU's Bearing the Brunt*, *supra* note 58.

61. *Environmental Groups Flex for Industry Opposition to BTU Tax*, NAT'L ENV'T DAILY (BNA), Feb. 22, 1993 (quoting Dan Lashof, National Resources Defense Council ("NRDC")); Thomas W. Lippman, *Energy Tax Proposal Has 'Green' Tint; Environmentalists Back Plan They Helped Draft*, WASH. POST, Mar. 2, 1993, at D1 [hereinafter Lippman, *Energy Tax Proposal Has 'Green' Tint*].

62. Lippman, *Energy Tax Proposal Has 'Green' Tint*, *supra* note 61.

63. *See Environmental Groups Flex for Industry Opposition to BTU Tax*, *supra* note 61; Kriz, *A Green Tax?*, *supra* note 56 at 917–18 (quoting Dan Lashof, NRDC).

64. Lippman, *Energy Tax Proposal Has 'Green' Tint*, *supra* note 61.

65. Novak, *supra* note 42; *Economist: Energy Tax Would Penalize Western Coal, Could Hurt Environment*, UTIL. ENV'T REP., Mar. 5, 1993, at 3, *available at* http://www.lexisnexis.com.

66. *Environmental Groups Flex For Industry Opposition to BTU Tax*, *supra* note 61.

owed consumers hundreds of millions of dollars in rebates because of unexpected declines in interest costs on capital projects.[67]

The energy industry was unified in its opposition to the tax.[68] The API predicted that the tax would cost seven hundred thousand jobs and reduce the gross national product by about $5 billion.[69] The coal industry estimated that coal prices would increase by more than 25%.[70] Manufacturing trade associations argued that it would bring a nascent economic recovery to a rapid end.[71] Even the natural gas industry was unhappy.[72] Its primary concern was the decision to collect the tax from natural gas producers at the wellhead, rather than from consumers at the consumption end of the pipeline.[73] At the same time, the major natural gas players did not join the chorus of energy interests in the hope that a less categorical stand would be more likely to get it a seat at the negotiating table when the proposal began to work its way through Congress.[74] The Electric Generation Association, a trade association representing independent power producers, offered qualified support for "a properly structured broad-based energy tax."[75] Not surprisingly, the American Wind Energy Association and the Geothermal Resources Association strongly supported the proposal, so long as wind and geothermal energy remained exempt from the tax.[76]

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67. Craig S. Cano, *Gas Groups Gain Some Ground in BTU-Tax Debate; Discussions Continue*, PLATTS INSIDE FERC, Mar. 15, 1993, at 1, *available at* 1993 WLNR 1756589 (quoting Edwin Rothschild, Citizen Action).

68. *Republican, Democratic Senators Voice Concern on BTU Proposal*, NAT'L ENV'T DAILY (BNA), Feb. 26, 1993 (quoting Jerry Jasinowski, National Association of Manufacturers).

69. *Administration Figure on Consumer Costs "Grossly Underestimated," Industry Says*, NAT'L ENV'T DAILY (BNA), Feb. 24, 1993.

70. *Congress Checks Impact of BTU Tax; NCA Registers Protest*, PLATTS COAL OUTLOOK, Mar. 1, 1993, at 8, *available at* http://www.lexisnexis.com (discussing a perverse effect); *Economist: Energy Tax Would Penalize Western Coal, Could Hurt Environment*, *supra* note 65.

71. Kriz, *A Green Tax?*, *supra* note 56 at 919.

72. *Energy Tax Focuses on Raising Money, Ignores Costs, Officials Growl*, *supra* note 56 (undermining competitiveness; devastating impact).

73. Sonali Paul, *'Where?' Is Gas Worry over Clinton BTU Tax*, PLATTS OILGRAM NEWS, Feb. 23, 1993, at 3, *available at* 1993 WLNR 1726354; *President Clinton's Proposal to Tax Energy Sources Including Natural Gas Is Part of Broad Economic Reform Program That Also Emphasizes Natural Gas R&D and Use*, FOSTER NAT. GAS REP., Feb. 18, 1993, at 1, *available at* http://www.lexisnexis.com.

74. *See* Craig S. Cano, *Gas Industry Distancing Itself from Harsh Criticism of Energy Tax*, PLATTS INSIDE FERC, Mar. 1, 1993, at 1, *available at* 1993 WLNR 1709083.

75. *Energy Tax Focuses on Raising Money, Ignores Costs, Officials Growl*, *supra* note 56 (quoting Thomas Dodd, Electric Generation Association).

76. *Environmental Groups Flex for Industry Opposition to BTU Tax*, *supra* note 61.

Stung by the industry criticism, the Clinton Administration adopted "a strategy of placate and conquer."[77] As they worked out the details of a proposed bill, high-level officials engaged in a series of meetings with industry lobbyists over a two-week period in an attempt to address their objections.[78] They hoped to convince the industries that an energy tax was inevitable and they were better served by working with the Administration than by standing on the outside denouncing any energy tax.[79] Trade associations for the natural gas industry quickly agreed to meet with Administration officials to argue that the tax should not be collected at the wellhead.[80] The manufacturing, petroleum, and electric utility industries continued to take a hard line against any energy tax, even though that meant that they were not invited to participate in the negotiations.[81] The NAM assembled an ad hoc 1300-member umbrella group containing a broad array of energy, manufacturing, and transportation companies called the *Affordable Energy Alliance*—later renamed the American Energy Alliance—the exclusive goal of which was to kill the BTU tax.[82] It hired two public relations firms to conduct a $2 million advertising campaign to generate pressure on members of Congress from energy-producing states to oppose the tax.[83] The Sierra Club responded with a far less resource-intensive appeal to its members to urge their representatives to support the tax.[84]

President Clinton's BTU tax proposal got off to a bad start in Congress.[85] At a hearing conducted by the Senate Committee on Energy and the Environment in late February 1993, Committee Chairman Bennett

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77. Thomas W. Lippman, *Administration Courts Energy Tax Foes*, WASH. POST, Mar. 9, 1993, at D1 [hereinafter Lippman, *Administration Courts Energy Tax Foes*].

78. *Id.*

79. *Id.*

80. *Id.*; *see White House Firm on BTU Tax, Appears Flexible on Collection Point*, PLATTS INSIDE FERC, Mar. 8, 1993, at 1, *available at* 1993 WLNR 1718127.

81. Lippman, *Administration Courts Energy Tax Foes*, *supra* note 77; *Environmentalists Question Utility Efforts to Move BTU Tax Downstream*, UTIL. ENV'T REP., Mar. 19, 1993, *available at* 1993 WLNR 1727921 (reporting the position of the EEI).

82. *Compare New Group Formed to Fight BTU Levy; API Part of New Joint Effort*, PLATTS OILGRAM NEWS, May 6, 1993, at 3, *available at* http://www.lexisnexis.com, *with Lobbyists Boast BTU Tax Beaten in the House*, PLATTS OILGRAM NEWS, May 24, 1993, at 1, *available at* 1993 WLNR 1726814.

83. David S. Hilzenrath, *Miscalculations, Lobby Effort Doomed BTU Tax Plan*, WASH. POST, June 11, 1993, at D1; Timothy Noah, *BTU Tax Is Dying Death of a Thousand Cuts as Lobbyists Seem Able to Write Own Exemptions*, WALL ST. J., June 8, 1993, at A18 [hereinafter, Noah, *BTU Tax Is Dying Death of a Thousand Cuts as Lobbyists Seem Able to Write Own Exemptions*].

84. *Environmental Groups Flex for Industry Opposition to BTU Tax*, *supra* note 61.

85. *See Skeptical Senators Reveal BTU Doubts*, PLATTS OILGRAM NEWS, Feb. 25, 1993, at 4, *available at* 1993 WLNR 1731982.

Johnston (D-Louisiana) expressed his strong opposition to the proposal.[86] The Republican committee members all opposed the BTU tax.[87] The Clinton Administration failed to provide a witness to defend the tax, and no other members of the committee came to its defense.[88] In late March, Senator Johnston expressed a willingness to support a BTU tax, so long as it was collected by electric utility companies directly from consumers—something that Administration officials opposed because they feared it would precipitate a consumer revolt.[89]

In early April, the Treasury Department circulated a draft of a modified BTU tax that changed the point of collection for natural gas from the wellhead to the local distribution companies and for coal from the coal producer to the utility companies that burned the coal.[90] The natural gas industry remained unhappy with the change because it still did not place the burden of payment on the ultimate consumer of the gas.[91] The petroleum and electric utility industries remained adamantly opposed to the tax.[92] The coal industry was pleased with the changes, but it continued to oppose the Bill because of the disproportionate negative economic impact it would have on the industry as a whole.[93] The National Association of Regulatory Utility Commissioners and consumer and environmental groups strongly opposed the shift in the collection point.[94]

Capitulating to industry pressure once again, President Clinton agreed to allow the tax to be collected by utility companies without the

86. Craig S. Cano, *While Not Sold on Idea, Johnston Cites Keys to Implementing BTU Tax*, PLATTS INSIDE FERC, Mar. 29, 1993, at 1 [hereinafter Cano, *While Not Sold on Idea, Johnston Cites Keys to Implementing BTU Tax*], *available at* 1993 WLNR 1716991; *Skeptical Senators Reveal BTU Doubts*, *supra* note 85.

87. *See Skeptical Senators Reveal BTU Doubts*, *supra* note 85.

88. *Id.*

89. Cano, *While Not Sold on Idea, Johnston Cites Keys to Implementing BTU Tax*, *supra* note 86.

90. *Treasury Unveils Modified BTU Tax Proposal*, CONGRESS DAILY, Apr. 1, 1993.

91. Bill Loveless, *AGA's Baly Says Details of BTU Tax Are 'Major Blow' to Gas Industry*, PLATTS INSIDE ENERGY, Apr. 5, 1993, at 5, *available at* 1993 WLNR 1726625; James Risen, *Lobbyists Win Changes in Energy Tax Proposal Revenue: Administration Says Some Industries Would Get Exemptions. Burden Would Shift Closer to Consumers*, L.A. TIMES, Apr. 2, 1993, at 1.

92. Patrick Crow, *U.S. BTU Tax Plan Revised; Industry Wary of Results*, OIL & GAS J., Apr. 12, 1993, at 21, 21; Loveless, *supra* note 91.

93. *See Industry Reacts to BTU Tax Modifications*, COAL & SYNFUELS TECH., Apr. 19, 1993, at 1.

94. Jackie Calmes & David Wessel, *Clinton Changes Course on Part of Energy Tax: Agreement Would Ease Restrictions on Utilities to Pass Along the Levy*, WALL ST. J., May 11, 1993, at A2; *States Try to Blunt BTU Tax Impact*, PLATTS OILGRAM PRICE REP., Apr. 23, 1993, at 4, *available at* 1993 WLNR 1727380.

approval of state public utility commissions.[95] The House Ways and Means Committee in mid-May approved a bill that contained this compromise, along with a number of exemptions for the aluminum and chlor-alkyl industries and farming interests.[96] The House, in late May, narrowly approved (219-213) the stimulus bill with the BTU provision intact.[97] It was the first time that either house of Congress had passed legislation aimed at reducing GHG emissions.[98]

The battle then shifted to the Senate Finance Committee, where the CoC and the energy industry hoped to kill it.[99] Because Senator David Boren (D-Oklahoma) was one of the senators who made up the eleven to nine Democratic majority on the committee, he became the target of an intensive campaign to influence his vote.[100] The Affordable Energy Alliance and CSE, a grassroots organization devoted to less government regulation created in 1984 by the David H. Koch Foundation,[101] convened taxpayer rallies in Oklahoma, commissioned polls demonstrating strong opposition to the tax in Oklahoma, and generated letters and phone calls from his constituents urging him to oppose the tax.[102] Newspaper ads proclaiming that Senator Boren could stop a BTU bill that stood for *Big Time Unemployment* were part of CSE's $100,000 advertising campaign.[103] A direct-mail blitz to more than nine thousand Oklahoma community leaders and a corresponding telemarketing campaign generated a huge number of pre-written letters and calls to Boren's offices.[104] In addition, a study commissioned by several

95. Calmes & Wessel, *supra* note 94.

96. *House Ways and Means Approves Tax Plan With Modified Energy Tax*, NAT'L ENV'T DAILY (BNA), May 17, 1993; *Gas Lobby Wins BTU-Tax Concessions as Ways and Means Reports Bill*, PLATTS INSIDE FERC, May 17, 1993, at 1, *available at* 1993 WLNR 1746071.

97. *In Close Vote, House Sends Energy Tax and Budget Plan on to Senate*, PLATTS INSIDE FERC, May 31, 1993, at 1, *available at* 1993 WLNR 1711901.

98. John M. Broder, *Adding Something for Everyone, House Leaders Gained a Climate Bill*, N.Y. TIMES, July 1, 2009, at A20 [hereinafter Broder, *Adding Something for Everyone*].

99. Patrick Crow, *BTU Tax Battle Hits Capitol Hill*, OIL & GAS J., May 10, 1993, at 25, 25; Patrick Crow, *Clinton's BTU Tax Starting to Fall Apart*, OIL & GAS J., May 17, 1993, at 24, 24; *New Group Formed to Fight BTU Levy; API Part of New Joint Effort*, *supra* note 82.

100. Michael Weisskopf, *Fanning a Prairie Fire; Capital Lobbies Stirred Oklahomans' Tax Revolt*, WASH. POST, May 21, 1993, at A1; Richard S. Dunham, *With Friends Like David Boren…*, BLOOMBERGBUSINESSWEEK (June 6, 1993), http://www.businessweek.com/stories/1993-06-06/with-friends-like-david-boren-dot-dot-dot.

101. Parry, *supra* note 14, at 13; Stone, *supra* note 14, at 1529–30; Weisskopf, *supra* note 100.

102. Weisskopf, *supra* note 100.

103. *Id.*

104. *Id.*

energy companies from economists at the University of Oklahoma predicted that the tax would destroy eleven thousand Oklahoma jobs, devalue farmland by $1 billion, and add $180 per year to household energy bills.[105] The effort paid off when Senator Boren appeared at a rally on Capitol Hill sponsored by the Independent Petroleum Association of America to urge the attendees to help him kill the tax.[106] Senator Boren then assembled a bipartisan group of senators to offer an alternative stimulus bill that did not include an energy tax.[107]

Once it became clear that well placed political pressure could turn the President around, it was katy-bar-the-door as lobbyists insisted that their clients should not have to pay the tax.[108] The NAM maintained that it contained so many loopholes that it was unfair to the industries that did not have one.[109] Then, in late June, Clinton agreed to a giant exemption for the entire manufacturing and agricultural sectors of the economy.[110] Still, Senator Boren refused to vote for any change that included any form of tax based on the heat content of fuel.[111] The Finance Committee ultimately approved a bill with a 4.3¢ per gallon gasoline tax and a number of additional spending cuts, but no BTU tax.[112] The Senate barely approved a deficit reduction bill that contained the modest gasoline tax in late June after Vice President Gore broke a fourty-nine to fourty-nine tie vote in which all of the Republicans voted against the Bill.[113]

Worried that the conference committee might restore the BTU tax, both the AEA and CSE launched new advertising campaigns in the districts

105. *Id.*

106. *Gas Lobby Wins BTU-Tax Concessions as Ways and Means Reports Bill*, *supra* note 96.

107. Sonali Paul, *Boren Offers BTU Tax Alternative*, PLATTS OILGRAM NEWS, May 21, 1993, at 1, *available at* 1993 WLNR 1753024.

108. *See* Jackie Calmes, *President's Call for 'Shared Sacrifice' Turns Into Scramble Among Lobbyists*, WALL ST. J., June 14, 1993, at A3; Noah, *BTU Tax Is Dying Death of a Thousand Cuts as Lobbyists Seem Able to Write Own Exemptions*, *supra* note 83; William Neikirk, *Dealing with Reality*, CHI. TRIB. (June 20, 1993), http://articles.chicagotribune.com/1993-06-20/news/9306200083_1_special-interests-bill-clinton-mining.

109. Hilzenrath, *supra* note 83.

110. *Clinton Expects Senate to Pass Budget Reconciliation Bill This Week*, NAT'L ENV'T DAILY (BNA), June 22, 1993.

111. *Id.*

112. Patrick Crow, *U.S. Senate Deficit Bill Shifts Focus to Transport Fuels Taxes, Spending Cuts*, OIL & GAS J., June 21, 1993, at 19, 19; *EEI Concerned That Energy Tax May Be Resurrected in Final Budget Package*, UTIL. ENV'T REP., June 25, 1993, *available at* 1993 WLNR 1760031.

113. Eric Pianin & David S. Hilzenrath, *Senate Approves Budget Plan, 50-49; Vice President Gore Casts Deciding Vote*, WASH. POST, June 25, 1993, at A1.

of members of committee they deemed to be swing votes.[114] The conference committee voted out a Bill with the Senate's gasoline tax, and it passed both houses of Congress.[115] The trade associations for the energy industry were, to say the least, pleasantly surprised by the outcome.[116] In a thoughtful postmortem gesture, the AEA spent some of its remaining cash on newspaper ads thanking the Democratic Senators who had come to the industry's aid.[117]

Congress' failure to pass a BTU tax left President Clinton's April 1993 promise to reduce GHG emissions to 1990 levels by 2000 in tatters.[118] And the ease with which the business community's influence infrastructure forced the President to abandon the tax did not bode well for legislative efforts to address climate change during the remainder of his administration.[119] Having prevailed in a face-to-face confrontation with the new President on his signature climate change initiative, energy industry lobbyists correctly predicted that climate change legislation would be a non-starter for the remainder of the Clinton Administration.[120]

B. *The Jeffords Cap-and-Trade Bill in the 107th Congress*

Any hope that Congress would enact legislation requiring GHG reduction measures appeared dead with the Supreme Court of the United States's declaration that George W. Bush had won the 2000 presidential election.[121] The Bush Administration was far more concerned with increasing domestic energy production than in protecting the environment from global warming.[122] Indeed, the Administration was not convinced that

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114. Timothy Noah, *Energy Tax Compromise Presents Major Challenge for White House*, WALL ST. J., June 28, 1993, at A8; *Second Anti-Tax Group Targets Legislators in Ads*, CONGRESS DAILY, July 16, 1993.

115. *Death of Energy Tax Makes Carbon Levy, Other Environmental Taxes Less Likely*, *supra* note 3.

116. *See* Sonali Paul, *Against All Odds: The Big BTU Victory*, PLATTS OILGRAM NEWS, Aug. 9, 1993, at 1 [hereinafter Paul, *Against All Odds*], *available at* 1993 WLNR 1754024 (quoting an unnamed lobbyist for the oil industry).

117. *Id.*

118. *See O'Leary: Losing BTU Tax Would Make U.S. Greenhouse Goal Hard to Meet*, UTIL. ENV'T REP., June 11, 1993, at 1, *available at* http://www.lexisnexis.com.

119. Paul, *Against All Odds*, *supra* note 116; *Death of Energy Tax Makes Carbon Levy, Other Environmental Taxes Less Likely*, *supra* note 3.

120. Paul, *Against All Odds*, *supra* note 116; *Death of Energy Tax Makes Carbon Levy, Other Environmental Taxes Less Likely*, *supra* note 3.

121. *See* Tim Dickinson, *Six Years of Deceit*, ROLLING STONE, June 28, 2007, at 54.

122. *See* Guy Gugliotta & Eric Pianin, *Bush Plans on Global Warming Alter Little; Voluntary Programs Attract Few Firms*, WASH. POST, Jan. 1, 2004, at A1.

anthropogenic emissions of GHGs did in fact increase global temperatures.[123] Instead of legislation, the Bush Administration preferred voluntary programs with vague and unenforceable targets.[124] Nevertheless, President Bush recognized the need to place additional controls on *grandfathered* power plants to protect downwind states from long-range transport of nitrogen oxides ("NOx"), sulfur dioxide ("SO2"), and mercury emissions; it looked for some time like newly appointed EPA Administrator Christine Todd Whitman would persuade the President to include GHGs in the *Clear Skies* Bill that the Administration was drafting to address the continuing problem of interstate transport.[125]

Reports of a possible *four-pollutant* Clear Skies Bill sent energy industry lobbyists and conservative think tanks back into battle mode.[126] A spokesperson for the CEI called the four-pollutant Bill a *colossal mistake*.[127] The coal industry and most of the electric utility industry undertook a massive lobbying campaign to convince the Administration to take GHG emissions out of the Bill.[128] One focal point of the lobbying efforts was the Vice President's National Energy Policy Development Group, a task force made up of high level governmental officials charged with recommending a national energy policy.[129] The Cheney Task Force went out of its way to meet with lobbyists from the coal, petroleum, and utilities industries to solicit their views on what should be included in its report.[130] The EEI put together

123. Dickinson, *supra* note 121; Amy Goldstein & Eric Pianin, *Hill Pressure Fueled Bush's Emissions Shift*, WASH. POST, Mar. 15, 2001, at A1.

124. Manimoli Dinesh, *Bush Administration Rolls Out Voluntary Plan to Cut Pollution*, OIL DAILY, Feb. 12, 2003, at 1; Gugliotta & Pianin, *supra* note 122.

125. John Fialka & Jeanne Cummings, *Bush Clean-Air Plan Born in Gore's Kyoto Playbook*, WALL ST. J., Mar. 12, 2001, at A24 [hereinafter Fialka & Cummings, *Bush Clean-Air Plan in Gore's Kyoto Playbook*]; Eric Pianin, *EPA Mulls Limits for Power Plant Emissions; Environmentalists Laud White House Effort on Pollution*, WASH. POST, Feb. 28, 2001, at A13.

126. Christopher Drew & Richard A. Oppel Jr., *How Power Lobby Won Battle of Pollution Control at E.P.A.*, N.Y. TIMES, Mar. 6, 2004, at A1; Fialka & Cummings, *Bush Clean-Air Plan Born in Gore's Kyoto Playbook*, *supra* note 125.

127. Andrew C. Revkin, *New Alliance Forms to Cut Plants' CO(-2) Emissions Bush, Key Lawmakers, Industry Join Crusade*, CHI. TRIB., Mar. 11, 2001, at 9.

128. Elizabeth Shogren, *U-Turn on Emissions Shows Big Energy Clout; Policy: White House Downplays Any Damage to EPA Chief Caused by Bush's Reversal on Carbon Dioxide Output from Power Plants*, L.A. TIMES, Mar. 15, 2001, at A1 [hereinafter Shogren, *U-Turn on Emissions Shows Big Energy Clout*].

129. Bruce Barcott, *Changing All the Rules*, N.Y. TIMES MAG., Apr. 4, 2004, at 38, 44; NAT'L ENERGY POL'Y DEV. GRP., NATIONAL ENERGY POLICY (2001), *available at* http://www.wtrg.com/EnergyReport/National-Energy-Policy.pdf.

130. Drew & Oppel, *supra* note 126; Judy Pasternak, *Bush's Energy Plan Bares Industry Clout; Cheney-Led Task Force Consulted Extensively with Corporate*

a group of around twenty utility executives to meet personally with Vice President Cheney.[131] Representing several electric utility companies, former Republican National Committee chairman, Haley Barbour, sent a memorandum to Vice President Cheney urging the Administration to abandon the president's campaign promise to regulate GHG emissions from power plants.[132]

Presidential Economic Advisor, Lawrence Lindsey, "then convene[d] a series of meetings" at which officials from the EPA, the DOE, and the White House debated whether the administration's Clear Skies Bill should include GHGs.[133] At the same time, industry lobbyists focused a last-minute barrage on the White House and sympathetic members of Congress in the hope that they would in turn put pressure on the President.[134] Participants in the lobbying effort were later singled out for special praise for the efforts that Thomas Kuhn, the president of the EEI and a former Yale classmate of President Bush, had played in pleading the energy industry's case.[135] Pressure also came from conservative think tanks and advocacy organizations.[136] Grover Norquist, the head of Americans for Tax Reform, and Fred Smith, head of the CEI, complained directly to Bush's political advisor Karl Rove.[137]

In mid-March, the President announced that he would not support legislation mandating reductions in GHG emissions.[138] The announcement

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Executives. Its Findings Boosted Their Interests. Environmental Groups Had Little Voice, L.A. TIMES, Aug. 26, 2001, at A1.

131. Mike Allen & Dana Milbank, *Cheney's Role Offers Strengths and Liabilities*, WASH. POST, May 17, 2001, at A1. The Vice President also met with environmental groups, but only after the Task Force's report was essentially completed. Michael Abramowitz & Steven Mufson, *Papers Detail Industry's Role in Cheney's Energy Report*, WASH. POST, July 18, 2007, at A1.

132. Drew & Oppel, *supra* note 126; Pasternak, *supra* note 130.

133. John J. Fialka & Jeanne Cummings, *How the President Changed His Mind on Carbon Dioxide*, WALL ST. J., Mar. 15, 2001, at A20 [hereinafter Fialka & Cummings, *How the President Changed His Mind on Carbon Dioxide*].

134. Shogren, *U-Turn on Emissions Shows Big Energy Clout*, *supra* note 128.

135. Michael Isikoff & T. Trent Gegax, *Where There's Smoke . . .* , NEWSWEEK, Mar. 26, 2001, at 34; Douglas Jehl, *Bush Defends Emissions Stance: Ties His About-Face on Carbon Dioxide to an 'Energy Crisis,'* N.Y. TIMES, Mar. 15, 2001, at A23 [hereinafter Jehl, *Bush Defends Emissions Stance*].

136. *See* Jehl, *Bush Defends Emissions Stance*, *supra* note 135; Shogren, *U-Turn on Emissions Shows Big Energy Clout*, *supra* note 128.

137. Letter from Fred L. Smith, Jr., Founder & Dir., Ctr. for Advancing Capitalism, Competitive Enter. Inst., to George W. Bush, President of the U.S. (June 7, 2002), *available at* http://cei.org/print/17808.

138. *Compare* Goldstein & Pianin, *supra* note 123, *and* Douglas Jehl & Andrew C. Revkin, *Bush, in Reversal, Won't Seek Cut in Emissions of Carbon Dioxide*, N.Y.

came as a surprise to EPA Administrator Whitman, who was busily assuring both the American public and European allies, that the United States would regulate carbon dioxide emissions from power plants.[139] Environmental activists accused the Bush Administration of yielding to industry pressure and criticized Whitman for failing to resign after her public humiliation.[140] Whitman gamely defended the President's decision.[141] Denying "that the president had 'pulled the rug out' from under her,"[142] she promised to pursue alternative approaches to greenhouse gas reduction that would emphasize technology development, nuclear power, and voluntary approaches to reducing GHG emissions.[143] The CoC and most of the energy industry praised the administration for adopting a more *balanced* approach to climate change.[144] The greatest benefactors of the decision were coal producers and utilities that burned mostly coal in their plants.[145]

Prospects for climate change legislation brightened somewhat in May 2001 when Senator James Jeffords of Vermont abandoned the Republican Party to become an independent who caucused with the Democrats.[146] A primary reason for the move was Jeffords' growing discomfort with the position of the Bush White House on environmental issues.[147] In gratitude for returning the Senate to Democratic control, the

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TIMES, Mar. 14, 2001, at A1, *with* Andrew C. Revkin, *Despite Opposition in Party, Bush to Seek Emissions Cuts*, N.Y. TIMES, Mar. 10, 2001, at A1.

139. Fialka & Cummings, *How the President Changed His Mind on Carbon Dioxide*, *supra* note 133; Douglas Jehl, *Whitman Calls for Patience on Environmental Policies*, N.Y. TIMES, Apr. 7, 2001, at A16 [hereinafter Jehl, *Whitman Calls for Patience on Environmental Policies*]; Eric Pianin & Amy Goldstein, *Bush Drops a Call for Emissions Cuts; Energy Firms Opposed Carbon Dioxide Pledge*, WASH. POST, Mar. 14, 2001, at A1.

140. Jehl, *Whitman Calls for Patience on Environmental Policies*, *supra* note 139; Jehl & Revkin, *supra* note 138; Bill McKibben, Commentary, *When Courage Was Called for, She Punted; Ex-EPA Leader Whitman Caved in to Bush Instead of Doing the Brave Thing*, L.A. TIMES, Mar. 20, 2005, at M5; Pianin & Goldstein, *supra* note 139.

141. Jehl, *Whitman Calls for Patience on Environmental Policies*, *supra* note 139.

142. Eric Pianin, *EPA Chief Lobbied on Warming Before Bush's Emissions Switch; Memo Details Whitman's Plea for Presidential Commitment*, WASH. POST, Mar. 27, 2001, at A7.

143. Mike Ferullo, *EPA: Whitman Supports Voluntary Programs, Without 'Backing Away from Compliance,'* 32 ENV'T REP. (BNA) No. 24, at 1200 (June 15, 2001); Jehl, *Whitman Calls for Patience on Environmental Policies*, *supra* note 139.

144. Jehl, *Bush Defends Emissions Stance*, *supra* note 135; Pianin & Goldstein, *supra* note 139.

145. Jehl, *Bush Defends Emissions Stance*, *supra* note 135.

146. *Sen. Jeffords' Jump from Republican Party Derails Coal Industry's Agenda in Congress*, PLATTS COAL OUTLOOK, May 28, 2001, at 6, *available at* http://www.lexisnexis.com.

147. Steve Cook, *General Policy: Power Plant Pollution, Climate Change Top Priorities for Jeffords in Senate Panel*, 32 ENV'T REP. (BNA) No. 29, at 1425 (July 20, 2001).

leadership appointed Jeffords to chair the Senate Committee on Environment and Public Works.[148] Jeffords had already introduced a *four-pollutant* bill that was modeled on the Clean Air Act's acid rain program.[149] The Bill would have required every covered source of carbon dioxide ("CO2")—a greenhouse gas—to acquire an *allowance* for every ton of CO2 that it emitted.[150] The allowances could come from many sources, including purchases at annual government auctions, gifts from the government to ease transitions, and purchases from other companies that held extra allowances.[151] The total number of allowances available in any given year would be limited—or capped—by statute, and the caps would gradually decrease in accordance with specified statutory benchmarks.[152] For example, the bill provided for reducing CO2 emissions to 1990 levels by 2012.[153]

At this point, however, noticeable fracture lines were beginning to appear in the energy industry's approach to climate change.[154] The natural gas industry was disappointed with the Bush Administration's disavowal of the president's campaign promise, as were a few companies in the electric utility industry that had already invested heavily in nuclear power and natural gas-fired power plants and had begun to implement energy conservation measures, sometimes in response to state GHG reduction initiatives.[155] Concluding that GHG controls were inevitable, they valued the certainty of knowing what the rules would be as they planned future projects.[156] In June, "a coalition of seven electric [power] companies" calling itself the *Clean*

148. *Sen. Jeffords' Jump from Republican Party Derails Coal Industry's Agenda in Congress*, *supra* note 146.

149. *Senate Bill Would Crack Down on Power Plant Emissions*, PLATTS COAL OUTLOOK, Mar. 19, 2001, at 6, *available at* http://www.lexisnexis.com. The bill would also have set up a separate technology-based regulatory regime for mercury emissions. *Id.*

150. S. 556, 107th Cong. (2001).

151. *Id.*

152. *See Senate Bill Would Crack Down on Power Plant Emissions*, *supra* note 149; *Sen. Jeffords' Jump from Republican Party Derails Coal Industry's Agenda in Congress*, *supra* note 146.

153. *Senate Bill Would Crack Down on Power Plant Emissions*, *supra* note 149; *Sen. Jeffords' Jump from Republican Party Derails Coal Industry's Agenda in Congress*, *supra* note 146.

154. *See* Andrew C. Revkin & Neela Banerjee, *Some Energy Executives Urge U.S. Shift on Global Warming*, N.Y. TIMES, Aug. 1, 2001, at C1; *Industry Mulls over Bush's Broken CO_2 Promise*, PLATTS GAS DAILY, Mar. 15, 2001, at 1, *available at* 2001 WLNR 12174434.

155. Pamela Najor, *Climate Change: Whitman Supports Bush View That Utilities Need Not Be Required to Cut Carbon Dioxide*, 32 ENV'T REP. (BNA) No.12, at 525 (Mar. 23, 2001); Dan Morgan & Peter Behr, *Developing Energy Bill Ignites Power Scramble*, WASH. POST, May 20, 2011, at A1; Revkin & Banerjee, *supra* note 154; *Industry Mulls over Bush's Broken CO_2 Promise*, *supra* note 154.

156. *See* Revkin & Banerjee, *supra* note 154.

Energy Group drafted a four-pollutant bill that would have cut CO2 emissions to 2000 levels by 2008 and to 1990 levels by 2012.[157] Utility companies more heavily invested in coal generating capacity and nearly all coal companies, however, remained steadfastly against any form of mandatory restrictions on GHG emissions.[158] Eight coal-dependent utility companies created a new group called the National Electric Reliability Coordinating Council to lobby against climate change legislation.[159]

To no one's surprise, the proposed limitations on power plant emissions in the Bush Administration's Clear Skies Bill did not reach GHGs.[160] Despite strong support from the energy industry, however, the proposal got a lukewarm reception in Congress.[161] Instead, the Senate Environment and Public Works Committee marked up the Jeffords Bill.[162] No electric utility companies supported the Bill.[163] An umbrella group purporting to represent "'more than 75,000 businesses and millions of workers and energy consumers'" called the Coalition for Affordable and Reliable Energy ("CARE") predicted that the Bill would cause "escalating energy prices and significant risk of electricity shortages for American consumers and businesses."[164] Despite President Bush's threat to veto any bill that contained mandatory limits on GHG emissions,[165] the Committee, after a bitter debate, voted largely along party lines to approve the Jeffords

157. Regina P. Cline, *Utilities: Seven Power Companies Draft Bill to Control Four Pollutants, Including CO2*, 32 ENV'T REP. (BNA) No.27, at 1310 (July 6, 2001).

158. *See* Morgan & Behr, *supra* note 155; Revkin & Banerjee, *supra* note 154.

159. Jeff Goodell, *Blasts from the Past*, N.Y. TIMES MAG., July 22, 2001, at 6.31; Pasternak, *supra* note 130; Katharine Q. Seelye, *Utilities Hire Ex-Chairman of G.O.P. to Fight Suits*, N.Y. TIMES, June 6, 2001, at A20.

160. Eric Pianin, *Senate Panel Backs Bill to Curb Power Plant Pollution*, WASH. POST, June 28, 2002, at A5 [hereinafter Pianin, *Senate Panel Backs Bill to Curb Power Plant Pollution*]; Elizabeth Shogren, *Warming Up to Reducing Greenhouse Gases: Some Big Businesses, States and Cities are Taking Market-Based Steps to Curb the Emissions Thought to Cause Climate Change*, L.A. TIMES, July 30, 2003, at A15.

161. Margaret Kriz, *A Pro-Industry Tilt*, NAT'L J., Apr. 3, 2004; *see* Eric Pianin, *Democrats Decry EPA Ads on Bill; Lawmakers Cite Anti-Lobbying Laws*, WASH. POST, Oct. 15, 2003, at A10 (EPA advertising campaign).

162. Steve Cook, *Utilities: Inclusion of Carbon in Power Plant Bill Splits Senate Environment Committee*, 33 ENV'T REP. (BNA) No. 24, at 1316 (June 14, 2002).

163. *Senate Panel Approves Emissions Bill with Carbon Cap*, PLATTS INSIDE ENERGY, July 1, 2002, at 7, *available at* 2002 WLNR 2374708 (citing Senator Thomas Carper (D-Delaware)).

164. *Clean Power Act, with Tough Coal Limits, Passes Committee*, PLATTS COAL OUTLOOK, July 1, 2002, at 1, *available at* http://www.Lexisnexis.com (describing CARE); *Industry, Environmentalists Spar over Emissions Legislation*, PLATTS MEGAWATT DAILY, June 26, 2002, at 7, *available at* 2002 WLNR 2379609.

165. *Multipollutant Bill in Trouble*, ENR, July 8, 2002, at 13, *available at* 2002 WLNR 2388113 (veto threat).

Bill in late June.[166] Jeffords offered to work with the Bush Administration to come up with a consensus bill, but EPA Administrator Whitman replied that "'the door [was] closed'" on any negotiations that included a cap on CO2 emissions.[167] With a presidential veto assured, the Senate leadership decided not to take the Jeffords Bill to the floor.[168] That turned out to be the death knell for climate change legislation for the next four years because the Republicans regained control of the Senate in the 2002 elections.[169]

C. *The McCain-Warner-Boxer Bill in the 110th Congress*

With both the House and the Senate controlled by the Democrats after the 2006 elections, the prospects for climate change seemed as bright as they had been in years.[170] The new chairperson of the Senate Committee on Environment and Public Works was Barbara Boxer (D-California), an outspoken proponent of climate change legislation, who characterized the Bush Administration's record on climate change as *worse than dismal*.[171] Sensing a groundswell of public opinion in support of legislation,[172] she hoped to make climate disruption a bipartisan issue.[173] Boxer was joined in her enthusiasm by Senator Jeff Bingaman (D-New Mexico), the incoming

166. John J. Fialka, *Senate Committee Votes to Limit CO2 Emissions by Power Plants*, WALL ST. J., June 28, 2002, at A4 (bitter debate); David Hess, *Senate EPW Panel Approves Four Pollutant Emission Bill*, CONGRESS DAILY (PM ED.), June 27, 2002; Pianin, *Senate Panel Backs Bill to Curb Power Plant Pollution*, *supra* note 160.

167. *Multipollutant Bill in Trouble*, *supra* note 165 (veto threat).

168. *See* Hess, *supra* note 166; Karen Lee Scrivo, *Clean Air Bills Likely to Be Lost in End-of-Session Smog*, CONGRESS DAILY (PM ED.), Sept. 3, 2002.

169. *See* Adam Nagourney, *G.O.P. Retakes Control of the Senate in a Show of Presidential Influence; Pataki, Jeb Bush and Lautenberg Win*, N.Y. TIMES, Nov. 6, 2002, at A1; Gerald Karey, *Regulation & the Environment*, PLATTS OILGRAM NEWS, Aug. 27, 2007, at 8 [hereinafter Karey, *Regulation & the Environment*], *available at* www.lexisnexis.com.

170. Karey, *Regulation & the Environment*, *supra* note 169.

171. Steven D. Cook, *Climate Change: Boxer Pledges Action on Global Warming, Close Oversight of Bush Administration*, 37 ENV'T. REP. (BNA) No. 48, at 2477 (Dec. 8, 2006) [hereinafter Cook, *Climate Change: Boxer Pledges Action on Global Warming*]; Manimoli Dinesh, *Green Democrats to Take over Key Senate Committees*, OIL DAILY, Nov. 9, 2006 [hereinafter Dinesh, *Green Democrats to Take over Key Senate Committees*].

172. Cook, *Climate Change: Boxer Pledges Action on Global Warming*, *supra* note 171; *accord* Charles Babington, *Party Shift May Make Warming a Hill Priority*, WASH. POST, Nov. 18, 2006, at A6.

173. Cook, *Climate Change: Boxer Pledges Action on Global Warming*, *supra* note 171; *see* Brian Hansen, *With Calif. Law as Her Model, Boxer Asserts Intent to Pass Warming Bill*, PLATTS INSIDE ENERGY, Dec. 11, 2006, at 4, *available at* 2006 WLNR 22500134.

chairman of the Energy and Natural Resources Committee.[174] And some former skeptics in Congress—like Senators Ted Stevens and Lisa Murkowski of Alaska—were persuaded by the growing evidence of shrinking glaciers and disappearing permafrost that global warming was real.[175]

The picture was not entirely rosy for proponents of climate change legislation, however, because a large number of Democratic members represented rust belt and energy-producing states that could be adversely affected by climate disruption legislation.[176] Moreover, the election had taken a huge toll on moderate Republicans from the Northeast, thereby dimming the prospects for truly bipartisan legislation.[177] In the House, Representative John Dingell (D-Michigan) replaced climate change denier Joe Barton (R-Texas) as chairperson of the House Committee on Energy and Commerce, but Dingell was wary of any environmental legislation that affected the automobile manufacturers in his district.[178] Finally, President Bush retained his veto power,[179] and the Administration remained deeply opposed to any legislation providing for mandatory GHG emissions reductions.[180]

Most of the climate disruption bills introduced at the outset of the 110th Congress employed some variation of a cap-and-trade regime, but they presented a bewildering array of options on many critical issues.[181] One issue was whether to apply the cap-and-trade regime to all sectors of the economy or just to power plants.[182] Another was whether to allocate allowances to sources free of charge during the early years or auction them off to the highest bidders.[183] Of those allowances given away to power

174. Dinesh, *Green Democrats to Take over Key Senate Committees*, *supra* note 171.

175. Karey, *Regulation & the Environment*, *supra* note 169.

176. *Despite Election Gains, Environmentalists Face Limits in New Congress*, RISK POL'Y REP., Nov. 14, 2006, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "Risk Policy Report"; search "Despite Election").

177. *Id.*

178. Babington, *supra* note 172; Manimoli Dinesh, *Barton Skeptical Democrats Can Advance Climate Change Bill*, OIL DAILY, Dec. 4, 2006, at 1.

179. Babington, *supra* note 172.

180. Cathy Cash, *Bush Administration Still Opposes CO2 Mandate; Key Lawmakers Are Still Determined to Pursue It*, ELECTRIC UTIL. WK., Dec. 18, 2006, *available at* 2006 WLNR 22789552.

181. Craig Gannett et al., *Carbon Management: The Bumpy Road to Federal Carbon Dioxide Caps*, POWER, July 2007, at 43.

182. *Id.*

183. Steven D. Cook, *Air Quality Standards: Carper, Alexander Offer Separate Bills to Cut Power Plants' Greenhouse, Other Emissions*, 38 ENV'T REP. (BNA) No. 17, at 952 (Apr. 27, 2007).

plants, another issue was whether to do so on the basis of the amount of electricity the plant produced—an option that would favor companies that relied on renewable energy and natural gas because they would have excess allowances to sell to coal-burning plants that produced much more CO2 per unit of electricity produced—or on the heat input of the fuels burned in the plant—an option that would favor coal-burning plants because it would prevent renewable energy and natural gas-burning plants from getting credit for the fact that they produced fewer CO2 emissions per unit of heat input.[184] Still another issue was whether or not the cap-and-trade program should contain a *safety valve* guaranteeing an upper price for allowances by requiring the EPA to sell all allowances demanded above the safety valve price, even though that would have the effect of raising the cap.[185] A final issue was whether or not to preempt state GHG emissions reduction programs.[186]

Sensing that the political winds were changing, some electric utilities began to shift their position from adamant opposition to any mandatory climate change legislation to grudging acceptance of the need for limits on GHG emissions.[187] They were not opposed to a cap-and-trade program for GHG emissions so long as it did not single out the electric utility industry, allocated a substantial proportion for allowances free of charge in the early years, began auctioning allowances only after carbon control and sequestration ("CCS") technologies were commercially available—most likely ten to twenty years in the future—, required little upfront expenditure, pushed the deadlines far into the future, and provided generous safety valves that ensured stable prices at some level.[188] Beset by internal division, the EEI maintained a position of studied neutrality on the desirability of a cap-and-trade regime for GHG emissions.[189] The oil and gas industry continued to oppose mandatory climate change legislation, but indicated its willingness to support a properly designed cap-and-trade regime that also preempted all

184. *Id.*
185. Gannett et al., *supra* note 181.
186. *Id.*
187. *See* Cathy Cash, *Building a Climate Change Bill, Congress Hears More from Utilities About Challenges*, ELECTRIC UTIL. WK., Mar. 26, 2007, at 1 [hereinafter Cash, *Building a Climate Change Bill, Congress Hears More from Utilities About Challenges*], *available at* 2007 WLNR 6759407.
188. *Id.* at 1–2, 4.
189. *Id.* at 3.

state climate change laws.[190] The coal industry maintained its strong opposition to any climate change legislation whatsoever.[191]

Senator Boxer kicked off congressional consideration of climate change legislation with an ambitious series of nine hearings on climate change over three months.[192] As the hearings progressed, it became apparent that some Republicans could support a cap-and-trade bill, if it would meet the electric utility industry's demands and would eliminate the EPA's highly successful new source review program under which the Justice Department was seeking very large penalties from most of the nation's prominent electric utility companies.[193] Others, like Senator James Inhofe and Representative Joe Barton remained skeptical of both the scientific basis for global warming claims and cap-and-trade as a tool for reducing GHG emissions.[194]

As the hearings were wrapping up in April 2007, the Supreme Court of the United States delivered a landmark opinion that dramatically changed the political calculus.[195] The Court held GHGs were pollutants and EPA therefore had authority to regulate GHG emissions from autos and—by implication—from other sources such as power plants and refineries.[196] This meant that if EPA found that GHGs endangered public health or the environment, it could begin regulating GHG emissions from new sources and modifications of existing sources.[197] If Congress did not enact legislation saying otherwise, EPA could proceed ahead with stringent technology-based standards that would have no trading opportunities and no blow-softening provisions like free allocations of allowances and safety valves.[198] The fact

190. Brian Hansen, *Dingell Releases Climate Bill Advice Solicited from Industry, Green Groups*, PLATTS INSIDE ENERGY, Apr. 23, 2007, at 9, *available at* 2007 WLNR 8625530.

191. Cathy Cash, *House Panel Examines Climate Bills, but No Movement Expected This Year*, INSIDE ENERGY/WITH FED. LANDS, June 23, 2008, at 4, *available at* http://www.Lexisnexis.com.

192. Dawn Reeves & Jenny Johnson, *Activists Rally Around Boxer After Early Breach on Climate Change*, INSIDE EPA WKLY. REP., May 18, 2007, *available at* 2007 WLNR 9292612; *see also* Jessica Brady, *Hearing on Global Warming Attracts Like-Minded Senators*, CONGRESS DAILY, Jan. 30, 2007, *available at* 2007 WLNR 1871899.

193. *See* Cash, *Building a Climate Change Bill, Congress Hears More from Utilities About Challenges*, *supra* note 187, at 2–3.

194. Anthony Lacey, *Bipartisan Senate Plan May Sidestep Deadlock over Carbon Price Limits*, INSIDE EPA WKLY. REP., July 27, 2007, *available at* 2007 WLNR 14296375; *House Committee Members Study Merits of Setting Up CO2 Cap-and-Trade Program*, ELECTRIC UTIL. WK., Apr. 2, 2007, at 8, *available at* 2007 WLNR 7208828.

195. Massachusetts v. EPA, 549 U.S. 497, 535 (2007); Daniel Whitten, *Court Ruling Seen Feeding Movement for Carbon Controls in Congress*, PLATTS INSIDE ENERGY, Apr. 9, 2007, at 3, *available at* 2007 WLNR 7651996.

196. *Massachusetts*, 549 U.S. at 500; Whitten, *supra* note 195.

197. *Massachusetts*, 549 U.S. at 533.

198. *See id.*

that the Bush Administration remained strongly opposed to mandatory measures, however, ensured that EPA was not likely to act in the immediate future.[199]

Sensing no movement on any of the pending Democratic bills, several senators began to work on bipartisan alternatives.[200] Senators Joe Lieberman (I-Connecticut) and John Warner (R-Virginia) unveiled a proposal for a more stringent bill that called for a cap-and-trade regime applicable to all sectors of the economy that would have capped GHG emissions at the 2005 level by 2012, 15% below the 2005 level by 2020, and 70% below the 2005 level by 2050.[201] Of the initial allowances, 24% would have been auctioned, 20% would have been given to the power sector, 20% would have been given to the industrial sector, and 2.5% to the transportation sector.[202] The proportion of allowances auctioned would gradually increase to 52% in 2035.[203] Revenues from the auctions would be channeled to low- and moderate-income consumers and technology development projects.[204] The proposal included a novel *cost containment* provision that would have created an administrative board that could authorize cost relief measures to companies presented with unexpected economic hardship.[205] The electric utility industry presented a nearly united front in opposition to the Lieberman-Warner Bill.[206] Only Exelon and Pacific Gas & Electric, companies that relied heavily on nuclear power and natural gas respectively, supported the Bill.[207]

As it became clear that a climate change bill containing mandatory caps was likely to reach the Senate floor, utility company executives huddled

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199. Whitten, *supra* note 195.

200. *See* Robert Dillon, *Democrats Unveil Details of Climate Change Legislation in Senate*, OIL DAILY, Oct. 18, 2007, at 1 [hereinafter Dillon, *Democrats Unveil Details of Climate Change Legislation in Senate*].

201. *Id.*; Darren Goode, *Lieberman, Warner Tighten Rules in Their Warming Bill*, CONGRESS DAILY, Oct. 17, 2007, *available at* 2007 WLNR 20400383.

202. Patricia Ware, *Lieberman, Warner Release Draft Proposal for Industry Trading of Greenhouse Gases*, 38 ENV'T REP. (BNA) No. 32, at 1713 (Aug. 10, 2007).

203. *Id.*

204. Dillon, *Democrats Unveil Details of Climate Change Legislation in Senate*, *supra* note 200.

205. Ware, *supra* note 202; Lacey, *supra* note 194.

206. *See* Dillon, *Democrats Unveil Details of Climate Change Legislation in Senate*, *supra* note 200.

207. Cathy Cash, *Lieberman-Warner Bill Sets Stage for Climate Action; Big Coal Users Identify Fixes They Seek*, ELECTRIC UTIL. WK., Oct. 22, 2007, at 1, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "Electric Utility Week"; search "Lieberman-Warner Bill Sets Stage"); Kathleen Hart, *Lieberman, Warner Detail Allowance Allocation for Carbon Cap-and-Trade Bill*, SNL ENERGY DAILY GAS REP., Aug. 3, 2007.

"behind closed doors with White House [aides] and administration officials" to come up with a legislative approach to a cap-and-trade program that more closely reflected what the industry had in mind.[208] The favored approach would have preempted state climate change laws and replaced EPA's new source review program.[209] The authority to regulate GHG emissions would have been delegated to the DOE, rather than EPA.[210] And, GHG reductions would have been required only when proven technologies were available.[211]

The Environment and Public Works Committee passed the Lieberman-Warner Bill with only a few minor amendments by a vote of eleven to eight.[212] Only one Republican—Senator Warner—voted yes.[213] The Bill now had to clear the sixty vote hurdle necessary to halt the Republicans' promised filibuster.[214] The Bill's sponsors began a lengthy process of negotiating the concessions that would be necessary to persuade ten to tweleve Republicans and nearly all coal-state Democrats to vote to cut off debate.[215] By the time that the negotiations were nearing completion in January 2008, a persistently sluggish economy had dimmed enthusiasm for comprehensive climate change legislation.[216] Nevertheless, the Democratic leadership assured the Bill's supporters that it would go to the floor in early 2008.[217]

In the meantime, climate change legislation was moving at a snail's pace in the House.[218] At the outset of the 110th Congress, Majority Leader Pelosi created a special committee to address climate change issues and appointed long-time climate change activist Representative Edward Markey (D-Massachusetts) to head it, but the committee lacked the jurisdiction over

208. *Utility Execs' Plan for GHG Capture Proposes Federal Control, No Caps*, PLATTS COAL OUTLOOK, Nov. 5, 2007, at 9, *available at* http://www.lexisnexis.com.

209. *Id.*

210. *Id.*

211. *See id.*

212. *See* Alexander Duncan, *Panel Sends Global-Warming Bill to Senate Floor*, PLATTS INSIDE ENERGY, Dec. 10, 2007, at 1 [hereinafter Duncan, *Panel Sends Global-Warming Bill to Senate Floor*], *available at* http://www.lexisnexis.com.

213. *Id.*; Doug Obey, *Senate Markup Defines Scope of Future Talks on Climate Change Bill*, INSIDE EPA WKLY. REP., Dec. 14, 2007, *available at* 2007 WLNR 24596728.

214. Dean Scott, *Legislation: Senate Cap-and-Trade Bill Gains Momentum, but Delayed House Bill Complicates Passage*, 39 ENV'T REP. (BNA) (SPECIAL ISSUE) No. 3, at S-9 (Jan. 18, 2008); Duncan, *Panel Sends Global-Warming Bill to Senate Floor*, *supra* note 212.

215. Scott, *supra* note 214; Obey, *supra* note 213.

216. Scott, *supra* note 214; *see also* Cathy Cash, *House Preparing for Climate Bill This Year Despite Gloomy Economic Forecasts*, ELECTRIC UTIL. WK., Jan. 21, 2008, at 8.

217. Scott, *supra* note 214.

218. *See id.*

any actual legislation.[219] The Energy and Commerce Committee, which had jurisdiction over climate disruption legislation, was preoccupied with the Bush Administration's energy bill.[220] In sharp contrast to Senator Boxer's committee, it failed to hold a single hearing on climate change legislation during 2007.[221] The chairperson of the subcommittee with jurisdiction over the climate disruption legislation was Rick Boucher (D-Virginia), a moderate Democrat who represented a coal-producing district in Virginia.[222] Although Boucher had been a global warming skeptic, he now believed that legislation was necessary to forestall EPA action.[223] Convinced that coal should play a major role in electricity generation for the foreseeable future, he insisted that the rate at which GHG reduction technologies became available to coal-fired power plants should determine how rapidly the government required GHG emissions reductions.[224]

In mid-January 2008, representatives of a new group, called the Climate Action Partnership—consisting of environmental groups and more than thirty companies concerned about global warming—urged Congress to enact mandatory climate change legislation "on a fast-track basis."[225] They called for a 60% to 80% reduction in GHG emissions from 2005 levels by 2050 and for a 10% to 30% reduction during the first fifteen years.[226]

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219. Darren Goode, *Dingell, Boucher Call for Cap-and-Trade on Emissions*, CONGRESS DAILY, Oct. 3, 2007 [hereinafter Goode, *Dingell, Boucher Call for Cap-and-Trade on Emissions*], *available at* 2007 WLNR 19383063; Kathleen Hart, *Pelosi to Reauthorize House Global Warming Committee*, SNL Power Daily N.E., Nov. 25, 2008 [hereinafter Hart, *Pelosi to Reauthorize House Global Warming Committee*], *available at* http://www.lexisnexis.com.

220. Scott, *supra* note 214.

221. *Id.*

222. Kathleen Hart, *Boucher Says Chances Dim for Climate Change Legislation This Year*, SNL ELECTRIC UTIL. REP., Sept. 24, 2007 [hereinafter Hart, *Boucher Says Chances Dim for Climate Change Legislation This Year*], *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "Boucher Says Chances"); Michael Niven, *House Energy Committee Targeting Early 2008 to Introduce CO2 Legislation, Says Boucher*, SNL ELECTRIC UTIL. REP., Nov. 19, 2007 [hereinafter Niven, *House Energy Committee Targeting Early 2008 to Introduce CO2 Legislation, Says Boucher*], *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "House Energy Committee Targeting").

223. Hart, *Boucher Says Chances Dim for Climate Change Legislation This Year*, *supra* note 222.

224. *Id.*; Niven, *House Energy Committee Targeting Early 2008 to Introduce CO2 Legislation, Says Boucher*, *supra* note 222.

225. Leora Falk, *Emissions Trading: Climate Action Coalition Seeks Swift Action on Legislation Implementing Emissions Cuts*, 39 ENV'T REP. (BNA) No. 4, at 155 (Jan. 25, 2008).

226. *Id.*

Before drafting a bill, Boucher took the unusual step of having the subcommittee staff draft a series of public position papers on issues that were likely to arise when the committee considered a bill.[227] As the position papers trickled out through the spring of 2008,[228] it became clear that the bill that Representative Boucher had in mind was considerably less stringent than the Lieberman-Warner Bill in the Senate.[229]

When the Lieberman-Warner Bill came to the floor of the Senate during the first week of June 2008, the lobbyists for the affected interests were out in force.[230] The CoC joined with oil and gas and mining interests to create the Alliance for Energy and Economic Growth to send Congress the message that the Lieberman-Warner Bill would harm the economy with little resulting impact on global warming so long as China and India failed to reduce GHG emissions.[231] The NAM opposed the Bill on many grounds.[232] Another advocacy organization for the business community, the Club for Growth, launched "a radio and [television] ad[vertising] campaign against the bill in states [with] senators [who were] potential[ly] swing votes."[233] Even the natural gas industry opposed the legislation because it required natural gas processors to purchase allowances instead of end users.[234] Environmental groups had reservations about the Bill and favored more

227. Goode, *Dingell, Boucher Call for Cap-and-Trade on Emissions*, *supra* note 219; Hart, *Boucher Says Chances Dim for Climate Change Legislation This Year*, *supra* note 222.

228. *See* Darren Goode, *Suggestion of State Preemption Sets Off Warning Bells*, CONGRESS DAILY, Feb. 26, 2008, *available at* 2008 WLNR 3698026.

229. *See* Steven D. Cook, *Legislation: Climate Change Bill Must Preserve Coal As Fuel for Electric Power, Boucher Says*, 39 ENV'T REP. (BNA) No. 11, at 497 (Mar. 14, 2008).

230. *See Political Wrangling Locks Up Senate's Debate of Climate Change Legislation; Industrial User Groups React Negatively to the New Version of Lieberman-Warner; Congressional Budget Office Estimates Bill Would Cost Private Sector "Tens of Billions,"* FOSTER NAT. GAS REP., June 6, 2008, at 1, *available at* 2008 WLNR 11194068.

231. *See* Williamson, *supra* note 21.

232. *Political Wrangling Locks Up Senate's Debate of Climate Change Legislation; Industrial User Groups React Negatively to the New Version of Lieberman-Warner; Congressional Budget Office Estimates Bill Would Cost Private Sector "Tens of Billions," supra* note 230.

233. Leila Abboud & Stephen Power, *U.S. News: U.S. Aims to Skirt Flaws in Europe's Carbon Limits; Cap-and-Trade Bill to Stress Auctions, Balance for Permits*, WALL ST. J., May 30, 2008, at A4.

234. *See* Dean Scott, *Climate Change: Talks on Cap-and-Trade Bill Accelerate As Concerns Raised over Cost, Other Issues*, 39 ENV'T REP. (BNA) No. 13, at 631 (Mar. 28, 2008); Catherine Cash et al., *Senate to Take Next Step on Climate Change Bill; Energy Group Sees 'Fatal Flaw,'* PLATTS INSIDE FERC, June 2, 2008, at 1, *available at* http://www.lexis.nexis.com.

stringent requirements in several regards, but they united behind the Bill after the sponsors made several changes designed to meet their objections.[235]

On the day before the scheduled cloture vote, President Bush threatened to veto any bill that contained mandatory limits on GHG emissions.[236] With such formidable opposition lined up against the Bill, it was clear to the Bill's sponsors that it would be impossible to line up the sixty votes necessary to prevent a filibuster without making major concessions that would be opposed by environmental groups and could cause progressive Democrats to abandon the effort.[237] Despite its poor prospects, Democratic strategists believed that the party would benefit in the upcoming elections by forcing Republicans to vote against climate change legislation.[238] Recognizing the political risks involved, the Republican leadership shifted its strategy away from outright refusal to acknowledge the reality of global warming to an insistence that the Lieberman-Warner Bill intruded too deeply into the American economy.[239] Reflecting the laissez faire minimalist view espoused by the conservative think tanks, they argued that the Bill amounted to little more than a *stealth tax* on American consumers.[240]

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235. *See* Cathy Cash, *Senate Gears Up to Debate Landmark Greenhouse Gas Bill, with Price Tag Estimated at $7 Trillion*, ELECTRIC UTIL. WK., May 26, 2008, at 1 [hereinafter Cash, *Senate Gears Up to Debate Landmark Greenhouse Gas Bill, with Price Tag Estimated at $7 Trillion*], *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "Electric Utility Week"; search "Senate Gears up to Debate"); Peter Haldis & Joanna Franco, *Lieberman-Warner Climate Change Bill Fails to Overcome Filibuster*, WORLD REFINING & FUELS TODAY, June 9, 2008; *Political Wrangling Locks Up Senate's Debate of Climate Change Legislation; Industrial User Groups React Negatively to the New Version of Lieberman-Warner; Congressional Budget Office Estimates Bill Would Cost Private Sector "Tens of Billions*," *supra* note 230.

236. Darren Goode, *White House Threatens Veto Against Global Warming Bill*, CONGRESS DAILY (PM ED.), June 7, 2008.

237. Scott, *Climate Change: Talks on Cap-and-Trade Bill Accelerate As Concerns Raised over Cost, Other Issues*, *supra* note 234; Cash, *Senate Gears Up to Debate Landmark Greenhouse Gas Bill, with Price Tag Estimated at $7 Trillion*, *supra* note 235; Kathleen Hart, *Nuclear Power Amendment Seen As Potential Key to Passing Carbon Cap-and-Trade Bill*, SNL ELECTRIC UTIL. REP., Apr. 28, 2008, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "Nuclear Power Amendment").

238. Scott, *Climate Change: Talks on Cap-and-Trade Bill Accelerate As Concerns Raised over Cost, Other Issues*, *supra* note 234.

239. Stephen Power, *Washington Battle over Climate Change Heats Up; Senators Stake Out Stances in Debate of 'Cap-and-Trade,'* WALL ST. J., June 3, 2008, at A6 [hereinafter Power, *Washington Battle over Climate Change Heats Up*].

240. Robert Dillon, *US Senate Takes Up Landmark Climate Change Legislation*, OIL DAILY, June 4, 2008, *available at* 2008 WLNR 25595641 (quoting Senator Christopher Bond (R-Missouri)); Power, *Washington Battle over Climate Change Heats Up*, *supra* note 239.

As expected, the 48-36 vote in favor of cloture did not reach the sixty-vote majority necessary to end the filibuster.[241] The full Senate never debated the merits of the Bill.[242] After the vote, Senate Majority Leader Reid pulled the Bill and announced that it would not be taken up again during the 110th Congress.[243]

D. *The Waxman-Markey Bill in the 111th Congress*

The 2008 elections appeared to mark a major shift in the politics of climate disruption.[244] Both houses of Congress remained under the control of the Democratic Party, and the Democratic majority in the Senate had reached the magic number of sixty.[245] The voters also sent to the White House a charismatic young Democrat who had promised during the campaign to make climate change legislation one of his top priorities.[246] President Obama featured climate disruption in his inaugural address, and he promised to "'work tirelessly to . . . roll back the specter of a warming planet.'"[247] To demonstrate his commitment to climate change legislation, he hired former EPA Administrator Carol Browner as a White House Advisor and charged her with directing the Administration's legislative efforts on matters relating to energy and the environment.[248] At the same

241. *Political Wrangling Locks Up Senate's Debate of Climate Change Legislation; Industrial User Groups React Negatively to the New Version of Lieberman-Warner; Congressional Budget Office Estimates Bill Would Cost Private Sector "Tens of Billions," supra* note 230.

242. *See* Darren Goode, *House Dems Take More Measured Approach to Warming Bill*, CONGRESS DAILY (AM ED.), June 10, 2008.

243. *Political Wrangling Locks Up Senate's Debate of Climate Change Legislation; Industrial User Groups React Negatively to the New Version of Lieberman-Warner; Congressional Budget Office Estimates Bill Would Cost Private Sector "Tens of Billions," supra* note 230.

244. *See, e.g.*, *id.*

245. Cathy Cash, *Obama Election Steers Industry Straight to Cap on Carbon, but How and When Remain Unknown*, ELECTRIC UTIL. WK., Nov. 10, 2008, at 1 [hereinafter Cash, *Obama Election Steers Industry Straight to Cap on Carbon*], *available at* 2008 WLNR 22425719.

246. *See* JONATHAN ALTER, THE PROMISE: PRESIDENT OBAMA, YEAR ONE 59–60 (2010); Michael Hirsh, *The Lioness in Spring: A Kinder, Gentler Carol Browner Is Backing Obama's Green Agenda*, NEWSWEEK, Apr. 13, 2009, at 46, *available at* 2009 WLNR 6449538; Margaret Kriz, *Carol Browner: Power Player*, NAT'L J., Jan. 28, 2009, *available at* 2009 WLNR 27497270.

247. Alexander Duncan, *Obama Takes Charge, Citing Energy as Priority and Halting Bush Rules*, PLATTS INSIDE ENERGY, Jan. 26, 2009, at 3, *available at* 2009 WLNR 2544711.

248. Steven D. Cook, *U.S. Policy: Obama's Energy, Environment Team Seen Bringing Cohesion to Administration Response on Warming*, ENERGY & CLIMATE REP. (BNA)

time, many states were already putting climate change regulatory programs into effect, and the EPA was rapidly proceeding ahead with an endangerment finding and associated regulatory programs.[249]

In the House, Speaker Pelosi re-authorized the Select Committee on Energy Independence and Global Warming and re-appointed Representative Edward Markey (D-Massachusetts) to head it.[250] In an audacious move, Representative Henry Waxman (D-California) challenged Representative John Dingell (D-Michigan) for the chairmanship of the Committee on Energy and Commerce,[251] and he prevailed by a vote of 137–122 in the Democratic caucus.[252] The CEI proclaimed that the Waxman election provided "a loud wake-up call to American business leaders that the 111th Congress is not going to play nicely with them on energy rationing policies."[253]

Having wrested control of the committee from Representative Dingell, Chairman Waxman announced that the 111th Congress had "'an opportunity that comes only once in a generation'" to enact landmark climate change legislation.[254] He and Speaker Nancy Pelosi hoped to move a bill out of his committee by Memorial Day with an eye toward enactment by the end of the year.[255] But Waxman first had to patch up the wounded feelings of Dingell's supporters and reach an accommodation with Democrats from

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No. 244 (Dec. 15, 2008); Paul Merolli, *Obama Selects 'Green Team' for Energy Posts*, OIL DAILY, Dec. 12, 2008, *available at* 2008 WLNR 25939868.

249. *See* Cash, *Obama Election Steers Industry Straight to Cap on Carbon*, *supra* note 245.

250. Hart, *Pelosi to Reauthorize House Global Warming Committee*, *supra* note 219.

251. Cash, *Obama Election Steers Industry Straight to Cap on Carbon*, *supra* note 245 (longest serving member); Kathleen Hart, *Waxman Mounting Challenge to Dingell to Lead House Energy Committee*, SNL ELECTRIC UTIL. REP., Nov. 10, 2008, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "Wanman Mounting Challenge").

252. Cathy Cash, *Shift from Dingell to Waxman Signals New Era for Energy Interests; Climate Agenda Toughens*, ELECTRIC UTIL. WK., Nov. 24, 2008, at 1 [hereinafter Cash, *Shift from Dingell to Waxman Signals New Era for Energy Interests*], *available at* 2008 WLRN 23557519.

253. Kathleen Hart, *Waxman's Rise in Congress Signals Potential New Course for Climate Change Policy*, SNL POWER WK. S.E., Nov. 25, 2008, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Power Week Southeast"; search "Waxman's Rise").

254. Cash, *Shift from Dingell to Waxman Signals New Era for Energy Interests*, *supra* note 252.

255. Cash, *Shift from Dingell to Waxman Signals New Era for Energy Interests*, *supra* note 252; *Hearings Draw Out the Climate Change, Clean Coal, Practical Sides of Appointees*, PLATTS COAL OUTLOOK, Jan. 19, 2009, at 1, *available at* 2009 WLNR 1963512.

coal-dependent states who were already banding together to defend their states' economic interests.[256]

If anyone was capable of steering the climate change bill through the treacherous waters of the House of Representatives, it was the energetic Henry Waxman.[257] He was in an excellent position to work with the White House because his former aide of more than twenty years, Philip Schiliro, was President Obama's liaison to Congress.[258] But Waxman's committee had a full plate of important bills, including the president's health care reform bill, which taxed even his formidable capacity for hard work.[259] He therefore delegated to Representative Markey, who replaced Representative Boucher as chairperson of the Subcommittee on Energy and Air Quality, the responsibility for drafting the initial bill.[260]

As Waxman's committee began a series of hearings on climate disruption, the Reality Coalition, an umbrella organization composed of several of the nation's largest environmental groups, sponsored an advertising campaign featuring a yeti and a mermaid holding lumps of coal to make their point that coal could not play a major role in America's energy future.[261] At the committee's first hearing in mid-January, it received testimony on the *Blueprint for Legislative Action* that the Climate Action Partnership had drafted.[262] The blueprint's goal was to achieve a 42% reduction in emissions from 2005 levels by 2030 and an 80% reduction by 2050.[263] It allocated a substantial portion of the allowances on the basis of historical emissions and contained cost containment measures to act as a safety valve.[264] The blueprint allowed companies to purchase offsets from

256. John M. Broder, *Geography Is Dividing Democrats over Energy*, N.Y TIMES, Jan. 27, 2009, at A1 [hereinafter Broder, *Geography Is Dividing Democrats over Energy*]; *see also* Cash, *Shift from Dingell to Waxman Signals New Era for Energy Interests*, *supra* note 252.

257. *See* Charles Homans, *Marathon Man*, WASH. MONTHLY, May–June 2009, at 10, 12–13.

258. *Id.* at 11.

259. *Id.*

260. Broder, *Geography Is Dividing Democrats over Energy*, *supra* note 256; Cash, *Shift from Dingbell to Waxman Signals New Era for Energy Interests*, *supra* note 252.

261. *Hearings Draw Out the Climate Change, Clean Coal, Practical Sides of Appointees*, *supra* note 255.

262. *Id.*

263. Margaret Kriz, *Changed Climate for Global Warming Law*, NAT'L J., Feb. 4, 2009, *available at* 2009 WLNR 27497260; Steven Mufson, *Coalition Agrees on Emissions Cuts; Businesses, Environmentalists Set Plans on Climate Change*, WASH. POST, Jan. 15, 2009, at D1.

264. Cathy Cash et al., *Obama Sets Pace for Congress on Carbon: Budget Includes $79 Billion in 2012 Revenue*, ELECTRIC UTIL. WK., Mar. 2, 2009, at 1 [hereinafter Cash et al., *Obama Sets Pace for Congress on Carbon*], *available at* 2009 WLNR 4987023;

companies that agreed to improve the efficiency of their operations or farmers who agreed to plant more carbon absorbing vegetation.[265] Despite the substantial industry support for the blueprint, the Republican members of the committee rejected the cap-and-trade proposal and argued that Congress should consider a carbon tax instead.[266]

President Obama signaled his support for a cap-and-trade regime with auctioned allowances in February 2009 when he included in his fiscal year 2010 budget request a surprisingly detailed description of what the President wanted to see in a climate change bill, including a GHG emissions cap of 14% below 2005 levels by 2020 and 83% below 2005 levels by 2050,[267] with 100% of the allowances to be auctioned to prevent the dirtiest emitters from reaping windfall profits.[268] The coal industry and coal-dependent electric utility companies strongly objected to the President's suggestion that 100% of allowances should be auctioned.[269] If that happened, executives from American Electric Power and Duke Energy predicted electricity rates in some states—like Indiana—would go up by as much as 40%.[270]

In mid-March, Senator Boxer and Representatives Waxman and Markey met with the White House staff to come up with a strategy for passing climate change legislation.[271] They agreed on the broad contours of a comprehensive energy and climate change bill that would create an economy-wide cap-and-trade regime.[272] Since Boxer had the votes in her committee to report out a bill at any time, they decided that the House Bill

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Kara Sissell, *USCAP Offers Congress a Blueprint for Climate Action*, CHEMICAL WK., Jan. 19, 2009, at 6.

265. NATURAL RES. DEF. COUNCIL, REDUCING POLLUTION OUTSIDE OF THE CARBON CAP: THE ROLE OF OFFSETS AND COMPLEMENTARY POLICIES 3 (2009), *available at* http://www.nrdc.org/globalwarming/cap2.0/files/uncapped.pdf; U.S. CLIMATE ACTION P'SHIP, A BLUEPRINT FOR LEGISLATIVE ACTION: CONSENSUS RECOMMENDATIONS FOR U.S. CLIMATE PROTECTION LEGISLATION 9 (2009), *available at* http://www.c2es.org/docUploads/USCAP-legislative-blueprint.pdf.

266. Doug Obey, *Backers of CO2 Cap See Immediate Financing from Future Trading*, INSIDE EPA, WKLY. REP., Jan. 16, 2009, *available at* 2009 WLNR 790578.

267. Jim Tankersley, *Obama's Budget: Elements of the Plan/Energy; What His Priorities Reveal; Climate Plan Centers on Cap-and-Trade*, L.A. TIMES, Feb. 27, 2009, at A18.

268. Cash et al., *Obama Sets Pace for Congress on Carbon*, *supra* note 264.

269. *See* Cassandra Sweet, *Coal-Burning Utilities Want Time on CO2 Rules*, WALL ST. J., Mar. 11, 2009; *Hearings Draw Out the Climate Change, Clean Coal, Practical Sides of Appointees*, *supra* note 255.

270. Sweet, *supra* note 269.

271. Darren Goode, *Climate Discussions Intensify Across Capitol*, CONGRESS DAILY, Mar. 20, 2009, *available at* 2009 WLNR 5333544.

272. *See id.*

should move forward first to give the Senate sponsors some idea of what was possible.[273]

In late March 2009, Representatives Waxman and Markey introduced a 648-page discussion draft to serve as a starting point for the Energy and Commerce Committee's consideration of climate change legislation.[274] Based on the Climate Action Partnership blueprint,[275] the Bill would have established an economy-wide cap-and-trade regime that capped GHG emissions at 20% below 2005 levels by 2020, at 42% below 2005 emissions in 2030, and at 83% below 2005 levels by 2050.[276] The Federal Energy Regulatory Commission ("FERC") would have managed the primary allowance market.[277] The draft did not specify the percentages of allowances that would have been given away and auctioned; nor did it specify how the revenues from the auctions would have been spent.[278] The draft would have allowed emitters to increase emissions over their allowances if every four tons of emissions were offset by five tons of emissions reductions from other domestic or international sources.[279] It would have "create[d] a 'strategic reserve' of . . . 2.5 billion allowances" for EPA to auction to emitters in times of price volatility to stabilize allowance prices.[280] To further increase flexibility, it would have allowed a source to borrow allowances from next year for this year's emissions.[281] The draft also contained a renewable energy portfolio standard that would have required electrical generators to derive at least 25% of their production from renewable energy by 2025.[282]

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273. *Id.*

274. Joanna Franco, *House Committee Unveils Broad Climate Change Draft Legislation*, OCTANE WK., Apr. 6, 2009; Kathleen Hart, *House Energy, Climate Change Bill Cuts Carbon Emissions 20% by 2020*, SNL ENERGY COAL REP., Apr. 6, 2009 [hereinafter Hart, *House Energy, Climate Change Bill Cuts Carbon Emissions 20% by 2020*].

275. Esther Whieldon & Cathy Cash, *House Bill to Extend FERC Jurisdiction to Carbon Markets May Trigger Turf Battle*, PLATTS INSIDE FERC, Apr. 6, 2009, at 1, *available at* 2009 WLNR 7327778.

276. Franco, *supra* note 274; Hart, *House Energy, Climate Change Bill Cuts Carbon Emissions 20% by 2020*, *supra* note 274.

277. Whieldon & Cash, *supra* note 275.

278. John M. Broder, *2 Democrats Introduce Far-Reaching Bill on Energy and Warming*, N.Y. TIMES, Apr. 1, 2009, at A19 [hereinafter Broder, *2 Democrats Introduce Far-Reaching Bill on Energy and Warming*]; Ian Talley & Stephen Power, *House Emissions Bill Postpones Decisions on Cost*, WALL ST. J., Apr. 1, 2009, at A4.

279. Whieldon & Cash, *supra* note 275.

280. *Id.*; *see also* Hart, *House Energy, Climate Change Bill Cuts Carbon Emissions 20% by 2020*, *supra* note 274.

281. Hart, *House Energy, Climate Change Bill Cuts Carbon Emissions 20% by 2020*, *supra* note 274.

282. Broder, *2 Democrats Introduce Far-Reaching Bill on Energy and Warming*, *supra* note 278; Talley & Power, *supra* note 278.

The Waxman-Markey draft also contained a number of provisions to reduce predictable opposition; to make the coal industry happy, the Bill created a $10 billion pool to finance carbon capture and storage and related technologies.[283] To mollify the electric utility industry, the Bill prohibited the EPA from regulating GHGs under its existing Clean Air Act authorities and suspended state climate change programs for five years until the federal program got underway.[284] To please environmental groups, a citizen suit provision would have empowered private citizens to sue the federal government for failing to enforce the Bill's requirements.[285]

EPA Administrator Lisa Jackson and the Secretaries of Energy and Transportation praised many aspects of the draft without giving it the Administration's formal endorsement.[286] In response to anticipated complaints from the "no we can't" crowd that the proposal would cause huge increases in electric bills, Jackson cited an EPA analysis of the draft concluding that it would have only a modest effect on consumers—27¢ to 38¢ per day—if it retained its generous offset program and if most of the revenues from the auctions of allowances went to regulated local distribution companies.[287] The Climate Action Partnership applauded the Bill as a strong starting point for a bill, but said it would insist that a substantial number of allowances be awarded for free to emitters.[288] Environmental groups and clean energy companies also supported the draft, but they were somewhat taken aback by Waxman's decision to limit EPA's Clean Air Act authority to

283. Broder, *2 Democrats Introduce Far-Reaching Bill on Energy and Warming*, *supra* note 278.

284. Jean Chemnick, *Waxman, Markey Seek Moderate Votes for Their Stringent Climate-Change Bill*, PLATTS INSIDE ENERGY, Apr. 20, 2009, at 8 [hereinafter Chemnick, *Waxman, Markey Seek Moderate Votes for Their Stringent Climate-Change Bill*], *available at* 2009 WLNR 8452639; Doug Obey, *Draft House Climate Bill Includes New Concessions to Industry*, INSIDE EPA WKLY. REP., Apr. 3, 2009, *available at* 2009 WLNR 6162435.

285. Jean Chemnick & Brian Hansen, *Bill Allows People to Sue the Government over Alleged Harms from Climate Change*, PLATTS INSIDE ENERGY, Apr. 20, 2009, at 9, *available at* 2009 WLNR 8452640.

286. The American Clean Energy Security Act of 2009: *Hearings Before the Subcomm. on Energy and Environment of the Comm. on Energy and Commerce*, 111th Cong. 102 (2009) (Statement of Lisa P. Jackson, Administrator, U.S. Environmental Protection Agency) [hereinafter Jackson Statement]; Dean Scott, *Legislation: Jackson, Chu Give Climate Bill High Marks; Republicans Criticize Lack of Cost Analyses*, 40 ENV'T REP. (BNA) No.17, at 912 (Apr. 24, 2009).

287. Steven D. Cook, *Legislation: EPA Says Impact of Draft Bill Modest, Use of Offsets Would Cut Cost of Program*, 40 ENV'T REP. (BNA) No. 17, at 914 (Apr. 24, 2009); Stephen Power, *EPA Previews Carbon Caps' Impact*, WALL ST. J., Apr. 22, 2009, at A6 [hereinafter Power, *EPA Previews Carbon Caps' Impact*].

288. Broder, *2 Democrats Introduce Far-Reaching Bill on Energy and Warming*, *supra* note 278.

regulate GHG emissions and to preempt state climate change laws for five years without demanding any concessions from industry in return.[289] Democratic committee members from coal-producing states did not support the draft as written.[290] Among other things, they believed the 20% by 2020 goal was highly unrealistic.[291] Republicans were unified in opposition against the draft bill.[292]

Coal-dependent electric utility companies and the EEI supported the cap-and-trade concept, but they refused to support a bill that did not distribute free allowances to emitters.[293] They strongly opposed the renewable portfolio requirement, arguing that states were in a better position to impose such measures.[294] The CoC and several conservative think tanks objected to all of the measures in the draft.[295] The Heritage Foundation predicted that the Bill would impose a cost of $1600 a year on the average household and kill as many as three million manufacturing jobs.[296] The head of the CEI promised that his organization would "'work to see that it dies as quickly as possible.'"[297]

289. *See* Chemnick, *Waxman, Markey Seek Moderate Votes for Their Stringent Climate-Change Bill*, *supra* note 284 (quoting Doug Kendell, Constitutional Accountability Center); Juliet Eilperin, *House Panel Begins Debate on Climate Bill; Both Sides Press Their Cases as Lawmakers Weigh Limits on Carbon Emissions*, WASH. POST, Apr. 23, 2009, at A3 [hereinafter Eilperin, *House Panel Begins Debate on Climate Bill*] (clean energy companies).

290. Power, *EPA Previews Carbon Caps' Impact*, *supra* note 287; *Waxman/Markey Climate Draft Draws GOP Alternative*, PLATTS COAL OUTLOOK, Apr. 27, 2009, at 1, *available at* 2009 WLNR 8941484.

291. Power, *EPA Previews Carbon Caps' Impact*, *supra* note 287.

292. Cathy Cash, *US Energy Leaders Weigh GHG Compromise*, PLATTS OILGRAM NEWS, Apr. 27, 2009, at 7 [hereinafter Cash, *US Energy Leaders Weigh GHG Compromise*], *available at* 2009 WLNR 8942940.

293. Cathy Cash, *Moderates Try to Tone Down Stringent Climate Bill*, PLATTS INSIDE ENERGY, Apr. 27, 2009, at 1 [hereinafter Cash, *Moderates Try to Tone Down Stringent Climate Bill*], *available at* 2009 WLNR 8941907; Eilperin, *House Panel Begins Debate on Climate Bill*, *supra* note 289 (quoting David Ratcliffe, Southern Company).

294. Cash, *Moderates Try to Tone Down Stringent Climate Bill*, *supra* note 293 (quoting Jim Rogers, Duke Energy).

295. Michael Gerson, *Cap & Traitors: 8 Republicans Stand Tall on Climate Change*, WASH. POST, July 1, 2009, at A21; Anne C. Mulkern, *Coal Industry Sees Life or Death in Senate Climate Debate*, N.Y. TIMES, July 6, 2009 [hereinafter Mulkern, *Coal Industry Sees Life or Death in Senate Climate Debate*]; *Industry Fractures on Climate Policy*, *supra* note 23, at 1, 5–6; Ben Lieberman, *Proposed Global Warming Bills and Regulations Will Do More Harm Than Good*, HERITAGE FOUND. (Oct. 23, 2009), http://www.heritage.org/research/reports/2009/10/proposed-global-warming-bills-and-regulations-will-do-more-harm-than-good.

296. Billy House & Michael Posner, *Republicans Lash Out at Dems' 'National Energy Tax*,*'* CONGRESS DAILY (PM ED.), May 5, 2009.

297. Whieldon & Cash, *supra* note 275.

The CoC's adamant opposition to any climate change legislation caused three electric companies, PG&E, PNM Resources, and Exelon, to terminate their memberships in protest.[298] The companies preferred to live with the limited restrictions of a cap-and-trade program than with the uncertainties of no legislation or the strictures of EPA regulation under the Clean Air Act.[299] The American Coalition for Clean Coal Electricity ("ACCCE")—which included mining companies and electric utility companies—also lost members over its opposition to climate disruption legislation.[300] Duke Energy, Alstom Power, and Alcoa no longer wanted to be associated with a group that did not acknowledge the reality of climate disruption and the need for legislation to deal with it.[301]

President Obama dealt climate disruption legislation a minor setback when he decided to make health care reform his top legislative priority, after which the White House became absorbed in lengthy—but ultimately unproductive—negotiations with House and Senate Republican leaders over the content of the health care bill.[302] Pressed by the need to take up President Obama's health care legislation, Chairman Waxman decided to skip the subcommittee markup of the Waxman-Markey Bill and move directly to markup by the full committee.[303] But that required him to reach an accord with the committee's coal-state, oil-patch, and rust-belt Democrats and the lobbyists for the coal, oil refining, and manufacturing industries that were pressuring them.[304] Hoping to move the issue along, President Obama met with all of the Democratic committee members at the White House, at which time he indicated that he was willing to compromise on key issues.[305] As an

298. *Industry Fractures on Climate Policy*, *supra* note 23, at 5–6; *see also* Williamson, *supra* note 231.

299. *See Industry Fractures on Climate Policy*, *supra* note 23, at 5–6.

300. Steven Mufson, *New Groups Revive the Debate over Causes of Climate Change*, WASH. POST, Sept. 25, 2009, at A18 [hereinafter Mufson, *New Groups Revive the Debate over Causes of Climate Change*]; *Industry Fractures on Climate Policy*, *supra* note 23, at 6.

301. *Industry Fractures on Climate Policy*, *supra* note 23, at 6.

302. *See* ALTER, *supra* note 246, at 115–16.

303. Darren Goode, *Waxman, Checking Clock, Sticks to Memorial Day Goal*, CONGRESS DAILY (AM ED.), May 7, 2009 [hereinafter Goode, *Waxman, Checking Clock, Sticks to Memorial Day Goal*]; *see also* ALTER, *supra* note 246, at 260.

304. Dean Scott, *Legislation: Energy Committee Democrats Reach Deal on Key Issues, Setting Stage for Markup*, 40 ENV'T REP. (BNA) No. 20, at 1103 (May 15, 2009) [hereinafter Scott, *Legislation: Energy Committee Democrats Reach Deal on Key Issues*]; Steven Mufson, *Climate Bill Seeks a Broad Coalition; Legislation Would Cap Greenhouse Gases, Hand Out Billions to Utilities*, WASH. POST, May 16, 2009, at A9 [hereinafter Mufson, *Climate Bill Seeks a Broad Coalition*]; *see also* Goode, *Waxman, Checking Clock, Sticks to Memorial Day Goal*, *supra* note 303.

305. *See* Scott, *Legislation: Energy Committee Democrats Reach Deal on Key Issues*, *supra* note 304.

example, he dropped his opposition to giving free allowances to emitters during the first years of the program.[306]

Soon thereafter, on May 12, 2009, Waxman announced that the Democratic committee members had reached an agreement on a 932-page bill that they all could support.[307] Waxman agreed to lower the 2020 target for GHG emissions reductions from 20% below 2005 emissions to 17%.[308] He also agreed to give away more than half of the allowances to emitters and local distribution companies during the early years.[309] The largest portion—35%—would go to local distribution companies and would cover 90% of the current emissions of the electric utilities that provided their electricity.[310] The formula for dividing up allowances within the electric utility industry was derived from a consensus agreement arrived at by the EEI after two years of internal negotiations and was based on a fifty-fifty formula under which half of a plant's allowances would be based on emissions and half on energy output.[311] The agreement, however, left coal-dependent rural electrical cooperatives out in the cold.[312] In order to win the support of oil-patch and rust-belt Democrats, billions of dollars worth of free allowances would go to energy-intensive manufacturing industries (15%), gas utility companies (9%), refineries (2%), and automobile manufacturers (3%).[313]

306. *Id.*

307. Scott, *Legislation: Energy Committee Democrats Reach Deal on Key Issues*, *supra* note 304; Mufson, *Climate Bill Seeks a Broad Coalition*, *supra* note 304 (referencing a 932-page bill); Stephen Power & Siobhan Hughes, *House Democrats Reach Accord on a Climate Bill*, WALL ST. J., (May 13, 2009, 12:01 AM), http://online.wsj.com/news/articles/SB124215189512211567.

308. Scott, *Legislation: Energy Committee Democrats Reach Deal on Key Issues*, *supra* note 304; Power & Hughes, *supra* note 307.

309. *See* Power & Hughes, *supra* note 307.

310. *Energy Industry Holds Breath, if Not Nose, as Climate Legislation Recently Passed by House Committee Awaits Senate Response*, FOSTER NAT. GAS REP., June 5, 2009, *available at* 2009 WLNR 11307619.

311. Cathy Cash, *Carbon Cap Bill Jumps Hurdle with House Panel Approval; 'It's Out of the Starting Gate,'* ELECTRIC UTIL. WK., May 25, 2009, at 1 [hereinafter Cash, *Carbon Cap Bill Jumps Hurdle with House Panel Approval*], *available at* 2009 WLNR 10954153; Cathy Cash & Lisa Weinzimer, *House Leaders Make Dozens of Deals to Draw Votes for Groundbreaking Climate-Energy Bill*, ELECTRIC UTIL. WK., June 29, 2009, at 1, *available at* 2009 WLNR 13308032 (providing the fifty-fifty explanation).

312. *See* Cash, *Carbon Cap Bill Jumps Hurdle with House Panel Approval*, *supra* note 311.

313. Scott, *Legislation: Energy Committee Democrates Reach Deal on Key Issues*, *supra* note 304; Mufson, *Climate Bill Seeks a Broad Coalition*, *supra* note 304.

And the renewable energy mandate would drop from 25% by 2025 to 20%, with up to 8% coming from state efforts to enhance efficiency.[314]

Republican members of the committee prepared more than four hundred proposed amendments to the Bill in an effort to slow it down and hone their message that the Bill would kill jobs, harm consumers, and have little beneficial effect on the environment.[315] As the Republican members rallied against the *astronomical* costs of the Bill and the threat of *environmental socialism*, Democratic members chastised them for failing to negotiate in good faith over possible bipartisan amendments.[316] After a week of late-night markup sessions, the full committee voted out a bill that did not differ in any important way from the Democrat's compromise bill.[317] Four Democrats from Utah and the South voted against the Bill, and only one Republican from California voted for it.[318]

As the Energy and Commerce Committee was completing its work, trouble loomed on the horizon in the form of a request by Representative Collin Peterson (D-Minnesota) to have the Bill referred to the Agriculture Committee that he chaired.[319] Frequently at odds with environmental groups, Peterson had made light of global warming by stating that it would allow Minnesota farmers to grow more corn.[320] Peterson had a *long list* of issues that would have to be addressed to his satisfaction before he would be

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314. Scott, *Legislation: Energy Committee Democrats Reach Deal on Key Issues*, *supra* note 304; Darren Goode with Billy House, *Groups Step Up Climate Campaigns*, CONGRESS DAILY (AM ED.), June 9, 2009.

315. *See* Cathy Cash & Jean Chemnick, *Waxman Touts US Democrats' Energy Bill*, PLATT'S OILGRAM NEWS, May 19, 2009, at 9, *available at* 2009 WLNR 10538640 (400 amendments); Kathleen Hart, *Waxman Opens Weeklong Debate of Landmark House Cap-and-Trade Bill*, SNL ELECTRIC UTIL. REP., May 25, 2009, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "Waxman Opens Weeklong Debate"); *see also* Power & Hughes, *supra* note 307.

316. Hart, *supra* note 315 (environmental socialism); *see* Darren Goode, *EPA: Revised Panel Draft Less Costly to Firms, Consumers*, CONGRESS DAILY (PM ED.), May 19, 2009.

317. David A. Fahrenthold, *House Panel Passes Limit on Greenhouse-Gas Emissions*, WASH. POST, May 22, 2009, at A2 [hereinafter Fahrenthold, *House Panel Passes Limit on Greenhouse-Gas Emissions*]; *see* Mufson, *Climate Bill Seeks a Broad Coalition*, *supra* note 304.

318. Darren Goode, *Panel Completes Climate Marathon*, CONGRESS DAILY (AM ED.), May 22, 2009 [hereinafter Goode, *Panel Completes Climate Marathon*].

319. Fahrenthold, *House Panel Passes Limit on Greenhouse-Gas Emissions*, *supra* note 317; Jerry Hagstrom, *Peterson Raises Concerns About House Climate Measure*, CONGRESS DAILY (AM ED.), May 20, 2009 [hereinafter Hagstrom, *Peterson Raises Concerns About House Climate Measure*].

320. Stephen Power, *In the House, It's Peterson vs. Climate Bill*, WALL ST. J., June 22, 2009, at A4 [hereinafter Power, *In the House, It's Peterson vs. Climate Bill*].

willing to support the Bill.[321] Among other things, he wanted to protect United States farmers from international competition in the market for offsets, increase the allowances given to rural electrical coops and municipal power plants, and prohibit Wall Street banks from trading in the allowance markets.[322] He reported that forty-five additional Democrats shared his concerns.[323]

Lobbyists for farming and forestry interests stepped up their efforts to influence members of the House Agriculture Committee.[324] Constituents in the districts of all of the Democratic members of the House Agriculture Committee received emails and robocalls from the National Republican Congressional Committee and other opponents of the Bill characterizing it as a "job-killing climate bill."[325] Six organizations representing farmers and ranchers demanded that the Bill be amended to allow unlimited offsets from domestic, but not foreign, agriculture and forestry; notwithstanding the fact that GHG emissions from cattle—approximately one-quarter of United States methane emissions—and tilling soil on farms had been excluded from the Bill.[326] Another farmer alliance called for amending the Bill to provide for a list of pre-approved farming practices, such as planting trees, preserving forests, and no-till farming practices that would offset GHG emissions.[327] Both groups agreed with Agriculture Secretary Tom Vilsack's

321. Hagstrom, *Peterson Raises Concerns About House Climate Measure*, *supra* note 319.

322. Jean Chemnick, *Corn-Ethanol Spat Could Derail Major Climate Bill*, PLATTS INSIDE ENERGY, June 1, 2009, at 1, *available at* 2009 WLNR 11440851; Fahrenthold, *House Panel Passes Limit on Greenhouse-Gas Emissions*, *supra* note 317; Goode, *Panel Completes Climate Marathon*, *supra* note 318; Hagstrom, *Peterson Raises Concerns About House Climate Measure*, *supra* note 319.

323. Goode, *Panel Completes Climate Marathon*, *supra* note 318; *see also* Chemnick, *Corn-Ethanol Spat Could Derail Major Climate Bill*, *supra* note 322.

324. *Agriculture Groups Seek to Limit EPA Offset Role Under Climate Bill*, INSIDE EPA WKLY. REP., June 5, 2009, *available at* 2009 WLNR 10694952.

325. Darren Goode, *House Dem Leaders Reach Out to Disparate Caucuses*, CONGRESS DAILY, June 10, 2009 [hereinafter Goode, *House Dem Leaders Reach Out to Disparate Caucuses*], *available at* 2009 WLNR 11126252.

326. Steven D. Cook, *Legislation: Farm Groups Call for Climate Legislation to Allow Unlimited Agricultural Offsets*, 40 ENV'T REP. (BNA) No. 23, at 1286 (June 5, 2009) [hereinafter Cook, *Legislation: Farm Groups Call for Climate Legislation*]; Dina Cappiello, *Mythical Tax Has Farmers Defending Cow Gas; Powerful Lobby Ensures That Agriculture Is Exempt from Methane Regulation*, WASH. POST, June 28, 2009, at A2; *For the Farm Lobby, Too Much Is Never Enough*, WASH. POST, June 26, 2009, at A18.

327. Cook, *Legislation: Farm Groups Call for Climate Legislation*, *supra* note 326.

recommendation that Congress give the United States Department of Agriculture ("USDA") the authority to manage the offsets program.[328]

Waxman hoped to work out a deal with Peterson to avoid a nasty fight over amendments to the Bill in the Agriculture Committee.[329] Peterson was especially miffed by the fact that rural electric cooperatives received so few allowances in comparison to those awarded to utilities on the East and West Coasts.[330] Peterson also insisted on the transfer to USDA as a condition to going forward with the bill.[331] Waxman then met with the heads of the EEI and the National Rural Electric Cooperative Association ("NRECA") to iron out a compromise on the allocation issue that would be acceptable to the rural cooperatives.[332] Two days before the June 26th floor debates, Waxman and Peterson struck a deal in which Waxman effectively capitulated to the demands of farm-state Democrats.[333] USDA would oversee the offsets markets.[334] The Bill required non-coal-dependent companies to surrender some of their allowances to coal-dependent rural cooperatives, allocating 0.5% of allowances specifically to small utility companies that generated "less than [four] million megawatt hours."[335] The net effect of the changes was to channel billions of dollars worth of allowances to the agricultural sector and to lodge a critical piece of the

328. Cook, *Legislation: Farm Groups Call for Climate Legislation*, *supra* note 326; Jerry Hagstrom, *Vilsack Makes a Bid to Oversee Climate Change Efforts*, CONGRESSDAILY, June 3, 2009, *available at* 2009 WLNR 10638586; *Agriculture Groups Seek to Limit EPA Offset Role Under Climate Bill*, *supra* note 324.

329. Goode, *House Dem Leaders Reach Out to Disparate Caucuses*, *supra* note 325.

330. Darren Goode, *Peterson Concerned About Emissions Allocation Formula*, CONGRESS DAILY (AM ED.), June 17, 2009 [hereinafter Goode, *Peterson Concerned About Emissions Allocation Formula*].

331. *See* Steven D. Cook, *Legislation: Vilsack Defends Cap-and-Trade System, Says Agriculture, Forestry Must Play Role*, 40 ENV'T REP. (BNA) No. 25, at 1419 (June 19, 2009).

332. Cathy Cash, *Co-ops Make the Coal-State Allowance Issue a Key One in Climate Bill's Push to House Vote*, ELECTRIC UTIL. WK., June 22, 2009, *available at* 2009 WLNR 12846014; *see* Goode, *Peterson Concerned About Emissions Allocation Formula*, *supra* note 330.

333. Dean Scott, *Legislation: Climate Bill Slated for House Floor Vote; Waxman, Other Chairmen Reach Agreements*, 40 ENV'T REP. (BNA) No. 26, at 1489 (June 26, 2009) [hereinafter Scott, *Legislation: Climate Bill Slated for House Floor Vote*]; Darren Goode, *Waxman, Peterson Have Climate Deal*, CONGRESS DAILY (AM ED.), June 24, 2009 [hereinafter Goode, *Waxman, Peterson Have Climate Deal*].

334. Scott, *Legislation: Climate Bill Slated for House Floor Vote*, *supra* note 333; Goode, *Waxman, Peterson Have Climate Deal*, *supra* note 333.

335. Goode, *Waxman, Peterson Have Climate Deal*, *supra* note 333.

regulatory program in a department that had historically placed agricultural interests over environmental concerns.[336]

As the Bill neared consideration by the full House at the end of June, however, President Obama began to vigorously lobby Democratic members to vote for it.[337] EPA released an analysis of the most recent version that concluded that the average annual household cost of compliance with its provisions would be somewhere between $80 and $111, or 22¢ and 30¢ per day.[338] In other words, the Bill was quite affordable. Despite EPA's assessment, the National Republican Congressional Committee aired advertisements featuring its claim that the Bill would add $1800 to the average annual electric bills of middle-class families.[339]

The bill that the House took up on June 26 had expanded to more than 1200 pages, reflecting dozens of deals that Waxman and Markey had made with wavering Democrats.[340] Nevertheless, the major environmental and consumer groups held their collective noses and supported the compromise bill with all of its warts.[341] Several groups, including EEI,[342] the AGA,[343] and the NRECA,[344] supported the Bill, but planned to demand changes in the Senate.[345] The trade associations for farming interests and rural electric cooperatives were pleased with the changes, but divided on

336. *Reap What We Sow; the Agriculture Lobby's Fingerprints are All over a Crucial Bill to Fight Global Warming*, L.A. TIMES, June 26, 2009, at A32; *see* Power, *In the House, It's Peterson vs. Climate Bill*, *supra* note 320.

337. Paul West, *Obama Lobbies for Climate Bill; He Says It Would Help Save as Much as the U.S. Imports from the Persian Gulf. Figures are Conflicting*, L.A. TIMES, June 25, 2009, at A16; *see* Scott, *Legislation: Climate Bill Slated for House Floor Vote*, *supra* note 333; Ian Talley & Siobhan Hughes, *Climate Bill Set for Vote After Deal Is Reached*, WALL ST. J., June 24, 2009, at A6.

338. Darren Goode with Billy House, *EPA Sees Low Annual Cost For Waxman Bill*, CONGRESS DAILY (PM ED.), June 23, 2009.

339. *House-Passed Climate Bill Will Promote Renewable Energy and Create Jobs, Says Majority; Republicans Decry "National Energy Tax," While Oil and Gas Producers Hope for Better Deal in Senate*, FOSTER NAT. GAS REP., July 3, 2009, at 1, *available at* 2009 WLNR 13182676.

340. Scott, *Legislation: Climate Bill Slated for House Floor Vote*, *supra* note 333; *see also* Cash & Weinzimer, *supra* note 311.

341. Dawn Reeves, *To Move House Climate Bill, Activists Soften Push for GHG Standards*, INSIDE EPA WKLY. REP., June 26, 2009, *available at* 2009 WLNR 12136952.

342. Greg Hitt & Naftali Bendavid, *Obama Wary of Tariff Provision—Trade Proposal in Climate Bill a Potential Problem as Action Moves to Senate*, WALL ST. J., June 29, 2009, at A3; Michael Lusti, *Utility Industry Leaders Declare Waxman-Markey Bill 'Greatly Improved,'* SNL ENERGY POWER WK. CAN., June 29, 2009.

343. *House-Passed Climate Bill Will Promote Renewable Energy and Create Jobs, Says Majority; Republicans Decry "National Energy Tax," While Oil and Gas Producers Hope for Better Deal in Senate*, *supra* note 339.

344. Cash & Weinzimer, *supra* note 311.

345. *See id.*

whether to support the overall Bill.[346] The CoC, the NAM, the Independent Petroleum Association of America, and the ACCCE all opposed the Bill.[347]

The Bill passed by a narrow 219–212 margin.[348] Forty-four House Democrats—nearly 20%—voted against the Bill, and eight Republicans voted for it.[349] The fact that the Climate Action Partnership supported the Bill made it easier for some Democrats to vote favorably.[350] The final Bill established a multi-sector cap-and-trade regime that capped GHG emissions at 17% below 2005 emissions by 2020, 42% by 2040, and 83% by 2050.[351] The allowance markets were overseen by the FERC and the allowance derivatives markets by the Commodity Futures Trading Commission ("CFTC").[352] The Bill set aside allowances for the EPA to distribute to various public and private beneficiaries in accordance with formulas provided for in the statute.[353] Beginning in 2026, the allowance gifts would be gradually phased out until they ended in 2035, at which point all allowances would be allocated by auction.[354] The allowances set aside for the electric utility industry would be allocated to local distribution companies so that state public utility commissions would have the power to ensure that retail consumers received their economic benefit.[355]

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346. Jerry Hagstrom, *Mixed Reactions from Farm Groups on House Climate Bill*, CONGRESS DAILY (AM ED.), June 26, 2009; Jerry Hagstrom & Darren Goode, *Lobbyists Lukewarm on House Climate Change Package*, CONGRESS DAILY, June 25, 2009, *available at* 2009 WLNR 12172796.

347. Hitt & Bendavid, *supra* note 342; *House-Passed Climate Bill Will Promote Renewable Energy and Create Jobs, Says Majority; Republicans Decry "National Energy Tax," While Oil and Gas Producers Hope for Better Deal in Senate*, *supra* note 339; *Waxman-Markey, Characterized As 'A Pile of (Bleep)' by One Lawmaker*, U.S. COAL REV., July 6, 2009.

348. Hitt & Bendavid, *supra* note 342.

349. *House-Passed Climate Bill Will Promote Renewable Energy and Create Jobs, Says Majority; Republicans Decry "National Energy Tax," While Oil and Gas Producers Hope for Better Deal in Senate*, *supra* note 339; *Waxman-Markey, Characterized As 'A Pile of (Bleep)' by One Lawmaker*, *supra* note 347.

350. Darren Goode, *House Democrats Near Impasse as Climate Talks Intensify*, CONGRESS DAILY (AM ED.), June 11, 2009.

351. Hitt & Bendavid, *supra* note 342.

352. Cathy Cash et al., *Tackling Climate Change, Senate Immediately Delays Action, Identifies Tough Issues for Debate*, ELECTRIC UTIL. WK., July 13, 2009, at 1, *available at* 2009 WLNR 14401949.

353. Tom Tiernan, *Deep in the Weeds of Allowance Allocations, No Clear Path for Impact on Utility Customers*, ELECTRIC UTIL. WK., July 6, 2009, at 3 [hereinafter Tiernan, *Deep in the Weeds of Allowance Allocations*], *available at* 2009 WLNR 13824309.

354. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 764(a)(1)(B) (2009); Tiernan, *Deep in the Weeds of Allowance Allocations*, *supra* note 353.

355. Tiernan, *Deep in the Weeds of Allowance Allocations*, *supra* note 353.

Instead of reducing emissions, emitters could purchase offset credits on a one-to-one basis—not the five-to-four basis of the original Bill.[356] Each offset credit would represent one ton of CO2 emissions removed from the atmosphere by declining to engage in activities that would otherwise result in CO2 emissions; planting vegetation to take CO2 out of the atmosphere, capturing methane emissions from cow manure, or other forms of permanent carbon sequestration.[357] The USDA would oversee the offset markets.[358] The Bill established an overall limit of two billion tons of offset credits per year, only half of which could come from international sources.[359] The Bill also contained a renewable energy portfolio mandate under which utilities would be required to generate 15% of their electricity from renewable sources and save 5% from energy efficiency by 2020.[360] This was far less ambitious than many existing state renewable energy standards.[361] To provide a safety valve, the bill established a $25 per megawatt–hour alternative compliance payment that a utility company could pay in lieu of a renewable energy credit.[362] Finally, the Bill retained a technology-based requirement—new power plants would have to emit 50% fewer GHGs and plants built after 2020 would have to emit 65% fewer GHGs than existing plants.[363]

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356. Stephen Power, *Impact of 'Offsets' to Limit Emissions Is Uncertain—Tool for Firms to Avoid Cutting Output Through 'Green' Investments Elsewhere Involves Political, Practical Hurdles*, WALL ST. J., June 27, 2009, at A2; *How Offset Credits Will Work Under Waxman-Markey Climate Bill*, OIL DAILY, July 22, 2009. International offsets purchased after 2017 would have remained subject to the five-to-four restriction. *Moving America Toward a Clean Energy Economy and Reducing Global Warming Pollution: Legislative Tools: Hearing Before the Senate Env't and Pub. Works Comm.*, 111th Cong. 29–30 (2009) (testimony of David G. Hawkins, Director of Climate Programs, Natural Resources Defense Counsel) [hereinafter Hawkins Testimony].

357. *How Offset Credits Will Work Under Waxman-Markey Climate Bill*, *supra* note 356.

358. *Id.*

359. *Id.*

360. *House-Passed Climate Bill Will Promote Renewable Energy and Create Jobs, Says Majority; Republicans Decry "National Energy Tax," While Oil and Gas Producers Hope for Better Deal in Senate*, *supra* note 339.

361. *See* Jennifer Zajac, *Federal RECs in Waxman-Markey Bill Raise Questions on Fate of State RECs*, SNL ELECTRIC UTIL. REP., July 13, 2009, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "Federal RECs").

362. *Id.*

363. Wayne Barber, *Waxman-Markey Targets New Coal Plant Performance*, SNL ENERGY COAL REP., July 13, 2009; David A. Fahrenthold & Steven Mufson, *Deconstructing the Climate Bill; Q&A on the Mammoth House Measure*, WASH. POST, July 6, 2009, at A6.

In anticipation of Senate consideration of the House-passed bill, a number of governmental and private sector entities produced analyses of the House bill.[364] In late July, the USDA released a study concluding that the Waxman-Markey Bill would impose very little short-run cost in the form of increased prices for fuel and fertilizer on farms, and in the long run, farmers would come out ahead because of the ability to sell offsets to GHG emitting companies.[365] An analysis prepared by the DOE's Energy Information Administration concluded that the Bill would probably increase average household energy costs by $114 in 2020 and $288 in 2030.[366] A study prepared for NAM by Science Applications International Corporation, by contrast, concluded that the Bill would reduce the gross domestic product by a minimum of 1.8% by 2030, reduce household income by at least $730, and bring about the loss of at least 1.7 million jobs.[367] The Heritage Foundation warned that the Bill could cause gasoline prices to go up 74% by 2035.[368]

E. *The Kerry-Graham-Lieberman Bill in the 111th Congress*

The lobbyists for the various interest groups now turned their attention to the Senate, where things were moving with far less dispatch than in the House.[369] As in the House, the CoC and many coal and oil companies joined the CEI and the Heritage Foundation in opposing all climate change legislation.[370] Many groups that had supported the final House Bill now hoped to persuade the Senate to include provisions that had been deleted from the House Bill or remove provisions from the House Bill that they had failed to defeat.[371] The electric utility industry came together to lobby for lower targets for the caps, less ambitious deadlines, more allowances for electric utilities, and a *price collar* that would set a minimum and a

364. *See, e.g.*, Dean Scott, *Legislation: USDA Study Estimates Little Cost to Farms from House Bill, but Senators Are Skeptical*, 40 ENV'T REP. (BNA) No. 30, at 1755 (July 24, 2009).

365. *Id.*

366. Ari Natter, *Legislation: Report Says House Climate Bill Increases Household Energy Costs by $114 in 2020*, 40 ENV'T REP. (BNA) No. 32, at 1882 (Aug. 7, 2009).

367. Leora Falk, *Legislation: Waxman-Markey Bill Would Lead to Job Loss, Slower Growth, Manufacturing Group Says*, 40 ENV'T REP. (BNA) No. 33, at 1939 (Aug. 14, 2009).

368. *House-Passed Climate Bill Will Promote Renewable Energy and Create Jobs, Says Majority; Republicans Decry "National Energy Tax," While Oil and Gas Producers Hope for Better Deal in Senate*, *supra* note 339.

369. *Id.*

370. *See* Lieberman, *supra* note 295; Mulkern, *Coal Industry Sees Life or Death in Senate Climate Debate*, *supra* note 295.

371. Tiernan, *Deep in the Weeds of Allowance Allocations*, *supra* note 353.

maximum price on allowances.[372] The high end of the price collar would act as a safety valve to ensure against disruptive price spikes, and the low end would provide assurance to a company and its bankers that the price of allowances would not drop below the statutory price, as it was comparing the purchase of allowances to investing in GHG emissions reductions technologies.[373] The NRECA wanted the Senate to distribute all allowances based on the carbon content of the fuel used, rather than using the EEI formula that distributed half on the basis of electrical output.[374] A new group of coal-dependent power companies called *Generators for Affordable Power* was formed specifically with the goal of ensuring that unregulated merchant generators received their fair share of allowances in any cap-and-trade legislation.[375]

Environmental groups wanted the Senate to set the 2020 cap at 20% below 2005 emissions and to require all allowance trading to be conducted on regulated public exchanges.[376] They strongly objected to giving the USDA authority over offsets and allowance trading.[377] In addition, they urged the Senate to prohibit any source that was out of compliance with the Clean Air Act's requirements for conventional pollutants from receiving free allowances and from purchasing offsets in the climate change program.[378] They also

372. *See* Cathy Cash, *Allowance Game Continues; PG&E's Darbee Tries to Persuade Against Utility 'Balkanization,'* ELECTRIC UTIL. WK., Sept. 28, 2009, at 1 [hereinafter Cash, *Allowance Game Continues*], *available at* 2009 WLNR 20114210; Cathy Cash, *Senate Climate Bill Debate to Heat up as Utilities Target Carbon Allowances*, PLATTS INSIDE FERC, July 6, 2009 [hereinafter Cash, *Senate Climate Bill Debate to Heat up as Utilities Target Carbon Allowances*], *available at* 2009 WLNR 13823963; Cathy Cash et al., *Senators Mull Provision to Block EPA, States from Regulating Carbon Emissions*, PLATTS INSIDE ENERGY, Mar. 22, 2010, at 3 [hereinafter Cash et al., *Senators Mull Provision to Block EPA, States from Regulating Carbon Emissions*], *available at* 2010 WLNR 7051518.

373. *See* Cathy Cash, *Electricity Rates on List of Considerations as Senators Contemplate GHG Bill*, PLATTS COAL OUTLOOK, May 24, 2010, at 1 [hereinafter Cash, *Electricity Rates on List of Considerations as Senators Contemplate GHG Bill*], *available at* 2010 WLNR 11605741.

374. Cash, *Senate Climate Bill Debate to Heat up as Utilities Target Carbon Allowances*, *supra* note 372; Kathleen Hart, *Rural Cooperatives Push Boxer to Make Senate Cap-and-Trade Bill Affordable*, SNL ELECTRIC UTIL. REP., Aug. 17, 2009, *available at* http://www.lexisnexis.com (select "Secondary Materials"; search and select "SNL Electric Utility Report"; search "Rural Cooperatives Push Boxer"); Tom Tiernan, *Allocations to Merchants Reveal Fault Lines in Industry Support for Climate Change Bill*, ELECTRIC UTIL. WK., July 20, 2009, at 1 [hereinafter Tiernan, *Allocations to Merchants Reveal Fault Lines*], *available at* 2009 WLNR 14961067.

375. Tiernan, *Allocations to Merchants Reveal Fault Lines*, *supra* note 374.

376. *Hawkins Testimony*, *supra* note 356, at 4–6.

377. *Id.* at 31–32.

378. *Id.* at 6–7.

urged the senators to refrain from preempting EPA and state regulation of GHG emissions under their existing authorities.[379]

Senator Barbara Boxer, who remained chairperson of the Environment and Public Works Committee, decided to proceed cautiously until she was confident that she had sixty votes lined up to end the guaranteed Republican filibuster.[380] To accomplish this, she had to seek an accommodation with a group of sixteen Democratic senators from coal-dependent states that had coalesced during the defeat of climate change legislation in the 110th Congress.[381] The committee kicked off its work on the climate disruption Bill with a hearing on July 7th featuring EPA Administrator Lisa Jackson, Secretary of Agriculture Tom Vilsack, Secretary of Energy Steven Chu, and Interior Secretary Ken Salazar;[382] all four of whom urged the committee to report out a bill similar to the House Bill.[383] At the same time, Senator Boxer and Senator John Kerry (D-Massachusetts)—a strong supporter of stringent climate change legislation—met with coal-state, farm-belt, and rust-belt Democrats to address their concerns and to negotiate over potential changes to the Bill.[384]

Agricultural interests dominated the hearing that the Senate Agriculture Committee held in late July 2009.[385] They argued that up to 5% of the allowances should go directly to farmers to offset the higher prices they would probably have to pay for fuel and fertilizer after cap-and-trade provisions went into effect.[386] The American Farm Bureau Federation ("AFBF") continued to oppose the Bill in its entirety.[387] The Democrats on the Committee were sympathetic to the pleas for more allowances, while the Republicans tended to take the AFBF position that no bill was necessary.[388]

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379. *Id.* at 23–24.

380. Darren Goode & Peter Cohn with Billy House, *Rangel, Pelosi Get Wires Crossed a Bit on Climate Change, Health Care Order*, CONGRESS DAILY (AM ED.), June 3, 2009.

381. Broder, *Geography Is Dividing Democrats over Energy*, *supra* note 256.

382. Cash, *Senate Climate Bill Debate to Heat Up as Utilities Target Carbon Allowances*, *supra* note 372; Jean Chemnick, *Panel Set to Kick off US Senate Climate Bill Action*, PLATTS OILGRAM NEWS, July 3, 2009, at 8, *available at* 2009 WLNR 13671023; *Senate Gets to Grips with Climate Change Bill*, OIL DAILY, July 8, 2009.

383. Darren Goode, *Top Officials Pitch Climate Bill to Senators*, CONGRESS DAILY (PM ED.), July 7, 2009; *Senate Gets to Grips with Climate Change Bill*, *supra* note 382.

384. Doug Obey & Nick Juliano, *Senate Democrats Take Steps to Build Support for Climate Bill*, INSIDE EPA WKLY. REP., July 17, 2009, *available at* 2009 WLNR 13563377.

385. *See* Dean Scott, *Legislation: Farm Group Wants Free Allowances in Bill to Offset Expected Higher Cost of Materials*, 40 ENV'T REP. (BNA) No. 30, at 1756 (July 24, 2009).

386. *Id.*

387. *Id.*

388. *Id.*

Committee Chairman Tom Harkin (D-Iowa) expressed support for an *off ramp* that would allow the United States to abandon the cap-and-trade program if China and India declined to implement equivalent programs in the near future.[389]

Finance Committee Chairman Max Baucus (D-Montana) also claimed jurisdiction over both the allowance allocation and the international trade aspects of any cap-and-trade bill.[390] Baucus represented Montana, a major coal-producing state with a large number of rural cooperatives, and he was determined to protect the interests of both industries.[391] He sided with the coal-dependent utility companies who believed that free allocations to electric companies should be based on historical emissions alone and not on the EEI's 50–50 formula that also relied on energy output.[392] The Finance Committee heard from economists from across the political spectrum who urged the Senate to abandon the idea of allocating allowances for free and to distribute allowances through a more efficient auction.[393] An economist for the Environmental Defense Fund testified in support of the House Bill, which, in his view, channeled 43% of the value of the allowances to consumers.[394] But Baucus made it clear that he was not sold on the allocation arrangements in the House Bill.[395]

While Congress took its August recess, a river of money flowed into grassroots efforts to build support for and against climate disruption legislation.[396] The NAM and the National Federation of Independent

389. David Bennett, *Cap and Trade—Tough Questions*, DELTA FARM PRESS (July 30, 2009), http://deltafarmpress.com/print/management/cap-and-trade-tough-questions.

390. *See* Cathy Cash, *Baucus Claims Key Aspect of Senate Climate Bill*, PLATTS INSIDE ENERGY, July 27, 2009, at 1, *available at* 2009 WLNR 15448965.

391. *Id.*

392. *See id.*

393. *Climate Change Legislation: Allowance and Revenue Distribution: Hearing Before the U.S. Senate Comm. on Fin.*, 111th Cong. 1 (2009) (testimony of Dallas Burtraw, Senior Fellow, Resource for the Future, Washington, District of Columbia) [hereinafter Burtraw Testimony]; *Climate Change Legislation: Allowance and Revenue Distribution: Hearing Before the U.S. Senate Comm. on Fin.*, 111th Cong. 1 (2009) (testimony of Alan D. Viard, Resident Scholar, American Enterprise Institute) [hereinafter Viard Testimony].

394. *Climate Change Legislation: Allowance and Revenue Distribution: Hearing Before the U.S. Senate Comm. on Fin.*, 111th Cong. 2 (2009) (testimony of Nathaniel O. Keohane, Director of Economic Policy and Analysis Environmental Defense Fund) [hereinafter Keohane Testimony].

395. Cathy Cash, *Price 'Collar' on Carbon Gains Traction in Senate as Lawmakers Strive for Vote-getting Measure*, ELECTRIC UTIL. WK., Aug. 10, 2009, at 1, *available at* 2009 WLNR 16499886.

396. Darren Goode, *Climate Bill Backers Unveil Large-Scale Effort for 28 States*, CONGRESS DAILY (AM ED.), Sept. 9, 2009 [hereinafter Goode, *Climate Bill Backers Unveil Large-Scale Effort for 28 States*].

Businesses spent several million dollars on television ads in thirteen swing states characterizing such legislation as *anti-jobs* and *anti-energy*.[397] Americans for Prosperity, an offshoot of Citizens for a Sound Economy that was likewise funded by the Koch brothers—whose petroleum interests were directly affected by the proposals—hosted eighty *grassroots* events at which speakers asserted—erroneously—that backyard barbeques would be taxed if Congress enacted the House Bill.[398]

The AEA arranged a bus tour through coal-producing and manufacturing states to stir up public opposition to any climate change bill.[399] The CoC staged its own road show demanding that EPA hold a modern "Scopes Monkey Trial" to debunk the evidence that GHG emissions caused global warming.[400] Another industry-funded grassroots group called Energy Citizens sponsored rallies featuring ready-made signs for members of the crowds to display to local media and a video of a country western star bemoaning the higher energy costs that would follow the enactment of a climate change bill.[401] Still another industry-funded group called *CO2 is Green*, which was created in 2009 for the purpose of influencing the climate disruption debate, began running advertisements in Montana and New Mexico aimed at Senators Max Baucus and Jeff Bingaman, arguing that increasing GHG emissions would help the planet's ecosystems and that reducing them would kill jobs.[402] Several thousands of oil industry employees were bussed to a rally against climate disruption legislation in

397. Cathy Cash, *EPA's 'Endangerment Finding' Could Spur Senate to Act on Climate Legislation*, PLATTS INSIDE ENERGY, Aug. 31, 2009, at 3, 4 [hereinafter Cash, *EPA's 'Endangerment Finding' Could Spur Senate to Act on Climate Legislation*]; David A. Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate; Opponents Seize Initiative as Senate Bill Nears*, WASH. POST, Aug. 31, 2009, at A1 [hereinafter Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*]; Goode, *Climate Bill Backers Unveil Large-Scale Effort for 28 States*, *supra* note 396.

398. Jane Mayer, *The Billionare Brothers Who Are Waging War Against Obama*, NEW YORKER, Aug. 30, 2010, http://www.newyorker.com/reporting/2010/08/30/100830fa_fact_mayer?currentPage=all.

399. Cathy Cash, *Unions, Enviros Pressure Congress on Climate Bill*, PLATTS COAL OUTLOOK, Aug. 24, 2009, at 1, *available at* 2009 WLNR 17597644; *see also* Juliet Eilperin, *Climate Bill Faces Hurdles in Senate; Democrats Deeply Split Deal on Nuclear Plants Offered to Court Republicans*, WASH. POST, Nov. 2, 2009, at A1 [hereinafter Eilperin, *Climate Bill Faces Hurdles in Senate*] (industry funding).

400. Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397.

401. *See* Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397; Mufson, *New Groups Revive the Debate over Causes of Climate Change*, *supra* note 300.

402. Mufson, *New Groups Revive the Debate over Causes of Climate Change*, *supra* note 300. One of the group's founders was Corbin J. Robertson, Jr.—perhaps the largest private owner of coal resources in the country. *See id.*

downtown Houston, where they enjoyed hamburgers and hot dogs, heard a local high school band, and received free t-shirts saying, "I'll pass on $4 gas."[403]

To rally support for climate change legislation, environmental groups purchased television ads, operated phone banks, and sponsored public events.[404] The Alliance for Climate Protection, a group assembled by former Vice President Al Gore, and the Blue-Green Alliance, an umbrella organization of environmental groups and labor unions, undertook a twenty-two-state, *Made in America Jobs Tour* to demonstrate how such legislation would create good jobs.[405] In September, a coalition of sixty-eight environmental, labor, civil rights, and consumer groups calling itself the Clean Energy Works Campaign, launched a $20 million advertising campaign, run by a former top media advisor to the Obama presidential campaign to support the enactment of climate change legislation.[406] A major grassroots effort to generate calls, letters, and emails to key members of Congress accompanied the ad campaign.[407]

Flanked by military veterans, clean energy entrepreneurs, and state and local lawmakers, Senators Boxer and Kerry, in late September, unveiled an eight hundred-page draft climate disruption bill.[408] The Bill established a cap-and-trade regime for all facilities emitting more than 25,000 tons of GHGs per year that reduced GHG emissions by 20% below 2005 levels—higher than the House bill's 17%—by 2020, 41% by 2030, and 83% percent by 2050.[409] Although the draft resembled the House Bill on many critical

403. Paul Burka, *Cap and Tirade*, TEX. MONTHLY, Nov. 2009, at 14, 14.

404. Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397.

405. *Id.*; Goode, *Climate Bill Backers Unveil Large-Scale Effort for 28 States*, *supra* note 396; Press Release, Natural Res. Def. Council, Made in America Job Tour Stops in Gary, Highlighs Clean Energy in Indiana (Sept. 2, 2009), http://www.nrdc.org/media/2009/090902.asp.

406. Goode, *Climate Bill Backers Unveil Large-Scale Effort for 28 States*, *supra* note 396.

407. *See id.*

408. Christine Cordner, *Draft Legislation Punts on Oversight, Collar*, PLATTS MEGAWATT DAILY, Sept. 30, 2009, at 1, *available at* 2009 WLNR 20275098; Juliet Eilperin, *EPA, Senate Take Aim at Greenhouse Gases; Biggest Polluters Are in Cross Hairs*, WASH. POST, Oct. 1, 2009, at A3 [hereinafter Eilperin, *EPA, Senate Take Aim at Greenhouse Gases*].

409. Dean Scott, *Legislation: Bill Maintains Emissions Cuts, EPA Authority, Leaves Negotiating Room for Senate Debate*, 40 ENV'T REP. (BNA) No. 39, at 2282 (Oct. 2, 2009) [hereineafter Scott, *Legislation: Bill Maintains Emissions Cuts*]; Eilperin, *House Panel Begins Debate on Climate Bill*, *supra* note 289; Jay Hodgkins, *Analyst: Senate Climate Bill Slightly Tougher than House's; EPA Option Likely Toughest*, SNL RENEWABLE ENERGY WKLY., Oct. 9, 2009 [hereinafter Hodgkins, *Analyst: Senate Climate Bill Slightly Tougher than House's*]; Gerald Karey & Cathy Cash, *EPA Unveils First-Time GHG Regulation Plan*, PLATTS OILGRAM NEWS, Oct. 1, 2009, at 1, *available at* 2009 WLNR 20343953.

issues, it contained some important differences.[410] For example, it established a *soft* price collar that set a minimum price for auctioned allowances of $10 per ton and created a *strategic reserve* of allocations to be sold at a minimum price of $28 per ton at first and increasing 5% plus inflation per year for five years and by 7% plus inflation per year thereafter.[411] Unlike the House bill, the Bill would have preserved EPA's authority to apply the new source review and new source performance standards of the Clean Air Act to GHG emissions.[412] The draft left some critical questions unanswered because they came under the jurisdiction of other committees.[413] Although 25% of the allowances would be auctioned in the early years—more than the 15% in the House bill—the Bill did not address how the remaining allowances would be allocated among the targeted recipients.[414] The Finance Committee would have to resolve those issues.[415] It also failed to specify which agency would oversee the allowance and allowance derivatives markets.[416]

The draft was an immediate flop with the audience that mattered most—Democratic senators from coal-producing, oil-patch, and rust-belt states.[417] Senators Ben Nelson (D-Nebraska) and Mary Landrieu (D-Louisiana) said they would not vote for the Bill because it adopted a cap-and-trade approach.[418] Senator Jay Rockefeller (D-West Virginia) called the Bill a "'disappointing step in the wrong direction'" because it did not give electric utilities sufficient time to develop and deploy CCS technology.[419] Senators Byron Dorgan (D-North Dakota) and Kent Conrad (D-North Dakota) thought the 20% by 2020 emissions reduction target was too

410. Cordner, *Draft Legislation Punts on Oversight, Collar*, *supra* note 408.

411. *Id.*; Christine Cordner, *Senate Bill to Set Floor on Auctioned Allowances*, PLATTS MEGAWATT DAILY, Oct. 1, 2009, at 1, *available at* 2009 WLNR 20343286; Eilperin, *EPA, Senate Take Aim at Greenhouse Gases*, *supra* note 408.

412. Scott, *Legislation: Bill Maintains Emissions Cuts*, *supra* note 409; Hodgkins, *Analyst: Senate Climate Bill Slightly Tougher than House's*, *supra* note 409.

413. *See* Hodgkins, *Analyst: Senate Climate Bill Slightly Tougher than House's*, *supra* note 409.

414. Eilperin, *EPA, Senate Take Aim at Greenhouse Gases*, *supra* note 408; Hodgkins, *Analyst: Senate Climate Bill Slightly Tougher than House's*, *supra* note 409.

415. *See* Karey & Cash, *supra* note 409.

416. *See* Cathy Cash et al., *Senate Climate Change Bill Punts on Market Oversight, Would Set Carbon Emissions Cap*, PLATT'S INSIDE FERC, Oct. 5, 2009, at 7, *available at* 2009 WLNR 20647813.

417. *Id.*; Darren Goode, *Senate Climate Bill Sets Higher Reduction Targets than House*, CONGRESS DAILY (AM ED.), Sept. 30, 2009.

418. Goode, *supra* note 417.

419. Darren Goode & Dan Friedman, *Senate Democrats Have Uncertain Path for Climate Measure*, CONGRESS DAILY (AM ED.), Oct. 1, 2009.

ambitious.[420] Senator Claire McCaskill (D-Missouri) was also concerned about the Bill's *aggressive* deadlines.[421] When not a single Republican senator ventured out of the fold to support the Bill, it became clear that supporters did not have nearly enough votes to overcome a promised Republican filibuster.[422]

Unwilling to concede failure, Senator Kerry made an overture to Senator Lindsey Graham (R-South Carolina) to come up with a bill that could attract bipartisan support.[423] In a *New York Times* editorial, on October 11th, Senators Kerry and Graham announced that they had come up with a framework for climate disruption legislation that would attract the necessary sixty votes.[424] In support of their framework, they argued that sending "$800 million a day to sometimes-hostile oil-producing countries threaten[ed] [national] security."[425] They warned opponents of the legislation that failure to act would leave climate change regulation to EPA and the clumsy tools available to it under the Clean Air Act.[426] President Obama immediately jumped on the bandwagon.[427] In a speech at the Massachusetts Institute of Technology, the President praised Kerry for reaching out to Republicans, and he attacked "the naysayers" who pretended that global warming was not an issue.[428]

While Senators Kerry and Graham drafted their Bill, Kerry and Senator Boxer filled in some missing details of the Kerry-Boxer Bill, made some minor adjustments, and added some allowance giveaways to make it more palatable to affected industries.[429] At that point, the Bill had blossomed

420. Scott, *Legislation: Bill Maintains Emissions Cuts*, *supra* note 409.

421. *Kerry-Boxer Climate Bill Poses New Challenge to Environmental Groups*, INSIDE EPA WKLY. REP., Oct. 2, 2009, *available at* 2009 WLNR 19327749.

422. Cathy Cash, *Utilities Take Long View on Cap-and-Trade Bill*, PLATTS MEGAWATT DAILY, Oct. 27, 2009 [hereinafter Cash, *Utilities Take Long View on Cap-and Trade Bill*], *available at* 2009 WLNR 22505882; Juliet Eilperin & Michael D. Shear, *Obama Urged to Intensify Push for Climate Measure; Backers Fear Administration Is Giving Issue Short Shrift*, WASH. POST, Oct. 12, 2009, at A3.

423. John Kerry & Lindsey Graham, *Yes We Can (Pass Climate Change Legislation)*, N.Y. TIMES, Oct. 11, 2009, at WK11.

424. *Id.*

425. *Id.*

426. *See id.*

427. Darren Goode & George E. Condon, Jr., *Obama Praises Bipartisan Climate Efforts*, CONGRESS DAILY (PM ED.), Oct. 23, 2009.

428. *Id.*

429. *See* John M. Broder, *Senate Global Warming Bill Is Seeking to Cushion the Impact on Industry*, N.Y. TIMES, Oct. 25, 2009, at 16; Steven Mufson & Juliet Eilperin, *Senate's Climate Bill a Bit More Ambitious; Early Version Would Cap Carbon Allowance Prices—and Deficit*, WASH. POST, Oct. 25, 2009, at A3.

to 923 pages.[430] EPA predicted that the Bill would cost consumers $79 to $80 each year per household in increased prices for energy and consumer products, about the same as the House Bill.[431] The Environment and Public Works Committee held a quick series of three hearings on the Kerry-Boxer Bill,[432] and it went straight to committee markup over the strenuous objections of Republican committee members who boycotted the markup sessions.[433] In the absence of the Republican members, the committee quickly voted out the Bill.[434] Although it was highly unlikely that the Bill would attract sixty votes, the Senate leadership now had a vehicle to take to the floor where it could be amended or even replaced with a completely different bill at the appropriate time.[435]

As hopes for the Kerry-Boxer Bill faded, the efforts of Senators Kerry and Graham to craft a bipartisan bill assumed greater importance.[436] Soon after their editorial appeared, Senator Joe Lieberman (I-Connecticut) joined the effort.[437] They met with Energy Secretary Steven Chu, Interior Secretary Ken Salazar, and Energy Czar Carol Browner at the White House to ascertain the Administration's position on the elements—like expediting nuclear power plant licensing and opening offshore areas to oil and gas drilling—that some Republicans deemed critical to supporting a cap-and-trade bill.[438] In early November, the CoC suggested that it might support a

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430. Darren Goode, *Dem Divisions Show During Climate Hearing*, CONGRESS DAILY (PM ED.), Oct. 27, 2009 [hereinafter Goode, *Dem Divisions Show During Climate Hearing*].

431. Darren Goode, *EPA: Kerry-Lieberman's Costs 'Modest'*, CONGRESS DAILY (PM ED.), June 15, 2010 [hereinafter Goode, *EPA: Kerry-Liberman's Costs 'Modest'*].

432. *See* Goode, *Dem Divisions Show During Climate Hearing*, *supra* note 430.

433. Kent Garber, *Climate Change Bill's Murky Battleground: Assumptions and Statistics*, U.S. NEWS (Nov. 11, 2009), http://www.usnews.com/news/energy/articles/2009/11/11/climate-change-bills-murky-battleground-assumptions-and-statistics; Darren Goode, *GOP Sidelines Climate-Change Markup*, CONGRESS DAILY (PM ED.), Nov. 3, 2009.

434. Juliet Eilperin, *Democrats Move on Emissions Bill; But Measure Reaching Floor May Depend on Bipartisan Talks*, WASH. POST, Nov. 6, 2009, at A3 [hereinafter Eilperin, *Democrats Move on Emissions Bill*]; *see also* Darren Goode, *Without GOP, Panel OKs Climate Bill*, CONGRESS DAILY (PM ED.), Nov. 5, 2009 [hereinafter Goode, *Without GOP, Panel OKs Climate Bill*].

435. *See* Goode, *Without GOP, Panel OKs Climate Bill*, *supra* note 434.

436. Jean Chemnick, *Kerry-Graham-Liberman Talks Form New Power Axis for Senate Climate Bill*, PLATTS INSIDE ENERGY, Nov. 9, 2009, at 3 [hereinafter Chemnick, *Kerry-Graham-Lieberman Talks Form New Power Axis for Senate Climate Bill*], *available at* 2009 WLNR 23615443.

437. *Id.*; Mufson & Eilperin, *supra* note 429.

438. Eilperin, *Democrats Move on Emissions Bill*, *supra* note 434; Darren Goode, *Boxer Mulls Exit Strategy for Moving Bill*, CONGRESS DAILY (PM ED.) Nov. 4, 2009.

bill reflecting the approach outlined in the Kerry-Graham editorial.[439] Lieberman called the letter a *game changer* because it signaled that the three sponsors might be able to bring a large segment of the business community to the negotiating table.[440] An industry lobbyist acknowledged that "'Kerry-Graham-Lieberman is where the game will be decided.'"[441]

Senator Graham's attempts to forge a bipartisan bill, however, attracted the wrath of the AEA, which spent almost $300 thousand on a series of radio, television, and online advertisements just before Halloween, warning that one of the "'scary stories coming out of Washington'" was that Senator Graham "'support[ed] . . . a national energy tax called cap-and-trade.'"[442] Environmental groups responded with a more modest ad campaign asking why "'[o]ut-of-state interests [were] attacking'" Senator Graham for "'backing an energy plan that produces more power [for] America.'"[443]

In the meantime, the electric utility industry's compromise over the allocation of allowances among regulated electric utility companies, as reflected in the EEI's 50-50 formula, was unraveling.[444] Coal-burning Midwest utility companies and rural electric cooperatives—which had not been involved in the EEI negotiations—complained that they would have to purchase offsets or install GHG reduction technologies to meet the steadily decreasing caps of the House and Senate bills, while non-coal-dependent utility companies would receive a substantial share of the allowances they needed without having to do much in the way of reducing emissions or purchasing credits.[445] Representatives of the non-coal-dependent companies argued that their computer modeling showed that the costs of the Bill were evenly divided among all utility companies.[446]

The split was also widening between regulated utility companies and unregulated merchant companies.[447] The regulated companies joined the

439. Juliet Eilperin, *Merkel Urges Congress to Act on Climate; Partisan Divide That Greeted German Leader Also Seen on Senate Bill*, WASH. POST, Nov. 4, 2009, at A4.

440. Chemnick, *Kerry-Graham-Lieberman Talks Form New Power Axis for Senate Climate Bill*, *supra* note 436.

441. Cathy Cash, *'Art of Compromise' Now the Focus as Senate Puts Everything on Table to Win a Climate Bill*, ELECTRIC UTIL. WK., Nov. 9, 2009, at 1, *available at* 2009 WLNR 23615667.

442. Eilperin, *Climate Bill Faces Hurdles in Senate*, *supra* note 399.

443. *Id.*

444. Margaret Kriz Hobson, *Let's Unmake a Deal*, CONGRESS DAILY (AM ED.), Oct. 21, 2009 [hereinafter Kriz Hobson, *Let's Unmake a Deal*].

445. *Id.*

446. *Id.*

447. *See* Esther Whieldon et al., *In Senate Climate Bill Debate, Wellinghoff Challenges Advocacy Office Proposal*, PLATTS INSIDE FERC, Nov. 2, 2009, at 1, *available at* 2009 WLNR 23050407.

rural electric cooperatives and two associations of public utility commissions in a letter to senators, arguing that the only way to ensure that the benefits of the free allowances award to the industry flowed through to consumers was to limit them to companies subject to state utility commission requirements.[448] Unregulated utility companies, they argued, would just channel the savings to their shareholders.[449] EEI attempted to smooth over both contentious issues by asking the Senate to allocate more allowances to all utility companies and to set a price ceiling for allowances as a safety valve, a solution that was sure to anger environmental groups.[450]

The efforts to move climate disruption legislation through the Senate received a bolt from the blue in November 2009, when more than three thousand purloined emails and documents to and from scientists involved in preparing a report for the Intergovernmental Panel on Climate Change were leaked to the press.[451] The emails, which were taken from East Anglia University's Climate Research Unit, revealed that some of the hundreds of scientists involved in preparing the report had attempted to prevent papers from climate change skeptics from being published in scientific journals.[452] Critics also saw evidence in the emails of attempts to hide scientific data and to manipulate the data to fit particular theories of global warming.[453] As Senator James Inhofe demanded that the Senate Environment and Public Works Committee conduct a full-scale investigation into the scandal, a spokesperson for the CEI boasted that "[w]e may be close to having [the legislation] permanently stymied."[454]

The revelations did not undermine the integrity of the science underlying the report.[455] Several re-examinations of the scientific underpinnings of the report chastised the scientists for belittling fellow scientists and for poor choices of words in their emails, but otherwise

448. *Id.*

449. *See id.*

450. Kriz Hobson, *Let's Unmake a Deal*, *supra* note 444.

451. Kimberley Strassel, *'Cap and Trade Is Dead,'* WALL ST. J., Nov. 27, 2009, at A19; *see also* Eli Kintisch, *Stolen E-Mails Turn up Heat on Climate Change Rhetoric*, 326 SCIENCE 1329, 1329 (2009).

452. Keith Johnson & Gautam Naik, *Lawmakers Probe Climate Emails*, WALL ST. J., Nov. 24, 2009, at A8.

453. Strassel, *supra* note 451.

454. Johnson & Naik, *supra* note 452; Strassel, *supra* note 451 (quoting Myron Ebell, CEI).

455. *Climate Science and EPA's Greenhouse Gas Regulations: Hearing Before the Subcomm. on Energy and Power of the Comm. on Energy and Commerce*, 112th Cong. 40 (2011) (testimony of Richard C.J. Somerville, Scripps Institution of Oceanography, University of California, San Diego); *see also* Eli Kintisch, *Panel Faults IPCC Leadership but Praises Its Conclusions*, 329 SCIENCE 1135, 1135 (2010) [hereinafter Kintisch, *Panel Faults IPCC Leadership but Praises Its Conclusions*].

supported the conclusions reached in the report.[456] The scandal did, however, arrest the forward momentum of climate disruption legislation.[457] If nothing else, the need to investigate the incident gave wavering Democrats a reason to urge the leadership to slow down the process until after the 2010 elections.[458]

As the prospect for climate change legislation faded and it began to look like the Republican Party might regain control of the House in the upcoming elections, British Petroleum, ConocoPhillips, and Caterpillar, Inc. announced that they would not be renewing their memberships in the Climate Action Partnership.[459] A spokesperson for ConocoPhillips said that passing a bill had become such a high priority for the group that it was no longer attempting to ensure that the substance of the bill was workable for all companies in the coalition.[460] Since it did not appear that Congress would be enacting climate change legislation, the companies decided to pursue what was in the best interest of their shareholders and consumers.[461] More than twenty other large companies, however, remained in the coalition.[462]

As the Senate was wrapping up its work on the President's health care legislation in early March, Senators Kerry, Lieberman, and Graham held a series of meetings with senators from both parties to attract their support for the Bill that they were still in the process of drafting.[463] They made it clear that they would consider alternatives that were less stringent than the House Bill to bring more senators into the fold.[464] At the same time, President Obama and high-level administration environmental officials met with thirteen senators to try to hammer out a compromise that could be featured in the Kerry-Lieberman-Graham Bill.[465] At the meeting, the

456. Somerville Testimony, *supra* note 455, at 40; *see also* Kintisch, *Panel Faults IPCC Leadership but Praises Its Conclusions*, *supra* note 455, at 1135 (report not undermined).

457. *See* Coral Davenport, *EPA's Power Struggle*, NAT'L J., Sept. 24, 2010; Strassel, *supra* note 451.

458. Strassel, *supra* note 451.

459. Stephen Power & Ben Casselman, *Defections Shake Up Climate Coalition*, WALL ST. J., Feb. 17, 2010, at A1.

460. *Id.*

461. *Obama Forced to Dial Down Ambitions for Climate Initiative*, ELECTRICITY CURRENTS, Apr. 2010, at 1, 2.

462. Power & Casselman, *supra* note 459.

463. *Swing-Vote Senators Show Interest in Narrower, Sector-Based Climate Bill*, INSIDE EPA WKLY. REP., Mar. 10, 2010, *available at* http://insideepa.com/Environmental-Policy-Alert/Environmental-Policy-Alert-03/10/2010/swing-vote-senators-show-interest-in-narrower-sector-based-climate-bill/menu-id-1095.html.

464. *See id.*

465. Darren Goode, *Senate Trio Taps Obama's Support On Deal*, CONGRESS DAILY (PM ED.), Mar. 9, 2010 [hereinafter Goode, *Senate Trio Taps Obama's Support on*

President seemed open to the possibility of implementing a cap-and-trade regime quickly for the electric utility industry, but taking a more deliberate approach to reducing emissions from the manufacturing sector.[466] Although a consensus position did not emerge from the meeting,[467] it did clarify that a multi-sector cap-and-trade bill like the House and Kerry-Boxer Bills was not a serious option.[468] At Kerry's request, former President Bill Clinton began lobbying wavering senators, explaining to them that climate disruption legislation would create thousands of jobs and make the nation more competitive.[469] The constant refrains of *climategate*, *war on coal*, and *cap and tax* at Tea Party rallies and in the conservative media echo chamber had found their way into the mainstream media, and the public was souring on the idea of climate disruption legislation.[470]

Kerry, Lieberman, and Graham concluded that they could win the votes of oil-patch, rust-belt, and coal-state Democrats, as well as a few persuadable Republicans if they could soften the resistance of the CoC, the API, and coal-dependent electric utilities.[471] Over the course of two weeks in late March, they met the CoC, more than a dozen trade associations, and various other industry groups to solicit their input on the measures the senators were considering to make their bill more attractive to industry.[472] The Bill "would regulate power plants beginning in 2012," but would not extend to other industrial sectors until 2016.[473] The Bill would establish a cap-and-trade regime with a *hard* price collar limiting the amount paid allowance to between $10 and $30 per ton, as adjusted for inflation.[474] The

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Deal]; Ian Talley, *Obama Presses Senators to Revive Climate Bill*, WALL ST. J., Mar. 10, 2010 [hereinafter Talley, *Obama Presses Senators to Revive Climate Bill*].

466. Goode, *Senate Trio Taps Obama's Support on Deal*, *supra* note 465.

467. Talley, *Obama Presses Senators to Revive Climate Bill*, *supra* note 465.

468. *Obama Meeting Lifts Climate Negotiators*, PLATTS COAL OUTLOOK, Mar. 15, 2010, at 1, *available at* 2010 WLNR 6516264.

469. Darren Goode, *As Clinton Rallies Troops, Reid Says Climate Options Open*, CONGRESS DAILY (AM ED.), Mar. 17, 2010.

470. MCGARITY, *supra* note 6, at 248; John M. Broder, *'Cap and Trade' Loses Its Standing as Energy Policy of Choice*, N.Y. TIMES, Mar. 26, 2010, at A13; Margaret Kriz Hobson, *Skies Still Cloudy for Climate Bill*, NAT'L J., Mar. 5, 2010.

471. *Senators Seek Oil Industry, Chamber 'Cease Fire' on Climate/Energy Bill*, INSIDE EPA WKLY. REP., Apr. 2, 2010, *available at* 2010 WLNR 6754644.

472. *See* Darren Goode & Amy Harder, *Senate Trio Gives Industry First Peek at Contours of Deal*, CONGRESS DAILY (AM ED.), Mar. 18, 2010 [hereinafter Goode & Harder, *Senate Trio Gives Industry First Peek at Contours of Deal*].

473. *Id.*

474. Cathy Cash, *Senators Shop CO2 Cap on Utilities in 2012*, PLATTS OILGRAM NEWS, Mar. 19, 2010, at 7 [hereinafter Cash, *Senators Shop CO2 Cap on Utilities in 2012*], *available at* 2010 WLNR 7922104; Goode & Harder, *Senate Trio Gives Industry First Peek at Contours of Deal*, *supra* note 472; Kathleen Hart, *Senators Outline New Climate Change Legislation to Electric Utility Groups, Industry*, SNL ELECTRIC UTIL. REP., Mar. 29,

targets for the caps would be 17% of 2005 emissions by 2020 and 80% by 2050—lower than the House bill.[475] The cap-and-trade regime would preempt EPA and state regulation of GHGs.[476] For the transportation sector, the Bill would levy a tax on fuel at the pump—not at the refinery where the oil companies would most likely bear some of the cost.[477] The Bill would also encourage faster permitting of nuclear power plants and open up more offshore areas for oil and gas development.[478] The industry groups were delighted that the senators had gone to such lengths to allow them to participate in the drafting process.[479]

The direction in which the three senators were moving deeply concerned their progressive colleagues.[480] Senator Bernie Sanders objected to the provisions preempting EPA and the states, the support for nuclear power, and the decision to open up more offshore areas to oil and gas development.[481] A group of senators led by Senator Bill Nelson of Florida urged the trio not to include offshore oil and gas drilling in the Bill.[482] Several state attorney generals joined the National Association of Clean Air Agencies in complaining about the trio's position on preempting EPA

2010 [hereinafter Hart, *Senators Outline New Climate Change Legislation to Electric Utility Groups, Industry*], *available at* http://www.LexisNexis.com (Select "Secondary Materials"; Search and Select "SNL Electric Utility Report"; Search "Senators Outline New Climate Change").

475. Hart, *Senators Outline New Climate Change Legislation to Electric Utility Groups, Industry*, *supra* note 474.

476. Cathy Cash & Jean Chemnick, *Senators Seek Business-Friendly Carbon Price*, PLATTS MEGAWATT DAILY, Mar. 26, 2010, at 7 [hereinafter Cash & Chemnick, *Senators Seek Business-Friendly Carbon Price*], *available at* 2010 WL 7385304.

477. Cash, *Senators Shop CO2 Cap on Utilities in 2012*, *supra* note 474; Goode & Harder, *Senate Trio Gives Industry First Peek at Contours of Deal*, *supra* note 472.

478. Cash, *Senators Shop CO2 Cap on Utilities in 2012*, *supra* note 474; *see also Senators Seek Oil Industry, Chamber 'Cease Fire' on Climate/Energy Bill*, *supra* note 471.

479. *See* Cash & Chemnick, *Senators Seek Business-Friendly Carbon Price*, *supra* note 476.

480. Jean Chemnick, *Senate Liberals Tell Kerry to Jettison Preemption, Drilling Measures from Bill*, PLATTS INSIDE ENERGY, Apr. 5, 2010, at 6 [hereinafter Chemnick, *Senate Liberals Tell Kerry to Jettison Preemption, Drilling Measures from Bill*], *available at* 2010 WLNR 8074009.

481. Dean Scott, *Legislation: Sanders Wants Bill Supporting State Efforts, Wants Less Nuclear Power, Offshore Drilling*, 41 ENV'T REP. (BNA) No. 14, at 729 (Apr. 2, 2010); Chemnick, *Senate Liberals Tell Kerry to Jettison Preemption, Drilling Measures from Bill*, *supra* note 480 ; Kathleen Hart, *Direction of New Senate Climate Change Bill Draws Fire from Sanders*, SNL ELECTRIC UTIL. REP., Apr. 5, 2010, *available at* http://www.lexisnexis.com (Select "Secondary Materials"; Search and Select "SNL Electric Report"; Search "Direction of New Senate Climate").

482. Chemnick, *Senate Liberals Tell Kerry to Jettison Preemption, Drilling Measures from Bill*, *supra* note 480.

regulation and state law.[483] Environmental groups were also deeply concerned about the concessions.[484] With the 2010 off-year election campaigns not going well for the Democrats, the groups realized that if Congress did not enact a bill, however compromised, by the end of the year, the prospects for climate change legislation in the next Congress were quite grim.[485] Most were willing to hold their noses and acquiesce in the changes contemplated by the three senators, but others were less inclined to compromise.[486]

Senators Kerry, Lieberman, and Graham scheduled a press conference for Monday, April 26, 2010 to roll out their long-awaited Bill.[487] Six days before the rollout, however, Senate Majority Leader Harry Reid told the Democratic leadership that he was moving immigration reform ahead of climate disruption legislation on the legislative agenda.[488] The move infuriated Senator Graham, who viewed the move as "'nothing more than a cynical political ploy'" to attract Hispanic votes in the upcoming election.[489] He announced that he was no longer willing to support the Bill if

483. Dean Scott, *Legislation: Senators Urged to Resist State Preemption in Crafting Compromise Climate, Energy Bill*, 41 ENV'T REP. (BNA) No. 15, at 781 (Apr. 9, 2010); Kathleen Hart, *Air Agencies Want Senate Climate Bill to Let States Enact Tougher Emissions Standards*, SNL ELECTRIC UTIL. REP., Apr. 19, 2010 [hereinafter Hart, *Air Agencies Want Senate Climate Bill to Let States Enact Tougher Emissions Standards*], *available at* http://www.lexisnexis.com (Select "Secondary Materials"; Search and Select "SNL Electric Report"; Search "Air Agencies Want Senate"); *Coastal States Oppose EPA Pre-Emption*, CONGRESS DAILY, Apr. 7, 2010, *available at* 2010 WLNR 7210291.

484. Cash, *Senators Shop CO2 Cap on Utilities in 2012*, *supra* note 474 (quoting Timothy Wirth, United Nations Foundation); Cash et al., *Senators Mull Provision to Block EPA, States from Regulating Carbon Emissions*, *supra* note 372 (quoting Center for Biological Diversity).

485. Darren Goode et al., *Outlines of Climate Bill Emerging*, NAT'L J., Apr. 14, 2010, *available at* 2010 WLNR 26395437.

486. Margaret Kriz Hobson, *The Wages of Climate Inaction*, NAT'L J., Apr. 14, 2010 [hereinafter Kriz Hobson, *The Wages of Climate Inaction*], *available at* 2010 WLNR 26395432; Doug Obey, *EPA Seeks to Quell Fears over Likely Loss of Climate Powers in Senate Bill*, INSIDE EPA WKLY. REP., Apr. 23, 2010, *available at* 2010 WLNR 8290617.

487. Kriz Hobson, *The Wages of Climate Inaction*, *supra* note 486; *see* Juliet Eilperin, *EEI, Three Oil Companies to Back Climate Bill; Top 10 Highlights of Kerry Proposal*, WASH. POST (Apr. 23, 2010, 6:00 AM), http://views.washingtonpost.com/climate-change/post-carbon/2010/04/by_juliet_eilpern_the_nations.html.

488. Laura Meckler, *Democrats Revive Immigration Push—Pelosi, Reid Agree to Put Issue Ahead of Energy Bill as Hispanics, a Key Voting Bloc, Grow Frustrated About Inaction*, WALL ST. J., Apr. 22, 2010, at A5.

489. Jim Tankersley, *Dispute Leaves Climate Bill Stuck on Hold; a Republican Senator Pulls His Support in Anger over a Separate Immigration Measure*, L.A. TIMES, Apr. 25, 2010, at A12.

immigration reform remained on the Senate's agenda.[490] Senator Reid quickly backtracked,[491] but Senator Graham was not mollified.[492] Under attack in his home state from Tea Party activists, he may have welcomed the opportunity to separate himself from climate disruption legislation.[493]

If Graham's departure was not enough to sink the Bill, the Deepwater Horizon blowout, which began on April 20, 2010 and continued throughout the summer, ensured that the Bill's provisions for opening up more offshore areas to deepwater drilling was no longer viable.[494] In addition, Senator Bill Nelson (D-Florida) promised to filibuster any bill that contained such a provision.[495] Taking that provision out of the Bill, however, would cause the oil and gas industry to oppose it with the consequent loss of support from oil-patch senators.[496]

Senators Kerry and Lieberman introduced their 987-page Bill without Senator Graham on May 12, 2010 to little fanfare, because the Senate was absorbed in the Deepwater Horizon spill.[497] Not a single

490. Darren Goode & Chris Strohm, *Graham Wants Immigration off Table for Year or He Bolts*, CONGRESS DAILY, Apr. 27, 2010, *available at* 2010 WLNR 8700591; Tankersley, *surpra* note 489.

491. *See* Dean Scott, *Legislation: Climate Bill Suffers Setback as Sen. Graham Withdraws Support over Scheduling Dispute*, 41 ENV'T REP. (BNA) No. 18, at 928 (Apr. 30, 2010).

492. John M. Broder, *Graham Calls for 'Pause' in Pursuing Energy Bill*, N.Y. TIMES, (May 7, 2010), http://www.nytimes.com/2010/05/08/us/politics/08climate.html.

493. *See* Jim Tankersley & Richard Simon, *Graham's Bipartisan Efforts Bog Down; the Republican is Backing off His Push to Cooperate on Issues Including Immigration*, L.A. TIMES, Apr. 28, 2010, at A9.

494. *See* John M. Broder, *Companies, Crews and Regulators Share Blame in Coast Guard Report on Oil Spill*, N.Y. TIMES, Apr. 23, 2011, at A9 [hereinafter Broder, *Companies, Crews and Regulators Share Blame in Coast Guard Report on Oil Spill*]; Jay Hodgkins, *Hopes Diminish for Climate Bill as Oil Spill, Coal State Dems Pose Hurdles*, SNL MARKETWEEK, May 7, 2010 [hereinafter Hodgkins, *Hopes Diminish for Climate Bill as Oil Spill*], *available at* http://www.jayhodgkins.files.wordpress.com/2013/04/snlpolitics_climate.pdf.

495. Bill Kaczor, *Nelson Promises Filibuster over Drilling Bill*, LEDGER.COM (June 27, 2006, 12:01 AM), http://www.theledger.com/article/20060627/NEWS/606270330.

496. *See* Hodgkins, *Hope Diminish for Climate Bill as Oil Spill*, *supra* note 494.

497. *Energy and Climate Bill in Congress Would Add Some Barriers to Offshore Drilling, Greatly Expand Market for Natural Gas as Transportation Fuel*, FOSTER NAT. GAS REP., May 14, 2010, *available at* 2010 WLNR 10547851; *see also* Broder, *Companies, Crews and Regulators Share Blame in Coast Guard on Oil Spill*, *supra* note 494; Darren Goode & Amy Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*, CONGRESS DAILY (AM ED), May 13, 2010 [hereinafter Goode & Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*].

Republican supported the Bill.[498] The Bill resembled the outline that the three senators had described earlier in the year, but with some important details filled in and many additional giveaways.[499] It would have established a cap-and-trade regime with a 2020 cap 17% reduction from 2005 emissions and a 2050 cap of 83% reduction.[500] The program would take effect in 2013 for power plants, but would not kick in for the manufacturing and natural gas distributing companies until 2016.[501] The Bill provided such generous allowances that many sources would not have to purchase allowances—or reduce GHG emissions—for several years.[502] Allowances would be allocated to unregulated merchant generators in an amount equal to half of their emissions, but the percentage would diminish to zero by 2029.[503] The formula for allowances for the electric power industry allocated 75% on the basis of emissions and 25% on the basis of retail sales, rather than the 50–50 split of the House Bill.[504] Two-thirds of the proceeds from the auctions would go immediately back to consumers through their local electricity distributors.[505]

The Bill allowed emitters to purchase offsets, but at least 75% of all offsets had to be produced domestically, unless sufficient domestic offsets were unavailable.[506] Trading of allowances, derivatives, and offsets would

498. Cash, *Electricity Rates on List of Considerations as Senators Contemplate GHG Bill*, *supra* note 373.

499. *Id.*; Cash, *Senators Shop CO2 Cap on Utilities in 2012*, *supra* note 474; Goode & Harder, *Senate Trio Gives Industry First Peek at Contours of Deal*, *supra* note 472; Tankersley & Simon, *supra* note 493.

500. Cathy Cash, *Finally Revealed, Senate Climate Bill Proposal Wins Utility Backing, but Big Hurdles Remain*, ELECTRIC UTIL. WK., May 17, 2010, at 1 [hereinafter Cash, *Finally Revealed, Senate Climate Bill Proposal Wins Utility Backing, but Big Hurdles Remain*], *available at* 2010 WLNR 11022011.

501. Jay Hodgkins, *Analyst Goes In-Depth on Provisions of Kerry-Lieberman Climate Bill*, SNL ELECTRIC UTIL. REP., May 24, 2010 [hereinafter Hodgkins, *Analyst Goes In-Depth on Provisions of Kerry-Lieberman Climate Bill*], *available at* http://www.lexisnexis.com (Select "Secondary Material"; Search and Select "SNL Electric Utility Report"; Search "Analyst Goes In-Depth").

502. *Senate Climate Bill Retains Key EPA Authorities Despite Broad Preemption*, INSIDE EPA WKLY. REP., May 14, 2010, *available at* 2010 WLNR 9871895.

503. Hodgkins, *Analyst Goes In-Depth on Provisions of Kerry-Lieberman Climate Bill*, *supra* note 501.

504. Cash, *Finally Revealed, Senate Climate Bill Proposal Wins Utility Backing, but Big Hurdles Remain*, *supra* note 500.

505. *Senate Climate Bill Retains Key EPA Authorities Despite Broad Preemption*, *supra* note 502.

506. Hodgkins, *Analyst Goes In-Depth on Provisions of Kerry-Lieberman Climate Bill*, *supra* note 501.

be overseen by the CFTC.[507] The Bill contained a hard price collar with a floor of $12 and a ceiling of $25.[508] It required the EPA to write technology-based standards requiring new coal-fired power plants to reduce GHG emissions by 50% and by 65% after 2020, and it preserved the EPA's authority to require states to write technology-based standards for existing power plants for non-criteria pollutants.[509] To please coal-fired power plant owners and the coal industry, the Bill contained a *line charge* on sales of electricity to finance research on CCS technology.[510] To make natural gas producers happy, it included tax incentives and faster environmental permitting for existing plants that converted from coal to cleaner fuels.[511] For the nuclear power industry, the Bill contained $2 billion to $6 billion in direct support and an increase from $18.5 billion to $54 billion in loan guarantees.[512] The Bill contained a provision giving states a veto over offshore oil and gas drilling in adjacent waters, but it preempted state and regional GHG emissions programs.[513]

The EEI and most investor owned electric companies and representatives of environmental groups were present at the unveiling to express their support for the Bill.[514] The CoC and the API remained neutral.[515] The Midwestern Climate Coalition and the NRECA said that it

507. Esther Whieldon, *Senate Climate Bill Would Establish Consumer Advocacy Office Within FERC*, PLATTS INSIDE FERC, May 17, 2010, at 1, *available at* 2010 WLNR 11021741.

508. *Senate Climate Bill Retains Key EPA Authorities Despite Broad Preemption*, *supra* note 502.

509. 42 U.S.C. § 7411(d) (2006); *Senate Climate Bill Retains Key EPA Authorities Despite Broad Preemption*, *supra* note 502.

510. Hodgkins, *Analyst Goes In-Depth on Provisions of Kerry-Lieberman Climate Bill*, *supra* note 501.

511. Michael Niven, *Kerry-Lieberman Bill Calls for Utilities to Foot Bill for Carbon Capture Deployment*, SNL GENERATIONS MARKETS WK., May 18, 2010, *available at* http://lexisnexis.com.

512. Hodgkins, *Analyst Goes In-Depth on Provisions of Kerry-Lieberman Climate Bill*, *supra* note 501.

513. Cash, *Finally Revealed, Senate Climate Bill Proposal Wins Utility Backing, but Big Hurdles Remain*, *supra* note 500; Goode & Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*, *supra* note 497; Amanda Luhavalja, *Senate Climate Bill Would Halt State Cap-and-Trade Programs*, SNL ELECTRIC UTIL. REP., May 24, 2010, *available at* http://www.lexisnexis.com (Select "Secondary Materials"; Search and Select "SNL Electric Utility Report"; Search "Senate Climate Bill Would Halt").

514. Cash, *Finally Revealed, Senate Climate Bill Proposal Wins Utility Backing, but Big Hurdles Remain*, *supra* note 500; Goode & Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*, *supra* note 497.

515. Goode & Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*, *supra* note 497.

would withhold judgment until they saw EPA's cost analysis of the Bill.[516] The American Public Power Association complained that the price cap was too high and that it provided too many allowances to unregulated merchant generators.[517] Although some major oil and gas producers supported the Bill, the natural gas industry's umbrella group, America's Natural Gas Alliance, was not high on the Bill, because it did not provide sufficient direct incentives to use natural gas over coal.[518]

Environmental groups were concerned about the provisions preempting the states' power to regulate GHG emissions, providing incentives for nuclear power plants, and allowing offshore drilling, even with the state veto power.[519] Despite those concerns, a group of environmental, labor, and military veterans groups spent $11 million on a series of television advertisements and an associated online campaign in states of wavering senators, suggesting that viewers urge their senators to support broad climate disruption and energy legislation.[520] Other environmental groups opposed the Bill; Frank O'Donnell of Clean Air Watch criticized Kerry and Lieberman for following an inside-the-beltway strategy that ultimately failed to attract a single Republican supporter.[521] The National Association of Clean Air Agencies also opposed the Bill because it preempted state regulation of GHG emissions.[522]

Supporters of cap-and-trade legislation got a minor boost in mid-June when EPA's analysis of the Kerry-Lieberman Bill concluded that it would have a *relatively modest impact* on consumers.[523] The average annual cost per household would be between $79 and $146, compared with the $80–

516. Cash, *Electricity Rates on List of Considerations as Senators Contemplate GHG Bill*, *supra* note 373; Goode & Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*, *supra* note 497.

517. Cash, *Finally Revealed, Senate Climate Bill Proposal Wins Utility Backing, but Big Hurdles Remain*, *supra* note 500.

518. *See* Bill Holland, *Industry Says Climate Bill Falls Short in Promoting Gas as Clean-Burning Fuel*, PLATTS GAS MARKET REP., May 14, 2010, at 17, *available at* 2010 WLNR 11014089; Whieldon, *supra* note 507.

519. *See* Goode & Harder, *Kerry, Lieberman Work to Keep Together Fragile Coalition*, *supra* note 497 (discussing statements made by David Hawkins, NRDC).

520. *Groups Plan Ad Campaign Targeting Senators*, CONGRESS DAILY (PM ED.), June 24, 2010.

521. *Sens. John F. Kerry and Joseph I. Lieberman*, WASH. POST, May 16, 2010, at A15.

522. Hart, *Air Agencies Want Senate Climate Bill to Let States Enact Tougher Emissions Standards*, *supra* note 483; *Senate Climate Bill Retains Key EPA Authorities Despite Broad Preemption*, *supra* note 502.

523. Goode, *EPA: Kerry-Lieberman's Costs 'Modest*,*' supra* note 431; *Senators Refute Climate Bill Costs While Obama Open to Alternative Plans*, INSIDE EPA WKLY. REP., June 18, 2010, *available at* 2010 WLNR 12285482.

$111 cost that EPA attributed to the House bill.[524] In early July, the Congressional Budget Office released a report concluding that complying with the Kerry-Lieberman Bill would be slightly less expensive than complying with the House bill.[525] In addition, public opinion polls taken during the Deepwater Horizon oil spill showed that two-thirds of the public supported mandatory limits on GHG emissions.[526]

As the oil continued to spew from the Deepwater Horizon well, President Obama met with a group of Democratic and Republican senators to discuss the possibility of linking a legislative response to the Deepwater Horizon oil spill with a cap-and-trade bill that would be limited to the electric utility industry.[527] Most of the Republican senators were unwilling to consider any form of cap-and-trade bill and they urged the President instead to pour federal dollars into research on GHG emission reduction technologies.[528] The meeting ended with no agreement on a framework for moving forward.[529]

In late July, Senator Reid announced that neither the Democratic leadership nor the President had been able to cobble together sixty votes for a climate disruption bill of any size or shape.[530] They had therefore called a halt to their efforts.[531] Climate disruption was now in the hands of the EPA, which was exercising its limited power under the Clean Air Act, and states that were willing to take on that controversial topic.[532] The conservative think tanks turned their attention to enacting legislation calling a halt to those climate change initiatives.[533]

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524. Goode, *EPA: Kerry-Lieberman's Costs 'Modest,' supra* note 431.

525. Geoffrey Craig, *Bill Yields Lower Carbon Prices than Prior Studies*, PLATTS MEGAWATT DAILY, July 8, 2010, *available at* 2010 WLNR 14606840.

526. Jason Dick, *Poll: Strong Public Support for Mandatory Carbon Reductions*, CONGRESS DAILY (AM ED.), June 16, 2010.

527. Juliet Eilperin, *Senators Predict a Narrower Climate Bill; At Bipartisan Meeting, Talk of an Emissions Cap Just for Utilities*, WASH. POST, June 30, 2010, at A4 [hereinafter Eilperin, *Senators Predict a Narrower Climate Bill*]; Laura Meckler & Stephen Power, *Democrats Step Back on Carbon Cap*, WALL ST. J., June 30, 2010, at A6.

528. Eilperin, *Senators Predict a Narrower Climate Bill*, *supra* note 527.

529. *Senators See Widely Divergent Outcomes for Scope of Climate Legislation*, INSIDE EPA WKLY. REP., July 2, 2010, *available at* 2010 WLNR 13211282.

530. Power, *Senate Halts Effort to Cap Emissions*, *supra* note 3.

531. Amy Harder, *Pending EPA Emission Regulations Move Front and Center*, CONGRESS DAILY (AM ED.), July 23, 2010; Power, *Senate Halts Effort to Cap Emissions*, *supra* note 3.

532. Power, *Senate Halts Effort to Cap Emissions*, *supra* note 3.

533. *See Obama Could Fall Short on Copenhagen Pledge*, OIL DAILY, July 26, 2010.

IV. LESSONS LEARNED

A. *Introduction*

What can we learn from these four attempts to enact climate disruption legislation over the past twenty years? Some lessons are obvious and bear little analysis. Thus, one lesson to take away from the fate of climate change legislation during the 107th Congress is that it is very difficult to enact legislation that the president strongly opposes when your party controls only one House of Congress.[534] This section of the article will probe some less obvious lessons that the past failures to enact climate disruption legislation may have for future attempts to enact similar legislation or any other environmental legislation that the business community is likely to oppose.

B. *Powerful Institutions Are Aligned Against Regulatory Legislation*

Any attempt to enact domestic policy legislation over the objections of the business community must contend with the institutions that it has erected to protect its interests and to advance a laissez faire minimalist agenda. The idea and influence infrastructures that the business community put into place over the past thirty-five years were steadfastly opposed to climate disruption legislation, and they played an important role in forestalling that legislation. Three think tanks—the Heritage Foundation, the CEI, and the George C. Marshall Institute—have played prominent roles in the ideological air wars over climate change.[535] Over the years they have provided a constant stream of laissez faire minimalist critiques of government regulation that has found its way into the public consciousness as it resonates through the conservative media echo chamber.[536] Industry-sponsored climate change skeptics in academia—many of whom are affiliated with one or more conservative think tanks—have likewise played an important role in the debates over climate change legislation by instilling doubt about the reality of climate disruption in the public consciousness.[537] Both the think tank scholars and the industry-sponsored scientists have made themselves freely available to mainstream press reporters who feel duty

534. *See supra* Part III.B.

535. GELBSPAN, *supra* note 28, at 3–4, 52; MCGARITY, *supra* note 6, at 49–52, 247–48.

536. MCGARITY, *supra* note 6, at 49–55.

537. GELBSPAN, *supra* note 28, at 3–4, 8–9, 19, 33–34; MCGARITY, *supra* note 6, at 54–55.

bound to present *both sides* of public controversies.[538] The net result is that an appreciable segment of the United States population believes that GHG emissions do not cause climate disruption and that, even if they did, government regulation is not the right way to go about limiting GHG emissions.

The business community's influence infrastructure has had an even more powerful influence on the progress of climate disruption legislation. The CoC—the largest and most visible mouthpiece of the business community—and the NAM have consistently opposed every bill that would have imposed mandatory restrictions on GHG emitters.[539] And they have invested tens of millions of dollars on advertising campaigns in the districts of key members of Congress, maintaining websites on climate change issues, and contributing to the campaigns of sympathetic candidates.[540]

Over the years, industry trade associations—like the EEI, the API, and the AGA—have spent millions of dollars hiring lobbyists, financing studies of the impacts of various bills, hosting briefings, generating calls and emails from their members to key legislators, participating in meetings with members and committee staffs, and working with business-supported grassroots organizations to stir up public opposition to climate disruption legislation.[541] Individual companies have hired their own lobbyists to serve as soldiers in the ground wars.[542] These troops may aim their fire at one another on narrow issues like the proper allocation formula for free allowances, but they tend to fall in line with the trade associations and the broader business community on issues like whether allowances should be auctioned or given away and whether stringent caps should kick in before CCS technology becomes easily available to electric utility companies.

The pro-business media echo chamber has provided a robust opportunity for the public to hear the business community's position on controversial issues like climate disruption. Fox News commentators railed against *cap and tax* legislation, and its coverage of coal-related issues often flashed "War on Coal" across the bottom of the screen.[543] During the debates over climate disruption legislation in the 110th and 111th Congress, Fox News commentator Steven Milloy provided a steady stream of criticism

538. GELBSPAN, *supra* note 28, at 9, 19, 33–34; MCGARITY, *supra* note 6, at 54–55.

539. Kriz, *Warm-Button Issue*, *supra* note 30, at 322; *see also* MCGARITY, *supra* note 6, at 107–08; Stone, *supra* note 14, at 1529–30.

540. Stone, *supra* note 14, at 1529–30.

541. *Id.* at 1529–31.

542. *Id.* at 1529–30.

543. *E.g.*, *Obama's Energy Policies Hurting the Economy?* at 1:12–2:16 (Fox Business television broadcast May 22, 2012), *available at* http://video.foxbusiness.com/v/1651158905001/obamas-energy-policies-hurting-the-economy/#sp=show-clips.

of advocates of climate disruption legislation and ready access to a national audience for climate disruption skeptics on his *Junk Science* show and blog.[544]

Finally, the grassroots organizations that the business community created to stir up public opposition to unwanted legislation have proven very effective in the battles over climate disruption legislation. CSE was an early generator of grassroots opposition to the BTU tax, and its successor organization, Americans for Prosperity, generated targeted opposition to later climate disruption bills and played critical roles in the Tea Party movement that has moved the Republican Party even farther away from support for climate disruption legislation.[545] In addition to these relatively longstanding organizations, the energy industry created a number of ad hoc organizations like the AEA and Energy Citizens to wage extremely effective grassroots campaigns against climate change legislation in the districts of likely swing voters in Congress.[546]

The BTU tax battle provided an early example of how adept the business community's idea and influence infrastructures were at framing attempts by the energy industry to avoid its environmental responsibilities as worthy crusades to preserve jobs and enhance economic growth.[547] They argued that a BTU tax was not in the public interest, not because it forced energy companies to choose between paying the tax or reducing emissions, but because it would raise prices for consumer goods, reduce economic activity, and bring about job loss.[548] It was much harder on the other side to characterize a complex tax on the energy content of fuels as a much-needed tool to protect the planet from a host of maladies that might or might not flow from global temperatures that might or might not be increasing.[549]

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544. *See* Steven Milloy, *Al Gore and Venus Envy*, FOX NEWS.COM (Jan. 29, 2009), http://www.foxnews.com/story/2009/01/29/a1-gore-and-venue-envy/; Steven Milloy, *Junk Science: Time to Retire 'Denier,'* FOX NEWS.COM (June 5, 2008), http://www.foxnews.com/story/2008/06/05/junk-science-time-to-retire-denier/.

545. *See* MCGARITY, *supra* note 6, at 40, 59, 247.

546. *See* Mufson, *New Groups Revive the Debate over Causes of Climate Change*, *supra* note 300; *Lobbyists Boast BTU Tax Beaten in the House*, *supra* note 82.

547. Paul, *Against All Odds*, *supra* note 116.

548. *Id.* (quoting Monica Lovell, Tax Director for the National Association of Manufacturers, arguing that "[s]upport against the tax was easy to galvanize, . . . because opponents could make a direct link between the tax, manufacturing costs, and job losses").

549. *Id.* (Treasury Department official argues that the "'creativity and complexity' of the [BTU tax] idea made it easy for critics to undermine").

C. *America is Deeply and Widely Fractured Over Climate Disruption*

America is a deeply divided nation on many cultural and economic issues, but climate disruption is an issue that divides us more than most. And the division is both deep and wide. Participants on both sides of the climate disruption debates have strongly held beliefs about the role of GHG emissions in causing climate disruption, the likely cost and availability of technologies for reducing or sequestering GHG emissions, whether government regulations or voluntary programs are more effective in reducing GHG emissions, and whether the United States should unilaterally take steps to address climate disruption before other major GHG-emitting nations take action.[550] In many cases the gulf between the two sides is so wide that negotiation and compromise are virtually impossible. A congressperson who believes that climate disruption is a fraud perpetrated by arrogant scientists on gullible liberals is unlikely to find common ground with a congressperson who believes that climate disruption is a real phenomenon, the effects of which we are currently witnessing in unprecedented hurricanes, typhoons, and droughts, and the causes of which are corporations that will always put the bottom line ahead of the public welfare.

Science plays a role in these divisions.[551] Despite the embarrassing East Anglia diversion, the scientific community has come to closure on the question of whether anthropogenic GHG emissions cause increased global temperatures.[552] Nevertheless, a small, but determined group of scientists—many of whom have derived financial support from energy companies—have provided a sufficient degree of doubt to persuade those who want to be persuaded that climate disruption is a theory that lacks a scientific basis.[553]

Ideology also plays a significant role in the divisions.[554] The business community's idea infrastructure and its media echo chamber have been exceedingly effective in convincing a large segment of the population that government should not interfere in private economic arrangements.[555]

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550. *See* Cash, *US Energy Leaders Weigh GHG Compromise*, *supra* note 292; Paul, *Against All Odds*, *supra* note 116; Shabecoff, *Major 'Greenhouse' Impact Is Unavoidable, Experts Say*, *supra* note 24; Talley & Power, *supra* note 278.

551. GELBSPAN, *supra* note 28, at 9.

552. *See* Shabecoff, *Major 'Greenhouse' Impact Is Unavoidable, Experts Say*, *supra* note 24; Strassel, *supra* note 451; *Causes: A Blanket Around the Earth*, NASA, http://www.climate.nasa.gov/causes (last visited Mar. 30, 2014).

553. GELBSPAN, *supra* note 28, at 9, 19.

554. John A. Sautter & Christopher A. Sautter, *Price, Carbon and Generation Profiles: How Partisan Differences Make the Future of Climate Change Uncertain*, ELECTRICITY J., Mar. 2010, at 72, 72.

555. *See* Mufson, *New Groups Revive the Debate over Causes of Climate Change*, *supra* note 300.

Many Americans are therefore ideologically predisposed to oppose government-based solutions to the threat of climate disruption.[556] Even those who are convinced that climate disruption is real are not convinced that BTU taxes or cap-and-trade regimes are the way to go about addressing the problem.[557] On the other side, environmental activists have historically been inclined ideologically to distrust corporations and to look to the government to solve environmental problems.[558] This has changed somewhat in recent years with the acceptance by nearly all environmental groups of market-based approaches to regulations that give companies flexibility to meet predetermined environmental goals in the most efficient way possible.[559]

Finally, regional differences play a powerful role in these divisions.[560] In part, these differences stem from the fact that some areas of the country are rich in coal, some are rich in natural gas, and some are poor in both resources.[561] People from states in which coal plays a large role in the economy are not predisposed to favor programs that have the effect of discouraging coal use, just as people from natural gas-producing states are likely to favor such programs if the result is to induce power plants to switch from coal to natural gas.[562] The differences may also reflect a subtler economic distinction reflecting the differing cost of electricity in different states.[563] Economists John and Christopher Sautter have demonstrated that the distinction between Red States that vote mostly Republican and Blue States that vote mainly Democratic very closely tracks the cost of electricity in those states.[564] The average cost of electricity in Red States is about 2.5¢ per kilowatt-hour lower than in Blue States.[565] This suggests that people in Red States should be more inclined to oppose climate disruption legislation not just because it may harm local industries and increase unemployment, but also because it may increase the price they pay for electricity in the future.[566] The business community's influence infrastructure has proven very adept at appealing to these regional differences in advertising initiatives

556. *See* Mufson, *New Groups Revive Debate over Causes of Climate Change*, *supra* note 300; Sautter & Sautter, *supra* note 554, at 72, 74.

557. *See* Cano, *While Not Sold on Idea, Johnston Cites Keys to Implementing BTU Tax*, *supra* note 86; Gerson, *supra* note 295.

558. *See* Mufson, *Climate Bill Seeks a Broad Coalition*, *supra* note 304; Mufson, *New Groups Revive the Debate over Causes of Climate Change*, *supra* note 300.

559. *See* Mufson, *Climate Bill Seeks a Broad Coalition*, *supra* note 304.

560. Sautter & Sautter, *supra* note 554, at 72.

561. *Id.* at 72–73.

562. *See id.*

563. *Id.* at 73–74.

564. *Id.* at 71–73.

565. Sautter & Sautter, *supra* note 554, at 73.

566. *See id.* at 73–74.

and grassroots campaigns to generate opposition to climate disruption legislation.[567]

As suggested by the Sautters' study, these deep and wide divisions are now almost perfectly reflected in our two-party system.[568] There was once a day when Republicans from the Northeast fought with Republicans from the Midwest over the content of the Clean Air Act and the Clean Water Act.[569] In the 1970s, some of the most vigorous proponents of environmental protection were Republicans like Senators Jacob Javits and John Chafee.[570] Although there are still vigorous Democratic supporters of the coal and electric utility industries in the South and Midwest, their numbers have diminished as the voters replaced them with Republicans.[571] Now there are very few Republican politicians who are willing to advocate strong governmental intervention to solve environmental problems. And they tend to vote with their fellow Republicans when it is their votes that really matter.

D. *The Business Community is Fractured on Climate Disruption, but the Fractures Are Neither Deep Nor Wide*

The business community has never been entirely of one mind in the debates over climate change. In the early 1990s, the National Gas Association split with the rest of the business community in supporting a study concluding that GHG emissions could be reduced by moving rapidly to natural gas and other renewables.[572] During the debates over the BTU tax, two small trade associations—both of which had an economic interest in higher energy taxes—broke ranks and supported the Clinton Administration's bill.[573]

Fissures became more apparent in the 110th Congress. A split developed between electric utility companies that were heavily dependent on coal and opposed cap-and-trade legislation, companies that were not so dependent on coal and supported cap-and-trade legislation with stringent caps and short deadlines, and still other companies that supported cap-and-

567. *See* Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397; Mufson, *New Groups Revive the Debate over Causes of Climate Change*, *supra* note 300.

568. Sautter & Sautter, *supra* note 554, at 72–73.

569. *See* Amy Harder, *A Stalled Movement*, NAT'L J., Apr. 14, 2011.

570. *Id.*; U.S. ENVTL. PROT. AGENCY, *About EPA: The Guardian: Origins of the EPA*, EPA, http://www2.epa.gov/aboutepa/guardian-origins-epa (last updated Mar. 16, 2014).

571. *See* Sautter & Sautter, *supra* note 554, at 73–74.

572. Dillon, *Democrats Unveil Details of Climate Change Legislation in Senate*, *supra* note 200.

573. *Industry Reacts to BTU Tax Modifications*, *supra* note 93.

trade legislation in principle, but opposed legislation that kicked in before the industry had time to develop CCS technology.[574] This period also witnessed a major split in the business community over the reality of global warming as several Fortune 500 companies parted company with the CoC on climate disruption legislation.[575] These fractures continued and deepened somewhat during the debates in the 111th Congress over the Waxman-Markey Bill in the House and the Kerry-Boxer and Kerry-Graham-Lieberman Bills in the Senate.[576]

Upon close examination, however, it appears that these fractures are neither deep nor wide. First, only relatively few companies have parted with the CoC—the nominal spokesperson for the business community.[577] The breakaway companies are either manufacturers, like the Apple Corporation, that want to project a clean image, or natural gas distributors and public utilities that stand to gain economically from climate change legislation.[578] The most serious fractures within the energy industry have occurred over how the free allowances should be allocated among various segments of the industry.[579] On the broader issue of free distribution of allowances versus auctions, the industry has been united in favoring free distribution.[580]

Second, the idea and influence infrastructures have lives and minds of their own. Although the think tanks, media outlets, and grassroots organizations depend heavily on the business community for financial support, they are driven by a strong ideological commitment to free markets and noninterventionist governmental policies.[581] Because they also receive substantial support from conservative foundations—billionaires like the Koch brothers—and sympathetic individuals, the rift in the business community is not likely to affect them financially.[582] It is therefore unlikely that they will change their positions on climate change legislation in the

574. *Industry Fractures on Climate Policy*, *supra* note 23, at 1, 5.

575. *Id.* at 5–6; *see also* Williamson, *supra* note 231.

576. Chemnick, *Kerry-Graham-Lieberman Talks Form New Power Axis for Senate Climate Bill*, *supra* note 436; *Industry Fractures on Climate Policy*, *supra* note 23, at 6; *Kerry-Boxer Climate Bill Poses New Challenge to Environmental Groups*, *supra* note 421.

577. *See Industry Fractures on Climate Policy*, *supra* note 23, at 5–6.

578. *Id.*; Kate Galbraith, *Apple Resigns from Chamber over Climate*, INT'L N.Y. TIMES (Oct. 5, 2009, 3:39 PM), http://green.blogs.nytimes.com/2009/10/05/apple-resignes-from-chamber-over-climate/.

579. Amena Saiyid, *Positions Evolve on Cap and Trade as Debate Moves from Acid Rain to CO2*, PLATTS COAL OUTLOOK, Aug. 10, 2009, at 1, *available at* 2009 WLNR 16499756.

580. *See* Williamson, *supra* note 231.

581. *See* MCGARITY, *supra* note 6, at 33–34, 40.

582. *See id.*

foreseeable future, despite the rifts in the business community.[583] Consequently, it is unlikely that many Republican senators and representatives will change their tunes.

Third, to the extent that the support indicated by some companies and trade associations for climate disruption legislation is strategic, the strong opposition to the same legislation by the CoC, as well as pro-business think tanks, grassroots organizations, and media outlets can be very useful.[584] There is an inside-the-beltway adage that "'if you [are] not at the table, you [are] on the menu.'"[585] Companies that would rather not see climate change legislation enacted may still want to play an influential role in shaping such legislation as it moves through Congress. If they announce that they support *reasonable* legislation so long as it is fair to them, they can actively participate in the legislative deal-making, comfortable in the knowledge that the idea and influence infrastructures are carrying on the fight to prevent Congress from enacting that legislation.

A spokesperson for EEI—which had opposed climate change during the Clinton and George W. Bush Administrations—acknowledged in August 2009 that its position had *evolved* from opposing anything but a voluntary program to support for "'well-designed legislation that will reduce GHG emissions while also containing costs to customers.'"[586] Frank O'Donnell, the head of Clean Air Watch, suggested that the evolution did not represent a change in position so much as an acknowledgement that the politics of climate change had changed after the 2008 elections.[587] Given the real possibility that a Democrat-controlled Congress would pass legislation that a Democratic president would sign, EEI may have decided that it should do what it could to influence the content of that legislation, even though it preferred no legislation at all. The strong opposition to any legislation by the business community's idea and influence infrastructures gave it an opportunity to have it both ways.

At the end of the day, the divisions in the business community were not debilitating. It presented a united front in opposition to any cap-and-trade bill that allocated a significant proportion of the initial allowances through an auction, the tool preferred by most economists, and that lacked a bright-line safety valve that effectively removed the cap once the price of

583. *Industry Fractures on Climate Policy*, *supra* note 23, at 6; *see also* MCGARITY, *supra* note 6, at 33–34, 40.

584. *See* MCGARITY, *supra* note 6, at 40; Power & Casselman, *supra* note 459.

585. Power & Casselman, *supra* note 459.

586. Saiyid, *supra* note 579.

587. *See id.* (discussing the opinion of Frank O'Donnell, Clean Air Watch).

allowances exceeded a prescribed level.[588] Even on issues on which a few non-coal-dependent electric utility companies parted company with the EEI, the energy industry as a whole was capable of devoting considerable resources to stopping legislation they deemed undesirable.[589] The ACCCE, an umbrella group for the electric utility and coal industry,[590] spent almost $10 million on lobbyists in its short—but successful—campaign to defeat the Lieberman-Warner Bill.[591] Fissures certainly developed in the industry most affected by climate change legislation, but they disappeared in the face of the kind of stringent legislation demanded by environmental groups.

E. *On the Question of Climate Disruption, Republicans Are Dogs, and Democrats Are Cats*

Time after time, the Republican leadership in Congress was able to persuade all but a tiny few members to vote as a pack against mandatory climate disruption legislation at both the committee level and on those rare occasions when bills came to the floors of the House and Senate. The threat of a Republican filibuster in the Senate was so credible that the bills' sponsors simply assumed that it would take sixty votes to pass them.[592] For the Democratic leadership, by contrast, corralling enough votes to get bills through committees and past floor votes was like herding cats.

In part, this reflects the geographical fact that few Republican members come from states that stand to benefit from climate change legislation beyond the benefits that accrue to all states from reduced climate disruption.[593] But it also reflects a deep ideological commitment to a laissez faire minimalist approach to the role of government in society. And this in turn reflects the influence of three decades worth of books, white papers, issue briefs, op-eds, and conferences undertaken by the conservative think

588. *See* Cash, *Allowance Game Continues*, *supra* note 372; Cash, *Building a Climate Change Bill, Congress Hears More from Utlities About Challenges*, *supra* note 187.

589. *See* Ari Berman, *The Dirt on Clean Coal: The Coal Industry Presents Itself as Committed to Environmental Sustainability—But Is It?*, NATION, Apr. 13, 2009, at 17, 17–18.

590. *See About Us*, AM. COALITION FOR CLEAN COAL ELECTRICITY, http://www.cleancoalusa.org/about-us (last visited Mar. 30, 2014).

591. Berman, *supra* note 589, at 18; Coral Davenport, *Coal Industry Digs in with Lobbying Campaign*, CQ WKLY., Mar. 23, 2009, at 652; Anne C. Mulkern, *A 'Propaganda War' over 'Clean Coal,'* INT'L N.Y. TIMES (Apr. 20, 2009), http://www.nytimes.com/gwire/2009/04/20/20greenwire-propaganda-war-over-coal-escalates-ahead-of-hi-10594.html?pagewanted=all.

592. *See* Kerry & Graham, *supra* note 423.

593. *See, e.g.*, 155 CONG. REC. 22,601–02 (2009).

tanks and academic centers, and the business-oriented news and political commentary of the conservative media echo chamber.

In every serious attempt to enact climate disruption legislation during the past two decades, Democratic members have divided along lines that reflected the economic interests of their states.[594] In part, this is a manifestation of the fact that Democratic members come from more economically diverse regions.[595] The fact that a large number of Democratic members hail from coal-producing states like West Virginia, Virginia, Illinois, and Pennsylvania, and manufacturing states like Ohio and Michigan, guarantees that critical issues, like the stringency of the caps and the allocation of allowances, will be divisive for Democrats.[596] And the fact that many Democratic members represent rural agricultural states in the farm belt means that fractures are likely to occur on issues like the stringency of the caps—which arguably cause fuel and fertilizer prices to increase—and the entity that oversees trading in offsets.[597]

These divisions had three significant consequences. First, they prevented the Democrats from voting as a block in favor of climate disruption legislation.[598] Given the thinness of Democratic majorities in both houses in years in which they were in control, this made it extremely difficult to hit upon a formula that would secure the majority needed to pass legislation in the House and the supermajority needed to pass legislation over the opposition of a unified Republican Party in the Senate.[599] Second, they

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594. *See* 155 CONG. REC. 20,556; Robin Bravender, *Rockefeller Backs Murkowski's EPA Resolution in Senate*, N.Y. TIMES (June 9, 2010), http://www.nytimes.com/cwire/2010/06/09/09climatewire-rockefeller-backs-murkowskis-epa-resolution-96513.html.

595. *See* Alexander E.M. Hess & Michael Sauter, *Top States With the Fastest Growing Economies*, USA TODAY (June 15, 2013, 12:43 PM), http://www.usatoday.com/story/money/business/2013/06/15/states-with-the-fastest-growing-economies/2416239/; *Election Results 2008: President Map*, N.Y. TIMES (Dec. 9, 2008), http://elections.nytimes.com/2008/results/president/map.html.

596. *See* U.S. ENERGY INFO. ADMIN., ANNUAL COAL REPORT 2012, 12 tbl.6 (2013), *available at* http://www.eia.gov/coal/annual/pdf/acr.pdf; Alexander E.M. Hess et al., *10 States Where Manufacturing Still Matters*, USA TODAY (Aug. 10, 2013, 6:19 AM), http://www.usatoday.com/story/money/business/2013/08/10/10-states-where-manufacturing-still-matters/2638363/; *Election Results 2008: President Map*, *supra* note 595.

597. *See Election Results 2008: President Map*, *supra* note 595; *2007 Census Ag Atlas Maps—Farms*, U.S. DEPARTMENT AGRICULTURE, http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/Ag_Atlas_Maps/Farms/Agricultural_Chemicals_Used/07-M104.php (last modified Apr. 19, 2012).

598. *See* Bravender, *supra* note 594.

599. *See Party Divisions of the House of Representatives 1935–Present*, U.S. HOUSE REPRESENTATIVES, http://history.house.gov/Institution/Party-Divisions/74-Present/ (last visited Mar. 30, 2014); *Party Division in the Senate, 1789–Present*, U.S. SENATE, http://www.senate.gov/pagelayout/history/one_item_and_teasers/partydiv.htm (last visited Mar. 30, 2014).

guaranteed that any bills that the Democrats were able to move through Congress would contain many exemptions and giveaways to industries favored by holdout members.[600] Third, they ensured that the bill that Congress finally passed would probably not meet stringent intermediate environmental goals.[601] Thus, one of the early concessions that Representative Waxman and Senators Kerry and Lieberman made to coal-state members was a reduction in the 2020 cap from 20% below 2005 levels to 17%.[602]

F. *Public Interest Groups Are Outgunned and Outclassed*

The major environmental groups, like the Sierra Club, the Environmental Defense Fund, and the Natural Resources Defense Council, vigorously supported strong climate disruption legislation,[603] and they benefitted from the fact that climate disruption legislation was high on the list of two Democratic presidents and Democratic leaders in both houses of Congress during the 107th and 111th Congresses.[604] But they were clearly outgunned by the large agglomeration of industries that opposed their bills.[605] Although the environmental organizations devoted unprecedented sums to lobbying, advertising, and grassroots campaigns, they were no match for the sophisticated efforts of the professional lobbyists and public relations operations of the CoC, the NAM, industry trade associations, and individual companies.[606] Except for the Sierra Club, they had no equivalent of the highly organized grassroots campaigns of Citizens for a Sound Economy, Americans for Prosperity, and the many ad hoc organizations that industry created to fight particular battles.[607] Perhaps more importantly, they had no

600. *See, e.g.*, Broder, *Adding Something for Everyone*, *supra* note 98.

601. *See* Ryan Lizza, *As the World Burns*, NEW YORKER, Oct. 11, 2010, at 70.

602. *See* Hart, *House Energy, Climate Change Bill Cuts Carbon Emissions 20% by 2020*, *supra* note 274; Lizza, *supra* note 601.

603. Ben Geman, *Green Groups to Obama: Choose Climate over Oil*, NAT'L J. (Jan. 17, 2014), http://www.nationaljournal.com/energy/green-groups-to-obama-choose-climate-over-oil-20140117.

604. *See* Geman, *supra* note 603; *Clinton Plan: BTU's Bearing the Brunt*, *supra* note 58; *Overview of Legislative Proposals in the 107th Congress*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, www.c2es.org/federal/congress/107 (last visited Mar. 30, 2014); *111th Congress Climate Change Legislation*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, www.c2es.org/federal/congress/111 (last visited Mar. 30, 2014).

605. *See* Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397.

606. *See id.* (relating lobbying expenses of industry and environmental groups for the first half of 2009).

607. *See Americans for Prosperity Calls Victorious Defeat of Bridge to Nowhere a Testament to the Power of Grassroots Activism*, U.S. NEWSWIRE, Sep. 21, 2007;

equivalents of Fox News and Rush Limbaugh to spread their message throughout the country; although in the later years MSNBC and its commentators Rachel Maddow and Keith Olbermann began to fill that gap.[608]

The campaign to enact climate disruption legislation in the 111th Congress was by far the most expensive campaign ever run by environmental groups.[609] But even with tens of millions of dollars to spend on lobbying, advertising, and grassroots organizing, their efforts did not match the sophistication of the industry operations.[610] The difference in approach is well illustrated by the grassroots tours that both the AEA and a coalition of environmental groups conducted during the critical August recess after the House had passed the Waxman-Markey Bill.[611] People attending an AEA rally in Athens, Ohio enjoyed free lunches, live concerts, and free T-shirts, and heard stirring speeches filled with calls to action.[612] People attending an environmental group rally in the same city soon thereafter got to hear a scholarly panel discuss the issues in a classroom and received free bumper stickers.[613]

G. *It Takes a Crisis*

In *Freedom to Harm*, I argue that "[r]egulatory legislation usually requires a crisis and a resulting groundswell of public opinion."[614] For example, the crisis brought on by the financial meltdown of September 2008 motivated Congress to enact the Dodd-Frank Wall Street Reform and

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Hundreds of Activists to Converge on North Carolina Capitol to Demand 'Less' on Second Annual 'Citizens for Sound Economy' Day, U.S. NEWSWIRE, June 4, 2001, at 1; *The Sierra Club Niagara Group Will Send More Than 100 People to Take Part in the Forward on Climate Rally in Washington*, BUFFALO NEWS, Feb. 15, 2013.

608. *See* JAMIESON & CAPPELLA, *supra* note 16, at 47; *Warming Conspiracy Proceeding as Planned*, NEWS GAZETTE, Dec. 20, 2009, at C3; Joe Romm, *Inhofe's Stunning Admission to Maddow on Global Warming: 'I Thought it Must Be True Until I Found Out What It Cost,'* CLIMATEPROGRESS (Mar. 16, 2012, 11:35AM), http://thinkprogress.org/climate/2012/03/16/446008/inhofe-maddow-global-warming/.

609. *See* Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397.

610. *See id.*

611. *See id.*; Paul, *Against All Odds*, *supra* note 116; *The American Clean Energy & Security Act (Waxman-Markey Bill)*, CENTER FOR CLIMATE & ENERGY SOLUTIONS, http://www.c2es.org/federal/congress/111/acesa (last visited Mar. 30, 2014).

612. Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397.

613. *Id.*

614. MCGARITY, *supra* note 6, at 57.

Consumer Protection Act of 2010.[615] Climate disruption, by contrast, does not create the sort of extreme crises that lead Congress to enact legislation.[616] Thus, Senator James Inhofe scoffed at any suggestion that Congress should enact climate disruption legislation based "on speculative computer model predictions of [fifty] to [one hundred] years away of a looming climate catastrophe."[617] Environmental groups could try to attribute Superstorm Sandy, Supertyphoon Haiyan, or the sinking Polar Vortex of the winter of 2013–14 to climate disruption. Since few competent scientists are willing to support that claim, however, the groups have been hesitant to rely on such events to stir up public support for climate disruption legislation.[618] Climate disruption comes gradually as glaciers melt, sea levels rise, periods of drought lengthen, and hurricanes worsen in intensity.[619] Even in the absence of powerful idea and influence infrastructures aligned against legislation, it would have been very difficult for supporters of climate disruption legislation to persuade Congress to enact a stringent bill without the impetus of a crisis. And climate disruption is not likely to yield such crises until it is far too late to do something about it.

H. *Climate Change Legislation Will Not Be Pretty*

One very clear lesson of the past attempts to enact climate disruption legislation is that the end result of any successful attempt in the future is not likely to be pretty. Economists and policy analysts have created elegant models of carbon or BTU taxes and cap-and-trade regimes that appear to achieve GHG emissions reduction goals fairly and efficiently.[620] Putting aside the question whether the models would work as fairly and efficiently in the real world, supporters of such solutions should understand that if Congress ever does enact climate disruption legislation, the regulatory regime that it creates will not adhere to the elegant models. It will reflect dozens of compromises, concessions, and giveaways that its sponsors will have to make in order to get the legislation enacted. As Representative Waxman observed after the House passed the Waxman-Markey Bill, "Congress has to recognize that there are differing opinions, there are

615. *Id.* at 238–40.

616. *See id.* at 248.

617. Kathleen Hart, *Boxer Spars with Republicans over Purpose of Cap-and-Trade Bill*, SNL POWER DAILY N.E., Feb. 26, 2009, *available at* http://www.lexisnexis.com.

618. *See* Fahrenthold, *Environmentalists Slow to Adjust in Climate Debate*, *supra* note 397.

619. *See* Louise Gray, *Stern Warning on Climate Change*, DAILY TELEGRAPH, Apr. 21, 2009, at 27.

620. *See* MCGARITY, *supra* note 6, at 247.

differing interests."[621] To accommodate all of these interests, the Bill's sponsors will have to make compromises and look for ways to channel resources to particular regions of the country or to particular industries.[622] Outside observers of this process may not like it, but until this country comes up with a way to finance political campaigns in a way that does not heavily depend on contributions from wealthy individuals and corporations, this is the political world in which we live.

I. *EPA Should Press Ahead with its GHG Regulations*

The fact that the EPA was busily promulgating technology-based regulations for greenhouse gas emissions was an important driver of reluctant House Democrats to support the Waxman-Markey Bill in the 111th Congress.[623] The *in terrorem* effect of the EPA's regulatory program was not, however, an adequate inducement to Senate Democrats to finish the job.[624] The EPA has now promulgated a series of regulations that, when fully implemented, will reduce emissions from major new facilities and modify existing facilities, and it has proposed a very ambitious new source performance standard for GHG emissions from power plants.[625] We are still a very long way from the reductions that scientists tell us are necessary to slow down climate disruption. But if the EPA had waited until Congress acted, we would not be as far down the road toward a reduced carbon footprint as we are.

V. CONCLUSION

If the Republican Party retains control of the House or gains control of the Senate in the 2014 elections, the probability that Congress will enact serious climate change legislation is very low. That party is still heavily influenced by its Tea Party constituency and the Tea Party is financed by

621. Alexander Duncan, *Waxman: Fear over EPA Carbon Regs Prompted Members to Pass Climate Bill*, PLATTS INSIDE ENERGY, July 13, 2009, at 7 [hereinafter Duncan, *Waxman: Fear over EPA Carbon Regs Prompted Members to Pass Climate Bill*], *available at* 2009 WLNR 14404144.

622. *See* Broder, *Adding Something for Everyone*, *supra* note 98.

623. *See* Duncan, *Waxman: Fear over EPA Carbon Regs Prompted Members to Pass Climate Bill*, *supra* note 621; *The American Clean Energy & Security Act (Waxman-Markey Bill)*, *supra* note 611.

624. *See* Duncan, *Waxman: Fear over EPA Carbon Regs Prompted Members to Pass Climate Bill*, *supra* note 621.

625. *See* Broder, *Adding Something for Everyone*, *supra* note 98; Amy Royden-Bloom, *American Clean Energy and Securities Act of 2009: Analysis and Discussion*, EPA (June 17, 2009), http://www.epa.gov/statelocalclimate/documents/pdf/royden-bloom_presentation_fed_leg_6-17-2009.pdf.

funders who are strongly opposed to any governmental solution to global warming. After two election cycles in which moderate Republicans have lost primary elections to Tea Party candidates[626] and general elections to Democratic opponents,[627] there are precious few Republican members of Congress who would support even very modest federal legislation on climate disruption.[628] And there is no reason to suppose that this will change in the foreseeable future. As long as it takes two houses of Congress to enact legislation, the adamant opposition of the Republican Party to climate disruption legislation will ensure that none will be forthcoming from a Congress in which at least one House is controlled by that party.

Even if the Democratic Party retains control of the White House and the Senate and gains control of the House in 2014 or 2016, the prospects for enacting serious climate change legislation remain dim. The myriad of interest groups that will be affected by serious climate change legislation will do whatever they can to influence legislators to oppose legislation that might damage their economic interests. The legislators will, in turn, negotiate for their votes with those interests in mind. If Congress does enact legislation, it is likely to be a hodge-podge of conflicting provisions that may or may not attain the larger GHG emission reduction goals of its sponsors. The result will not be pretty, but it may be the best that we can expect in an economically diverse nation that, after a remarkable laissez faire revival, remains deeply divided on the fundamental question of the propriety of governmental intervention into private economic arrangements.

626. *See* Nate Silver, *In House of Representatives, an Arithmetic Problem*, INT'L N.Y. TIMES (Dec. 21, 2012, 9:50 PM), http://fivethirtyeight.blogs.nytimes.com/2012/12/21/in-house-of-representatives-an-arithmetic-problem/?_php=true&_type=blogs&_r=0; *Congress by the Numbers: The 112th's New Composition*, FOXNEWS.COM (Jan. 5, 2011), http://www.foxnews.com/politics/2011/01/05/congress-numbers-ths-new-composition/.

627. *See Party Division in the Senate, 1789–Present*, *supra* note 599.

628. *See* Chemnick, *Waxman, Markey Seek Moderate Votes for Their Stringent Climate-Change Bill*, *supra* note 284; *Party Division in the Senate, 1789–Present*, *supra* note 599.

TRADITIONALLY-STRUCTURED ELECTRIC UTILITIES IN A DISTRIBUTED GENERATION WORLD

JOSEPH P. TOMAIN*

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I. INTRODUCTION

To hear electric utilities tell the story, the end is nigh.[1] Their chief worry is symbolized by the simple rooftop solar panel. Of course, a homeowner's installation of rooftop solar, in and of itself, is little or no cause for concern. After all, property owners have every legal right to generate their own power. Rooftop solar, however, is significant for what it

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1. *See* Fereidoon P. Sioshansi, *Why the Time Has Arrived to Rethink the Electric Business Model*, 25 ELECTRICITY J. Aug.–Sept. 2012, at 65, 66 [hereinafter Sioshansi, *Why the Time Has Arrived to Rethink the Electric Business Model*]; John Slocum, *Threat from Behind the Meter*, *The Case for Utilities to Compete Directly with Distributed Resources*, PUB. UTIL. FORT., July 2013, at 46, 50.

represents more broadly—distributed generation ("DG").[2] This broader concept of DG means that central power stations can lose market share of their electricity sales by a range of technologies including solar, wind, fuel cells, micro-grids, and the like.[3] Fortunately for electric utilities, at this point, distributed solar electricity constitutes only one to two percent of the total electricity load and, therefore, DG is not an immediately significant contributor to load loss.[4] However, the signs on the horizon are not necessarily rosy for investor owned electric utilities ("IOUs") that provide seventy-five percent of the nation's electricity.[5]

The reality is that the electricity market is changing.[6] The market is more competitive today than it has been historically and, consequently, traditionally structured IOUs face real financial challenges as new technologies with decreasing costs "directly threaten the centralized utility model."[7] This article argues that the twenty-first century challenge to the

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2. Sioshansi, *Why the Time Has Arrived to Rethink the Electric Business Model*, *supra* note 1, at 69. DG is also sometimes referred to as distributed energy resources—or DER. ELEC. POWER RESEARCH INST., THE INTEGRATED GRID: REALIZING THE FULL VALUE OF CENTRAL AND DISTRIBUTED ENERGY RESOURCES 3 (2014), *available at* http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=3002002733.

3. *See* ELEC. POWER RESEARCH INST., *supra* note 2, at 10.

4. *Id.*; *see also* CITI, RISING SUN: IMPLICATIONS FOR US UTILITIES 22, 26 (2013) [hereinafter CITI, RISING SUN: IMPLICATIONS FOR U.S. UTILITIES], *available at* https://ir.citi.com/HUpLUJZhzhXsP%2b6OiTTARHAGreyfPZR1UG279bla4pIcwvwwMBlSn6clveFs%2bcVQPTaKmIi568s%3d; PETER KIND, ENERGY INFRASTRUCTURE ADVOCATES, DISRUPTIVE CHALLENGES: FINANCIAL IMPLICATIONS AND STRATEGIC RESPONSES TO A CHANGING RETAIL ELECTRIC BUSINESS 1 (2013), *available at* http://www.eei.org/ourissues/finance/documents/disruptivechallenges.pdf (report prepared for the Edison Electric Institute).

5. *Electric Utility Industry Worldwide Directory: Electric Utility Industry Overview*, MIDWEST PUBLISHING COMPANY, http://www.midwestpub.com/electricutility_overview.php (last visited Mar. 30, 2014).

> The [United States] electric industry includes over 3,100 electric utilities. Investor owned electric utilities are privately owned, represent [eight] percent of the total, approximately [seventy-five] percent of utility generating capability, generation, sales, and revenue. Historically, most investor owned electric utilities were operating companies that provide basic services for the generation, transmission, and distribution of electricity.

Id.

6. *See, e.g.*, Charles K. Ebinger & John P. Banks, *The Electricity Revolution*, BROOKINGS (Nov. 8, 2013), http://www.brookings.edu/research/reports/2013/11/06-electricity-revolution-ebinger-banks.

7. KIND, *supra* note 4, at 3; *see also* JOHN STERLING ET AL., NAT'L RENEWABLE ENERGY LAB., TREATMENT OF SOLAR GENERATION IN ELECTRIC UTILITY RESOURCE PLANNING 1, 4 (2013), *available at* http://www.nrel.gov/docs/fy1405ti/60047.pdf. *But see* Julie Cart, *Solar Power's Outlook Not as Sunny; Projects Stall Amid Uncertainty About the Future of Big Tax Breaks and Utilities' Willingness to Buy the Pricier Electricity*, L.A. TIMES, Jan. 12, 2014, at A1. Cart refers to utility scale solar in the article, which does

electric industry is different in kind from previous challenges. Further, past responses to past challenges are inadequate to meet the convergence of demands posed on IOUs by new technologies, new markets, and new regulations.[8] Instead, the twenty-first century challenge requires a dramatic new response as electric utilities face a new economic order and as they seek revenue protection and assurances of financial stability from their regulators.

Now, what to do? Two responses are readily available. Electric utilities can either fight or switch.[9] The first response is the one given by incumbents: Stay the course, tweak the regulatory system, and continue doing business as usual ("BAU").[10] The BAU strategy relies on maintaining cost-of-service ratemaking as central to the regulatory compact between utilities and regulators.[11] The second—and smarter—is that IOUs must change their business models in significant—if not dramatic—ways.[12] The country is making a *revolutionary* transition to a clean energy economy[13] and

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not threaten traditional utilities as does distributed generation but does affect traditional transmission. *See id.*

> Of the 365 federal solar applications since 2009, just [twenty] plants are on track to be built. Only three large-scale solar facilities have gone online, two in California and one in Nevada. The first auction of public land for solar developers, an event once highly anticipated by federal planners, failed to draw a single bid last fall.

Id.

8. Joseph P. Tomain, *Building the iUtility*, PUB. UTIL. FORT., Aug. 2008, at 28, 29 [hereinafter Tomain, *Building the iUtility*].

9. Michael T. Burr, *Turning Energy Inside Out: Amory Lovins on Negawatts, Renewables, and Neoclassical Markets*, PUB. UTIL. FORT., Mar. 2013, at 28, 31. Amory Lovins expands on these two basic choices:

> There are at least a half-dozen ways an incumbent can respond to such insurgents. It can ignore them; fight them; try to tax or block them; finance them; buy them; incorporate their products as its own brand[] offering; become an open-source integrator for all qualified offerings; or several other possibilities. But among all responses, playing ostrich [is not] a good one.

Id. Not surprisingly, incumbents tend to fight. *See, e.g.*, Perry Sioshansi, *Utility of the Future or Future of the Utility?*, BREAKING ENERGY (Nov. 13, 2013, 4:00 PM), http://breakingenergy.com/2013/11/13/utility-of-the-future-or-future-of-the-utility/?print=1 (regarding California's largest gas and electric utilities, "they were rather attached to the status quo with all the protections, security, and restrictions that comes with operating as a regulated monopoly").

10. Sioshansi, *Why the Time Has Arrived to Rethink the Electric Business Model*, *supra* note 1, at 66.

11. *See id.*

12. *See, e.g.*, Tomain, *Building the iUtility*, *supra* note 8, at 29–30 (arguing that electric utilities must change their business model from selling as much electricity as they can to selling energy products and services including electricity generated from renewable resources and *selling* energy efficiency).

13. *See* BLOOMBERG NEW ENERGY FIN. & BUS. COUNCIL FOR SUSTAINABLE ENERGY, 2014 SUSTAINABLE ENERGY IN AMERICA: FACTBOOK 1 (2014), *available at* http://www.bcse.org/factbook/pdfs/2014%20sustainable%20energy%20in%20America%20fa

there are several drivers to that transition, including: (1) a developing policy consensus;[14] (2) positive economic indicators;[15] (3) the need to diversify fuel resources; (4) new financing techniques; and, (5) regulatory proposals at the state and federal levels.[16] Quite simply, electric utilities should behave as key actors in that transition. Today, however, utility efforts have been lacking as they seek solace in old ways of doing business.

This article will first explore current industry characteristics and challenges in Part II. Part III will then discuss the current situation of the electricity market and IOU participation in that market. Part IV will analyze the fundamental legal claim available to utilities that the regulatory environment is devaluing their property and may constitute a constitutional taking. In Part V, a test case involving solar distributed generation and net metering will be presented to examine the types of challenges facing IOUs as well as available responses to those challenges.

Starting with Part VI, the article more broadly discusses the need to change the current regulatory compact between utilities and their regulators. Then, Part VII examines new forms of ratemaking that can be employed to implement the regulatory compact. The article concludes in Part VIII with a discussion of the shape that the utility of the future ought to take.

II. INDUSTRY CHALLENGES

The electricity industry has been roiling for over three decades. For the first two-thirds of the twentieth century, the industry continued to realize growth and, with it, increasing sales and profits.[17] Utility executives were aided in their expansion by a cost-of-service rate formula that rewarded them for their capital investments.[18] During that period, as the industry expanded, economies of scale were realized and consumers enjoyed relatively low and stable prices while producers reaped their rewards.[19]

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ctbook.pdf ("A revolution is transforming how the [United States] produces, delivers, and consumes energy. The mix of supply is changing rapidly, with low-carbon sources gaining share, while consumption is declining, despite overall economic growth.").

14. JOSEPH P. TOMAIN, ENDING DIRTY ENERGY POLICY: PRELUDE TO CLIMATE CHANGE 92 (2011) [hereinafter TOMAIN, ENDING DIRTY ENERGY POLICY].

15. *See, e.g.*, Joel Makower, *The State of Green Business 2014*, GREENBIZ.COM (Jan. 21, 2014), http://www.greenbiz.com/blog/2014/01/21/state-green-business-2014 (discussing growth in clean energy investments).

16. CITI, RISING SUN: IMPLICATIONS FOR U.S. UTILITIES, *supra* note 4, at 6.

17. KARL MCDERMOTT, EDISON ELEC. INST., COST OF SERVICE REGULATION IN THE INVESTOR-OWNED ELECTRIC UTILITY INDUSTRY: A HISTORY OF ADAPTATION 17 (2012), *available at* http://www.eei.org/issuesandpolicy/stateregulation/documents/COSR_history_final.pdf.

18. *See id.*

19. *See id.*

By the mid-to-late 1960s, however, things began to change: A national electricity infrastructure was completed; electric generation plants reached a technological plateau; and, the cost of electricity from traditionally structured electric plants began to rise.[20] These events, among others, shook the industry from its complacency and presented real challenges both to industry actors and to their regulators.

This once staid industry began encountering a series of challenges beginning in the late 1970s as electricity prices began to rise and as the financial stability of the industry was threatened by two major events.[21] The first financial shockwave came with the collapse of commercial nuclear power.[22] From the mid-1970s through the 1980s, utilities that had invested in nuclear power found themselves with excess capacity, canceled plants, or the costly conversions of nuclear plants to coal-fired plants.[23] These nuclear investments ran into the billions of dollars and those costs had to be apportioned in some way.[24] The question "Who pays?" was a real one for utilities, for regulators, and for consumers. The response to the question was generally some form of cost allocation between ratepayers and shareholders.[25] In some instances, regulators simply amortized the investment and allowed the utilities to recover their principal but did not allow them to either earn a return on their investment or to recover their costs of capital.[26] In brief, the regulatory response to the nuclear crisis was to

20. JOSEPH P. TOMAIN, NUCLEAR POWER TRANSFORMATION 11 (1987) [hereinafter TOMAIN, NUCLEAR POWER TRANSFORMATION].

21. *See* Richard J. Pierce, Jr., *The Regulatory Treatment of Mistakes in Retrospect: Canceled Plants and Excess Capacity*, 132 U. PA. L. REV. 497, 503 (1984).

22. *See* MCDERMOTT, *supra* note 17, at 24; Pierce, *supra* note 21, at 503–04.

23. MCDERMOTT, *supra* note 17, at 24; Pierce, *supra* note 21, at 503–05.

24. Pierce, *supra* note 21, at 504.

25. *See* TOMAIN, NUCLEAR POWER TRANSFORMATION, *supra* note 20, at 3; Pierce, *supra* note 21, at 505–06.

26. *See* Jersey Cent. Power & Light Co. v. Fed. Energy Regulatory Comm'n, 810 F.2d 1168, 1171–72 (D.C. Cir. 1987). In this case, an *en banc* panel of the United States Court of Appeals for the District of Columbia upheld a Federal Energy Regulatory Commission ("FERC") ruling that allowed Jersey Central to recover a $397 million investment in a failed nuclear power plant over a fifteen-year period. *Id.* at 1170–71, 1187–88. Jersey Central wanted to place the unamortized portion that remained each year into the rate base. FERC allowed the fifteen-year amortization—i.e., allowed the utility to recover $26.4 million as an expense for fifteen years—but disallowed including the unamortized portion in the rate base, and that ruling was upheld by the Circuit Court. *Id.* at 1171, 1187–88.

Regulators applied other rules as well. Some regulators, for example, applied the prudent investment test, which held that investments that were prudent when made should be recovered from ratepayers. *See* United Illuminating Co., 55 P.U.R. 4th 252, 267 (Conn. Dept. Pub. Util. Control Aug. 22, 1983); Rochester Gas & Elec. Corp., 45 P.U.R. 4th 386, 400 (N.Y. Pub. Serv. Comm'n 1982). And others applied a used and useful test that held that ratepayers were not to be saddled with the cost of an investment that produced no electricity. *See*

protect some of a utility's investment, and to maintain their financial stability while not overburdening consumers.[27]

The second financial shockwave came in the 1990s with efforts to deregulate the electric industry, and when that failed, then to restructure it.[28] Complete deregulation failed due to its complexity and the inability to develop either a policy or political consensus to fully deregulate.[29] At the wholesale level, deregulation looked promising and has occurred to a significant degree.[30] At the retail level, however, the continued natural monopoly characteristics of the transmission and distribution ("T&D") segments prevented across-the-board deregulation from occurring.[31] Many states, however, did attempt retail competition,[32] but California's notable failure threw two major utilities into financial distress with Pacific Gas and Electric declaring bankruptcy.[33] With that failed experiment, restructuring effectively ended.[34] Still, restructuring efforts threatened the financial integrity of IOUs.[35] The regulatory response to this problem, however, was to provide some mechanism for utilities to recover any *stranded costs* that resulted from (1) prudent investment and (2) reliance on regulatory requirements.[36]

The nuclear power collapse and the failure of restructuring were one-off events. In other words, once an investment in a nuclear plant was unproductive for any of the reasons cited above, then the financially threatening event was over and it needed to be resolved in some way. Similarly, once an investment in a restructured environment was also seen to

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Duquesne Light Co. v. Barasch, 488 U.S. 299, 301–02 (1989). In this case, the Supreme Court of the United States upheld a Pennsylvania state statute that mandated that only capital investments that were used and useful could be recovered through rates. *Id.*

27. *See* Pierce, *supra* note 21, at 518.

28. MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 31.

29. *See id.* at 36.

30. *See id.* at 28, 31.

31. *See id.* at 33; Peter Z. Grossman, *The Zenith of the Natural Monopoly System*, *in* 7 THE END OF A NATURAL MONOPOLY: DEREGULATION AND COMPETITION IN THE ELECTRIC POWER INDUSTRY 89, 104 (Peter Z. Grossman & Daniel H. Cole eds., 2003); Joseph P. Tomain, *Whither Natural Monopoly? The Case of Electricity*, *in* 7 THE END OF A NATURAL MONOPOLY: DEREGULATION AND COMPETITION IN THE ELECTRIC POWER INDUSTRY 111, 111 (Peter Z. Grossman & Daniel H. Cole eds., 2003).

32. *See* JOSEPH P. TOMAIN & RICHARD D. CUDAHY, ENERGY LAW IN A NUTSHELL 413 (2d ed. 2011).

33. Laura M. Holson, *California's Largest Utility Files for Bankruptcy*, N.Y. TIMES, Apr. 7, 2001, at A1.

34. Tomain & Cudahy, *supra* note 32, at 408.

35. *See Electric Utility Industry Worldwide Directory: Electric Utility Industry Overview*, MIDWEST PUBLISHING COMPANY, http://www.midwestpub.com/electricutility_overview.php (last visited Mar. 30, 2014).

36. MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 6, 31.

be unproductive, then it too needed resolution. The regulatory responses to both events were essentially cost-based.[37] Regulators looked to the prudence of a utility's capital investment and they looked to the overall effect of those investments on the utility's financial integrity.[38] Regulators then did what they could to ensure the continued financial existence of the utilities.[39] The current challenge, however, is not one-off. Instead, it is long-term and developing slowly, and also requires a more creative response than shoring up past investments.[40] Instead, a forward-looking response is needed to maintain a healthy electric market for IOUs.[41]

In order to better understand the nature of the twenty-first century challenge, let's briefly first look at changes in the market and then examine some of the reasons for those changes. The electricity market in the twenty-first century is dramatically different from what it was during the twentieth century. For most of last century, electric utilities enjoyed a growing market and, therefore, regularly enjoyed increasing sales. Today, however, things are different.

Demand for electricity has slowed each decade from the post-World War II *golden age* until now.[42] In the decade of 1949 to 1959, electric utilities enjoyed an annual growth of 9.8%.[43] That growth has declined to an annual rate of 0.7% in the first decade of the twenty-first century.[44] In fact, electricity demand has declined every year except two since 1996.[45] Further, for the last two years demand has fallen, and in 2012, demand was down 1.7% compared with 2011.[46] According to recent Energy Information

37. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at viii–ix tbl.1, x, 17–40. In addition to nuclear power and restructuring, McDermott notes other periods of stress including the rise of inflation during the 1970s, excess capacity in the 1980s, and a current challenge to restore customer and investor confidence in the industry. *Id.*

38. *Id.* at viii, 25–26.

39. *See id.* at 33.

40. *See* Ebinger & Banks, *supra* note 6.

41. *See id.*

42. *See* LEONARD S. HYMAN ET AL., AMERICA'S ELECTRIC UTILITIES: PAST, PRESENT AND FUTURE 151 (8th ed. 2005). From 1945 through 1965, electric utilities enjoyed an annual growth rate of approximately seven percent. *Id.* "No doubt what helped most was the dramatic and continuing drop in the real price of electricity, compared to the price of other fuels." *Id.*

43. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2013 WITH PROJECTIONS TO 2040 71 (2013) [hereinafter U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2013], *available at* www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf.

44. *Id.*

45. Amory B. Lovins, *Amory's Angle: Three Major Energy Trends to Watch*, SOLUTIONS J. ONLINE (Summer 2013), http://www.rmi.org/summer_2013_esj_amorys_angle_three_major_energy_trends_main.

46. FED. ENERGY REGULATORY COMM'N, 2012 STATE OF THE MARKETS REPORT 43 (2012), *available at* http://www.ferc.gov/market-oversight/reports-analyses/st-

Administration estimates, demand is scheduled to decline for the third year in a row and hit the lowest level since 2001.[47] Nevertheless, the Department of Energy projects that for the next three decades, from 2011 to 2040, overall demand will increase by twenty-eight percent.[48] Even with such modest growth in overall demand, individual consumers are, in fact, consuming less electricity.[49] More problematic for traditional IOUs, however, is that projected demand for central power station electricity is predicted to fall "dramatically due to a combination of energy efficiency and competition from new technologies, which collectively could impact their addressable markets by 50% over the next two decades."[50] To add to these troubles, significant investment is needed in the electricity infrastructure, both to upgrade the current grid and to promote interconnections with renewable resources, as well as to make investments in new technologies.[51]

According to the Energy Information Administration, electricity demand declined due to reduced retail sales and a lack of demand growth in the commercial and industrial sectors as a result a soft economy.[52] A slow economy, though, is only one reason among many. Technological and market reasons include increased energy efficiency in appliances and buildings; smarter meters and temperature controls; smarter consumer choices about using cheaper off-peak energy; growth of DG so that consumers can obtain power on-site; and an increase of inexpensive shale gas for home heating.[53] These technological and market changes, however, did not come about on their own. They were aided by state and federal regulations that were intentionally designed to increase competition and change the fuel mix in the electricity sector largely because cleaner, cheaper

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mkt-ovr/2012-som-final.pdf; Jonathan Fahey, *Home Electricity Use in US Falling to 2001 Levels*, AP (Dec. 30, 2013, 3:13 PM), http://bigstory.ap.org/article/home-electricity-use-us-falling-2001-levels.

47. Fahey, *supra* note 46.

48. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2013, *supra* 43, at 71.

49. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY REVIEW 2011, at 12 fig.1.5 (2012) [hereinafter U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY REVIEW 2011], *available at* http://www.eia.gov/totalenergy/data/annual/pdf/aer.pdf. Energy consumption per capita has been relatively flat or declining since roughly 1990. *Id*.

50. JASON CHANNELL ET AL., CITI, ENERGY DARWINISM: THE EVOLUTION OF THE ENERGY INDUSTRY 73–75 (2013), *available at* https://www.citivelocity.com/citigps/ReportSeries.action?recordId=21.

51. *See New Regulatory Frameworks for Electric Infrastructure Investment*, EDISON ELECTRIC INST., http://www.eei.org/issuesandpolicy/stateregulation/documents/altreg_brochure_final.pdf (last visited Mar. 30, 2014).

52. *See* U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2013, *supra* note 43, at 71.

53. *See* KIND, *supra* note 4, at 3, 5, 11.

power was available than that generated by IOUs.[54] Further, these regulatory demands clearly point to a clean energy future rather than to a continued expansion of coal-fired—or even nuclear generated—electricity.[55]

III. THE *NEW NORMAL*

The constrained electricity market now represents the *new normal* for privately-owned electric utilities.[56] This *new normal* must be recognized as different in kind from the threats posed by the nuclear collapse and the restructuring failure. Today's challenge is structural, long-term, and driven by multiple events. Consequently, to meet the challenge, structural changes are necessary on the regulatory side to renegotiate the regulatory compact and redesign traditional cost-of-service ratemaking.[57] Additionally, there must be structural changes in the business model of utilities as well. The needed regulatory and business model responses presented by the *new*

54. *See* MCDERMOTT, *supra* note 17, at ix–x, 33.

55. *Id.* at 35. Recently, four nuclear reactors—two each in Georgia and South Carolina—have been granted combined construction and operating licenses. *See Building New Nuclear Facilities*, NUCLEAR ENERGY INST., http://www.nei.org/Issues-Policy/New-Nuclear-Energy-Facilities/Building-New-Nuclear-Facilities (last visited Mar. 30, 2014). Nevertheless, the economics of high cost nuclear power remain problematic. *See* John Mecklin, *Introduction: U.S. Nuclear Exit?*, BULL. ATOMIC SCIENTISTS (SPECIAL ISSUE), Mar.–Apr. 2013, at 9, 9; *The Cost of Nuclear Power: Numbers That Don't Add Up*, UNION CONCERNED SCIENTISTS, http://www.ucsusa.org/nuclear_power/nuclear-power-and-our-energy-choices/nuclear-power-costs/ (last revised Oct. 1, 2013).

56. *See* Ahmad Faruqui & Eric Shultz, *Demand Growth and the New Normal*, PUB. UTIL. FORT., Dec. 2012, at 22, 23. Demand side management ("DSM") is comprised of "programs and technologies [that] enable consumers to reduce peak demand and electric energy consumption by providing customers with incentives to buy more energy efficient technologies and to shift demand from peak hours—where the power grid is stressed due to high demand—to off-peak hours." *Id.* at 24; *see also* KIND, *supra* note 4, at 1–2. Among the factors contributing to the challenge, Kind lists: (1) falling cost of distributed generation; (2) new technologies; (3) consumer and regulator interest in demand side management; (4) declining natural gas prices; (5) slow economic growth; (6) rising electricity prices in some sections of the country; and (7) investment need for system improvements. KIND, *supra* note 4, at 1–3.

57. *See, e.g.*, Jim Pierobon, *Don't Hold Your Breath for Any Progress Stemming from the Joint Statement by NRDC and EEI*, THEENEGERYCOLLECTIVE (Feb. 17, 2014), http://www.theenergycollective.com/jimpierobon/341816/don-t-hold-your-breath-any-progress-stemming-joint-statement-nrdc-and-eei.

> [W]e all have to realize that real progress can only be made by state utility commissions, many of which seemed unwilling to seriously consider moving beyond regulatory compacts in states that for decades have rewarded utilities only, or mostly, for selling more kilowatt hours. Now that electricity demand nationally is flattening and may be declining, the time has come for tradition-bound states to reengineer the traditional regulatory compact.

Id.

normal electricity market can be uncovered by first examining the economic and policy assumptions behind the traditional regulatory model, and then by examining the regulatory climate that has significantly contributed to the current market.

A. *Traditional Economic Assumptions*

In the early years of utility regulation, the relationship between utility and regulator was based upon what—in 1898—the infamous Samuel Insull proposed as "a grand bargain in which local electric companies would receive exclusive franchise service territories, '…coupled with the conditions of public control, requiring all charges for services fixed by public bodies to be based on cost plus a reasonable profit.'"[58] Nearly one hundred years later, then Judge Kenneth Starr defined that grand bargain as a *regulatory compact* that has been prevailing since electricity regulation began.[59] In short, the regulatory compact was indeed a grand bargain for the utility. As it turns out, the regulatory compact also served as something of a bargain to consumers and to regulators for most of last century.

Utilities greatly benefited from the regulatory compact essentially because by having been granted an exclusive service territory, utilities could block out competition from new entrants simply because they were now operating under a government protected monopoly.[60] Further, utilities also benefitted from a ratemaking formula that operated like a cost-plus contract. Utilities would receive all of their reasonably incurred expenses on a dollar-for-dollar basis and they would be able to earn a return on invested capital.[61]

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58. DAVID MALKIN & PAUL A. CENTOLELLA, RESULTS-BASED REGULATION: A MODERN APPROACH TO MODERNIZE THE GRID 7 (2013), *available at* http://www.gedigitalenergy.com/regulation/.

59. *See* Jersey Cent. Power & Light Co. v. Fed. Energy Regulatory Comm'n, 810 F.2d 1168, 1189 (D.C. Cir. 1987) (Starr, J., concurring); MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 5–6.

> The utility business represents a compact of sorts; a monopoly on service in a particular geographical area—coupled with state-conferred rights of eminent domain or condemnation—is granted to the utility in exchange for a regime of intensive regulation, including price regulation, quite alien to the free market. Each party to the compact gets something in the bargain. As a general rule, utility investors are provided a level of stability in earnings and value less likely to be attained in the unregulated or moderately regulated sector; in turn, ratepayers are afforded universal, non-discriminatory service and protection from monopolistic profits through political control over an economic enterprise. Whether this regime is wise or not is, needless to say, not before us.

Jersey Cent. Power & Light Co., 810 F.2d at 1189 (citation omitted).

60. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at vii; *Electric Utility Industry Worldwide Directory: Electric Utility Industry Overview*, *supra* note 5.

61. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at vii, 2.

While it is inaccurate to say that utilities were *guaranteed* a profit, in effect though, as long as they operated prudently, profit was assured.[62] Consumers also benefitted to the extent that rates were set at more or less competitive levels rather than at monopoly levels.[63] Regulators benefited as well because as the industry was expanding and as utilities were realizing economies of scale, rates stayed relatively flat and in some instances, declined. In other words, rate hearings followed well-established and well understood rules and methodologies and the life of a regulator was fairly easy.[64]

The regulatory compact was implemented through the application of a traditional cost-of-service ratemaking formula that required regulators to balance the interests of the utility and its shareholders in earning a reasonable return on their investments against the interests of ratepayers in not being charged confiscatory or discriminatory rates.[65] The balance was intended to satisfy the Fifth Amendment constitutional prohibition against takings of private property without just compensation.[66]

Cost-of-service ratemaking, quite simply, works well in an expanding economy. As long as electric demand continues to grow and as long as utilities continue to make technological improvements and achieve scale economies, utilities can be rewarded for their prudent capital investments and customers do not suffer rate increases due to a "virtuous growth cycle in which increasing electricity consumption was viewed as synonymous with the public good."[67]

The danger in such a formula, however, should be apparent. As long as utilities received a return on capital expenditures, they had an incentive to build.[68] Again, during a period of economic expansion and growth in electricity demand, building is a necessary and economically valuable strategy. Today, however, the industry is experiencing a "'paradigm shift' caused by the need for large new capital additions at a time of declining sales growth and reduced credit worthiness."[69] If the economy slows or demand falls, capital investments may not be economically valuable because the

62. *See id.* at 6.

63. *See id.* at 6, 12.

64. *See* WILLIAM T. GORMLEY, JR., THE POLITICS OF PUBLIC UTILITY REGULATIONS 6 (1983); MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 25.

65. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 6; J. GREGORY SIDAK & DANIEL F. SPULBER, DEREGULATORY TAKINGS AND THE REGULATORY CONTRACT: THE COMPETITIVE TRANSFORMATION OF NETWORK INDUSTRIES IN THE UNITED STATES 223 (1997).

66. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 6; SIDAK & SPULBER, *supra* note 65, at 222.

67. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at ix.

68. *See id.*

69. *Id.* at 41.

market is saturated and electricity sales flatten, meaning revenues decline for IOUs. Today, IOUs in fact face just such a slow economy, weak demand, and nervous regulators.[70]

B. *Traditional Policy Assumptions*

Generally, energy policy—more specifically electricity policy—was grounded on the central and important idea that the more energy that a country produces and consumes, then the more vibrant its economy would be.[71] Indeed, the twentieth century witnessed unprecedented economic growth for the United States as well as any developing country with a robust energy infrastructure.

There are other policy ideas associated with this belief in the direct positive relationship between energy and the economy. First, it is more efficient to use cheaper inputs to produce a product such as electricity than more expensive ones.[72] In this way, then, the electric industry has relied predominantly on cheap, but dirty, fossil fuels—particularly coal.[73] Second, scale economies could be realized through larger plants and greater centralization.[74] Therefore, the utility industry should capitalize on those improvements—to a point. Parenthetically, this principle was exactly the reason that utilities invested in nuclear power—to realize scale economies. Unfortunately, that strategy often proved to be quite costly. Third, as utilities moved from local to regional, and, ultimately, to interstate T&D, industry regulation similarly moved from municipal to state and then to federal authorities.[75] In short, the development and the structure of the industry and its regulation moved in tandem as industry actors and regulators mimicked how each conducted its business, thus reinforcing the traditional energy paradigm.[76]

As a result of these assumptions, the industry and its regulation developed a pattern that exists today and is a pattern that has witnessed the investment of trillions of dollars over the century. Unfortunately, the traditionally structured industry and its regulation do not fit with current

70. *See id.*
71. *See id.* at ix, 17.
72. TOMAIN, ENDING DIRTY ENERGY POLICY, *supra* note 14, at 119.
73. Joseph P. Tomain, *The Dominant Model of United States Energy Policy*, 61 U. COLO. L. REV. 355, 358 (1990) [hereinafter Tomain, *The Dominant Model of United States Energy Policy*].
74. TOMAIN, NUCLEAR POWER TRANSFORMATION, *supra* note 20, at 11.
75. Tomain, *The Dominant Model of United States Energy Policy*, *supra* note 73, at 356–57.
76. *See id.* at 374.

economic policy nor are they aligned with contemporary energy policy assumptions.

Most notably, today we have significant reasons to question the underlying assumption about the direct relationship between energy and the economy. Most particularly, even though electricity demand is projected to increase overall, albeit slowly, individual consumption is declining.[77] In other words, the traditional belief in the direct linkage between energy and the economy is now experiencing a reversal. Individual consumers can continue to enjoy the lifestyles they have while consuming less electricity. Further, industrial and commercial, as well as residential, consumers are less dependent on the local utility for their electricity. Additionally, energy policy—more specifically electricity policy—is concerned not only with the relationship between energy and the economy; it is also concerned about environmental consequences and about the energy reliability and national security issues in the realm of geopolitics.[78]

Consequently, given the dramatic nature of changes in the electricity market and in energy policy, it is time to reconsider, reevaluate and redesign both the regulatory compact and the traditional approach to ratemaking—particularly given the changes that have been made in energy regulation—to which we now turn.

C. *Regulatory Changes*

The regulatory landscape for the electricity industry and its markets has been undergoing dramatic change for over forty years at both the federal and state levels.[79] It is this regulatory twist that has given IOUs cause for concern and it is something that they must now confront.

Although, as noted above, the electric market began changing in the mid-1960s, no major regulatory changes occurred until the passage of the Public Utility Regulatory Policies Act of 1978 ("PURPA").[80] In brief, large IOUs seemed to reach a technological plateau in the mid-1960s, yet they had committed capital to expansion projects. In doing so, IOUs overbuilt and, as a consequence of the traditional ratemaking formula, they were charging customers for that capital expansion. To inside observers, it was clear that cheaper electricity was available but could not get to market because T&D

77. Sioshansi, *Why the Time Has Arrived to Rethink the Electric Business Model*, *supra* note 1, at 65–66.

78. *See* Tomain, *Building the iUtility*, *supra* note 8, at 29.

79. *Compare e.g.*, 16 U.S.C. § 2621 (2012), *with* Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in 16 U.S.C. § 2621).

80. *See* Public Utility Regulatory Policies Act of 1978.

was privately owned by IOUs. As it turned out, PURPA proved the very point that cheaper electricity was available.[81]

As economic dislocations occurred in world energy markets and in the domestic economy, President Carter proposed, and Congress enacted, the National Energy Act[82] with the intent of stabilizing domestic energy policy and markets.[83] PURPA was intended to encourage states to move away from electricity rate designs that encouraged consumption and move toward marginal cost pricing because it would promote more accurate price signals and achieve greater efficiencies.[84] In addition, PURPA promoted independent power production, co-generation and small power generation.[85] Known as qualifying facilities ("QFs"), these non-utility generators were able to produce electricity that was less expensive than electricity generated from traditional IOUs and they were more successful than policymakers imagined.[86] QFs demonstrated that non-utility generation could be delivered safely and reliably and, as it turned out, there were more generating facilities, sometimes referred to as PURPA-machines, than anticipated.[87] Consequently, it was revealed that cheaper power was available for electric markets.[88]

QFs had a very attractive economic incentive to generate electricity up to the maximum amount allowed under law.[89] Not only could QFs generate cheaper power for a firm's own use, any excess power could be sold back to the local utility at the "utility's full avoided costs."[90] The local utility

81. *See* Public Utility Regulatory Act of 1978, Pub. L. No. 95-617, § 2, 92 Stat. 3117 (codified as amended in 16 U.S.C. § 2602).

82. National Energy Act of 1978 was comprised of five major pieces of energy legislation: Public Utility Regulatory Policies Act of 1978; Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3350 (codified as amended at 15 U.S.C. § 3301); Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (codified as amended in scattered sections of 26 U.S.C.); National Energy Conservation Policy Act of 1978, Pub. L. No. 95-619, 92 Stat. 3206 (codified as amended in scattered sections of 42 U.S.C.); Power Plant and Industrial Fuel Use Act of 1978, Pub. L. No. 95-620, 92 Stat. 3289 (codified as amended at 42 U.S.C. § 92).

83. National Energy Conservation Policy Act of 1978, Pub. L. No. 95-619, 92 Stat. 3206 (codified as amended at 42 U.S.C. § 8201).

84. *See* Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in 16 U.S.C. § 824a-3); Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in 16 U.S.C. § 2622).

85. Public Utility Regulatory Policies Act of 1978 § 210.

86. *See What is a Qualifying Facility?*, FERC, https://www.ferc.gov/industries/electric/gen-info/qual-fac/what-is.asp (last updated Feb. 3, 2012).

87. *Id.*; *see* Richard D. Cudahy, *PURPA: The Intersection of Competition and Regulatory Policy*, 16 ENERGY L. J. 419, 423 (1995).

88. *See What is a Qualifying Facility?*, *supra* note 86.

89. Am. Paper Inst., Inc. v. Am. Electric Power Serv. Corp., 461 U.S. 402, 417–18 (1983).

90. *Id.* at 404.

had to allow access to QFs, and it was obligated to purchase their excess electricity at the local utility's marginal cost of electricity.[91] The local utility had to pay the cost that it would incur to generate one more kilowatt-hour of electricity.[92] In other words, the utility had to pay the generator not at the prevailing market value, but at the utility's own higher cost of producing electricity.[93] Thus, PURPA discovered a new generation market.

In effect, PURPA set the stage for competition. Traditionally regulated IOUs, following the traditional regulatory structure and rate formula, earned favorable rates, but they had overbuilt.[94] The excess capacity raised utilities' fixed costs, which had to be recovered from ratepayers.[95] Consumers were aware of these market developments.[96] They did not want to pay for higher cost electricity and sought lower-cost options.[97] While the existence of lower cost electricity did not surprise large customers, the market was surprised by how much new non-utility generated electricity was available, and how eager new generators were to enter the market. These new unregulated producers were willing to supply the market with electricity at prices lower than those charged by incumbent IOUs, and they now provide over one-third of the country's electricity.[98]

PURPA opened electricity markets and other state and federal legislation entered that arena and expanded competition.[99] Under the Energy Policy Act of 1992, Congress created a category of exempt wholesale generators.[100] These entities generated electricity to be sold at wholesale, and they were exempt from some of the regulatory provisions contained in the Public Utilities Holding Company Act of 1935, which was later repealed

91. *See* Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95–617, § 210(a), (d), 92 Stat. 3117 (codified as amended in 16 U.S.C. § 824a–3).

92. *See id.* § 210(d).

93. *See id.*

94. Joseph P. Tomain, *The iUtility*, *in* BEYOND ENVIRONMENTAL LAW: POLICY PROPOSALS FOR A BETTER ENVIRONMENTAL FUTURE 223, 231–33 (Alyson C. Flournoy & David M. Driesen eds., 2010) [hereinafter Tomain, *The iUtility*].

95. *Id.*

96. *Id.* at 231.

97. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at X; Tomain, *The iUtility*, *supra* note 94, at 226–27.

98. *See* U.S. ENERGY INFO. ADMIN., ELECTRIC POWER MONTHLY WITH DATA FOR DECEMBER 2013 tbl.ES1.B (2014), *available at* http://www.eia.gov/electricity/monthly/current-year/february2014.pdf.

99. Cudahy, *supra* note 87, at 421, 423–24; *see also* Energy Efficiency & Renewable Energy, U.S. Dep't of Energy, *Net Metering*, GREEN POWER NETWORK http://apps3.eere.energy.gov/greenpower/markets/netmetering.shtml (last updated May 25, 2011).

100. Energy Policy Act of 1992, Pub. L. No. 102–486, § 711, 106 Stat. 2776 (codified as amended at 15 U.S.C. § 79).

by the Energy Policy Act of 2005.[101] That repeal was deemed to be a significant boost to independent power production because it opened the electricity market to a wider variety of business activities.[102] Also under the Energy Policy Act of 2005, Congress required electric utilities, under certain restrictions, to offer net metering services to electricity consumers.[103] To date, forty-three states and the District of Columbia have adopted some form of net metering.[104] Additionally, for over three decades federal tax incentives in the form of production tax credits and investment tax credits, among others, have spurred production of electricity from renewable resources.[105] Finally, federal regulators, pursuant to enacted legislation, are pursuing methods of pollution control.[106] Proposed EPA rules will strengthen Clean Air Act protections and they will have a negative impact on coal-fired power plants.[107]

Federal regulation was a boon to independent power production. State regulation, however, was more varied and went quite a bit further. State regulatory actions that contribute to declining electricity demand include demand side management planning requirements; integrated resource planning requirements; renewable portfolio standards ("RPS"); and energy efficiency standards as well as net metering laws.[108] Additionally, in an effort to stimulate non-fossil fuel generation, thirty-seven states and the

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101. *See* Michael J. Zimmer, *Regulation Under the Public Utility Holding Company Act of 2005*, *in* 3 ENERGY LAW AND TRANSACTIONS § 70.14 (2013).

102. *See id.*

103. Energy Policy Act of 2005, Pub. L. No. 109–58, § 1251, 119 Stat. 594 (codified as amended in 16 U.S.C. § 2621(d)). "Each electric utility shall make available upon request net metering service to any electric consumer that the electric utility serves." *Id.* The section contains qualifications that allow Public Utility Commissions ("PUCs") to fashion net metering rules: (1) consumer must be an "eligible on-site generating facility" and (2) that electricity "may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period." *Id.*

104. Energy Efficiency & Renewable Energy, U.S. Dep't of Energy, *supra* note 99.

105. *See* Mona L. Hymel, *Environmental Tax Policy in the United States: A "Bit" of History*, 3 ARIZ. J. ENVTL. L. & POL'Y 157, 172 (2013); Mona L. Hymel, *The United States' Experience with Energy-Based Tax Incentives: The Evidence Supporting Tax Incentives for Renewable Energy*, 38 LOY. U. CHI. L.J. 43, 43, 50 (2006).

106. *See* Massachusetts v. EPA, 549 U.S. 497, 532–33 (2007) (holding that the EPA does have the authority and the responsibility under the Clean Air Act to regulate greenhouse gas emissions).

107. *See, e.g.*, Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units (proposed Sept. 20, 2013) (to be codified at 40 C.F.R. pt. 60) (forthcoming Federal Register Publication), http://www2.epa.gov/sites/production/files/2013-09/documents/20130920proposal.pdf (last visited Mar. 30, 2014).

108. *See, e.g.*, Faruqui & Shultz, *supra* note 56, at 24–28.

District of Columbia have adopted RPS that impose requirements of varying strictness on local utilities to sell electricity generated by renewable resources.[109] These standards vary throughout the country but are comprised of essentially two elements.[110] First, a resource such as solar, wind, hydropower, or geothermal must qualify for inclusion under the terms of the RPS.[111] Second, a percentage goal and timetable is established for each utility to satisfy the requirement.[112] RPS programs have a significant impact on developing renewable resources over the last decade or so.[113]

States have also been involved in an array of other regulations that are aimed at having electricity produced by non-utility generators using renewable resources.[114] Feed-in tariffs, for example, are long-term contracts

109. *See* U.S. Energy Info. Admin., *Most States Have Renewable Portfolio Standards*, EIA (Feb. 3, 2012) [hereinafter U.S. Energy Info. Admin., *Most States Have Renewable Portfolio Standards*], http://www.eia.gov/todayinenergy/detail.cfm?id=4850; *Renewable Portfolio Standard Policies*, DSIREUSA.ORG (Mar. 2013), http:// www.dsireusa.org/documents/summarymaps/RPS_map.pdf.

110. *See* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, *supra* note 107.

111. *See id.*; U.S. Energy Info. Admin., *Most States Have Renewable Portfolio Standards*, *supra* note 109.

112. *See* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, *supra* note 107; Lincoln L. Davies, Commentary, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339, 1342 (2010).

113. *See* Davies, *supra* note 112, at 1383; U.S. Energy Info. Admin., *Most States Have Renewable Portfolio Standards*, *supra* note 109. One of the open issues regarding RPS requirements is whether or not they should be left to the states or that national standard should be adopted. *Compare* Jim Rossi, *The Limits of a National Renewable Portfolio Standard*, 42 CONN. L. REV. 1425, 1441–43 (2010) [hereinafter Rossi, *The Limits of a National Renewable Portfolio Standard*], *and* Jim Rossi, *The Shaky Political Economy Foundation of a National Renewable Electricity Requirement*, 2011 U. ILL. L. REV. 361, 361–64 [hereinafter Rossi, *The Shaky Political Economy Foundation of a National Renewable Electricity Requirement*], *with* Davies, *supra* note 112, at 1364–66. Because each state has a different energy mix and because regions have different energy resources available to them, the argument is made that they should be left to the states. *Compare* Rossi, *The Limits of a National Renewable Portfolio Standard*, *supra* note 113, at 1441–43, *and* Rossi, *The Shaky Political Economy Foundation of a National Renewable Electricity Requirement*, *supra* note 113, at 361–64, *with* Davies, *supra* note 112, at 1364–66. However, national standards may provide more uniformity and may make trading in renewable energy credits more fluid. *Compare* Rossi, *The Limits of a National Renewable Portfolio Standard*, *supra* note 113, at 1441–43, *and* Rossi, *The Shaky Political Economy Foundation of a National Renewable Electricity Requirement*, *supra* note 113, at 361–64, *with* Davies, *supra* note 112, at 1364–66.

114. ROCKY MOUNTAIN INST., NET ENERGY METERING, ZERO NET ENERGY AND THE DISTRIBUTED ENERGY RESOURCE FUTURE: ADAPTING ELECTRIC UTILITY BUSINESS MODELS FOR THE 21ST CENTURY 7, 9, 11, (2012) [hereinafter ROCKY MOUNTAIN INST., NET ENERGY METERING], *available at* http:/ /www.rmi.org/Content/Files/RMI_PGE_NEM_ZNE_DER_ Adapting_Utility_Business_Models_for_the_21st__Century.pdf.pdf; U.S. Energy Info.

that utilities enter into with renewable resource providers, which enable the providers to have an assured income stream enabling them to provide renewable energy.[115] Energy efficiency standards and zero net building standards are intended to reduce consumption by capturing energy efficiencies.[116] States also have tax credits available that have made the installation of photo-voltaic ("PV") solar and other alternatives more affordable for more consumers.[117]

Consequently, an array of federal and state legislation has had two dramatic consequences for the industry.[118] First, competition in the electricity market has been encouraged.[119] Second, regulations have promoted renewable resources and energy efficiency that have had the effect of reducing demand for IOU electricity.[120] This new regulatory scheme has caused a reevaluation of regulation at both ends of the fuel cycle.[121] At the generation end, we have seen that the market is more competitive than once assumed.[122] At the consumption end, buyers wanted cheaper electricity.[123]

Since the late 1970s we have been trying to restructure the electric industry with only partial success. We continue to struggle with the problems of: (1) getting cheaper electricity to consumers; (2) continuing to diversify generation sources; (3) dealing with intermittent sources such as wind and solar power; (4) redesigning electricity markets; and (5) encouraging traditional IOUs to rethink their business models. This last issue—encouraging traditional IOUs to reformulate their business models—raises a legal question of constitutional dimension. To the extent that a privately owned firm has invested capital in reliance on government regulations, is the firm entitled to compensation when those regulations change? That question will be addressed in the next section and will then be followed by the test case for the matter of DG that has been promoted

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Admin., *Feed-in Tariff: A Policy Tool Encouraging Deployment of Renewable Electricity Technologies*, EIA (May 30, 2013) [hereinafter U.S. Energy Info. Admin., *Feed-in Tariff*], http://www.eia.gov/todayinenergy/detail.cfm?id=11471.

115. U.S. Energy Info. Admin., *Feed-in Tariff*, *supra* note 114.

116. *See* ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 11.

117. *See id.* at 7, 9.

118. Cudahy, *supra* note 87, at 423.

119. *Id.*

120. *See* CHANNELL ET. AL, *supra* note 50, at 74–75; Cudahy, *supra* note 87, at 423.

121. MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 21; Cudahy, *supra* note 87, at 425.

122. Cudahy, *supra* note 87, at 425.

123. MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 21.

through government regulation and that now competes with the IOU market share.

The electricity market is indeed changing. As the Edison Electric Institute—the trade association for IOUs—puts the issue: "While every market-driven business is subject to competitive forces, public policy programs that provide for subsidized growth of competing technologies and/or participant economic incentives do not provide a level playing field upon which generators can compete fairly against new entrants."[124] It is important to distinguish between technologically driven changes that result in increased competition and competition that results from regulatory requirements on incumbent utilities and on regulatory incentives that promote new entrants. It is equally, if not more, important to realize that the dividing line between markets and their regulation is fuzzy at best.[125]

Edison, thus, is partially correct to distinguish between market-driven technological change and public policies that promote competition. This distinction, though, fails to recognize that the electric industry has been a regulated industry and has enjoyed the fruits of that regulation for over a century. In other words, the divide between market changes and government regulation is not a particularly neat one. The fact that the electric industry has been the beneficiary of regulation and is now in a posture of contesting competition that has come about through regulation reveals that a solution or response to the industry's concerns involves political as well as economic considerations.

IV. TAKINGS AND ELECTRIC UTILITIES

As noted in Part II, the issue of costs from failed nuclear power investments or from failed restructuring investments can also arise as regulators adopt rules that increase competition for IOUs. Each of these issues raises the same constitutional question. Is an IOU entitled to recover such costs because of regulations that devalue its property? In other words, has a regulation effectuated a taking of utility property?

Any legal transition generates economic winners and losers.[126] In the energy sector, subsidies and financial supports to wind and solar providers, for example, reduce their cost of doing business and may open up clean energy markets. Similarly, the under payment of royalties or tax incentives and subsidies for fossil fuel companies reduce their cost of doing

124. KIND, *supra* note 4, at 4.

125. *See* SIDNEY A. SHAPIRO & JOSEPH P. TOMAIN, ACHIEVING DEMOCRACY: THE FUTURE OF PROGRESSIVE REGULATION 137 (2014).

126. *See* Louis Kaplow, *An Economic Analysis of Legal Transitions*, 99 HARV. L. REV. 509, 513–14 (1986).

business, thus giving them a competitive advantage over clean energy providers.[127] In short, any regulation has economic consequences including reducing the value of an owner's property. It is generally true, though, that regulations occur on a regular basis without giving rise to a takings claim. "Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law."[128]

However, as Justice Oliver Wendell Holmes has also said, "[t]he general rule at least is, that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a [constitutional] taking."[129] Holmes' Delphic pronouncement would seem to settle the matter that a regulation can constitute a taking necessitating just compensation.[130] However, the definition of a taking, let alone a regulatory or a deregulatory taking,[131] remains unsettled and takings jurisprudence has been seen by the Supreme Court of the United States as *essentially ad hoc*.[132] More problematically, takings jurisprudence, as a whole, has been said to be in *vast disarray*.[133]

Consequently, takings law is best understood on a case-by-case basis with three or four general principles.[134] First, a court is most likely to find a taking when a property owner has suffered a permanent physical invasion of

127. *See* CONG. BUDGET OFFICE, FEDERAL FINANCIAL SUPPORT FOR THE DEVELOPMENT AND PRODUCTION OF FUELS AND ENERGY TECHNOLOGIES 2 (2012), *available at* http://www.cbo.gov/sites/default/files/cbofiles/attachments/03-06-FuelsandEnergy_Brief.pdf (while most energy resources receive some financial incentives "tax preferences for fossil fuels continued to make up the bulk of all energy-related tax incentives through 2007, typically accounting for more than two-thirds of the total cost"); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-140, COAL LEASING: BLM COULD ENHANCE APPRAISAL PROCESS, MORE EXPLICITLY CONSIDER COAL EXPORTS, AND PROVIDE MORE PUBLIC INFORMATION 24 (2013), *available at* http://www.gao.gov/assets/660/659801.pdf (undervaluing royalty payments on public lands); David Kocieniewski, *As Oil Industry Fights a Tax, It Reaps Subsidies*, N.Y. TIMES, July 4, 2010, at A1 ("[A]n examination of the American tax code indicates that oil production is among the most heavily subsidized businesses, with tax breaks available at virtually every stage of the exploration and extraction process.").

128. Pa. Coal Co. v. Mahon, 260 U.S. 393, 413 (1922).

129. *Id.* at 415.

130. *Id.*

131. *See, e.g.*, SIDAK & SPULBER, *supra* note 65, at 222–26, 427. Regulatory takings are discussed at 222–26. Deregulatory takings are discussed at chapter 13.

132. Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 124 (1978).

133. *See, e.g.*, Richard A. Epstein, *Physical and Regulatory Takings: One Distinction Too Many*, 64 STAN. L. REV. ONLINE 99, 101 (2012).

134. *See, e.g.*, Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 426 (1982).

his or her property.[135] Second, a property owner who can demonstrate that a regulation deprives him or her of all economically beneficial use of his or her property may successfully assert a takings claim.[136] Third, a regulatory taking may be found when a regulation has frustrated the property owner's investment-backed expectations.[137] These three reasons are the standard tests developed by the Court for identifying takings.[138] There appears, though, that a fourth requirement is most often applied.[139] Specifically, all of the cases just cited deal with real property rather than with the value of a corporate enterprise.[140] Thus, "major regulatory initiatives rarely require a penny in compensation for millions of dollars in economic losses."[141]

Nevertheless, the takings argument is far from fanciful for utilities. Indeed, the constitutional requirement that regulators cannot take property without just compensation is at the heart of the regulatory compact. As noted by the Supreme Court:

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments [and] other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its

135. *Id.* at 441. The laying of cable TV lines across an owner's property is a physical occupation of real property and is, therefore, a taking. *Id.* at 421–26. "We affirm the traditional rule that a permanent physical occupation of property is a taking." *Id.* at 441.

136. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1019 (1992).

> We think, in short, that there are good reasons for our frequently expressed belief that when the owner of real property has been called upon to sacrifice *all* economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking.

Id.

137. *Penn Cent. Transp. Co.*, 438 U.S. at 124 ("The economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations are, of course, relevant considerations.").

138. *Lucas*, 505 U.S. at 1019; *Loretto*, 458 U.S. at 441; *Penn Cent. Transp. Co.*, 438 U.S. at 124.

139. *See Lucas*, 505 U.S. at 1019; *Loretto*, 458 U.S. at 441; *Penn Cent. Transp. Co.*, 438 U.S. at 124.

140. *Lucas*, 505 U.S. at 1019; *Loretto*, 458 U.S. at 441; *Penn Cent. Transp. Co.*, 438 U.S. at 124.

141. Epstein, *supra* note 133, at 101.

> credit and enable it to raise the money necessary for the proper discharge of its public duties.[142]

Over ninety years ago, then, the Supreme Court established the principle that a public utility is entitled to earn a return on its prudently incurred capital investments at a level sufficient for the utility to be financially sound and to attract investors.[143] The problem for a regulated entity, such as an electric utility, is that regulations can affect the value of those investments.[144] Indeed, electric utilities have raised the takings issue in a number of settings: Environmental regulations,[145] restructuring orders,[146] low rates of return,[147] and the like,[148] have all generated takings claims. None, however, have resulted in direct monetary damages paid in compensation to a utility although financial relief from burdensome regulations has been made available as discussed below.[149]

Substantive takings jurisprudence appears to provide electric utilities grounds for claiming that when a regulation goes too far it then becomes a taking.[150] Yet, electric utilities' regulatory takings claims have not been

142. Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679, 692–93 (1923).

143. *Id.*

144. *See id.* at 689–90, 693.

145. *See, e.g.*, Integration of Greenhouse Gas Emissions Standards into Procurement Policies, Rulemaking Proceeding No. 06-04-009, 2007 WL 2579525 (Cal. Pub. Utils. Comm'n Sept. 6, 2007). The regulatory takings claim that GHG regulations may devalue property or cause a sale of the property is denied. *Id.* Indeed, the PUC noted that claimant failed to cite "any cases holding that there is a regulatory taking if a pollution control requirement causes an owner of a plant to shut it down entirely." *Id.*

146. *See, e.g.*, Provision of Elec. Servs., 175 P.U.R. 4th 1, Docket No. U-0000-94-165, 1966 WL 787623 (Ariz. Corp. Comm'n Dec. 26, 1996) (utility's regulatory takings claim that Arizona's restructuring orders may result in uncompensated stranded costs denied, because the rules provided a mechanism for at least some stranded cost recovery).

147. *See* PacifiCorp, Case No. PAC-E-10-07, 2011 WL 1525191 (Idaho Pub. Utils. Comm'n Apr. 18, 2011); Niagara Mohawk Power Corp., 286 P.U.R. 4th 401, Case No. 10-E-0050, 2011 WL 286478 (N.Y. Pub. Serv. Comm'n Jan. 24, 2011) (9.3% return on equity not a taking even though it was below the rate set by other PUCs for similarly structured utilities). PUC's decision that the 27% of a transmission line that is not used and useful can be excluded from the rate base is not a taking. PacifiCorp, *supra* note 147. The PUC also noted that when the line is fully integrated into the system, it will put it into the rate base. *Id.*

148. *See, e.g.*, *In re* Citizens Utils. Co., 769 A.2d 19, 23 (Vt. 2000) (takings claim denied when the Public Services Board reduced the rate of return from 10.5% to 5.25% because of the poor management of the utility).

149. *See id.* at 22–23, 32–33; Provision of Elec. Servs., *supra* note 146; Integration of Greenhouse Gas Emissions Standards into Procurement Policies, *supra* note 145; PacifiCorp, *supra* note 147; Niagara Mohawk Power Corp., *supra* note 147.

150. *See* Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922).

successful.[151] In part, the lack of success can be attributed to a narrow application of takings doctrine as revealed by the four substantive law principles listed above.[152]

In addition to a narrow reading of substantive takings law, utilities must also confront procedural challenges to the successful assertion of a takings claim.[153] According to the letter of the law, if property is taken for public use then compensation is required.[154] However, compensation in the form of damages for regulatory takings is rare if not impossible.[155] First, if a utility asserts that a regulatory taking has occurred as a result of an onerous regulation, then the most likely remedy will be an invalidation of the regulation, not damages.[156] Second, courts are reluctant to award damages if a utility asserts a facial claim of an unconstitutional regulation because, most often, courts require a showing that actual damage has occurred.[157]

There is another subtlety to takings jurisprudence that electric utilities must face. Regulation, for example, may very well reduce, even destroy, a valuable *portion* of electric utility's property.[158] However, before a takings claim can be successful, the property *as a whole* must be evaluated and not just portion of it.[159] A utility, for example, that argues that a portion of its property was denied a return on investment, cannot successfully claim that a portion of its property has been taken if, looking at the utility's total financial situation, the utility's property still has value.[160] Another way of characterizing this issue of partial or full evaluation of a utility's property is to ask the question: How much damage has the utility suffered?

Utilities, for example, that have claimed that a portion of their property has been excluded from rate base treatment and, therefore, denied a return on investment, have not succeeded with their takings claim when the

151. *See, e.g.*, *In re Citizens Utils. Co.*, 769 A.2d at 22–23, 32–33; Provision of Elec. Servs., *supra* note 146; Integration of Greenhouse Gas Emissions Standards into Procurement Policies, *supra* note 145; PacifiCorp, *supra* note 147; Niagara Mohawk Power Corp., *supra* note 147.

152. *See supra* text accompanying notes 134–41.

153. *See, e.g.*, Lingle v. Chevron U.S.A. Inc., 544 U.S. 528, 544 (2005).

154. *Id.* at 536–37.

155. *See, e.g.*, *In re Citizens Util. Co.*, 769 A.2d at 22–23, 32–33; Provision of Elec. Servs., *supra* note 146; Integration of Greenhouse Gas Emissions Standards into Procurement Policies, *supra* note 145; PacifiCorp, *supra* note 147; Niagara Mohawk Power Corp., *supra* note 147.

156. *See, e.g.*, Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679, 695 (1923).

157. *See Lingle*, 544 U.S. at 544; Customer Billing Arrangements, Case No. 99-M-0631, 2000 WL 33938296 (N.Y. Pub. Serv. Comm'n July 19, 2000).

158. *See, e.g.*, Duquesne Light Co. v. Barasch, 488 U.S. 299, 301–02 (1989).

159. Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 130–31 (1978).

160. *See, e.g.*, *Barasch*, 488 U.S. at 301–02.

remaining property is treated as a capital investment for which a return is due.[161] States that have passed legislation requiring that only property that is *used and useful* can earn a return on investment have seen that legislation upheld as constitutional.[162] Finally, to the extent that the regulated entity can take steps to mitigate any damages that might occur as a result of a regulation, they must do so, and failure to do so will negate the takings claim.

As the electricity market undergoes its current transformation and as IOUs confront their current challenges, the issue of costs imposed on IOUs due to government regulation is ever present as revealed by the test case next discussed.[163]

V. A DG TEST CASE

IOUs have become concerned about the growth of solar power,[164] other renewables, and energy efficiency because of the consequent loss of load attributed to those activities.[165] The use of solar power is expanding for three predominant reasons.[166] First, the cost of solar panels is declining noticeably.[167] Second, third party financing options make the installation of solar panels attractive to individual homeowners.[168] And, third, existing state

161. *See, e.g.*, *id.*

162 *See, e.g.*, *id.*

163. *See infra* Part V.

164. BLOOMBERG NEW ENERGY FIN. & BUS. COUNCIL FOR SUSTAINABLE ENERGY, *supra* note 13, at 3, 31.

165. *See id.*

166. *See id.*; *Solar Power for Your Home*, SOLARCITY, http://www.solarcity.com/residential/ (last visited Mar. 30, 2014).

167. BLOOMBERG NEW ENERGY FIN. & BUS. COUNCIL FOR SUSTAINABLE ENERGY, *supra* note 13, at 3.

168. ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114. Third-party financing essentially leases solar installations to individual homeowners or businesses under long term-contracts but retains ownership. *Id.* at 23–24. The third parties also operate the solar system. *See, e.g.*, *Solar Power for Your Home*, *supra* note 166. These third-party owners can do so because in exchange for selling solar installation, they receive tax credits and other financial incentives as the nominal owner. *See, e.g.*, ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 23–24.

The use of third-party financing and third-party ownership has not gone unchallenged. *See, e.g.*, Ruling on Petition for Judicial Review at 3–4, SZ Enter., LLC v. Iowa Util. Bd., No. CVCV009166 (Iowa 5th Dist. Mar. 29, 2013). From the perspective of the regulated utility, to the extent that third parties are financing a number of residential and commercial installations, those actors are invading the service territories of the incumbent utilities. *See, e.g.*, *id.* at 18. The utility's argument then, is that these third parties should be regulated as public utilities. *See, e.g.*, *id.* at 5. This matter is currently under consideration by the Iowa Supreme Court. Appellate Court Case Details for SZ Enterprises v. Iowa Utilities Board, Docket No. 13-0642, IOWA CT. ONLINE SEARCH, https://

and federal regulations provide financial incentives for solar installations.[169] To an incumbent IOU, reduced electricity sales are a financial threat.

On December 3, 2013, the Arizona Corporation Commission issued a ruling that brings together the several issues in this article.[170] The Arizona Public Service Company ("APS"), the local IOU, sought relief from regulatory obligations and petitioned the Commission to reduce the burdens imposed upon it by net metering regulations that required the utility to pay rooftop solar users for their excess electricity.[171]

Arizona's net metering law "allows electric utility customers to be compensated for generating their own electric[ity] . . . from [identified] renewable [behind-the-meter] resources," such as solar power.[172] "If [a] customer's energy production exceeds the energy supplied by the electric utility during a billing period, [then] the customer's bill for subsequent periods is credited for the excess generation."[173] The credit is based upon the IOU's avoided cost or the customer's retail rate.[174] The avoided cost rate—sometimes referred to as a bundled rate—means the marginal cost to the utility of producing its next unit of electricity.[175]

To better understand the impact of avoided cost as defined by the Supreme Court of the United States and in the Arizona Code, it is necessary

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www.iowacourts.state.ia.us.ESAWebApp/AppelSimpFrame (search "Appellate Docket Number" for "13-0642"; then follow "13-0642" hyperlink under the "Docket No." column; then follow "Docket" hyperlink) (last visited Mar. 30, 2014).

169. BLOOMBERG NEW ENERGY FIN. & BUS. COUNCIL FOR SUSTAINABLE ENERGY, *supra* note 13, at 31.

170. *See generally* Ariz. Pub. Serv. Co., 310 P.U.R. 4th 121, Docket No. E-01345A-13-0248, 2013 WL 6384419 (Ariz. Corp. Comm'n Dec. 3, 2013).

171. *Id.*

172. *Id.*

173. *Id.*

174. *Id.* The law does provide a safety valve and limits the size of the customers distributed generation system to a maximum of 125% of that customer's total load. Ariz. Pub. Serv. Co., *supra* note 170. This limitation is not unproblematic. From a utility standpoint, this 125% maximum helps limit the amount of revenue loss. Regulators, mindful of the need to protect the utility's revenue requirement together with their service obligation, have adopted such limitations. *See generally* SOLAR ELEC. POWER ASS'N, RATEMAKING, SOLAR VALUE AND SOLAR NET ENERGY METERING—A PRIMER (2013), *available at* http://www.solarelectricpower.org/media/51299/sepa-nem-report-0713-print.pdf. The problem, however, is that, to the extent that solar rooftop in particular or DG in general is either a desirable or inevitable direction for the future of the electric industry, the transition is being delayed. *Id.*

175. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 10. Arizona more specifically defines avoided costs as "the incremental costs to an [e]lectric [u]tility for electric energy or capacity or both which, but for the purchase from the Net Metering Facility, such utility would generate itself or purchase from another source." ARIZ. ADMIN. CODE § 14-2-2302 (2013).

to understand how a utility bill is designed. By way of simplification, a utility serves basically three types, or classes, of customers—residential, commercial, and industrial.[176] Each class, in turn, has different energy needs and is charged accordingly.[177] By way of example, residential customers consume less electricity than industrial customers; however, residential customers, as a class, consume more customer service for their homes in contrast with a large manufacturing company that requires less customer service for its plant relative to the amount of electricity consumed.[178]

In the attempt to even out charges to each class of customers, a utility bill is generally comprised of three components—a demand charge, an energy or volumetric charge, and a customer service charge.[179] The service charge represents the costs, such as billing, metering and some investments, to provide electricity service to each consumer.[180] These charges remain flat relative to the amount of electricity that a user consumes, but the total cost varies with the number of customers.[181] The energy charge represents the amount of electricity consumed by each user.[182] And, finally, the demand charge represents the utility's capital investment in plant and equipment that is allocated to each consumer based on the consumer's maximum rate of usage.[183] A rough way of differentiating these costs is to say that the energy charge and the service charge represent a utility's variable costs while the demand charge represents the utility's fixed costs. Usually, residential consumers do not pay a separate demand charge.[184] Instead, the fixed costs are embedded in the volumetric portion of the bill.[185] This embeddedness, or bundling, gives rise to the problem litigated in this test case.[186]

In its regulatory filing, APS argues that as participation in DG grows, it becomes increasingly concerned about the cross-subsidization between customer classes.[187] DG customers, APS argues, are partially subsidized by non-DG customers because, it asserts, DG customers do not

176. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 11.
177. *Id.*
178. *See id.* at 13.
179. *Id.* at 15–17. PUCs often add other charges such as a surcharge for a specific investment. Nonetheless, these three charges illustrate the distinction between fixed and variable costs. *See, e.g.*, *id.*
180. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 3, 15.
181. *Id.* at 15.
182. *Id.*
183. *Id.* at 17.
184. *Id.* at 15.
185. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 15.
186. *See* ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 28–29.
187. Ariz. Pub. Serv. Co., *supra* note 170.

bear their fair share of fixed costs.[188] Instead, they offload those costs to non-DG customers.[189] Parenthetically, in addition to an unfair allocation of fixed costs, DG shows some income bias.[190] Quite simply, higher income consumers have more options available to them, including installing rooftop solar, than lower income consumers.[191] Consequently, rate designs that may apportion costs across all residential consumers will be regressive and unfairly burden low-income users.[192]

The issue of cross-subsidization is problematic.[193] The real concerns of APS, however, are that: (1) Arizona's net metering obligations became increasingly costly; (2) it was losing market share even though in its filing it asserted that revenue loss was not part of its case; (3) that non-DG users are paying a disproportionate share of the fixed costs; and, (4) most disconcerting for the utility, the cost increase to non-DG customers will effectively drive more people to DG thus resulting in greater revenue losses.[194] This phenomenon of losing customers to DG because of increased costs is sometimes referred to as a *death spiral*, which is a

> situation that prompts/forces more ratepayers to install solar on their rooftop to avoid rising utility rates as a result of the spreading out of those fixed costs to a lower base. In the end, the utility could be left with fewer revenues to support already installed (and future) infrastructure investments with long useful lives (i.e. transformers, low and high-voltage transmission lines, distribution assets).[195]

To gather information and formulate a proposal to the Commission, APS held a series of conferences.[196] APS then proposed solutions that fell into two broad classes.[197] To simplify, the first option for new DG

188. *Id.*
189. *Id.*
190. *See id.*
191. *See id.* (Burns, Comm'r, dissenting).
192. *See* CAL. PUB. UTILS. COMM'N, CALIFORNIA NET ENERGY METERING (NEM): DRAFT COST-EFFECTIVENESS EVALUATION 110–11 (2013); Sam Sciacca, *Smart Grid Dilemma: Concerned Stakeholders Seek an Equitable Cost-Benefit Ratio for All Ratepayers*, PUB. UTIL. FORT., Aug. 2013, at 32, 33–34.
193. *See* ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 30–31.
194. *See* Ariz. Pub. Serv. Co., *supra* note 170.
195. CITI, RISING SUN: IMPLICATIONS FOR US UTILITIES, *supra* note 4, at 11–12; *see also* KIND, *supra* note 4, at 12 ("When investors realize that a business model has been stung by systemic disruptive forces, they likely will retreat.").
196. Ariz. Pub. Serv. Co., *supra* note 170.
197. *Id.*

customers[198] was that net metering could continue to be used; however, new DG customers would have to pay under a rate schedule that better accounted for the demand (or fixed) costs of the utility's service through the imposition of a "basic service charge, a demand charge, or a standby charge."[199] The second option entailed a recalibration of the net metering rate.[200] New DG customers would be credited for the market value of the power that they sold to the utility rather than at the avoided cost.[201] Further, the rate at which DG customers would be reimbursed would be recalibrated.[202]

APS recognized that by effectively lowering the current net metering charge, rooftop solar installations may be slowed.[203] To address that problem, APS suggested that the Commission should authorize cash payments to encourage greater DG penetration.[204]

Commission staff responded to APS proposals by noting that Arizona's net metering policy has been successful, that DG was expanding as intended, and that it was following the net metering practices of the majority of states.[205] Staff acknowledged that DG customers effectively paid less of the utility's fixed costs, and therefore non-DG customers were saddled with a portion of fixed costs higher than those actually used by them.[206] APS introduced testimony that this cross-subsidization amounted to between $800 and $1,000 per year per DG customer.[207] Consequently, those costs had to be picked up either through higher rates or other charges such as APS's Lost Fixed Cost Recovery mechanism ("LFCR").[208]

Staff argued that the APS analysis neglected to address the benefits to the APS electric system derived from DG customers.[209] The staff argued that there were quantifiable and non-quantifiable benefits attributable to DG.[210] The first quantifiable benefit is that APS will avoid paying certain

198. Existing customers would be grandfathered into the rate schemes in existence, for twenty years. *Id.* After that time, however, APS posed that the new rates would be imposed. *Id.* The problem with this proposal, however, is that the rates should attach to the property rather than to the customer. *Id.*

199. Ariz. Pub. Serv. Co., *supra* note 170.

200. *Id.*

201. *Id.*

202. *Id.*

203. *Id.*

204. Ariz. Pub. Serv. Co., *supra* note 170.

205. *Id.*

206. *Id.*; *see also* KIND, *supra* note 4, at 17.

207. Ariz. Pub. Serv. Co., *supra* note 170.

208. *Id.* The LFCR is a surcharge allowed by regulators that is intended to offset the revenue that results from customers who reduce their bills through conservation and other renewable energy programs. *Id.*

209. *Id.*

210. *Id.*

fuel costs and avoid making certain capital investments in plant transmission or distribution.[211] Non-quantifiable benefits include "increased grid security and air quality improvements,"[212] improved system reliability,[213] load balancing,[214] improved forecasting and planning,[215] environmental improvement, and meeting regulatory requirements such as renewable portfolio mandates.[216] To be sure, accurately valuing the benefits of DG is difficult and—according to one study—most analyses had failed to comprehensively evaluate the benefits and costs of DG.[217] Still, such benefits may well be accounted for through a smart rate design.[218] Not surprisingly, intervenors representing solar interests, argued that APS should award a system benefit credit to DG users for the contributions that they make to the grid.[219]

Staff concluded that both options offered by APS should be rejected and that the Commission should open a separate docket to more fully study the issue, taking into account the benefits, as well as the costs, of DG.[220] The Commission, then, should develop a new rate design to account for DG penetration.[221]

The Commission concluded that the proliferation of DG installations did result in a cost shift from DG customers to non-DG residential customers; therefore, rate design changes were warranted.[222] As an interim measure, the Commission imposed a seventy-cent per kilowatt monthly

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211. Ariz. Pub. Serv. Co., *supra* note 170. Because distributed generation is closer to its end users—sometimes located on exactly the same property—the need for extensive transmission and distribution lines is mitigated. *Id.*

212. *Id.*

213. LENA HANSEN & VIRGINIA LACY, ROCKY MOUNTAIN INST., A REVIEW OF SOLAR PV BENEFIT & COST STUDIES 37 (2d ed. 2013), *available at* http://www.rmi.org/Knowledge-Center%2FLibrary%2F2013-13_eLabDERCostValue. System reliability can be improved by distributed generation as it reduces congestion, reduces large-scale outages, and can provide backup power during outages. *Id.*

214. *Id.* at 15; *see also* ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 32–33.

215. *See, e.g.*, Margaret Jolly et al., *Capturing Distributed Benefits: Factoring Customer-Owned Generation into Forecasting, Planning, and Operations*, PUB. UTIL. FORT., Aug. 2012, at 32, 34–35.

216. STERLING ET AL., NAT'L RENEWABLE ENERGY LAB., *supra* note 7, at ix, 27–28; *see also* SOLAR ELEC. POWER ASS'N, *supra* note 174, at 25, 28.

217. HANSEN & LACY, ROCKY MOUNTAIN INST., *supra* note 213, at 4.

218. Richard Perez et al., *Why a Smart Fit Policy Is a Smart Policy*, SOLAR TODAY, Jan.–Feb. 2013, at 18, 18, *available at* http://www.omagdigital.com/publication/?i=145842&p=19.

219. Ariz. Pub. Serv. Co., *supra* note 170.

220. *Id.*

221. *See* SOLAR ELEC. POWER ASS'N, *supra* note 174, at 11, 18.

222. *See id.* at 20.

charge for all residential DG customers until the Commission more fully addressed the issues raised in the underlying proceeding.[223] The goal of the interim measure, then, is to not raise the amount of fixed costs APS collects from residential non-DG customers due to reduced payments by DG customers.[224]

The advantage of the seventy-cent fixed cost charge—also sometimes referred to as an access fee, solar rider, or standby charge—is its simplicity.[225] New DG customers will know what the charge is and why it is imposed.[226] Further, such charges are intended "to recover a portion of the utility fixed costs that have typically been embedded in volumetric [electricity] rates."[227] In principle, this approach allows those fixed costs to be fairly allocated among all customers, and specifically, DG customers.[228]

The test case raises exactly the correct issues and suggests a direction for a correct solution as long as all benefits and costs are taken into account.[229] While the Arizona case is an important one to watch, a series of studies and other actions are occurring throughout the industry and in many states including California, Colorado, Michigan, Ohio, New York, Texas,

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223. *See* MARK NEWTON LOWRY ET AL., PAC. ECON. GRP. RESEARCH L.L.C., ALTERNATIVE REGULATION FOR EVOLVING UTILITY CHALLENGES: AN UPDATED SURVEY 21–23 (2013), *available at* http://www.eei.org/issuesandpolicy/stateregulation/Documents/innovative_regulation_survey.pdf; CITI, RISING SUN: IMPLICATIONS FOR US UTILITIES, *supra* note 4, at 19.

224. *See* SOLAR ELEC. POWER ASS'N, *supra* note 174, at 2–3, 20.

225. *See id.* at 3.

226. *See id.*

227. *Id.*; *see* KYLE MACLAURY, CTR. FOR ENERGY & ENV'T, ASSESSING MINNESOTA'S SOLAR RESOURCE: REVENUE IMPLICATIONS OF SOLAR PV SYSTEM ORIENTATION AND RATE STRUCTURE 4 (2011), *available at* http://www.mn.gov/commerce/energy/images/SolarValueReport.pdf (noting that Minnesota has several rate designs to accommodate PV generation).

228. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 3.

229. *See* CITI, RISING SUN: IMPLICATIONS FOR US UTILITIES, *supra* note 4, at 11–12.

> There is a middle ground solution on the compensation issue for DG, in our view. Either: (1) a set fixed charge for T&D or (2) a credit that only reflects the utilities replacement power cost of generation. Eventually, for DG to work at a larger scale with the support of the utilities, we expect changes to the compensation structure for the off grid solar providers in the near future. These changes more specifically could include: (1) a bill credit that is lowered from the current avoidance of full retail rates to one that resembles the utilities replace cost of power (i.e. gas peaker) and/or (2) a demand charge (fixed charge for T&D) to be tacked on to the off grid solar homeowners electric bills. These items provide a middle ground solution, in our viewpoint, with net metering battles clearly evident in several states like CA and AZ.

Id. at 12. *See also* KIND, *supra* note 4, at 12 ("When investors realize that a business model has been stung by systemic disruptive forces, they likely will retreat.").

Vermont,[230] Idaho,[231] and others.[232] In California, for example, legislation was passed directing the California PUC to study the costs and benefits of net metering and calculate the ratepayer impacts and cost of service to solar customers.[233]

Not to put too fine a point on the matter, IOUs have been experiencing increased competition from technological innovations as well as from innovative regulatory strategies.[234] On the positive side, the electricity market is becoming more competitive; consumers are enjoying a wider array of choices; and, energy policy is moving towards a clean energy economy.[235] Incumbents, however, must deal with the negative side of a changing electric industry.[236] More precisely, the challenge is to address the matter of past investments made by incumbents.[237] Now that consumers are leaving the grid in whole or in part, which, if any, of the capital investments should be recouped by IOUs?

Fortunately, DG penetration into electricity markets at this time in history is relatively low and warnings about a *death spiral* for IOUs is premature and alarmist.[238] The amount of penetration by DG, at this time, is minimal and manageable.[239] A smart electric utility, like the smart telecommunications firm, can get ahead of the technology and it can certainly manage it to their advantage even if that necessitates changing the

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230. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 4; *see also* Herman K. Trabish, *Rooftop Solar and Net Metering Win a Big Decision in Colorado: Regulators Want a Better Way to Value Solar*, GREENTECHMEDIA (Jan. 30, 2014), http://greentechmedia.com/articles/read/rooftop-solar-and-net-metering-win-a-big-decision-in-colorado.

231. *ID PUC Rules Against Idaho Power in "Net Metering" Case*, SNAKE RIVER ALLIANCE (July 3, 2013), http://snakeriveralliance.org/id-puc-rules-against-idaho-power-in-net-metering-case/; *see also Case Summary*, PUB. UTIL. COMMISSION, http://www.puc.idaho.gov/fileroom/cases/summary/IPCE1227.html (last updated Mar. 28, 2014).

232. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 4.

233. Assemb. 327, 2013 Leg., Reg. Sess. (Cal. 2013).

234. *See* Andrew Kosnaski & Ramesh Shankar, *Embracing Disruption: Developing a Leadership Role for Utilities in Alternative Technologies*, PUB. UTIL. FORT., Jan. 2014, at 16, 16.

235. *See id.* at 20.

236. *Id.* at 16.

237. *See id.*

238. *See id.*

> An alarmist interpretation suggests that revolutionary technology could throw the sector into a death spiral where customer migration off the grid results in higher rates for those customers remaining—first creating a cross subsidy from wealthier to poor[] customers, and eventually fueling a self-perpetuating cycle of further erosion as rising costs drive more customers to seek off-grid alternatives.

Kosnaki & Shankar, *supra* note 234, at 16.

239. *See* BART KRISHANMOORTHY ET AL., SOLAR ELEC. POWER ASS'N, 2012 SEPA UTILITY SOLAR RANKINGS 6 fig.4 (2013), *available at* http://www.solarelectricpower.org/media/51302/final-2012-top-10-report-v2.pdf.

firm's business model. But then, that is what smart businesses do. DG penetration, however, is expanding and therefore caution is warranted.[240] Regulators must provide a mechanism that compensates IOUs for their investments and they must design a new regulatory regime for a clean energy future. Additionally, regulators must insure that customers are treated fairly, that cross-subsidization is minimized or justified on sound policy bases, and that the proper balance between shareholder and ratepayers is realized.[241] In short, rates must respond to the legitimate concerns of the utility and to the value provided by DG customers.[242] Those responses will come from a renegotiated regulatory compact, new rate designs, and new business models for IOUs.[243] Each of those issues is addressed in the following Parts.

VI. THE NEW REGULATORY COMPACT

The core of the regulatory compact is that the government sets the utility's rates—and consequently, its profits—in exchange for protecting the IOU's service territory.[244] As long as the IOU operates prudently, it is virtually guaranteed a return on its capital investment. When the compact was made, the exclusive business of the IOU was to sell as much electricity as it could.[245] As we have seen, the electric market is changing in significant ways, such that a new regulatory compact must be considered.[246]

We can start with certain concrete assumptions. First, large-scale central power stations will continue to be important generators in the electricity market, although on a diminishing scale. Second, the T&D segments of the industry will continue to be regulated as long as they exhibit natural monopoly characteristics. Third, IOUs can no longer be devoted

240. *See, e.g.*, *id.* at 23.

241. *See* Sciacca, *supra* note 192, at 33–34. The rate design issues that plague rooftop solar and other DG strategies also complicate a utility's smart grid investments. *Id.* More specifically,

> [d]o individual end users save enough money on their bills with AMI, for instance, to offset the increase in rates necessary to pay for that infrastructure? If so, how long does it take to achieve payback, or ROI? If the benefits [are not] direct and quantifiable, then what reasoning in metrics justify such a project?

Id. at 33; *see* Press Release, Elizabeth Heyd & Patrick Remick, Natural Res. Def. Council, EEI/NRDG Agreement Supports Policies to Benefit Electricity Consumers (Feb. 12, 2014), http://www.nrdc.org/media/2014/140212.asp.

242. ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 32.

243. *Id.* at 36.

244. Tomain, *The iUtility*, *supra* note 94, at 223, 231.

245. *See id.*

246. *See* TOMAIN, ENDING DIRTY ENERGY POLICY, *supra* note 14, at 5; Tomain, *The iUtility*, *supra* note 94, at 234; Joseph P. Tomain, *"Steel in the Ground": Greening the Grid with the iUtility*, 39 ENVTL. L. 931, 933 (2009) [hereinafter Tomain, *"Steel in the Ground"*].

exclusively to electricity sales. Instead, IOUs must be seen as actors in a broader energy business that provides a wider array of energy services and products as discussed in Part III.[247] Finally, because IOUs will continue to be regulated, the regulatory compact will continue. However, given these assumptions a new set of regulatory principles will be necessary and we can identify five.

A. *Stranded Costs*

First, utilities should not be put in a position of incurring excess costs that, due to regulatory or policy changes, may become stranded and may then give rise to a regulatory takings claim. This principle is actually a two-edged sword. On the one hand, investors should not be deprived of a return on their investments due to regulatory or policy changes.[248] On the other hand, regulators must be careful when imposing requirements on IOUs.[249] As discussed in Part I, regulators and legislators in the past have provided relief to utilities from previous financial challenges.[250] Thus, to the extent that IOUs invest in reliance on regulatory requirements, then some protection must be provided.[251] Nevertheless, as contemporary energy policy changes, the problem of stranded costs should be anticipated and, if possible, avoided.[252]

The stranded cost problem in the context of an energy transition is distinct from the problem of nuclear power cancellations and the like, and from government ordered divestment. First, in the nuclear power and divestment situations, the stranded costs were more or less identifiable and occurred at a very time-specific point. [253] A clean energy transition is distinguishable in that it will not occur at a point in time, but will most likely occur over decades. This fact alone should allow utilities to plan for changes in the industry and changes in their own business models. Next, as a utility's

247. *See supra* Part III.

248. SIDAK & SPULBER, *supra* note 65, at 29; *see* David B. Raskin, *The Regulatory Challenge of Distributed Generation*, 4 HARV. BUS. L. REV. ONLINE 38, 47 (2013), http://www.hblr.org/?p=3673. "[The] inability of utility shareholders to secure the return of, and a competitive rate of return on, their investment gives rise to the condition known as stranded investment or *stranded costs*." SIDAK & SPULBER, *supra* note 65, at 29.

249. *See id.*; Raskin, *supra* note 248, at 47.

250. Raskin, *supra* note 248, at 47; *see supra* Part I.

251. *See* Raskin, *supra* note 248, at 47. Raskin also writes: "The differential was known as 'stranded costs.'" *Id.*

252. KIND, *supra* note 4, at 17–18. One suggestion for addressing the stranded cost problem is to impose a stranded cost charge on all DER customers to recoup that portion of the investment that might otherwise become stranded due to departures from the grid. *Id.* at 18.

253. *See id.* at 8.

customer base declines, the downward spiral in lost sales will mean that there will be a smaller group of ratepayers to pick up increasing costs.[254] That is a scenario that is obviously not sustainable.

Nevertheless, although the law regarding regulatory or deregulatory takings remains opaque, the risks are real.[255] Investors will be reluctant to invest without reasonable assurances of a return on their investment that will not be negated by prudence hearings, regulatory changes, or legislation that diminishes the value of their property to the point at which their investment-backed expectations go uncompensated. Indeed, such financial risk is reflected in the downward movement of credit ratings for the electric industry.[256] Thus, the issue of distributed generation, particularly coupled with net metering, can pose a real risk to capital unless the utility recalibrates the way it does business and regulators rethink their rules.[257]

B. *Legacy Financing*

Second, regulators should avoid legacy financing. Quite simply, traditionally structured utilities should not continue to be rewarded as they have in the past. Any argument that utilities should continue to earn revenue because demand is down must be scrutinized quite closely. Decreased demand alone is no cause for continuing to allow a regulated firm to earn a return on investment.[258] The problem, of course, is complicated because the current challenge to IOUs is the consequence of both market and technological changes, as well as regulatory requirements. Nevertheless, no utility has any legal claim to continue to maintain its revenue requirement just because it loses sales.[259] The idea that the revenue requirement must be

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254. *See* Kosnaski & Shankar, *supra* note 234, at 16; Raskin, *supra* note 248, at 48.

> An alarmist interpretation suggests that revolutionary technology could throw the sector into a death spiral where customer migration off the grid results in higher rates for those customers remaining—first creating a cross subsidy from wealthier to poor[] customers, and eventually fueling a self-perpetuating cycle of further erosion as rising costs drive more customers to seek off-grid alternatives.

Kosnaski & Shankar, *supra* note 234, at 16.

255. *Compare* SIDAK & SPULBER, *supra* note 65, at 222, *with* Susan Rose-Ackerman & Jim Rossi, *Disentangling Deregulatory Takings*, 86 VA. L. REV. 1435, 1436–38 (2000).

256. *See* KIND, *supra* note 4, at 10 fig.2.

257. *See* Robert E. Curry, Jr., *The Law of Unintended Consequences: The Transition to Distributed Generation Calls for a New Regulatory Model*, PUB. UTIL. FORT., Mar. 2013, at 44, 47. "As [distributed generation] grows, such under-recovery has the potential to materially weaken the utility's financial integrity and its ability to attract investor capital, which in turn can lead to higher rates." *Id.*

258. *See* Mkt. St. Ry. Co. v. R.R. Comm'n of Cal., 324 U.S. 548, 567 (1945).

259. *See id.*

maintained as embedded in a cost-of-service mentality to cover a utility's costs, regardless of the amount of service, is no longer tenable.

Cost-of-service ratemaking may have had its place; nevertheless, it should not be used to allow utilities to continue to build dirty coal-fired plants, nor should it be used to reward utilities for embarking on financially risky nuclear projects precisely because "investment in conventional generation [is] hard to justify" in the new market.[260] Indeed, financial analyses indicate that solar, wind, and natural gas generated electricity are showing increasingly positive cost signals, particularly against nuclear power.[261] As a result, continued investments in coal and nuclear power will be viewed skeptically by the market while investments in new fuels and technologies are becoming increasingly attractive.[262] Those investments must also be viewed skeptically by regulators. Thus, instead of maintaining the status quo, regulators must manage the changing role of IOUs and encourage alterations in their business models.[263]

C. *Innovation & Competition*

Third, the new regulatory compact should encourage—rather than inhibit—competition and the development of innovative energy technologies including sales reducing technologies such as DG. Indeed, the alternative energy market is attracting significant investments and will only expand.[264]

DG is becoming an increasingly important actor in electricity markets. In the test case, APS argued that it needed to revise net metering rates in order to avoid unfair cross-subsidization.[265] Behind that argument,

260. CHANNELL ET AL., *supra* note 50, at 73 (a report for Citi GPS).

261. *See* U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2014 EARLY RELEASE OVERVIEW 7, 11 fig.8, 12 fig.11 (2013), *available at* http://www.eia.gov/forecasts/aeo/er/pdf/0383er(2014).pdf.

262. *See, e.g.*, *id.*

263. *See* ELEC. INNOVATION LAB, ROCKY MOUNTAIN INST., NEW BUSINESS MODELS FOR THE DISTRIBUTION EDGE: THE TRANSITION FROM VALUE CHAIN TO VALUE CONSTELLATION 8 (2013), *available at* http://www.rmi.org/New_Business_Models.

264. *See* JOEL MAKOWER, GREENBIZ GRP. & TRUCOST, STATE OF GREEN BUSINESS 2014 58, 60 (2014), *available at* http://www.greenbiz.com/research/report/2014/01/19/state-green-business-report-2014; CITI, CITI CLIMATE CHANGE UNIVERSE 3 (2013), *available at* http://xa.yimg.com/kq/groups/17389986/1546283763/name/CITI+Climate+Change+Universe.pdf (projecting the need for $37 trillion in energy transformation over the next twenty-two years, with $24 trillion of that amount devoted to clean energy including gas, and $6 trillion in renewable power generation).

265. *See* Ariz. Pub. Serv. Co., 310 P.U.R. 4th 12i, Docket No. E-01345A-13-0248, 2013 WL 6384419 (Ariz. Corp. Comm'n Dec. 3, 2013); NAVIGANT CONSULTING, INC., NET METERING BILL IMPACTS AND DISTRIBUTED ENERGY SUBSIDIES: REPORT PREPARED FOR ARIZONA PUBLIC SERVICE 6–7 (2012), *available at* http://www.navigant.com/~/media/www/

however, APS was concerned about loss of sales volume.[266] To the extent that net metering rates do generate an unfair cross-subsidization, then they should be changed. However, net metering benefits must also be accounted for,[267] and to the extent that net metering rates may slow DG penetration and therefore, act as a drag on innovation and competition, then that argument should be rejected. The smart utility will become actively involved with DG as well as with the development of utility-scale solar, wind, and other renewable projects.[268]

D. *Universal Service & Reliability*

Next, regulators must be attentive to maintaining universal electric service. With the expansion of distributed generation and energy-efficient improvements, some customers will be placed at a disadvantage such that distributed generation and energy-efficient customers will be using less electricity which puts pressure on utilities to raise rates to the customers that remain in that territory. Similarly, regulators must assure energy/electricity reliability. Electricity must remain available at the flip of a switch for most consumers. To be sure, those consumers that have access to other sources of electricity, such as distributed generation and the like, may be able to negotiate for interruptible rates. Most consumers, however, will need firm service contracts.

The provision of universal reliable service presents challenges all of its own.[269] However, an increase in electricity providers does have the potential for bringing significant benefits to a utility's T&D segments.[270] Reduced load can, at times, reduce congestion and improve balancing, and a larger number of providers should lower cyber security risks. To be sure, the issue of reliability will be an argument to be made against DG and that

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site/insights/Energy/Navigant%20Final%20Net%20Metering%20Impact%20Report_Revised%20Dec%2011.ashx.

266. *See* Ariz. Pub. Serv. Co., *supra* note 265; NAVIGANT CONSULTING, INC., *supra* note 265, at 7.

267. *See, e.g.*, R. THOMAS BEACH & PATRICK G. MCGUIRE, CROSSBORDER ENERGY, EVALUATING THE BENEFITS AND COSTS OF NET ENERGY METERING IN CALIFORNIA 19–20 (2013), *available at* http://www.votesolar.org/wp-content/uploads/2013/01/Crossborder-Energy-CA-Net-Metering-Cost-Benefit-Jan-2013-final.pdf.

268. *See, e.g.*, Brad Copithorne, *4 Utilities Thinking Beyond 'Wires and Poles*,*'* GREENBIZ.COM (Oct. 9, 2013), http://www.greenbiz.com/blog/2013/10/09/4-utilities-think-beyond-wires-poles.

269. *See* Amory Lovins, *Amory Lovins: Don't Cry for the Electric Utilities*, GREENBIZ.COM (Feb. 12, 2014), http://www.greenbiz.com/blog/2014/02/12/dont-lament-renewables-disruption-electric-utilities.

270. *See id.*

argument should be recognized for what it is—a political argument not necessarily a technical nor economic one.[271]

E. *Mitigation*

The Arizona test case, and others like it, as well as the reports of the dire threats to electric utilities, clearly demonstrate that IOUs are well aware of changing electricity market conditions as well as aware of a change in the policy landscape towards clean energy. As a consequence, utilities cannot rely on past practices for future revenue. Instead, since IOUs are well aware of the political economy of a changing energy market, they cannot continue to do business as usual; to the extent that they can avoid incurring expenditures based upon past assumptions, they must do so in an effort to mitigate damages as is required by any contract.

During the period of electric industry restructuring, for example, New Hampshire passed legislation intended to introduce competition into retail electric markets.[272] As part of those efforts, independent system operators controlled the transmission grid by accepting bilateral contracts and operating a power exchange with spot markets.[273] The New Hampshire restructuring plan would treat generation and retail marketing as functionally separate from T&D services.[274] The legislation expressed a preference for the divestiture of a utility's generation and transportation assets.[275] Utilities operating under the previous statutory scheme were concerned about stranded assets.[276] More specifically, regulators recognized the fact that if retail customers could purchase lower-priced electricity from sources other than the IOU, then a portion of the IOU's investments may be unrecoverable.[277]

The New Hampshire PUC recognized this possibility and made provisions that would allow the utility to recover its stranded costs if those costs were found to have resulted from a government regulation.[278] The utility, however, would not be able to recover stranded costs if they were imprudently incurred.[279] Concomitantly, the legislation required utilities to

271. *See id.*
272. N.H. REV. STAT. ANN. § 374-F:1 (2013); Restructuring N.H.'s Elec. Util. Indus., 171 P.U.R. 4th 564, DR 96-150, 1996 WL 591937 (N.H. Pub. Utils. Comm'n Sept. 10, 1996).
273. *See* Restructuring N.H.'s Elec. Util. Indus., *supra* note 272.
274. *Id.*
275. *Id.*
276. *Id.*
277. *Id.*
278. Restructuring N.H.'s Elec. Util. Indus., *supra* note 272.
279. *Id.*

mitigate their stranded costs.[280] Moreover, the commission took a fairly aggressive approach regarding mitigation efforts that the utility should undertake.[281] Those steps included, among other efforts, "the sale of . . . excess generating capacity" and the renegotiation of service contracts.[282]

By adopting these principles, then, the regulatory compact will continue to balance utility/shareholder interests with customer/ratepayer interests while maintaining reasonable and fair rates. At the same time, the new regulatory compact will encourage utilities to adopt new business models; promote technological innovation and competition; expand market opportunities; and, increase consumer choice. The regulatory compact, however, is not self-executing. Instead, PUCs must adopt a forward-looking approach to ratemaking.

VII. RATEMAKING

Ratemaking is the mechanism that drives the regulatory compact. Historically, cost-of-service ratemaking has had remarkable persistence even though regulators have been experimenting with performance-based rates and with market-based rates for decades.[283] As noted earlier, when the electric industry was challenged by nuclear and restructuring failures, regulators relied on cost-based ratemaking.[284] In times of financial stress, when utilities confronted volatile costs for fuel or wrestled with inflation, they sought refuge behind automatic fuel adjustment clauses that allowed rates to escalate in tandem with those rising costs.[285] Similarly, regulators have relied on this formula and, in some instances, have expanded its use.[286] Such devices as forward test years,[287] multi-year rate structures,[288] cost trackers, and the like, are all cost-based.[289]

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280. *Id.*
281. *Id.*
282. *Id.*
283. *See, e.g.*, SCOTT HEMPLING, REGULATING PUBLIC UTILITY PERFORMANCE: THE LAW OF MARKET STRUCTURE, PRICING AND JURISDICTION 216 (2013).
284. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 18–19.
285. LOWRY ET AL., PAC. ECON. GRP. RESEARCH L.L.C, *supra* note 186, at 5 (a report for the Edison Electric Institute on cost trackers); MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 18–19 (fuel adjustment mechanisms). Another mechanism for recovering costs during construction periods is to include construction costs while they are ongoing. LOWRY ET AL., PAC. ECON. GRP. RESEARCH L.L.C, *supra* note 186, at 5. This mechanism is known as construction work in progress. *Id.*
286. *See* MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 23.
287. LOWRY ET AL., PAC. ECON. GRP. RESEARCH L.L.C., *supra* note 223, at 27.
288. *Id.* at 31.
289. *See id.* at 5, 27, 31.

In brief, cost-based ratemaking functions well when the market is expanding and demand continues to grow. Once the market slows or stalls, then cost-based ratemaking may contribute to excess capacity and other economic dislocations.[290] Further, "cost of service regulation can slow the pace of innovation and may offer little incentive for utilities to improve operational efficiency or service quality beyond the minimum levels set by regulators."[291]

Nevertheless, cost-of-service ratemaking has a strong hold on the regulatory structure. "The regulatory framework has been resilient in the face of the flux brought about by economic, technical, and financial shocks that often nullified one or more of the assumptions underlying the original framework, precisely because of the willingness to adopt incremental changes to the process."[292] However, another way of analyzing cost-of service ratemaking is to argue that it has not been resistant to change and that the ratemaking formula must adapt to today's changing market conditions.

The most immediate problem, then, is that cost-of-service ratemaking was dedicated to covering a utility's prudently incurred costs. Now the problem is that utilities cannot continue to make the same types of investments that they have in the past particularly in light of falling sales that can threaten a utility's of financial stability.[293] In brief, the traditionally structured electric utility, as well as its regulators, must figure out how to earn money by selling less electricity while promoting other energy services and products.

Fortunately, there is no shortage of new rate designs[294] including: (1) performance-based ratemaking;[295] (2) incentive rates;[296] (3) alternative regulation;[297] (4) market-based rates; (5) decoupling;[298] (6) feed-in-tariffs;[299]

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290. *See* MALKIN & CENTOLELLA, *supra* note 58, at 3. This tendency to invest and expand is also known as the A-J effect or the Averch-Johnson effect, based upon the seminal paper by Harvey Averch and Leland L. Johnson. Harvey Averch & Leland L. Johnson, *Behavior of the Firm Under Regulatory Constraint*, 52 AM. ECON. REV. 1052, 1052 (1962).

291. MALKIN & CENTOLELLA, *supra* note 58, at 3.

292. MCDERMOTT, EDISON ELEC. INST., *supra* note 17, at 1.

293. Burr, *supra* note 9, at 30.

294. *See* TOMAIN, ENDING DIRTY ENERGY POLICY, *supra* note 14, at 174–79.

295. *See, e.g.*, MICHAEL R. SCHMIDT, PERFORMANCE-BASED RATEMAKING: THEORY AND PRACTICE 2 (2000).

296. *See, e.g.*, Scott H. Strauss & Jeffrey A. Schwarz, *Transmission Incentive Overhaul: FERC's ROE Incentive Adder Policy Sends the Wrong Signals*, 147 PUB. UTIL. FORT. Feb. 2009, at 32, 33.

297. LOWRY ET AL., PAC. ECON. GRP. RESEARCH L.L.C., *supra* note 223, at 1 (a report for the Edison Electric Institute).

298. THE REGULATORY ASSISTANCE PROJECT, REVENUE REGULATION AND DECOUPLING: A GUIDE TO THEORY AND APPLICATION 1–2 (2011), *available at* http://

and, (7) results-based regulation as examples.[300] In choosing among new rate designs, regulators must "address the fact that in an efficient, modern utility, conventional revenue recovery may no longer keep pace with utility system costs, investment needs, and the changing dynamics of customers which have a growing range of energy related choices ranging from DG to demand response."[301] Further, rates should be seen as "a means by which energy companies communicate their value proposition to their customers—[and] not merely the process by which they collect revenues."[302] Thus, while a wide variety of approaches can be adapted for a new electricity market, any choice should be based upon a set of principles.

A. *Costs*

While costs will most likely play some role in any new rate design,[303] the move away from using historically embedded costs—or even future tests year costs—as the central element of utilities revenue requirement must be changed. A key move away from cost-based ratemaking is decoupling. At its simplest form, decoupling means that rates will not be based on the volume of electricity sales; instead, rates will be based on other indicators such as the number of customers served.[304] Another basic element of decoupling is that it allows for periodic rate adjustments.[305] Still, there are a variety of decoupling mechanisms.[306] "Some mechanisms use the revenue authorized in the utility's last general rate case; others adjust that for specific cost changes or according to a

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www.raponline.org/document/download/id/861; *see also* LOWRY ET AL., PAC. ECON. GRP. RESEARCH L.L.C., *supra* note 223, at 15–16.

299. U.S. Energy Info. Admin., *Feed-in Tariff: A Policy Tool Encouraging Deployment of Renewable Electricity Technologies* (May 30, 2013) [hereinafter U.S. Energy Info. Admin., *Feed-in Tariff*], http://www.eia.gov/todayinenergy/detail.cfm?id=11471.

300. MALKIN & CENTOLELLO, *supra* note 58, at 3.

301. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 14.

302. Philip Q. Hanser, *Rate Design by Objective: A Purposeful Approach to Setting Energy Prices*, PUB. UTIL. FORT., Sept. 2012, at 48, 50.

303. MALKIN & CENTOLELLO, *supra* note 58, at 14.

304. REGULATORY ASSISTANCE PROJECT, *supra* note 298, at 2.

305. PAMELA MORGAN, GRACEFUL SYS. L.L.C., A DECADE OF DECOUPLING FOR US ENERGY UTILITIES: RATE IMPACTS, DESIGNS, AND OBSERVATIONS 6 (rev. ed. 2013), *available at* http://www.switchboard.nrdc.org/blogs/rcavanagh/decouplingreportMorganfinal.pdf; *see, e.g.*, Press Release, Elizabeth Heyd & Pat Remick, Natural Res. Def. Council, EEI/NRDC Agreement Supports Policies to Benefit Electricity Consumers (Feb. 12, 2014), http://www.nrdc.org/media/2014/140212.asp.

306. MORGAN, GRACEFUL SYS. L.L.C., *supra* note 305, at 5.

formula, and still others calculate revenue on a per-customer account basis rather than as a single dollar amount."[307]

B. *Innovation and Transition*

Rate designs can promote innovation and assist in the clean energy transition by allowing utilities to recover investments in innovation, energy efficiency, or renewable resources.[308] Smart grid investments should be recouped, for example.[309] Similarly, investments in smart meters, energy savings appliances, energy audits, and the like should be encouraged and included in any utilities revenue requirement. Regulators, of course, will have a great degree of discretion. Some investments can be included in rate base, and therefore can earn a return for shareholders. Other investments can be treated as costs and recouped dollar-for-dollar.

In the United Kingdom, for example, the utility regulator has adopted a Revenue set to deliver strong Incentives, Innovation, and Outputs ("RIIO") rate design.[310] The intent is to have "utilities . . . focus on delivering long-term value to customers."[311] "Revenues [will be] set based [up]on a review of the utility's business plan," including planned operating expenses as well as an assessment of future capital investment.[312] The rates are then set on a multi-year basis and are intended to "provide[] an incentive for the utility to pursue efficiency improvements by [allowing a] utility . . . to retain [some] of [the] cost savings."[313] Indeed, cost sharing is a principal that should incentivize utilities to earn savings that can then be shared with customers.[314] Again, regulators will have discretion on the proportion of cost sharing between the parties, but the idea is to create incentives for innovation and efficiency.[315]

> In the same way that revenue decoupling and shared savings policies together can provide strong incentives for utilities to invest in energy efficiency, a similar approach could strengthen incentives for utilities to invest in distributed generation, storage, microgrids, smart electric vehicle charging, smart inverters, or other distributed technologies to reduce operating costs and/or [to]

307. *Id.* at 6.
308. MALKIN & CENTOLELLA, *supra* note 58, at 13.
309. *Id.* at 5.
310. *Id.* at 16.
311. *Id.*
312. *Id.*
313. MALKIN & CENTOLELLA, *supra* note 58, at 16.
314. *Id.*
315. *Id.* at 14–16.

> defer or avoid the need for investments to expand capacity of distribution feeders or invest[ed] in . . . other electricity supply, transmission, or distribution assets.[316]

A smart rate design, then, may require hybrid pricing models that apply to different investments and to different expenses. Electricity rates can be unbundled for different purposes such as "unbundled pricing for reliability, standby, and power quality services; temporally or locationally differentiated prices for energy or distribution services; price structures that reflect how costs are incurred—e.g. fixed, demand-based, energy-based, etc.—and incentive payments for dispatchable demand response or ancillary services to the grid."[317]

Smart rate designs, then, "may ultimately create a nimble system that pays for required services, maximizes value, and allows for effective implementation."[318] The core idea behind moving away from cost-based ratemaking to rate designs that are more sensitive to the market and technological developments is to encourage competition and enable utilities to capitalize on new opportunities.[319]

C. *Balance of Interests*

Shareholders, of course, will only invest if they earn a reasonable return on their investment. That return must be comparable with investments of similar risk. Nevertheless, shareholders do take on some investment risk and they should not be guaranteed a return at the expense of customers who may receive little or no benefit.[320] The trick, of course, is in clearly identifying the risks to shareholders, as well as the costs and benefits to consumers. Rates should send clear price signals that account for both fixed and variable costs,[321] avoid cross-subsidization as much as possible,[322] and represent the value of services provided to the customer by the utility.[323] "Building a shared understanding among stakeholders and regulators in the electricity sector about the full range of costs and benefits of distributed energy resources and the implications of net energy metering is an essential

316. ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 46.
317. ELEC. INNOVATION LAB, ROCKY MOUNTAIN INST., *supra* note 263, at 14.
318. ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 43.
319. ELEC. INNOVATION LAB, ROCKY MOUNTAIN INST., *supra* note 263, at 13–14.
320. MALKIN & CENTOLELLA, *supra* note 58, at 11.
321. ELEC. INNOVATION LAB, ROCKY MOUNTAIN INST., *supra* note 263, at 10.
322. *See id.*
323. ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 41.

first step toward devising rates and incentives that will create the greatest benefit for all."[324]

D. *Prudence and Needs Reviews*

Prudence reviews became a matter of concern to utilities with the collapse of the nuclear power industry. The possibility of a prudence review constitutes a risk to investors; however, all risk cannot and should not be eliminated.[325] The fact that utility's capital investment will be reviewed for prudence should be considered simply a matter of bringing business discipline into the electricity market. A prudence review should work hand-in-hand with the obligation of a utility to mitigate the costs of unwise investments.

Generally, a prudence review occurs at the time a utility wants to include specific investments in the rate base as part of a rate hearing.[326] The problem with ex post reviews of investment decisions should be apparent. At Time One—for example—a utility assesses the need for a capital investment.[327] Construction projects—particularly nuclear plants—take years and up to a decade or more to complete. Consequently, the decision to include that investment in the rate base will occur at a time when future market and financial conditions, as well as the need for energy, can change significantly. One way of reducing the risk of a disallowance at Time Two when the prudence review takes place is for regulators to aggressively assess the need for power before the investment is made.[328] These two sets of principles, both for the regulatory compact and for new rate designs, are intended to encourage IOUs to reshape the way they do business.[329]

VIII. NEW UTILITY BUSINESS MODEL

One need only look at the technological advances in telephony and computers to realize that the world is changed in ways that will not return. Landlines and desktop computers have largely become things of the past. Electricity providers are proliferating, energy efficient appliances and

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324. *Id.* at 36.

325. *See* Rilck Noel, *Managing Risk: Prudence Reviews and Nuclear Projects*, PUB. UTIL. FORT., Feb. 2006, at 21, 23.

326. *See id.* at 21.

327. *See id.* at 22–23.

328. *See* Util. Reform Network v. Pub. Utils. Comm'n, 167 Cal. Rptr. 3d 747, 762–64 (Cal. Ct. App. 2014); N. States Power Co., MPUC Docket No. E-002/CN-12-1240 (Minn. Pub. Utils. Comm'n Dec. 31, 2013) (PUC reviewed need and setting conditions regarding how that need can be satisfied); *see also* Noel, *supra* note 325, at 22–23.

329. Tomain, *Building the iUtility*, *supra* note 8, at 29.

buildings are reducing per capita use, and competition and consumer choices for power providers are increasing. IOUs, whether they like it or not, are in a new market. Indeed, electric utilities should take a lesson from the telecommunications playbook and invest in change rather than continue to resist it.[330]

The renegotiated regulatory compact, together with innovative rate designs, can encourage utilities to change the way they do business. More specifically, IOUs whose primary or exclusive business is to increase electricity sales cannot stay complacent in today's changing market. Instead, utilities must offer a wider array of energy products and services, running from renewable energy and energy efficiency, to performing energy audits for its customers and broadening the array of power providers.[331] In particular, utilities must act "more aggressively [by] looking at programs to use distributed assets to their benefit so that they can have a wider distribution of generation assets throughout their service areas."[332] By way of example, NRG Energy[333] and NextEra Energy[334] are developing utility-scale solar and other renewable projects; firms like Direct Energy[335] and Veridian[336] have partnered with Solar City to offer solar installations to their customers; and Duke Energy and PSE&G have been "invest[ing] in residential solar, microgrids, energy storage and smart grid technologies."[337] Indeed, opportunities abound for forward thinking utilities such as San Diego Gas & Electric, which has proposed a strategy to engage in three energy services functions: (1) generate and sell electricity to serve customers' real-time needs; (2) provide distribution services; and (3) help customers manage

330. *See* KIND, *supra* note 4, at 14–17.

331. *See* Tomain, *Building the iUtility*, *supra* note 8, at 28; Tomain, *"Steel in the Ground," supra* note 246, at 931–933; *see also* Joint Statement from Edison Elec. Inst. & Natural Res. Def. Counsel, *supra* note 305.

332. *Grid: Experts Weigh Impact of Distributed Generation on Utility Business Model* (E&ETV Special Report television broadcast Jan. 28, 2014), *available at* www.eenews.net/tv/videos/1771/transcript.

333. Press Release, NRG Energy, Inc., World's Largest Solar Thermal Power Project at Ivanpah Achieves Commercial Operation (Feb. 13, 2014), phx.corporate-ir.net/phoenix.zhtml?c=121544&p=irol-newsArticleNRG&ID=1899656.

334. *See Our Company*, NEXTERA ENERGY, http://www.nexteraenergy.com/company/our_company.shtml (last visited Mar. 30, 2014).

335. Eric Wesoff, *SolarCity and Direct Energy Form $124M Fund for Commercial and Industrial Solar*, GREENTECHSOLAR (Sept. 10, 2013), http://www.greentechmedia.com/articles/read/SolarCity-And-Direct-Energy-Form-124M-Fund-For-Commercial-and-Industrial-S.

336. Press Release, Solar City, SolarCity and Viridian Team to Provide Clean Energy Day and Night (Sept. 23, 2013), http://www.solarcity.com/pressreleases/204/-solarcity-and-viridian-team-to-provide-clean-energy-day-and-night.aspx.

337. Martin LaMonica, *Inside the Utility-Renewables Power Play*, GREENBIZ.COM (Nov. 25, 2013), http://www.greenbiz.com/print/55347.

electricity use through programs that promote efficiency, smart appliances and meters, electric vehicle charging, and the like.[338]

Traditionally structured, vertically integrated electric utilities served the country well for most of the twentieth century as demand continued to grow. Now with flattening demand, together with the need for investments in grid improvement, smart grid technologies, access to the grid by variable resources, reliability, cyber security, and pushes for greater use of renewable resources and energy efficiency, the utility of the future must acknowledge that the integrated utility model will not function effectively in a DG world.[339] In short, as former Federal Energy Regulatory Commission ("FERC") Chair Jon Wellinghoff has stated, "utilities are going to have to have the ability to morph into those roles of entrepreneurs and marketers and deliverers of these energy services to be able to effectively compete with all the other people in the space."[340] Further, today's electric utilities must also recognize that the new market "does present new avenues for investment and growth in terms of grid expansion, smart grid, storage, and downstream services; the question is whether utilities grasp that opportunity and evolve themselves."[341]

One way of conceptualizing the new utility model is to focus on distribution and customer service rather than on generation where the utility's primary business is to serve as a grid operator in an environment of wholesale and retail competition.[342] Innovative utilities are sensitive to customer demand.[343] Studies show, for example, that consumers are responding to price information and that they are reducing consumption at peak times.[344] Some of this consumer price responsiveness is due to pilot programs such as those in California, which are being operated by San Diego Gas & Electric and Southern California Edison that provide rebates to customers for electricity saved in particular *peak event* days.[345] In addition,

338. SOLAR ELEC. POWER ASS'N, *supra* note 174, at 23.

339. *See* CHANNELL ET AL., *supra* note 50, at 73; ELEC. INNOVATION LAB, ROCKY MOUNTAIN INST., *supra* note 263, at 13–14.

340. *Grid: Experts Weigh Impact of Distributed Generation on Utility Business Model*, *supra* note 332.

341. CHANNELL ET AL., *supra* note 50, at 73.

342. *See generally* Bain & Co., *California Public Utilities Commission: The Business Model for the Electric Utility of the Future*, CAL. PUB. UTILS. COMM'N (Oct. 8, 2013), http://www.cpuc.ca.gov/NR/rdonlyres/932AC939-CAC7-43E3-BF06-61D5E90FCC25/0/1ScaliseCPUCenbanc1082013.pdf.

343. Paul Woods, *The Social Utility: Mastering Multi-Channel Communications for Customer Service Success*, PUB. UTIL. FORT., Dec. 2012, at 40, 41–42; *see also* Bain & Co., *supra* note 342.

344. *See, e.g.*, Faruqui & Shultz, *supra* note 56, at 24–25.

345. *Id.* at 24.

behind-the-meter technologies such as home displays, programmable thermostats and other appliances, along with simple social networking, all provide information about how consumers can increase their energy efficiency to help IOUs develop their business plans.[346]

Thus, the utility of the future must start with the recognition that their primary business is not selling a commodity; it is providing and managing an infrastructure service.[347]

> The entrepreneurs who put that competitive solar power on your roof with no money down can provide a portfolio of other equally unregulated products, like efficiency, demand response, storage, and so on, that could ultimately add up to a virtual utility providing the same services that utilities now provide—quite possibly with lower cost and greater reliability and resilience.[348]

Another, similar, way of conceptualizing the utility of the future is to see it as a network entity.

> Under a network utility approach, the utility would provide highly differentiated price signals to direct investments by other service providers. In this case, the utility's role would increasingly be focused on maintaining and operating the grid and on creating markets, managing transactions, replacing aging distribution equipment, and/or making smart grid investments and interconnecting buyers and sellers with the network. This network utility would shepherd and coordinate the network of increasingly complex transactions among [a] growing number of actors.[349]

Such a utility would: (1) pick a distribution area where a utility plans to expand, upgrade or modernize; (2) assess peak load demand; (3) use demand side management to target reducing loads; and (4) expand DG rather than add transportation and distribution.

Such new business approaches should be responsive to any number of issues. If large capital investments are too financially risky, then they can be scaled down. If investments in efficiency and in DG are less costly and less risky than building a new plant or making significant additions to T&D, then those investments should be made. Similarly, if the concern with upgrading and modernizing the grid is cyber security, then reducing the scale

346. *See, e.g.*, Woods, *supra* note 343, at 41–42 (arguing that utilities are underutilizing social networks to inform their customers about energy consumption).

347. Burr, *supra* note 9, at 31 (referencing a comment by Walt Patterson).

348. *Id.* (quoting Amory Lovins).

349. *See* ROCKY MOUNTAIN INST., NET ENERGY METERING, *supra* note 114, at 47.

of generation and multiplying power sites rather than concentrating them will reduce those risks. Also, if natural disasters threaten the grid,[350] then DG, microgrids,[351] and the like may well prove to be smart alternatives.

The utility of the future, then, will adopt a new vision of the electricity business. The new utility will see itself not as a isolated actor in the market, but as part of a network "that provides a platform for the economic and operational integration of distributed resources."[352] The new utility will use more transparent costs and benefits of service, including technical standards, such as those needed for interconnection, as well as economic standards, such as those used in making value determinations and pricing goods and services generally.[353] The new utility will be a value creator by serving as: (1) a distributed system operator;[354] (2) an integrated resource planner for both large-scale distributed energy resources, and storage; (3) a provider of reliability and standby power to customers; and (4) an energy services provider and financier, through rates, of such things as energy efficiency retrofits, energy control systems, DG, storage, and the like.[355]

As new technologies and new strategies develop, the utility of the future must integrate them into its portfolio and into its rate designs. Strategic investments as well as strategic partnerships will be necessary components of utilities' new business model. Investments in distributed generation such as fuel cells[356] or rooftop solar—as examples—can in some

350. *See, e.g.*, Robert Uluski, *Modernization Foundation: Near-Term Vision for Advanced Distribution Management*, PUB. UTIL. FORT., Jan. 2014, at 44, 45 ("Recent so-called 'storm of the century' events in the Northeast [United States] and the lengthy power outages and customer hardships that followed have greatly elevated the need to make power delivery systems more resilient to major storm events and to provide a more effective electric utility response during such regional power grid emergencies.").

351. *See* Sara C. Bronin & Paul R. McCary, *Peaceful Coexistence: Independent Microgrids Are Coming. Will Franchised Utilities Fight Them or Foster Them?*, PUB. UTIL. FORT., Mar. 2013, at 38, 39. "Generally speaking, a microgrid is a small-scale, low-voltage system for sharing distributed generation among several facilities or end users." *Id.* Microgrids can be powered by conventional fuels, fuel cells, solar panels or wind turbines. *Id.* They may also incorporate combined heat and power. *Id.*

352. ELEC. INNOVATION LAB, ROCKY MOUNTAIN INST., *supra* note 263, at 9.

353. *Id.*

354. *See, e.g.*, Kosnaski & Shankar, *supra* note 234, at 19.

355. *See id.* at 16–20.

356. Anthony Leo, FuelCell Energy, *Stationary Fuel Cell Power Systems with Direct FuelCell Technology Tackle Growing Distributed Baseload Power Challenge*, DOMINION, https://www.dom.com/about/stations/fossil/pdf/fuelcell-whitepaper.pdf (last visited Mar. 30, 2014). As defined by the vendor, FuelCell Energy,

> fuel cells are electrochemical devices that combine fuel with oxygen from the ambient air to produce electricity and heat, as well as water. The non-combustion, electrochemical process is a direct form of fuel-to-energy conversion, and is much

instances produce greater efficiency, and in both instances reduce carbon emissions.[357] Companies such as Bloomenergy[358] and FuelCell Energy[359] are actively in the market constructing fuel cells on-site as well as developing them for traditional IOUs and these are partnership opportunities.[360] Fuel cells can achieve greater efficiencies and, as their costs decline, they become cost competitive in the current electricity market.[361] Similarly, rooftop solar offers a low carbon alternative to baseload power and it is being offered by such companies such as Solar City that finance, install, and maintain the systems at a lower cost to the owner than traditional utility service under long-term power purchase agreements.[362] This type of financial intermediation could also be adopted by the traditional IOU.[363]

IX. CONCLUSION

Thus, to succeed in the new electricity market, IOUs should adopt leadership roles by: (1) developing a plan for technological deployment and including DG;[364] (2) engaging in strategic investments in fuel cells and in rooftop solar; (3) providing financial assistance to customers who wish to invest in alternative technologies and in energy efficiency; (4) assisting regulators in designing new rate structures; and (5) partnering with other vendors, utilities, and a variety of investors to engage all of these, and other, innovative and creative activities.[365]

As such, the new utility will be proactively responding to a new business environment. Utilities, however, cannot and will not act on their

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> more efficient than conventional heat engine approaches. CO2 is reduced, due to the high efficiency of the fuel cell, and the absence of combustion avoids the production of NOx and particulate pollutants.

Id.

357. *See* Kosnaski & Shankar, *supra* note 234, at 17.

358. BLOOMENERGY, http://www.bloomenergy.com (last visited Mar. 30, 2014).

359. FUELCELL ENERGY, http://www.fuelcellenergy.com (last visited Mar. 30, 2014).

360. *See* Kosnaski & Shankar, *supra* note 234, at 18, 20; Scott Hempling, *Protecting Innovation During Consolidation: The Advantages of Alertness,* SCOTTHEMPLINGLAW.COM (Feb. 2014), http://www.scotthemplinglaw.com/essays/protecting-innovation.

361. *See, e.g.*, Kosnaski & Shankar, *supra* note 234, at 17–18.

362. *Solar Power for Your Home*, SOLARCITY, http://www.solarcity.com/residential/ (last visited Mar. 30, 2014); *see also* SUNGEVITY, http://www.sungevity.com (last visited Mar. 30, 2014).

363. Kosnaski & Shankar, *supra* note 234, at 17.

364. *See, e.g.*, Jolly et al., *supra* note 215, at 35.

365. Kosnaski & Shankar, *supra* note 234, at 20; *see also* CHANNELL ET AL., *supra* note 50, at 77.

own. They must be aided and abetted by regulators who adopt new rules for their relationship with utilities that they regulate. Those new rules will be sensitive to the new market, sensitive to the demands of customers, and sensitive to the needs of utilities. The sensitivities are not only responsive to changing market conditions, they are responsive to a fundamental change in energy and electricity policy. The traditional fossil fuel policy is no longer viable. The future demands a clean energy economy and smart IOUs can play a transformative role. The clean energy future will increase their reliance on renewable resources and energy efficiency, thus increasing the diversity of inputs into electricity generation. In addition, the clean energy future should encourage competition, consumer choice, and technological innovation, as well as economic growth. Although the challenges are real, the direction of the future should be clear. IOUs can, then, play a leading role in building out the DG world.

PHASING OUT FOSSIL FUELS

DAVID M. DRIESEN*

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I. INTRODUCTION

The problem of global climate disruption requires a rather specific solution, the phase-out of fossil fuels.[1] Most policy experts and policymakers are understandably reluctant to face up to the need for such an ambitious change.[2] So, we tend to talk about climate policy in the traditional language of environmental law, discussing the need for emission reductions.

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1. *See* Myles Allen et al., Commentary, *The Exit Strategy*, NATURE REP. CLIMATE CHANGE, May 2009, at 56, 58, http://www.nature.com/climate/2009/0905/pdf/climate.2009.38.pdf (calling for phasing out net carbon dioxide emissions altogether and leaving substantial fossil fuel resources in the ground); James Hansen et al., *Target Atmospheric CO_2: Where Should Humanity Aim?*, 2 OPEN ATMOSPHERIC SCI. J. 217, 228 (2008), http://www.benthamscience.com/open/toascj/articles/V002/217TOASCJ.pdf (concluding that "remaining fossil fuel reserves should not be exploited without a plan for retrieval and disposal of resulting atmospheric CO_2"); Veerabhadran Ramanathan & Yangyang Xu, *The Copenhagen Accord for Limiting Global Warming: Criteria, Constraints, and Available Avenues*, 107 PNAS 8055, 8057 (2010) (including the replacement of fossil fuels with renewables as things we must do in order to halve emissions by 2050 while calling for eighty percent reductions by 2100); Henry Shue, *Climate Hope: Implementing the Exit Strategy*, 13 CHI. J. INT'L L. 381, 388–89 (2013) (pointing out that many of the studies cited above may understate the need for aggressive action because they focus only on carbon dioxide, ignoring other greenhouse gases); Michael Le Page, *IPCC Digested: Just Leave the Fossil Fuels Underground*, NEW SCIENTIST (Oct. 1, 2013), http://www.newscientist.com/article/dn24299-ipcc-digested-just-leave-the-fossil-fuels-underground.html (interpreting the latest Intergovernmental Panel on Climate Change draft as a call to leave recoverable fossil fuels in the ground); Alex Morales, *Fossil Fuels Need to Stay Unburned to Meet Climate Target*, BLOOMBERG (Sept. 27, 2013, 9:48 AM), http://www.bloomberg.com/news/2013-09-27/fossil-fuels-need-to-stay-unburned-to-meet-climate-target.html.

2. *See* Ramanathan & Xu, *supra* note 1, at 8055–56; Le Page, *supra* note 1.

But ultimately, routine emission reductions will not suffice; we need the virtual elimination of emissions and that requires the phase-out of fossil fuels.[3]

This may seem like a radical claim, but we certainly will phase out fossil fuels. Because they are finite resources, they will run out eventually.[4] The question for policymakers then is not whether to phase out fossil fuels; it is whether to do so in time to avoid many of global climate disruption's impacts in a planned way, or whether to wait until after carbon dioxide emissions throw the climate radically off kilter and our limited fossil fuel resources become fiendishly expensive, perhaps suddenly, and then run out altogether. A planned and reasonably rapid fossil fuel phase-out minimizes economic and environmental disruption.[5]

Facing up to this need would hardly answer all the questions we might ask about appropriate climate disruption policy. But it might change the questions we consider worth asking in productive ways.

This paper will begin by making the case for a goal of phasing out of fossil fuels. It will then discuss the questions that adopting a phase-out goal raise about both politics and policy.

II. ON THE NEED TO PHASE OUT FOSSIL FUELS

We need to phase out fossil fuels for four major reasons. First, the predicted and possible consequences of climate disruption are too serious for us to risk continued emissions of fossil fuels until they run out.[6] Second, carbon dioxide emissions from burning fossil fuels account for some eighty percent of greenhouse gas emissions both in the United States and globally.[7] Third, carbon dioxide—once emitted—remains in the atmosphere for

3. WORKING GRP. I, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS 26 (2013) (noting that "a large fraction of . . . climate [disruption] . . . is irreversible," and that even with *cessation* of emissions "temperature[] will remain . . . constant at elevated levels").

4. *See* Allen et al., *supra* note 1, at 57–58; Hansen et al., *supra* note 1, at 228.

5. Allen et al., *supra* note 1, at 57.

6. *See* WORKING GRP. II, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY 11–13 (2007) [hereinafter WORKING GRP. II, CLIMATE CHANGE 2007] (discussing impacts in detail); WORKING GRP. II, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2001: IMPACTS, ADAPTATION AND VULNERABILITY 5, 77 (2001) [hereinafter WORKING GRP. II, CLIMATE CHANGE 2001].

7. ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2011 ES-9 (2013).

centuries, so that emissions have a cumulative effect.[8] This means that every year in which we burn any fossil fuels we will add to climate disruption, even if we have reduced emissions by a large amount.[9] Fourth, fossil fuels cause an enormous amount of destruction wholly apart from climate disruption.[10]

Serious scientists do not doubt that greenhouse gas emissions have disrupted the climate and will wreak greater havoc still in the future absent drastic changes.[11] The average mean surface temperature has risen in response to rising greenhouse gas emissions.[12] We have a rather good understanding of the sorts of disruption rising temperatures create.[13] This conference devoted a lot of attention to one of the most basic consequences of all—sea level rise—which has dire implications for Florida.[14] Other consequences we can expect include more violent weather events, increasing drought, the spread of infectious diseases, the loss of many endangered species, and the destruction of ecosystems.[15] As with sea level rise, our understanding of the magnitude and timing of these consequences is quite limited.[16] We have generally underestimated the extent of global warming in the past and some ice masses have melted much more quickly than

8. *See* WORKING GRP. I, *supra* note 3, at 26 (pointing out that carbon dioxide emissions generate climate change that is mostly "irreversible on a multi-century to millennial time scale").

9. *See id.*; Allen et al., *supra* note 1, at 58.

10. *See* David M. Driesen, *Sustainable Development and Air Quality: The Need to Replace Basic Technologies with Cleaner Alternatives*, 10 BUFF. ENVTL. L.J. 25, 35–37 (2002) [hereinafter Driesen, *Sustainable Development and Air Quality*] (describing harms associated with fossil fuel burning).

11. *See* WORKING GRP. I, *supra* note 3, at 2–17 (discussing warming trends, their attribution to greenhouse gas emissions, and likelihood of further warming).

12. *See id.* at 2, 11–13, 15.

13. *See id.* at 17–27.

14. *See* WORKING GRP. II, CLIMATE CHANGE 2001, *supra* note 6, at 5 (discussing flooding from sea level rise).

15. WORKING GRP. II, CLIMATE CHANGE 2007, *supra* note 6, at 12, 792 (discussing "increased deaths, disease and injury due to heatwaves [sic], floods, storms, fires, and droughts" and expressing high confidence about loss of endangered species and ecosystem destruction); WORKING GRP. II, CLIMATE CHANGE 2001, *supra* note 6, at 5, 42–43 (discussing increased incidence of diseases such as malaria, cholera, dengue, and heat stroke mortality).

16. *See, e.g.*, FRANK ACKERMAN & ELIZABETH A. STANTON, CLIMATE ECONOMICS: THE STATE OF THE ART 11–15 (2013) (discussing uncertainties about sea level rise and other key variables).

expected.[17] Intergovernmental Panel on Climate Change reports generally admonish readers to expect surprises, some of which may prove unpleasant.[18] The climate system includes feedback loops that have the potential to greatly accelerate climate disruption.[19] For example, a lot of methane lies trapped below permafrost in Siberia and elsewhere.[20] As the earth warms, it has melted some of this permafrost, allowing some of the methane trapped beneath to escape.[21] Methane itself is a very potent greenhouse gas, so the released methane increases warming, which can melt yet more permafrost and lead to the release of more methane.[22] In other words, runaway global warming is a possibility, where consequences of our previous actions set up a cycle of warming that we cannot prevent through emission reductions.[23] The possibility of calamitous warming exceeding the amount predicted by most models cannot be ruled out, partially because of these sorts of feedback loops.[24] We do not know where a tipping point lies, which once crossed, could have very dire consequences.[25] Because of the serious consequences predicted and the scary nature of what could happen but cannot be predicted, we need to do everything we can to avoid future temperature increases.

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17. *See id.* at 12 (explaining that temperature increases have followed the most pessimistic projections and that sea level rise has outstripped the main projections altogether).

18. WORKING GRP. II, CLIMATE CHANGE 2007, *supra* note 6, at 497 (stating that "surprises should be anticipated" and are of great concern); WORKING GRP. II, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 1995: IMPACTS, ADAPTATIONS AND MITIGATION OF CLIMATE CHANGE: SCIENTIFIC-TECHNICAL ANALYSES 5 (1996) (characterizing surprises as *likely*).

19. ACKERMAN & STANTON, CLIMATE ECONOMICS, *supra* note 16, at 15–18 (describing various feedbacks).

20. *See id.* at 17–18 (describing methane in the boreal region and elsewhere).

21. *Arctic Melt "Bubbling Out" Ancient Methane*, ASIAN NEWS INT'L, May 21, 2012 (stating, "[s]cientists have [discovered] thousands of sites in the Arctic where [trapped] methane . . . is seeping out" from melting permafrost); Steve Connor, *Vast Methane 'Plumes' Seen in Arctic Ocean as Sea Ice Retreats*, INDEP. (Dec. 13, 2011), http://independent.co.uk/news/science/vast-methane-plumes-seen-in-arctic-ocean-as-sea-ice-retreats-6276278.html (describing scientists' shock after witnessing *plumes of methane* being released from permafrost and the Arctic seabed).

22. *See* ACKERMAN & STANTON, CLIMATE ECONOMICS, *supra* note 16, at 17–18 (discussing the warming from released methane).

23. *See* WORKING GRP. II, CLIMATE CHANGE 2007, *supra* note 6, at 249 (characterizing feedbacks from permafrost melting as *key uncertainties* in need of further research).

24. *See* Elmar Kriegler et al., *Imprecise Probability Assessment of Tipping Points in the Climate System*, 106 PNAS 5041, 5041 (2009).

25. *See id.* (discussing tipping points and our inability to accurately gauge the probability of triggering them).

Because roughly eighty percent of the United States greenhouse gas emissions come from burning fossil fuels, any serious effort to address climate disruption must have the project of addressing fossil fuel burning as its centerpiece.[26] This does not mean that addressing fossil fuel use constitutes the only thing we need to do to address global climate disruption, but it does mean that successfully addressing fossil fuel use must take center stage. That is why this symposium, like other serious efforts to address climate disruption, focuses so heavily on energy policy questions.[27]

Even if we reduce emissions, we will make climate disruption worse every year in which we continue to burn any fossil fuel at all.[28] Carbon dioxide, once emitted, remains in the atmosphere for many centuries.[29] Given the nature of the consequences and the possibility of triggering runaway warming, we just cannot continue to increase the global store of atmospheric carbon year after year until fossil fuels run out. Continued emissions commit us to future disruption of unknown magnitude.[30] If we find out later that we have crossed some sort of threshold or triggered routine consequences that we cannot easily live with, such as a level of sea level rise that inundates Miami, we cannot reverse these consequences by subsequently reducing emissions.[31] This means, as Howard A. Latin has emphasized, that reducing emissions by ten percent—for example—increases warming above current levels.[32] For a ten percent reduction implies that we continue to add

26. *See* ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2011 ES-9 (2013) (showing that carbon dioxide made up seventy-nine percent of United States greenhouse gas emissions in 2011); *cf.* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 36 fig.2.1 (2008) (indicating that fossil fuels account for 56.6% of global greenhouse gas emissions).

27. *See, e.g.*, Robert S. Pindyck, *Climate Change Policy: What Do the Models Tell Us?*, 51 J. ECON. LITERATURE 860, 860 (2013).

28. *See* Driesen, *Sustainable Development and Air Quality*, *supra* note 10, at 35.

29. *See* Ramanathan & Xu, *supra* note 1, at 8056 (pointing out that the residence time for carbon dioxide is up to one thousand years).

30. *See* Driesen, *Sustainable Development and Air Quality*, *supra* note 10, at 35–36.

31. WORKING GRP. I, *supra* note 3, at 26 (noting that even after complete cessation of emissions, elevated temperatures will remain constant for centuries).

32. HOWARD A. LATIN, CLIMATE CHANGE POLICY FAILURES: WHY CONVENTIONAL MITIGATION APPROACHES CANNOT SUCCEED 20–21 (2012) (pointing out that a ten percent cut in emissions implies continued additions to greenhouse gas concentrations in the atmosphere).

ninety percent of current emissions to the global store of carbon every year, thus adding to the current imbalance in the global carbon cycle.[33]

Reducing carbon dioxide emissions to zero or near zero levels requires a fossil fuel phase-out.[34] Because of the cumulative nature of the emissions, the importance of carbon dioxide to the overall problem, and the seriousness of the potential consequences of increasing climate disruption, we must phase out fossil fuels long before they run out. The sooner the fossil fuels are phased out, the smaller the likelihood of triggering runaway warming or suffering some of the more serious consequences associated with warming generally.[35]

Although I have discussed a phase-out as the right response to global climate disruption, a goal of phasing out fossil fuels has broader merit. Burning fossil fuels contributes greatly to severe local and regional air pollution problems that kill tens of thousands of people annually in the United States and even more in developing countries.[36] Phasing out fossil fuels promises relief from serious conventional air pollution, coal mining's destruction of land and maiming or killing of miners, an end to oil spills, and much more.[37] The harms avoided when we phase out fossil fuels go far beyond limiting climate disruption.

III. HOW TO PHASE OUT FOSSIL FUELS

Phasing out fossil fuels would require a number of changes.[38] The most obvious reform needed involves greatly increased energy efficiency.[39]

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33. *Id.* at 21 (equating a ten percent cut in emissions with the addition of ninety percent of baseline emissions to the atmosphere).

34. Shue, *supra* note 1, at 386, 394.

35. *See* Bill McKibben, *Global Warming's Terrifying New Math*, ROLLING STONE, Aug. 2, 2012, *available at* http://www.rollingstone.com/politics/news/global-warmings-terrifying-new-math-20120719 (explaining that avoiding an increase in mean surface temperature of two degrees Celsius, which scientists consider dangerous, would require leaving eighty percent of current proven industry owned fossil fuel reserves in the ground).

36. Driesen, *Sustainable Development and Air Quality*, *supra* note 10, at 28, 35 (pointing out that health studies link particulate pollution to tens of thousands of annual deaths); *e.g.*, Edward Wong, *Early Deaths Linked to China's Air Pollution Totaled 1.2 Million in 2010, Data Shows*, N.Y. TIMES, Apr. 2, 2013, at A9.

37. *See, e.g.*, Driesen, *Sustainable Development and Air Quality*, *supra* note 10, at 51–52.

38. *Id.* at 25.

39. *See* John C. Dernbach et al., *Energy Efficiency and Conservation: New Legal Tools and Opportunities*, NAT. RESOURCES & ENV'T, Spring 2011, at 7, 7 (characterizing energy efficiency as *low-hanging fruit*).

Increases in energy efficiency reduce the scope of the project of replacing fossil fuel as the basis for our economy.[40] Happily, many energy efficiency improvements pay for themselves through savings in electricity costs.[41] They also produce jobs for contractors and engineers.[42] So, they produce win-win situations that prove attractive to rational policymakers.

Fuel switching to achieve zero emissions, even for a greatly reduced energy requirement, however, poses significant challenges.[43] In 2012, renewable energy and nuclear power accounted for less than twenty percent of United States energy consumption.[44] About eighty percent came from fossil fuels.[45] At current levels of total energy consumption, we must replace almost eighty quads of fossil fuel energy in order to reach zero emissions.[46] Even a fifty percent energy efficiency improvement—an ambitious level—would leave us with the need to replace almost forty quads of energy, a significant amount.[47] If a phase-out is possible, it would likely require ambitious policy measures, and might produce significant costs.

Thoroughly analyzing the question of whether a *complete* phase-out is possible would require an article of its own. I will note that a recently published analysis suggests that my home state, New York, could replace all of its fossil fuel with renewable energy.[48] It does not necessarily follow that all areas in the country could rely solely on renewables, as renewables' potential varies geographically.[49] The optimistic picture for New York depends heavily on offshore wind possibilities that take advantage of New York's proximity to Long Island Sound and some of the Great Lakes.[50] But if a nationwide shift to one hundred percent renewables is not possible, then phasing out fossil fuels might require some use of nuclear power.

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40. *See id.*

41. *Id.* (discussing studies finding *substantial* opportunities to save money through energy efficiency improvements are available).

42. *See id.* (finding that energy efficiency improvements generate jobs).

43. *See* Mark Z. Jacobson et al., *Examining the Feasibility of Converting New York State's All-Purpose Energy Infrastructure to One Using Wind, Water, and Sunlight*, 57 ENERGY POL'Y 585, 586–87 (2013).

44. *See* U.S. ENERGY INFO. ADMIN., MONTHLY ENERGY REVIEW 3 tbl.1.1 (2014), *available at* http://www.eia.gov/totalenergy/data/monthly/archive/00351401.pdf.

45. *Id.*

46. *See id.* (showing 77.994 quads of fossil fuel related energy consumption in 2012).

47. *See id.*

48. Jacobson et al., *supra* note 43, at 598.

49. *See id.* at 598–99.

50. *See id.* at 589 tbl.2 (showing that the study relies on off-shore wind for forty percent of its power in 2030).

The history of serious efforts to make major changes should make us somewhat optimistic about a phase-out's prospects. When we moved toward phasing out ozone depleting substances, we discovered that more substitutes existed at lower costs than academic researchers or experts at individual companies had believed.[51] Although a fossil fuel phase-out appears to pose much greater challenges than the phase-out of ozone depleting chemicals, aggressive policies have already produced surprising results and probably will produce more of them.[52] The ozone depletion experience teaches us that we should be wary of claims that we know how rapidly we can phase out fossil fuels and how much it will cost. For many years prior to the initiation of the phase-out of ozone depleting chemicals, it appeared that substitutes would either be impossible or costly.[53] This proved not to be the case.[54] I am not saying that we can confidently predict that phasing out fossil fuels will prove cheap. But we must recognize that academic studies lack information individual companies may possess on technological possibilities, that individual companies may have incentives not to share information they have, and that new research can uncover possibilities that nobody knew about.[55] Strong policies have generally done well at encouraging innovation.[56]

IV. SOME TECHNOCRATIC QUESTIONS

Even if we agree that we should phase out fossil fuels, important questions remain about how quickly we should do so and what policy

51. *See* EDWARD A. PARSON, PROTECTING THE OZONE LAYER: SCIENCE AND STRATEGY 9 (2003) (stating that "it was widely believed that significant cuts in ozone-depleting chemicals would be extremely difficult and costly," but that agreement to a fifty percent cut created collaborations that led to subsequent identification and development of alternatives).

52. *See, e.g.*, Daniel T. Kaffine et al., *Emissions Savings from Wind Power Generation in Texas*, ENERGY J., 2013, at 155, 156 (discussing technological advances and falling prices of wind energy).

53. PARSON, *supra* note 51, at 8–9 (pointing out that ten years of deadlock preceded the Montreal Protocol and that during that period many believed that cuts would be costly and difficult).

54. *See id.* at 9.

55. *See, e.g.*, *id.* (arguing that prior to regime formation, knowledge about substitutes for ozone depleters was controlled by firms, not academics, and not shared).

56. *See* David M. Driesen, *Does Emissions Trading Encourage Innovation?*, 33 ENVTL. L. REP. 10094, 10103–04, 10106 (2003) [hereinafter Driesen, *Does Emissions Trading Encourage Innovation?*] (reviewing empirical evidence of innovation and finding it correlated with stringent standards).

mechanisms we should use to accomplish this. I address both of these issues in turn.

A. *The Speed of a Phase-Out*

The argument above suggests that we should phase out fossil fuels as quickly as feasible.[57] But what does that mean for policy? How should a policymaker determine how quickly we should phase out fossil fuels?

One might think of this rapidity question as a question about the technical feasibility of replacing fossil fuels. Although engineers studying these sorts of questions no doubt make a contribution to resolving fossil fuel policy questions, there are reasons to doubt that these questions are the most central ones for policymakers.[58] No society in the world has done all that is technically feasible to phase out fossil fuels.[59] Furthermore, what I already said about the limits of any one actor's information gathering capacity and our ability to predict advances implies that experts can easily underestimate our society's technical capabilities.

One might think that a decision to phase out fossil fuels does away with the need to consider costs. My justification for the phase-out commitment suggests a rejection of the reigning economic orthodoxy on how to consider costs—the theory that we should do so by setting emission reduction targets or prices designed to equalize costs and benefits at the margin. We should not do so for at least two reasons. First, we cannot quantify the costs and benefits of any given mitigation measure with a reasonable degree of precision, so cost-benefit analysis ("CBA") does not provide a useful guide to policy.[60] Second, a cost-benefit criterion in the

57. *See* Brigitte Knopf et al., *Managing the Low-Carbon Transition—From Model Results to Policies*, ENERGY J., 2010, at 223, 225 (arguing that the needed steep decreases in carbon intensity require rapid energy system changes).

58. *See id.* at 226; McKibben, *supra* note 35.

59. *See* Knopf et al., *supra* note 57, at 226; McKibben, *supra* note 35.

60. *See* Donald A. Brown, *Climate Change*, *in* STUMBLING TOWARD SUSTAINABILITY 273, 306–07 (John C. Dernbach ed., 2002) (discussing problems in monetizing climate disruption impacts); Frank Ackerman & Elizabeth A. Stanton, *Climate Risks and Carbon Prices: Revising the Social Cost of Carbon*, ECON. E.-J., Apr. 4, 2012, at 1, 2, http://dx.doi.org/10.5018/economics-ejournal.ja.2012-10 (explaining that plausible assumptions about climate sensitivity can generate estimates of carbon's social costs at nine hundred dollars a ton, but that many estimates have come up with much lower numbers); Jonathan S. Masur & Eric A. Posner, *Climate Regulation and the Limits of Cost-Benefit Analysis*, 99 CALIF. L. REV. 1557, 1577, 1596–97 (2011); Pindyck, *supra* note 27, at 861 (finding integrated assessment models at the base of climate disruption CBA close to useless as policy analysis tools); Wendy Wagner et al., *Misunderstanding Models in Environmental*

climate context proves even more morally obtuse for United States climate policy than in other contexts because decisions we make about climate disruption influence the amount of death, injury, and destruction faced not only in Florida, but also in Bangladesh, Sub-Saharan Africa, and in Island States.[61] It is not morally acceptable to say that we will not prevent deaths in developing countries that we—together with other developed countries—have caused, because the prevention would cost too much.[62] Nevertheless, cost constraints remain relevant to the question of how rapidly we can feasibly phase out fossil fuels.

A commitment to phasing out fossil fuels, however, changes the questions we should ask about costs. We should focus primarily on cost distribution, rather than magnitude. We should ask, for example, whether phasing out fossil fuels at a given rate would cause unacceptable hardships for energy consumers. For example, we must go slowly enough so that we do not leave people with bills so high that they cannot afford electricity, heat, and transportation. This leaves the question of how rapidly to phase out fossil fuels somewhat dependent on other policies. We can, for example, proceed more rapidly if we have good mass transit and robust programs to pay electricity bills for poor people in place.[63] Of course, that means that we also have to answer questions about how much we want to spend to enhance these sorts of programs. Furthermore, an emphasis on distribution suggests that even for relatively cheap changes we must consider the plight of workers losing their jobs as fossil fuel facilities shut down. It may be true that phasing out fossil fuels will create more jobs than it takes away.[64] In a reasonably robust economy, it may be appropriate to expect flexible labor markets to handle the necessary transitions reasonably well. If we need to accelerate fossil fuel phase-outs during periods of high unemployment, however, it may be important to have job training and other kinds of transition assistance in place to help those losing jobs in the fossil fuel industry.[65] Congress did this with respect to the acid rain program by

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and Public Health Regulation, 18 N.Y.U. ENVTL. L.J. 293, 318–19 (2010) (explaining that models illuminate dynamics and uncertainties rather than generate answers).

61. *See* Masur & Posner, *supra* note 60, at 1563.

62. *See* Brown, *supra* note 60, at 304–06 (arguing that CBA is dubious because even high costs do not free us of our responsibilities to prevent harms to others).

63. *See* Dernbach et al., *supra* note 39, at 7; Jacobson et al., *supra* note 43, at 595–96; Shue, *supra* note 1, at 384–86.

64. Jacobson et al., *supra* note 43, at 594–95; *see also* Dernbach et al., *supra* note 39, at 7.

65. *See* Clean Air Act Amendments of 1990, Pub. L. No. 101–549, § 1101, 104 Stat. 2399, 2710–11 (1990), repealed by Workforce Investment Act of 1998, Pub. L. No. 105–220, § 199, 122 Stat. 936 (1998); *cf.* Jacobson et al., *supra* note 43, at 594–95.

granting the industry flexibility in how to reduce sulfur dioxide emissions; Congress allowed the use of low sulfur coal, which would displace coal-mining jobs in high sulfur coal regions.[66] Accordingly, it did provide some transitional assistance.[67] Even though we should provide transitional assistance if we transform the economy during tough times, we should not accept using unfounded allegations of hardship to justify slowing progress.

B. *Policy Mechanisms*

Policymakers must also ask themselves about what policies can most readily phase out fossil fuels. There seems to be a political consensus around the globe that we should "put a price on carbon" through environmental benefit trading or carbon taxes.[68] Yet, if one looks around the world at advanced countries that have gone far down the road toward phasing out fossil fuels, these two policies do not always figure as causal factors.[69] Germany now produces twenty-five percent of its energy from renewable resources.[70] Its policies have produced big declines in the price of solar and other renewable energy sources.[71] As Michael Mehling has made clear, Germany has achieved this progress primarily through an aggressive feed-in tariff, which offers renewable energy producers a high price for renewable energy.[72] This policy does not directly put a price on carbon; it aims instead

66. *See* ENVTL. PROT. AGENCY, IMPACTS OF THE ACID RAIN PROGRAM ON COAL INDUSTRY EMPLOYMENT i–ii, app. at A2–A3 (2001).

67. Clean Air Act Amendments of 1990 § 1101 (allocating up to $250,000,000 for retraining and assisting miners adversely affected by employers' Clean Air Act compliance).

68. *See* WILLIAM D. NORDHAUS, ECONOMIC ISSUES IN DESIGNING A GLOBAL AGREEMENT ON GLOBAL WARMING 3 (2009), *available at* http:/ /www.econ.yale.edu/ ~nordhaus/homepage/documents/Copenhagen_052909.pdf (describing the lesson that all people must "face a market price for the use of carbon" as the economists' "bottom line for policy").

69. *See* Marc Ringel, *Fostering the Use of Renewable Energies in the European Union: The Race Between Feed-in Tariffs and Green Certificates*, 31 RENEWABLE ENERGY 1, 8–9 (2006).

70. Chris Cottrell, *German Renewables Output Hits Record High in H1*, REUTERS (July 26, 2012, 9:49 AM), http://www.reuters.com/article/2012/07/26/germany-renewables-idUSL6E8IQIA720120726.

71. Craig A. Hart & Dominic Marcellino, *Subsidies or Free Markets to Promote Renewables?*, 3 RENEWABLE ENERGY L. & POL'Y REV. 196, 203 (2012).

72. Ralph Buehler et al., *How Germany Became Europe's Green Leader: A Look at Four Decades of Sustainable Policymaking*, SOLUTIONS, Oct. 2011, at 51, 57–58; *see* Samantha Booth, *Community Solar: Reviving California's Commitment to a Bright Energy Future*, 43 ENVTL. L. REP. 10585, 10590–91 (2013) (noting that Germany has become the first country to exceed thirty gigawatts of solar capacity because of its feed-in tariff); Ringel, *supra*

to provide an incentive to substitute renewable energy for fossil fuels.[73] France currently relies on fossil fuels for less than ten percent of its energy.[74] This extraordinary achievement stems from a government decision to build nuclear power plants with rigid state control of both design and worker training in order to ensure safety.[75] France did not put a price on carbon; instead, it mandated construction of zero emission facilities.[76] This record should invite some fairly simple questions: Can putting a price on carbon be an effective strategy for phasing out fossil fuels? If so, what sorts of design features are needed to make this approach more effective than in the past? Are there better tools than taxes and trading for phasing out fossil fuels? What are the advantages and limits of pricing carbon as a strategy?

I do not propose to answer all of these questions here, but I will say something about possible answers. First of all, pricing policies must be much more ambitious than the pricing policies countries have employed so far if they are to have any chance in succeeding in rapidly phasing out fossil fuels.[77] Countries have generally set caps for trading programs and carbon taxes without any clear intention to phase out fossil fuels.[78] Indeed, in Europe, which has the most experience with these programs, the primary goal of many of these policies is to reduce emissions rather modestly in the near term.[79] Howard Latin has questioned this sort of back-loaded strategy that saves ambitious reductions for much later.[80] He has raised concerns that such strategies encourage investments in technologies, such as natural gas, that we must ultimately abandon to get to zero emissions and that those who make these investments will resist scuttling the infrastructure they have

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note 69, at 6 (explaining that a feed-in tariff pays renewable energy providers an above market price for the power they produce).

73. Ringel, *supra* note 69, at 6.

74. NUCLEAR ENERGY AGENCY, ORG. FOR ECON. CO-OPERATION, NUCLEAR ENERGY DATA 43 (2013) (showing that France gets only 9.8% from fossil fuels).

75. *See id.* (showing that France gets seventy-five percent of its power production from nuclear energy); Dieter Helm, *Nuclear Power, Climate Change, and Energy Policy*, *in* THE ECONOMICS AND POLITICS OF CLIMATE CHANGE 247, 249 (Dieter Helm & Cameron Hepburn eds., 2009) (discussing France's ownership of the entire technology chain for nuclear energy and state training of the nuclear workforce).

76. *See* Helm, *supra* note 75, at 249.

77. *See, e.g.*, Ringel, *supra* note 69, at 6.

78. *See* LATIN, *supra* note 32, at 151.

79. Hart & Marcellino, *supra* note 71, at 197.

80. *See id.* at 152–53, 158 (noting that "conversion from coal to natural gas" is an interim investment that might make eventual achievement of zero emissions *more difficult*).

invested in when the time comes.[81] He would rather see us move more directly to zero emissions.[82] Adopting a goal of phasing out fossil fuels, not simply reducing emissions, does suggest that the goals for these programs have not been commensurate with the climate disruption problem.[83]

Amy Sinden and I have suggested elsewhere that a goal of phasing out fossil fuels suggests a redesign of environmental benefit trading programs.[84] Current approaches focus on the end-of-the-pipe and are designed to reduce emissions.[85] We argued for explicitly using trading to phase out fossil fuels.[86] This implies that allowances would limit the amount of fossil fuels being used in the economy.[87] We refer to trading—and non-trading—programs that limit dirty inputs rather than pollution outputs as Dirty Input Limits ("DILs").[88] We have used DILs in both tradable and non-tradable forms before when we phased out ozone-depleting chemicals and lead.[89] This may seem like a radical idea, but proposed federal comprehensive climate disruption legislation included DILs for transportation fuels.[90] We simply suggested extending this approach.[91]

But a bigger question we must ask is whether pricing policies—which are conceived of as encouraging the most cost effective adjustments in the status quo—are really the best way of transforming an economy, even if they were ambitious. The French and German experiences suggest that some sort of more active state role might be necessary to encourage investments that are effective, and perhaps even cost effective in the long run, but not

81. *See id.* at 158 (arguing that investments in interim technologies like natural gas will build constituencies for those technologies that will make their abandonment difficult); *see also* Jacobson et al., *supra* note 43, at 587 (doubting that natural gas may produce more global warming than coal because of methane emissions associated with gas extraction and lower sulfur dioxide emissions, which mask warming).

82. *See* LATIN, *supra* note 32, at 151.

83. *See id.*

84. *See* David M. Driesen & Amy Sinden, *The Missing Instrument: Dirty Input Limits*, 33 HARV. ENVTL. L. REV. 65, 66–67, 104–09 (2009) (discussing a trading program limiting consumption of fossil fuel through tradable permits limiting fossil fuel production).

85. *See id.* at 67–68 (stating that we have traditionally focused vehicle regulation on the exhaust output).

86. *See id.* at 104–09.

87. *See id.*

88. *See id.* at 67 (defining Dirty Input Limits ("DILs")).

89. *See* Driesen & Sinden, *supra* note 84, at 83–88 (discussing the lead and ozone-depleting chemical examples).

90. *See id.* at 81–83 (discussing the use of DILs in global warming bills considered in Congress).

91. *See id.* at 67.

cost effective in the short run.[92] We need more thinking about what lessons the most successful approaches have to teach the rest of us, instead of blithe assumptions that since pricing carbon has good efficiency properties, it must be the right solution to the climate disruption problem. Indeed, it seems fairly clear that price alone will not accomplish all that is needed.[93] Mass transit improvements, for example, require public expenditures—although one can imagine using a carbon tax or auctioned permits to fund this.[94]

We also must recognize that an enormous project like phasing out fossil fuels may require a level of innovation that challenges conventional approaches, like traditional regulation, environmental taxation, and emissions trading.[95] All of these programs require governments to make difficult decisions about goals, in the form of choosing a cap for a trading program or a tax rate for a carbon tax.[96] Political difficulties and the government's inability to predict innovation rates will tend to constrain the ambition of these goal-setting decisions.[97] This raises the question of whether we can invent new approaches that will do better.

I have suggested the possibility of an environmental competition statute.[98] Such a statute would allow any polluter who is reducing carbon emissions to collect the cost of making its reductions from any competitor with higher emissions, plus a statutory profit margin.[99] In all likelihood this would spur a race to phase out fossil fuels, since getting to zero emissions generally secures payments, whereas continuing to pollute risks having to pay cleaner competitors.[100] This approach seeks to emulate the innovation stimulating properties of a very competitive market, where making a superior product allows an innovator to steal market share from its competitors,

92. *See, e.g.*, MIKAEL SKOU ANDERSEN, GOVERNANCE BY GREEN TAXES: MAKING POLLUTION PREVENTION PAY 117 (1994), *and* Buehler et al., *supra* note 72, at 57.

93. *See* Buehler et al., *supra* note 72, at 52, 57.

94. *See* Dernbach et al., *supra* note 39, at 7.

95. *See* David M. Driesen, *An Environmental Competition Statute*, 2 SAN DIEGO J. CLIMATE & ENERGY L. 199, 201–05 (2010) [hereinafter Driesen, *An Environmental Competition Statute*].

96. *Id.* at 203–04.

97. *Id.* at 203.

98. *Id.* at 200–01 (describing and advocating this mechanism).

99. *Id.* at 206–07 (describing the basic mechanism of an environmental competition statute).

100. *See* Driesen, *An Environmental Competition Statute*, *supra* note 95, at 200–01 (characterizing an environmental competition statute as "encourag[ing] contests to improve environmental quality").

thereby potentially making the innovator wealthier at the expense of less nimble competition.[101]

Howard Latin has proposed using carbon taxes to fund an expert commission to fund research into zero emissions technologies and to subsidize their deployment.[102] His approach mirrors my own in following the principle that using negative economic incentives to fund positive economic incentives provides a powerful driver for innovation.[103]

These comments focus on the most challenging aspect of the phase-out problem—the problem of fuel switching. The question of how best to minimize the use of fuel altogether—the energy efficiency problem—also raises questions about effective policies. Policymakers around the world have adopted a lot of successful approaches, from improved mass transit to least cost planning for electric utilities, to regulations mandating increased energy efficiency in appliances.[104] They have done so because of strong evidence that people often do not adopt energy efficiency measures on their own, even when doing so would save them money.[105] The data suggest that pricing policies without redistribution of the revenue may have limits in encouraging the cheapest options for limiting the use of fossil fuels. On the other hand, pricing policies that help fund energy efficiency improvements can pair economic benefits with fuel switching, thus lessening—and perhaps eliminating—the pain associated with rapid change.[106]

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101. *Id.* at 207 (developing the analogy between this statutory mechanism and the "economic dynamics of [a] competitive market[]").

102. LATIN, *supra* note 32, at 162–63 (describing this scheme along with other less central remedies).

103. ANDERSEN, *supra* note 92, at 18–19, 26–27 (promoting taxes like the French effluent tax which raise funding for environmental programs).

104. *See* Veronika Czakó, *Climate Change and Sustainable Energy Action at the City Level: The Hungarian Experience*, *in* OPPORTUNITIES AND DRIVERS ON THE WAY TO A LOW CARBON SOCIETY: PROCEEDINGS OF THE SUMMER ACADEMY 'ENERGY AND THE ENVIRONMENT' 95, 99–101 (2013) (discussing subsidies funding energy efficiency improvements in Hungarian apartment buildings); Dernbach et al., *supra* note 39, at 7 (describing various approaches used in the United States).

105. *See* Cameron Hepburn & Nicholas Stern, *The Global Deal on Climate Change*, *in* THE ECONOMICS AND POLITICS OF CLIMATE CHANGE 36, 49 (Dieter Helm & Cameron Hepburn eds., 2009) (stating that because of energy efficiency investment's insensitivity to price, carbon pricing will do little to increase deployment of energy efficiency); *cf.* Robert N. Stavins, *Addressing Climate Change with a Comprehensive US Cap-and-Trade System*, *in* THE ECONOMICS AND POLITICS OF CLIMATE CHANGE 197, 198 (Dieter Helm & Cameron Hepburn eds., 2009) (stating flatly that polluters will undertake all reductions that are less costly than the allowance price in "[a] well-designed cap-and-trade system").

106. *See id.*

V. SOME POLITICAL QUESTIONS

The major reason that the United States has not become a leader in moving toward a phase-out of fossil fuels has been political.[107] The United States has been unwilling to even take the relatively modest step of implementing a nationwide so-called cap-and-trade program to reduce greenhouse gas emissions.[108] Nor has the United States eliminated massive subsidies for fossil fuels, in spite of repeated proposals from the Obama Administration to do so.[109]

So, a major question that the need to phase out fossil fuels raises is a political one: What sorts of strategies would help change the political climate over time to one that might accept measures that would phase out fossil fuels? My own view is that we are unlikely to gain acceptance of a program phasing out fossil fuels without environmental leaders making such a phase-out an explicit political goal. The evidence suggests that the Obama Administration and many environmental groups disagree with me on that. They either do not see the need for a phase-out, or assume that it can best be accomplished by selling steps in that direction indirectly, justifying individual regulations as cost effective and helping with the problem of climate disruption.[110] Thus, the Obama Administration has passed very strong standards improving vehicle emissions and promises significant regulation of power plants, but supports an "all-of-the-above" energy strategy.[111]

I have my doubts about whether the American public can be brought around to support a phase-out of fossil fuels without a rhetorical strategy that prepares them to accept much more significant changes than are currently politically feasible. If nobody tells the American public that fossil fuels are finite resources, that an increase in their price is inevitable as they become scarce, that renewable energy has fallen in price in countries with good policies and will likely fall further if supported appropriately, that new

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107. *See* Neela Banerjee, *Warning on Greenhouse Gases; A Study Says Emissions Are on Track to Raise Global Temperatures by up to 9.54 Degrees by Century's End*, L.A. TIMES, June 11, 2013, at A11.

108. *See* Stavins, *supra* note 105, at 198; Banerjee, *supra* note 108.

109. *See* Banerjee, *supra* note 107 (stating "Congress has shown no interest in ending fossil fuel subsidies"); Gary Gentile et al., *Obama Seeks to Slash Oil Industry Tax Breaks*, PLATTS OILGRAM NEWS, Feb. 15, 2011, at 1, *available at* 2011 WLNR 5108712 (stating that, as of 2011, President Obama proposed eliminating fossil fuel subsidies three times).

110. *See, e.g.*, John M. Broder, *Limits Set on Pollution from Autos*, N.Y. TIMES, Apr. 2, 2010, at B1.

111. *See* McKibben, *supra* note 35.

industries can generate new jobs, that climate disruption will wreak havoc unless we take ambitious measures, and that phasing out fossil fuels would save thousands of lives and spare us all from many types of environmental destructions wholly apart from climate disruption, I do not see how we can ever phase out fossil fuels.

The political challenge, however, goes beyond how we debate environmental policy. We live in an era in which many politicians oppose any governmental role in solving most societal problems. Although we surely need limits on governmental power, climate disruption poses problems of coordination that make it insolvable without a significant governmental role.[112] Countries that have made significant progress on the climate issue take a more pragmatic and less ideological view of the appropriate role of government than we do. So, progress on the climate issue is linked to making progress on broader issues of the appropriate role of government.

This requires environmental advocates and their political allies in Congress to figure out how to advance a broader project of sensible governance. They should, for example, repeatedly remind the American people of the role deregulation played in creating the financial crisis.[113] Reasonable standards of conduct are as important to well-functioning markets as they are to our efforts to solve environmental problems. Furthermore, politicians who do not want to see the government dismantled need to simply say, repeatedly, that they support an adequate government. This would start a healthy debate about what constitutes an adequate government and marginalize those who oppose an adequate government. At any rate, progress in phasing out fossil fuels will require political changes and strategic actions to make them come about.[114]

I do not think it is possible for anybody to prove a view about what political strategy is best. I provide my views merely to clarify the questions that a phase-out goal raises. These questions include whether we can sell a phase-out without arguing against continued fossil fuel use directly, and how we can move the political process to accept a legitimate role for government more generally. An effort to change the political climate to make a phase-out politically plausible requires answers to these questions.

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112. *See id.*

113. *See* DAVID M. DRIESEN, THE ECONOMIC DYNAMICS OF LAW 36–49 (2012).

114. Hepburn & Stern, *supra* note 105, at 36–37, 43–46; *see also* Banerjee, *supra* note 107.

VI. CONCLUSION

Addressing climate disruption requires a phase-out of fossil fuels. Accepting this proposition reframes the questions we should ask ourselves about how to design effective environmental policy and how to create a political climate where we can adopt sensible policies.

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