

LSU Journal of Energy Law and Resources

Volume 2
Issue 1 *Fall 2013*

11-1-2013

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Repository Citation

Jesse Reiblich, *Addressing Climate Change: Have the Political Winds Shifted in Favor of a Carbon Tax?*, 2 LSU J. of Energy L. & Resources (2013)

Available at: <https://digitalcommons.law.lsu.edu/jelr/vol2/iss1/6>

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Addressing Climate Change: Have the Political Winds Shifted in Favor of a Carbon Tax?

*Jesse Reiblich**

Policymaking to combat climate change has been almost nonexistent despite the scientific community's consensus that the time to act is now. Regardless, climate change remains a volatile political issue that divides our nation and its legislators. Advocates of reducing carbon emissions have traditionally endorsed several tools available to policymakers and administrative agencies in order to curb climate change: rulemaking under the Clean Air Act, cap-and-trade, and carbon taxes. Carbon tax legislation has gained traction after endorsements from both sides of the political aisle, and because it could be used to raise funds to reduce the United States' deficit. Even policymakers that categorically refuse to raise taxes may be willing to introduce a carbon tax if it is coupled with tax reductions elsewhere. This Article considers these traditional options for reducing carbon emissions and argues that recent political rhetoric seems to set the stage for passing a carbon tax where passage was once believed to be impossible.

INTRODUCTION

While experts debate both the existence and causes of climate change, the growing consensus among scientists, and the Intergovernmental Panel on Climate Change,¹ is that climate change is a real phenomenon that has been caused, at least in part, by anthropogenic carbon dioxide emissions.² Likewise, the consensus is that this phenomenon is a problem that needs to be addressed as soon as possible in order to avoid massive, irrevocable climate

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1. *Organization*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, <http://www.ipcc.ch/organization/organization.htm> (last visited Oct. 8, 2013). The Intergovernmental Panel on Climate Change is an intergovernmental, scientific body comprised of 195 countries that was established by the United Nations Environmental Programme (UNEP) and the World Meteorological Organization in order to “provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts.” *Id.*

2. *See generally* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS (Susan Solomon et al. eds., 2007), http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_science_basis.htm.

change.³ Most scientists agree that reducing the carbon dioxide humans emit into the environment is a necessary step for slowing down or stopping climate change.⁴ Logically, the next question is one of prevention: what is the best way to effectively reduce carbon dioxide emissions?

In the United States there are several possibilities on the table. First, the U.S. Environmental Protection Agency could reduce carbon dioxide emissions through its “command and control” powers under the various provisions of the Clean Air Act.⁵ Second, Congress could implement a cap-and-trade scheme like the European Union Emissions Trading Scheme implemented by the European Union to comply with its member countries’ obligations under the Kyoto Protocol.⁶ Third, Congress could also implement a plan similar to the sulfur dioxide trading scheme the U.S. set up to curb acid rain.⁷ Finally, Congress could levy a carbon tax on carbon dioxide emissions like Denmark, Norway, and Sweden have done.⁸ This final option is attractive because it would simultaneously reduce the deficit.

This Article first considers some of the most popular proposed methods the United States could employ to reduce its carbon emissions and attempts to determine which method, or methods, the United States should implement. Part I will introduce and briefly discuss the three methods of reducing carbon dioxide emissions that are currently front-runners in the U.S. Parts II through IV will consider the pros and cons of trying to reduce carbon emissions under each of the methods introduced in Part I—the Clean Air Act, a cap-and-trade emissions scheme, and a carbon tax, respectively. Finally, Part V presents a tax “swap” as perhaps the best option.

3. *Id.* at 2. According to the IPCC, the world’s average temperature has risen 0.74 degrees in the past century. The IPCC estimates that the world’s average temperature will rise an additional three degrees over the next century if CO₂ levels continue to rise at their current rate. *Id.*

4. *See id.* at 5. The IPCC’s data suggests that “[m]ost of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.” *Id.*

5. *See infra* Part II.

6. *See infra* Part III.

7. *See infra* Part III.A.

8. *See infra* Part IV.

I. OVERVIEW

The three methods of carbon emissions reductions compared in this paper are regulatory controls under the Clean Air Act, cap-and-trade, and a tax on carbon.

In the wake of *Massachusetts v. EPA*,⁹ the Environmental Protection Agency could try to curb climate change by regulating carbon dioxide emissions under several different titles of the Clean Air Act. Under Title I, the EPA could identify carbon dioxide as a criteria pollutant under the Act¹⁰ and set a National Ambient Air Quality Standard (NAAQS) for carbon dioxide.¹¹ Under Title II, the EPA could further reduce motor vehicle carbon dioxide emissions.¹² Finally, under Title V, the EPA could attempt to regulate and reduce carbon dioxide emissions from major stationary sources of carbon dioxide emissions through the development of state implementation plans (SIPs) in conjunction with the states.¹³

Cap-and-trade schemes involve implementing an overall cap on the amount of carbon dioxide emissions that the United States allows carbon dioxide producers to emit.¹⁴ Companies would then be given carbon credits that collectively equal the total cap amount of carbon dioxide emissions.¹⁵ Alternatively, a system could be devised which would allow producers to bid for and pay market value for these credits. Under a free allocation of credits system, producers that emit less than the amount allowed by their allotted credits could sell their excess credits to companies that need them to operate. Selling these excess credits to other companies provides an economic incentive for companies to emit less carbon dioxide than their carbon credits allow. Likewise, under this scheme the United States would be able to lower the overall cap as it wished in order to lower the total amount of carbon dioxide emissions of the country as

9. *Massachusetts v. Env'tl. Prot. Agency*, 549 U.S. 497, 532 (2007) (holding that greenhouse gases, such as carbon dioxide, fall "well within the Clean Air Act's capacious definition of 'air pollutant.'").

10. 42 U.S.C. § 7408 (2006) (establishing air quality criteria).

11. 42 U.S.C. § 7409 (2006) (defining National Ambient Air Quality Standards).

12. 42 U.S.C. § 7521(a)(1) (2006) (requiring the EPA to regulate "the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in [the EPA Administrator's] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.").

13. 42 U.S.C. §§ 7661–7661f (2006).

14. *Cap and Trade*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/captrade/> (last updated May 10, 2012).

15. *Allowance Trading Basics*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/airmarkets/trading/basics.html> (last updated Apr. 14, 2009).

a whole.¹⁶ By lowering its carbon dioxide emissions, the U.S. would combat further climate change.

Finally, Congress could tax carbon dioxide emissions or the production of carbon-dioxide-emitting fossil fuels and electricity.¹⁷ This tax could be raised or lowered each year depending on whether the U.S. met its annual goal of carbon dioxide emission reductions.¹⁸ The goal of a carbon tax is to internalize the external costs of using fossil fuels, specifically the cost to society of releasing carbon dioxide into the atmosphere.¹⁹ Currently, carbon dioxide emitters pay nothing for the effects of their emissions on the environment.²⁰ A carbon tax would also lower both industry-produced carbon dioxide emissions and consumer use of carbon-dioxide-emitting products.²¹ A carbon tax enjoys support on both sides of the political aisle because of its potential to produce revenue to reduce the United States' deficit.²²

16. Such a reduction could allow the United States to comply with international attempts to deal with climate change, such as the Kyoto Protocol. *See* Kyoto Protocol art. 3, Dec. 10, 1997, 37 I.L.M. 22 (under which the U.S. would have been required to reduce its overall emissions by 5% from 1990 levels).

17. *See* Reuven S. Avi-Yonah & David M. Uhlmann, *Combating Global Climate Change: Why a Carbon Tax is a Better Response to Global Warming Than Cap and Trade*, 28 STAN. ENVTL. L.J. 3, 31 (2009) (A tax on the production of fuels is an “upstream” carbon tax. A “downstream” carbon tax on users of fuels would be harder to implement and effectively enforce.).

18. *Id.* at 32–33.

19. *Id.* The cost to society of releasing carbon dioxide into the atmosphere in this case would be climate change.

20. Instead, carbon emissions are a negative externality borne by the public as a whole. *Id.* at 32 (explaining that the harmful effects of carbon dioxide emissions are currently a negative externality).

21. Producers might pay less as the cost of emitting increases. Likewise, consumers might consume less as the price of greenhouse gas intensive products increases. *See* IPCC FOURTH ASSESSMENT REPORT: CLIMATE CHANGE 2007 WORKING GROUP III: MITIGATION OF CLIMATE CHANGE, ch. 13, at 755 (B. Metz, et al., eds., 2007), http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch13s13-2-1-2.html (“Each emitter weighs the cost of emissions control against the cost of emitting and paying the tax; the end result is that polluters undertake to implement those emission reductions that are cheaper than paying the tax, but they do not implement those that are more expensive. Since every emitter faces a uniform tax on emissions per tonne of GHG (if energy, equipment and product markets are perfectly competitive), emitters will undertake the least expensive reductions throughout the economy, thereby equalizing the marginal cost of abatement (a condition for cost-effectiveness).”) (internal citation omitted) [hereinafter IPCC FOURTH ASSESSMENT REPORT].

22. Former Representative Bob Inglis (R-S.C.) supports a carbon tax as a way to “account[] for the true cost of the fuels we use.” Brad Plumer, *Could Republicans Ever Support a Carbon Tax? Bob Inglis Thinks So.*, WASH. POST, (Mar. 14, 2013, 12:29 PM), <http://www.washingtonpost.com/blogs/wonkblog/wp/2013/03/14/could-republicans-ever-support-a-carbon-tax-bob-inglis-thinks-so>.

II. REGULATIONS UNDER THE CLEAN AIR ACT

The United States could also use its existing regulatory powers under the Clean Air Act to curb climate change. The EPA can regulate carbon dioxide emissions under Titles I, II, V, or a combination of these Titles. In order for the EPA to regulate carbon dioxide under Title I, the EPA must identify carbon dioxide as a criteria pollutant and also set a National Ambient Air Quality Standard (NAAQS) for carbon dioxide.²³ Likewise, the EPA can reduce carbon dioxide emissions from new motor vehicles under its power in Title II to regulate moving sources of emissions.²⁴ Finally, the EPA can institute a permitting program for major stationary sources of carbon dioxide emissions under Title V.²⁵ This Article considers these three Titles together because the strongest case for the EPA's ability to curb climate change can be made if the EPA attempts to use all three of these regulatory devices together at once.

Regulating carbon dioxide emissions under Titles I, II, and V has several advantages. First, the EPA can institute new regulations without having to go through Congress. Instead, the EPA would have to submit new rules in the Federal Register and follow the proper rulemaking procedures under the Administrative Procedure Act.²⁶ Rulemaking is typically a faster and more efficient method of policymaking than trying to pass a law through Congress, but an agency must only enact rules within the powers granted to it through particular legislation.²⁷ As such, it would be quicker to promulgate new regulations under the Clean Air Act than it would be for

23. See 42 U.S.C. §§ 7408–7409 (2006).

24. See 42 U.S.C. § 7521(a)(1) (2006) (requiring the EPA Administrator to, “by regulation prescribe (and from time to time revise) in accordance with the provisions of this section, standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare.”). The EPA has recently proposed a rule to do precisely this. See Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, 75 Fed. Reg. 25,324 (May 7, 2010) (codified at 40 C.F.R. pts. 85, 86, 600) [hereinafter Light-Duty Vehicle Emission Standards].

25. See, e.g., Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31,514, 31,516 (June 3, 2010) (codified at 40 C.F.R. pts. 51, 52, 70, 71) [hereinafter Tailoring Rule].

26. 5 U.S.C. §§ 501–706 (2006).

27. Congress must provide, at a minimum, an intelligible principle with which an agency must adhere. *J.W. Hampton, Jr., & Co. v. United States*, 276 U.S. 394, 409 (1928) (“If Congress shall lay down by legislative act an intelligible principle to which the person or body authorized to [administer a statutory scheme] is directed to conform, such legislative action is not a forbidden delegation of legislative power.”).

Congress to pass a cap-and-trade or carbon tax bill, but such regulations would probably not be as powerful or as effective as laws enacted by Congress.

Another advantage of regulating carbon dioxide under the Clean Air Act is that much of the implementation and regulation would be left to the states.²⁸ Under the Clean Air Act, states are left to develop State Implementation Plans that best adhere to the Act's pollution reduction goals, as long as such plans meet or exceed the minimum levels required by statute.²⁹ The EPA would most likely develop a one-size-fits-all plan for all industries and regions of the United States. Individual states, on the other hand, could set different goals and timelines depending on their unique access to alternative energy sources, respective industries, and so on. This approach seems more efficient than a federal one-size-fits-all mandate on carbon emission reductions, and it would be less stifling to industry.

However, there are several drawbacks to relying on the Clean Air Act to reduce carbon dioxide emissions. First of all, though rulemaking is usually more expedient than passing legislation through Congress, rules can still be challenged and delayed. For instance, Texas, along with several co-plaintiffs, challenged the recently promulgated EPA rule limiting light-duty vehicle greenhouse gas emissions.³⁰ Likewise, the Sierra Club and six states recently challenged the "tailoring rule"³¹ that the EPA promulgated under Title V, which treats major stationary sources of carbon dioxide differently than smaller sources.³²

Second, even when the EPA enacts rules that survive such challenges, these rules still require an extended period of time to have their intended effects. For instance, the challenged EPA rule for vehicle greenhouse gas emissions survived litigation and took effect in January 2011, but its restrictions will not be fully instituted until 2016.³³ Even then, the rule will only apply to new vehicles, so there will still be millions of cars on the roads that fall short of the 35.5 miles per gallon minimum imposed by the rule.

28. *See, e.g.*, 42 U.S.C. § 7410 (2006).

29. *Id.*

30. *Coal. for Responsible Regulation v. Env'tl. Prot. Agency*, 684 F.3d 102 (D.C. Cir. 2012).

31. *See* Tailoring Rule, *supra* note 26.

32. *See* Robin Bravender, *Sierra Club, States File Challenges to EPA's 'Tailoring' Rule for Greenhouse Gases*, N.Y. Times (Aug. 3, 2010), <http://www.nytimes.com/gwire/2010/08/03/03greenwire-sierra-club-states-file-challenges-to-epas-tai-24900.html>.

33. The rule covers vehicles produced between 2012 and 2016. *See* Light-Duty Vehicle Emission Standards, *supra* note 25.

Another drawback is the uncertainty about how much carbon dioxide emission reduction these regulations can accomplish, even collectively. For example, transportation emissions account for about 28% of all carbon dioxide emissions in the United States.³⁴ As previously discussed, the EPA's rule to raise the minimum fuel efficiency standard to 35.5 miles per gallon does not apply retroactively and will not take effect until 2016.³⁵ Rules such as these do not go far enough in a short enough timeframe to effectively curb carbon dioxide emissions and slow down or stop climate change.

Similarly, since the EPA can only enact rules within its specified powers under the Clean Air Act, it probably cannot promulgate rules stringent enough to reduce carbon dioxide emissions sufficiently to curb climate change. The Clean Air Act's purpose is to lower the concentrations of pollutants in the air. Carbon dioxide is not classified a pollutant in the same vein as lead or sulfur dioxide.³⁶ As such, enacting a NAAQS and then testing for carbon dioxide will do no good because it is not the mere presence of carbon dioxide in the air that is dangerous. Instead, it is the volume of carbon dioxide emissions that cause icebergs to melt, sea levels to rise, and a variety of similar effects that are dangerous to the public—not the presence of carbon dioxide gas in the atmosphere itself.³⁷

Finally, one of the supposed strengths of regulating under the Clean Air Act—state implementation—might actually be a weakness. Individual states do not have the funding or resources to adequately address an international problem like climate change. Regulations under the Clean Air Act would permit greater overall carbon dioxide emission reductions than piecemeal reductions by the few states currently concerned about reducing emissions.³⁸

34. *Transportation's Role in Climate Change*, U.S. DEP'T OF TRANSP., <http://climate.dot.gov/about/transportations-role/overview.html> (last visited Oct. 9, 2013).

35. See *Light-Duty Vehicle Emission Standards*, *supra* note 25.

36. Carbon dioxide is not harmful in the same immediately perceivable way that pollutants, which are harmful to human health, are. Instead, carbon dioxide's harm is indirect—greenhouse gases cause sea levels to rise, which threaten coastal states, such as Massachusetts. *Massachusetts v. Env'tl. Prot. Agency*, 549 U.S. 497, 499 (2007) (“According to petitioners’ unchallenged affidavits, global sea levels rose somewhere between 10 and 20 centimeters over the 20th century as a result of global warming.”). Further, the U.S. Supreme Court found that carbon dioxide is a pollutant under the meaning of the Clean Air Act. *Id.* at 500 (“[G]reenhouse gases fit well within the Clean Air Act’s capacious definition of ‘air pollutant.’”).

37. *Massachusetts v. EPA*, 549 U.S. at 500.

38. As expected, coastal states such as Massachusetts, are the most worried about reducing emissions because of their susceptibility to a rise in sea level caused by climate change. See, e.g., *Massachusetts v. EPA*, 549 U.S. 497.

Furthermore, several states failed to meet the deadlines imposed by the Clean Air Act Amendments of 1990.³⁹ States may be unlikely to meet future deadlines to reduce carbon dioxide emissions under the Clean Air Act.

Even if the EPA enacted rules to limit carbon dioxide emissions through all of the methods discussed above, these rules would not reduce carbon dioxide emissions enough to effectively curb climate change. Instead, a cap-and-trade scheme or a carbon tax would more effectively address climate change in both the short and long runs. The EPA has moved forward with rules to regulate carbon dioxide emissions under the Clean Air Act, but only time will tell how effective these regulations will be.⁴⁰ Nevertheless, the EPA's ability to promulgate regulations, and its past successes doing so, makes regulatory controls under the Clean Air Act an option that deserves a hard look.⁴¹

III. CAP-AND-TRADE

Cap-and-trade schemes for carbon emissions can take several forms, but they all include capping the total amount of emissions allowed and allotting carbon credits to polluting companies.⁴² Cap-and-trade schemes share several advantages. One such advantage is the economic incentive to reduce carbon emissions, while another is an overall cap on carbon dioxide emissions that a government can

39. John N. Cushman Jr., *States and Government Lag in Meeting Clean Air Law*, N.Y. TIMES (Nov. 16, 1993), <http://www.nytimes.com/1993/11/16/us/states-and-government-lag-in-meeting-clean-air-law.html> ("Three years after Congress rewrote the Clean Air Act, the Federal Government and the states are consistently behind on many of the law's demanding timetables, including a deadline for filing smog-reduction plans that was missed today by about half the states."); see also Evan Weinberger, *EPA Missed Western Clean Air Act Deadlines: CBD*, LAW360 (Apr. 29, 2010), <http://www.law360.com/articles/165338/epa-missed-western-clean-air-act-deadlines-cbd> ("The group said in its letter that it had uncovered the EPA's alleged failures under the Clean Air Act after reviewing where the agency had and had not complied with the statute since Congress made the amendments in 1990.").

40. See *Coal. for Responsible Regulation v. Env'tl. Prot. Agency*, 684 F.3d 102, 119 (D.C. Cir. 2012) (finding that the EPA's actions to regulate greenhouse gases were based on the clear intent of Congress under the Clean Air Act).

41. See *Highlights from the Clean Air Act 40th Anniversary Celebration*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/air/caa/40th_highlights.html (last visited Oct. 9, 2013) (highlighting of the successes of the Clean Air Act during its first forty years).

42. *Allowance Trading Basics*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/airmarkets/trading/basics.html> (last visited Oct. 9, 2013) ("Cap and trade programs use emission allowances as the currency to comply with emission reduction requirements.").

lower based on how many reductions it wants to make.⁴³ The primary economic incentive under a cap-and-trade scheme is that companies are able to sell leftover carbon credits.⁴⁴ The “cap” in cap-and-trade is a powerful regulatory tool because it allows a government to be certain that it is reducing its carbon emissions by a certain amount.⁴⁵ A carbon tax, on the other hand, would not ensure a reduction in carbon emissions by itself; as companies and consumers could continue to produce and consume at pre-carbon tax levels by paying more.⁴⁶

Implementing a cap-and-trade system is arguably the most popular of the available methods for reducing carbon dioxide emissions. Cap-and-trade was originally a Republican-backed answer to climate change and emissions reductions.⁴⁷ Lately, it has fallen out of favor with both the GOP and some Democrats.⁴⁸ Regardless, one of the few issues that Senators McCain and Obama agreed on during the 2008 election was the need for a cap-and-trade

43. In order to make any actual progress, the cap would need to be lowered over time. CENTER FOR AMERICAN PROGRESS, CAP AND TRADE 101, at 1 (Jan. 2008), <http://www.americanprogress.org/wp-content/uploads/issues/2008/01/pdf/capandtrade101.pdf> (“To achieve this goal [of limiting the rise in global temperature to approximately 2.0 degrees Celsius above pre-industrial levels by 2050], the U.S. government should steadily tighten the cap until emissions are reduced to 80 percent below 1990 levels by 2050.”).

44. The economic incentive comes from being able to sell unused credits to other polluters, environmentalists, non-profits, or other interested parties, who then hold these credits so that they are not used and therefore less pollution occurs. *Buying Allowances*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/airmarkets/trading/buying.html> (last visited Oct. 9, 2013) (“Under both the Acid Rain Program and the Clean Air Interstate Rule (CAIR), anyone can purchase allowances, including both regulated companies and members of the general public. Some individuals and groups purchase allowances as an environmental statement, because withholding allowances from the market prevents those allowances from being used by regulated sources to cover emissions.”).

45. See CENTER FOR AMERICAN PROGRESS, *supra* note 44, at 1.

46. See Avi-Yonah & Uhlmann, *supra* note 18, at 46–47 (explaining that this uncertainty surrounding a reduction of carbon dioxide emissions as a result of a carbon tax as the “benefit uncertainty” aspect of such a tax).

47. Daniel J. Weiss, *The GOP Changes its Tune on Cap-and-Trade*, GRIST (Oct. 23, 2010, 3:12 AM) <http://www.grist.org/article/2010-10-22-gop-changes-tune-on-cap-and-trade-reagan>.

48. See *id.* (explaining that the Republican Party promised to oppose attempts to impose a national cap-and-trade energy tax in its 2010 “Pledge to America”); Alexander Mooney, *Manchin Actually Puts a Bullet Through Cap and Trade Bill*, CNN (Oct. 11, 2010, 11:56 AM), <http://politicalticker.blogs.cnn.com/2010/10/11/manchin-actually-puts-a-bullet-through-cap-and-trade-bill/> (stating that Senator-elect Joe Manchin (D) of West Virginia “shot the cap-and-trade bill with a rifle” in a 2010 campaign advertisement).

emission-trading scheme to combat climate change.⁴⁹ They disagreed, however, on how the credits should be allotted to polluters.⁵⁰ McCain favored allotting credits to currently polluting companies for free at the allocation date.⁵¹ Obama, on the other hand, championed a cap-and-trade system that auctioned off carbon credits to companies rather than giving them away for free.⁵²

These types of cap-and-trade schemes share some of the same general criticisms. For instance, critics point out that even if the U.S. adopts a cap-and-trade scheme, the fact that China and India have not may cause U.S. companies to move to those countries, which would hurt the U.S. economy and cost the U.S. jobs.⁵³ Also, the U.S. would not net the intended benefit of instituting a cap-and-trade program if the polluting companies move to another country and continue to pollute at their current levels.⁵⁴ Fears of this sort were among the reasons the U.S. signed the Kyoto Protocol but did not ratify it.⁵⁵

Critics of cap-and-trade argue that the idea of a cap does not conform to the tenets of capitalism.⁵⁶ Specifically, critics argue that, in a capitalist system, the market and overall production should be

49. See Dan Shapley, *Green Election Issues 101: Global Warming*, The Daily Green (Aug. 26, 2008, 5:15 AM), <http://www.thedailygreen.com/environmental-news/latest/global-warming-47082511>. But see John M. Broder, *Both Romney and Obama Avoid Talk of Climate Change*, N.Y. TIMES, Oct. 25, 2012, at A18 (pointing out that “neither [President Obama] nor Mr. Romney has laid out during the campaign a legislative or regulatory program to address the fundamental questions arising from one of the most vexing economic, environmental, political and humanitarian issues to face the planet.”).

50. Shapley, *supra* note 50.

51. *Id.* (“[McCain] would allot credits to existing polluters, rather than auctioning them off.”).

52. *Id.*

53. See Robert N. Stavins, *A Meaningful U.S. Cap-and-Trade System to Address Climate Change*, 32 HARV. ENVTL. L. REV. 293, 357 (2008) (arguing that this problem could be overcome by requiring importers of highly carbon-intensive goods from countries that have not taken climate policy actions comparable to the United States to hold appropriate quantities of carbon credits); but see *Idiots, CLIMATE WONK* (Oct. 20, 2010), <http://thecarboneyconomist.wordpress.com/2010/10/20/idiots/> (explaining that a study found that China already has a substantial implicit price on carbon without a formal carbon trading scheme or tax in place).

54. See Avi-Yonah & Uhlmann, *supra* note 18, at 47 (discussing this as another form of benefit uncertainty that is possible under a carbon tax scheme).

55. SUSAN R. FLETCHER, CONG. RESEARCH SERV., RL 30692, GLOBAL CLIMATE CHANGE: THE KYOTO PROTOCOL 12 (2005) (discussing that the U.S. signed the Kyoto Protocol on November 12, 1998, but President Clinton did not submit the Protocol to Senate; in 2001, President Bush rejected the Protocol).

56. See generally William O’Keefe, *A Bad Bill For Cap-And-Trade*, FORBES (June 8, 2009, 1:53 PM) <http://www.forbes.com/2009/06/08/waxman-markey-bill-carbon-emission-opinions-contributors-cap-and-trade.html>.

ever increasing, which means a cap, as a regulatory tool, is ill-suited to allow production and gross domestic product values to increase. Likewise, it could be argued that lowering the cap in order to reduce overall carbon emissions also is anti-capitalistic.⁵⁷ The obvious response to this criticism is that the market could still grow while we reduce carbon dioxide emissions as long as better, cleaner technologies are developed.

The two primary types of cap-and-trade are different enough from each other that they are worth discussing individually. In order to keep these two cap-and-trade schemes distinct, the pros and cons of each will be discussed in the following subsections.

A. Free Allocation of Carbon Credits

Cap-and-trade schemes that allocate carbon credits to corporations for free generally benefit those corporations first and foremost. For instance, corporations can continue to pollute at the levels they had prior to the cap-and-trade but will benefit monetarily if they reduce their emissions and sell their leftover credits.⁵⁸ Of course, in order to combat climate change, the cap must eventually be lowered.⁵⁹ However, companies would have time to adapt to this lower cap and could buy leftover credits from other companies if they failed to lower their emissions in time for the cap reduction. These are the two primary benefits of this pollution allocation scheme: first, companies have an economic incentive to pollute less, and second, the government could reduce the cap, at will, to bring about carbon emissions reductions at a swifter pace.

Another advantage this method of cap-and-trade has over other methods of carbon emissions reductions is that it would not stifle industry and production as much as the alternatives.⁶⁰ Free allocation schemes allow time for companies and industries that are behind the curve to develop the technology to reduce their carbon emissions instead of forcing them to start paying for emission

57. In a capitalist system, the goal is a growing economy, which is usually accomplished via increased production and increased outputs. A “cap” necessarily goes against these capitalist tenets.

58. For example, assume a company is allotted credits for 1,000 units of carbon dioxide emissions. If the company keeps emitting at this level, it does not gain (nor does it lose) anything. If it lowers its emissions to 900 units by installing emissions reducing technology, it would then be able to sell its excess 100 credits to another emitter, perhaps one just entering the marketplace.

59. In order to reduce the total emissions in order to slow climate change, the cap on emissions must be lowered.

60. Whether technology-forcing regulations actually stifles industry, and to what extent, is a contentious topic. *See* Jackson, *infra* note 63.

credits or levying taxes against them under a carbon tax scheme.⁶¹ This is a very strong argument for this form of cap-and-trade, but the argument could just as easily be made that companies are not willing to innovate just to improve the environment, and therefore, it is up to the government to push them along.⁶²

Despite its benefits, there are several drawbacks to a cap-and-trade scheme that allocates credits at no cost to polluting companies. Giving away pollution credits punishes those companies that reduce their emissions prior to the allocation of these credits because these companies are allotted fewer credits than if they had not reduced their emissions.⁶³ Likewise, the mere possibility that this form of cap-and-trade could be implemented may be currently deterring emission reductions because it benefits companies to adopt a “wait-and-see” approach to lowering emissions. While this sort of cap-and-trade scheme is still on the table, companies might find it beneficial to continue their current levels of emissions.

Another criticism of the free allocation of carbon credits is that allocating credits is an inexact science.⁶⁴ Previous credit trading markets have over-allocated credits, which led to market crashes.

61. Cap-and-trade would be less stifling because it would allow for a settling in period and predictability, and current polluters could be allowed to pollute at their current levels before the cap is eventually lowered. CENTER FOR AMERICAN PROGRESS, *supra* note 44, at 1 (“The federal government can also choose to ‘grandfather’ allowances to the polluting firms by handing them out free based on historic or projected emissions. This would give the most benefits to those companies with higher baseline emissions that have historically done the least to reduce their pollution.”).

62. *E.g.*, Lisa P. Jackson, *The Clean Air Act by the Numbers*, THE HUFFINGTON POST (Sept. 20, 2010, 11:49 AM), http://www.huffingtonpost.com/lisa-p-jackson/the-clean-air-act-by-the_b_731564.html (noting that when the Clean Air Act was first enacted, lobbyists claimed that “entire industries [would] collapse” if catalytic converters were required for new cars and trucks, but instead, the Act essentially “gave birth to a global market for catalytic converters and enthroned American manufacturers at the pinnacle of that market.”).

63. Giving away pollution credits might even incentivize emitting more carbon dioxide during the year that establishes the benchmark for allocating credits to polluters. This problem seems like it could be mitigated to some extent by taking an average of the past several years rather than basing the benchmark on any one year.

64. For example, the European Union’s Emissions Trading Scheme initially failed because it over-allocated credits. OPEN EUROPE, EUROPE’S DIRTY SECRET: WHY THE EU EMISSIONS TRADING SCHEME ISN’T WORKING 5 (Aug. 2007), <http://www.openeurope.org.uk/Content/Documents/PDFs/etsp2.pdf> (“Huge over-allocation of permits to pollute led to a collapse in the price of carbon from €33 to just €0.20 per tonne, meaning that the system did not reduce emissions at all.”).

The European Union Emissions Trading Scheme (EU-ETS)⁶⁵ is an example of a scheme in which over-allocation of carbon credits had a disastrous effect on the market. The EU-ETS is the largest carbon emissions trading market in the world and one of the first of its kind.⁶⁶ When the EU-ETS market first allocated credits in 2005, European governments overestimated the amount of permits that should be issued.⁶⁷ The result of this over-allocation was a collapse of the market, with carbon credits plummeting from €33 per unit to €0.20 within the year.⁶⁸ The possibility of similar market crashes makes other cap-and-trade scheme types or a carbon tax that much more attractive.

In the United States, a recent over-allocation of credits in the Acid-Rain Program⁶⁹ has yielded similar results to those experienced by the European Union. The Acid-Rain Program is a sulfur dioxide trading program that the EPA instituted as part of the Clean Air Act Amendments of 1990.⁷⁰ Despite reducing sulfur dioxide emissions by half since 1995, the acid-rain trading market eventually collapsed.⁷¹ This collapse highlighted why using market-based tools to address environmental protection concerns can have unintended consequences.⁷² Because of the collapse, companies now have a financial incentive to emit more sulfur dioxide into the air in

65. See generally *The EU Emissions Trading System (EU ETS)*, EUROPEAN COMMISSION, http://ec.europa.eu/clima/policies/ets/index_en.htm (last updated July 1, 2013).

66. *Id.*

67. OPEN EUROPE, *supra* note 66, at 5.

68. *Id.*

69. See *Acid Rain Program*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/airmarkets/progsregs/arp/index.html> (last updated July 25, 2012).

70. See DAVID M. BEARDEN ET AL., CONG. RESEARCH SERV., RL 30798, ENVIRONMENTAL LAWS: SUMMARIES OF MAJOR STATUTES ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY 3 (2010) (“Changes to the [Clean Air Act] in 1990 included provisions to . . . establish an acid rain control program, with a marketable allowance scheme to provide flexibility in implementation . . .”).

71. Mark Peters, *Changes Choke Cap-and-Trade Market*, WALL ST. J. (July 12, 2010), <http://online.wsj.com/article/SB10001424052748704258604575360821005676554.html>.

72. The crash resulted after a federal appeals court tossed out the EPA’s Clean Air Interstate Rule (CAIR) in 2008, and the resulting unintended consequences stemmed from polluters polluting as much as they can before the EPA introduced a replacement Rule. Gabriel Nelson, *Uneasy Emission Traders Seek Help From Congress on CAIR Replacement*, N.Y. TIMES (July 12, 2010), <http://www.nytimes.com/gwire/2010/07/12/12greenwire-uneasy-emission-traders-see-help-from-congress-53513.html?pagewanted=all> (explaining that “pollution is likely to spike in the short run as utilities prepare for the final version of the proposed rule [designed to replace CAIR] to take effect.”).

order to drive the value of their sulfur credits back up again.⁷³ Companies now have no incentive to avoid emissions or to hold credits for the future, because the credits are almost worthless.⁷⁴

Over-allocation of credits has, to a large extent, been the result of companies lobbying for credits they do not need. For example, in the European Union Emissions Trading Scheme, companies projected inflated carbon emissions in order to acquire more credits.⁷⁵ These inflated projections result in the companies with the best lobbyists “winning” the most carbon credits.⁷⁶ This system also paid polluters to not pollute despite the fact that they were already limiting their pollution because of other environmental laws and not because of the cap-and-trade system.⁷⁷ This unintended and unattractive result highlights this particular cap-and-trade scheme’s primary weakness compared to the scheme that auctions off credits. Under a cap-and-trade system that gives away credits, companies do not have an explicit monetary incentive for which to aim to reduce their emissions outlook. Lowering their emission outlook would reduce the number of credits these companies are given in this scheme.

Another criticism of this form of cap-and-trade is that it is susceptible to fraud, corruption, and scams.⁷⁸ One type of scam involves the clean-up of “exotic” greenhouse gases under the Kyoto Protocol.⁷⁹ One such greenhouse gas is HFC-23.⁸⁰ This gas is extremely potent, with one ton of HFC-23 being as potent as 11,700 tons of carbon dioxide.⁸¹ Companies that reduce the emission of this gas receive tens of thousands of carbon credits for doing so, but simply installing a scrubber for a few million dollars can reduce these emissions.⁸² The result is another financial windfall, with

73. *Id.* (“Existing allowances of SO₂ traded at about \$5 per ton last week, down from about \$15 per ton before the release of the transport rule. They had hovered around \$300 per ton before CAIR’s rejection in 2008.”).

74. *Id.*

75. Kevin Smith, *Stern Words While in the EU They’re Trading Hot Air*, PARLIMENTARY BRIEFING 25–26 (Dec. 2006), http://www.carbontradewatch.org/index.php?option=com_content&task=view&id=18&Itemid=36.

76. *Id.*

77. *Id.* (noting that “[t]he fact that their emissions were already controlled under other environmental regulations led Edward Leigh, the Conservative chair of the Public Accounts Committee, to observe that the scheme ‘seems to be paying [the four companies] £11 million for keeping emissions down to levels they had already achieved before they joined.’”).

78. See generally OPEN EUROPE, *supra* note 66.

79. OPEN EUROPE, *supra* note 66, at 7.

80. *Id.*

81. *Id.*

82. *Id.*

participants in the clean-up of this exotic gas getting the benefit of some €4.6 billion for processes that cost only about €100 million to carry out.⁸³ If the U.S. institutes a cap-and-trade scheme like the EU-ETS, it should minimize loopholes such as this one.

The likelihood of passing this kind of cap-and-trade bill through Congress seems to be fading with every passing election. Even Senator John McCain, who ran for President in 2008 on a platform calling for cap-and-trade and who co-sponsored a cap-and-trade bill back in 2003, called cap-and-trade legislation “cap-and-tax” and eventually argued against its implementation.⁸⁴ Likewise, despite being an early champion of cap-and-trade, the GOP has essentially abandoned the concept.⁸⁵ The reasons for this change are subject to debate, but it is worth pointing out that former President George H.W. Bush, a Republican, signed the first successful cap-and-trade legislation in the U.S. and that, until recently, Republicans Sarah Palin and Newt Gingrich supported cap-and-trade.⁸⁶ Likewise, several Republicans who now staunchly oppose cap-and-trade in any form voted for the Clean Air Act Amendments of 1990, which included the acid-rain trading cap-and-trade program.⁸⁷ This change of heart seems to be the result of heavy lobbying by the oil and gas industries⁸⁸ and the emergence of Tea Party Republicans.⁸⁹ Tea

83. *Id.* at 8.

84. Andrew Schenkel, *Cap-and-Trade is the Latest Twist in John McCain's Quest for Re-Election*, MOTHER NATURE NETWORK (Aug. 24, 2010, 12:24 PM), <http://www.mnn.com/earth-matters/politics/stories/cap-and-trade-is-the-latest-twist-in-john-mccains-quest-for-re-electi>.

85. Daniel J. Weiss, *The GOP Changes its Tune on Cap and Trade*, CENTER FOR AMERICAN PRESS (Oct. 22, 2010), <http://www.americanprogress.org/issues/green/news/2010/10/22/8499/the-gop-changes-its-tune-on-cap-and-trade/>.

86. *Id.*

87. *Id.* (counting among the staunch conservatives that voted for the Clear Air Act the following Senators: Kit Bond (R-Mo.), Trent Lott (R-Miss.), Mitch McConnell (R-Ky.), and Strom Thurmond (R-S.C.). Conservative House supporters included Reps. Newt Gingrich (R-Ga.), Joe Barton (R-Tex.), Dennis Hastert (R-Ill.), Jim Inhofe (R-Okla.), and Fred Upton (R-Mich.)).

88. Matt Gertz, *FoxPAC: Gingrich Attacks Cap and Trade on Fox While His Political Committee Takes Fossil Fuel Money*, MEDIA MATTERS FOR AMERICA (Apr. 19, 2010, 11:21 AM), <http://mediamatters.org/research/201004190019> (noting that Newt Gingrich's political action committee received \$350,000 from a major coal-producing company in the first quarter of 2010 alone).

89. Brad Plumer, *How the Tea Party Changed the Climate Debate*, WASH. POST (Sept. 7, 2011, 1:12 PM), http://www.washingtonpost.com/blogs/wonkblog/post/how-the-tea-party-changed-the-climate-debate/2011/09/07/gIQAVMMh9J_blog.html (“Self-identified Tea Party types make up just 12 percent of the country, but they tend to be the fiercest global-warming deniers: ‘Majorities of Democrats (78%), Independents (71%) and Republicans (53%) believe that global warming is happening. By contrast, only 34 percent of Tea Party members believe global warming is happening, while 53 percent say it is not happening.’”).

Party candidates, who seem to be setting the GOP's agenda after the party's major losses in 2006 and 2008, have repeatedly denied the existence of climate change.⁹⁰ One *New York Times* columnist argues that the Tea Party mindset "aligns with [that] of the fossil fuel industries, which have for decades waged a concerted campaign to raise doubts about the science of global warming and to undermine policies devised to address it."⁹¹ As such, this form of cap-and-trade may be the least likely of the possible methods of emission reductions to be implemented.⁹²

B. Auctioning Carbon Credits

The other popular option for cap-and-trade involves auctioning carbon credits rather than simply allocating credits to carbon-emitting businesses for free.⁹³ By auctioning off credits, companies would hopefully pay the government larger amounts for the ability to continue emitting harmful greenhouse gases.⁹⁴ There are several advantages to such a scheme. On its face, this scheme seems to be a fairer way to apportion harmful carbon dioxide emissions between competing companies because a company must pay in proportion to how much they pollute.⁹⁵

A major advantage to this scheme is that it generates revenue that the government can use to both fund research and subsidize

90. See John M. Broder, *Climate Change Doubt is Tea Party Article of Faith*, N.Y. TIMES, Oct. 20, 2010, at A1.

91. *Id.*

92. However, tea party support is beginning to wane. Lydia Saad, *Tea Party Support Dwindles to Near-Record Low*, GALLUP (Sept. 26, 2013), <http://www.gallup.com/poll/164648/tea-party-support-dwindles-near-record-low.aspx> ("Fewer Americans now describe themselves as supporters of the Tea Party movement than did at the height of the movement in 2010, or even at the start of 2012. Today's 22% support nearly matches the record low found two years ago.").

93. *FAQs Cap and Trade*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/captrade/faqs.html> (last visited Oct. 2, 2013) (explaining the difference between an auction-based cap system and an allocation-based system: "In an auction system, the government must design an auction and allocate the proceeds. In an allocation system the government must decide who receives allowances and how many they receive. The process of determining which cap and trade system to use is not a substantial factor in a program's success. It is an important step, but one that does not affect the ability of a program to promote human health and environmental benefits. It is the emission cap and banking that determine the amount of reductions a program can achieve.").

94. This scheme is essentially a type of "polluter pays" system. See, e.g., United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3–14, 1992, *Rio Declaration on Environment and Development*, at Principle 16, U.N. Doc. A/CONF.151/26 (Vol. I), Annex I (Aug. 12, 1992) available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.

95. *Id.*

alternative energy sources.⁹⁶ Auctioning carbon credits at the outset has some of the same benefits as a carbon tax. For instance, auctioning credits raises government revenue and directly impacts the largest polluters because they end up paying the most to pollute. Auctioning credits also provides an economic incentive to limit carbon-dioxide emissions.⁹⁷ Auctioning credits avoids the main pitfall of allotting free carbon credits by ensuring that the number of credits auctioned off matches the needs of the bidding companies.⁹⁸ A well-planned carbon auction should result in market equilibrium that would reduce the risk of market crashes compared to the other type of cap-and-trade.⁹⁹

Auctioning credits also would not penalize corporations that may have already attempted to reduce emissions before the allocation of credits. Instead, these environmentally responsible corporations would pay less for carbon credits, because they would need to buy fewer of them, than competitor corporations that have not yet reduced emissions.

In the United States, the Regional Greenhouse Gas Initiative (RGGI),¹⁰⁰ which began operating in 2009,¹⁰¹ is an example of this kind of cap-and-trade scheme.¹⁰² Early indications seem to suggest that the program is working as planned.¹⁰³ Likewise, the European

96. For example, President Obama's 2010 Budget proposed using monies collected from payments for greenhouse gas emissions to fund clean technologies. Kevin Eber, *President's Budget Draws Clean Energy Funds from Climate Measure*, RENEWABLEENERGYWORLD.COM (Mar. 5, 2009), <http://www.renewableenergyworld.com/rea/news/article/2009/03/presidents-budget-draws-clean-energy-funds-from-climate-measure?cmpid=WNL-Friday-March6-2009> ("The president's proposed budget directs \$15 billion per year of those funds toward clean energy technologies, while directing the remaining funds toward a tax cut.").

97. If a polluter reduces its emissions, it reduces the number of credits it needs to operate. A carbon tax also features this incentive for companies that reduce their emissions. *FAQs Cap and Trade*, *supra* note 95 ("Cap and trade programs and tax-based programs are similar in that they are market-based and create a price for emissions. It is this price that creates a financial incentive to reduce emissions.").

98. A company is not going to pay for credits it does not need, but a company would accept extra free credits, especially if it could then sell those credits.

99. For instance, a free market emissions trading scheme could avoid a collapse like the one suffered by the acid rain program. *See Peters, supra* note 73.

100. REGIONAL GREENHOUSE GAS INITIATIVE, <http://www.rggi.org/home> (last visited Oct. 9, 2013).

101. REGIONAL GREENHOUSE GAS INITIATIVE, OVERVIEW OF RGGI CO2 BUDGET TRADING PROGRAM (Oct. 2007) available at http://www.rggi.org/docs/program_summary_10_07.pdf.

102. *Id.* at 4 ("Under RGGI, instead of giving allowances directly to electric generators for free, states would sell a significant portion or all allowances through a regional auction or otherwise.").

103. John Dillon, *Regional Greenhouse Gas Effort Eyed As National Model*, VERMONT PUBLIC RADIO (Sept. 25, 2013), <http://digital.vpr.net/post/regional->

Union Emissions Trading Scheme moved from free allocation of credits to an auction model in 2013.¹⁰⁴

Auctioning credits also avoids many of the possible scams and lobbying problems of a system that gives away credits. The reason is simple—if a company has to pay for its carbon credits at an auction, that company does not have a motive to obtain more credits than it needs.

An auction scheme also avoids the possible takings inherent in giving corporations quantifiable rights to freely pollute and then reducing the limit on those pollution rights in the future. Instead, these companies would have to buy carbon credits each year. This scheme would allow the government the ability to reduce the overall number of credits issued but still allow companies to buy the same number of credits each year. Companies may have to pay more for credits if they do not reduce their emissions in line with the lowered overall cap. This system incentivizes carbon emission reductions but allows companies behind the curve time to catch up or else pay more to remain large polluters.

A popular criticism of an auction system is that such a system is really just a carbon tax in disguise.¹⁰⁵ Even President Obama has admitted that this kind of carbon auctioning cap-and-trade scheme works like a carbon tax.¹⁰⁶ The obvious counterargument to such a criticism is that auctioning credits is not a tax, but instead a device that seeks to account for the externalities associated with carbon emissions and then lower those externalities over time.¹⁰⁷ Likewise, a credit auction is not a tax because it is a market-based approach to lowering carbon emissions. If a company reduces its emissions, it will pay less as a result. The higher-polluting companies will need to

greenhouse-gas-effort-eyed-national-model (explaining that the RGGI has exceeded expectations and is being hailed as a possible model for a nationwide cap-and-trade scheme). However, the RGGI has made several amendments to its initial agreement. See REGIONAL GREENHOUSE GAS INITIATIVE, SUMMARY OF RGGI MODEL RULE CHANGES (Feb. 2013) available at http://www.rggi.org/docs/ProgramReview/FinalProgramReviewMaterials/Model_Rule_Summary.pdf.

104. *The EU Emissions Trading System (EU ETS)*, EUROPEAN COMMISSION, http://ec.europa.eu/clima/policies/ets/index_en.htm (last visited Oct. 2, 2013) (“Auctioning, not free allocation, is now the default method for allocating allowances. In 2013 more than 40% of allowances will be auctioned, and this share will rise progressively each year”).

105. See, e.g., Sarah Palin, Op-Ed., *The ‘Cap and Tax’ Dead End*, WASH. POST (July 14, 2009), http://articles.washingtonpost.com/2009-07-14/opinions/36927469_1_energy-sector-energy-policy-economic-growth-and-energy.

106. N. Gregory Mankiw, Op-Ed., *A Missed Opportunity on Climate Change*, N.Y. TIMES, Aug. 9, 2009, at BU4.

107. See *infra* note 126 for a more in-depth discussion of externalities.

spend more to make sure they secure carbon credits to meet their production needs. By reducing their emissions, companies can wait and bid less. Also, if all companies reduce their emissions more quickly than the government lowers the cap, all bidding companies win because they all end up paying less per credit. Under a carbon tax scheme, companies would still pay the same per ton of carbon emissions whether or not all the other companies were emitting less.

This sort of cap-and-trade scheme has lost a lot of steam since President Obama first declared it a priority during his 2008 campaign.¹⁰⁸ Instead of focusing on carbon emissions, Obama spent the first year of his term, and most of his political capital, passing an intensely controversial health care bill.¹⁰⁹ Consequently, it now seems like this form of cap-and-trade is obsolete.¹¹⁰ Further, President Obama is not likely to risk his remaining political capital supporting a cap-and-trade scheme in the near future due to its waning popularity.

IV. CARBON TAX

A third method of reducing carbon dioxide emissions is to tax the amount of carbon dioxide that companies emit into the atmosphere. Like a cap-and-trade scheme, this tax could be applied either upstream or downstream.¹¹¹ An upstream tax would be applied to fossil fuel production whereas a downstream tax would be applied to emitters of greenhouse gases.¹¹² Former Secretary of Labor Robert Reich described a carbon tax as “a tax on all fossil-based fuels that reflects their true social, political, and environmental costs.”¹¹³ This “true cost” of fossil fuels has alternately been called the “social cost of carbon.”¹¹⁴ A carbon tax is not a new idea. It is currently implemented in British Columbia

108. Ryan Lizza, *As the World Burns*, NEW YORKER, Oct. 11, 2010, at 70, 72 (“‘Energy we have to deal with today,’ Obama said in a debate with McCain [during his Presidential campaign]. ‘Health care is priority No. 2.’”).

109. *Id.* at 83.

110. *See id.* (arguing that even Obama is no longer willing to fight for climate change regulation and has moved from healthcare reform to the relatively safe topic of securities regulation reform).

111. *See* Avi-Yonah & Uhlmann, *supra* note 18, at 31. This Article assumes for simplicity’s sake that a carbon tax instituted in the U.S. would be “upstream” because the leading carbon tax proposals have been “upstream” taxes.

112. *Id.*

113. Robert B. Reich, *Inherit the Windfall*, AM. PROSPECT (Feb. 7, 2007), <http://prospect.org/article/inherit-windfall>.

114. *See generally* David Pearce, *The Social Cost of Carbon and its Policy Implications*, 19 OXFORD REV. OF ECON. POL’Y 362 (2003), http://www.climateactionproject.com/docs/SOCIAL_COST_OF_CARBON.pdf.

Canada,¹¹⁵ as well as in Denmark, Finland, Norway, and Sweden.¹¹⁶ A carbon tax is an attempt to account for the harmful effects of carbon dioxide emissions.¹¹⁷ In a perfect market, the amount taxed would equal the social cost of carbon.¹¹⁸

Perhaps the biggest benefit of a carbon tax is its simplicity. A carbon tax can be applied to producers of fossil fuels and electricity at a standard rate based on the tons of carbon they emit each year. At the end of the year, the tax rate could be raised or lowered depending on whether the carbon tax achieved the desired decrease in carbon emissions. It is easier for a company to plan for a carbon tax in its yearly operating budget than it would be for a company to plan for the market price of a ton of carbon dioxide under the credit auction form of cap-and-trade.¹¹⁹

Another advantage of a carbon tax is that it would produce revenue for the federal government, which could then be used to subsidize renewable energy projects. Alternatively, the government could return these funds to the companies that had the lowest carbon emission reductions for that year, thus providing another incentive to produce fewer emissions.

Likewise, a carbon tax would provide the clearest incentive to companies to reduce emissions. Board members could tell shareholders that every ton of carbon emissions that they reduce would save the company a defined amount of money. In contrast,

115. See Stewart Elgie, et al., Op-Ed., *B.C.'s Carbon Tax is Looking like a Winner*, OTTAWA CITIZEN, July 27, 2010, at A11, available at <http://www2.canada.com/ottawacitizen/news/archives/story.html?id=ed4d2b45-480b-4fc2-8c13-52dd1ab5a15a&p=2>.

116. Monica Prasad, Op-Ed., *On Carbon, Tax and Don't Spend*, N.Y. TIMES, Mar. 25, 2008, at A27.

117. A harm, which the market does not account for, is known as an "externality." Avi-Yonah & Uhlmann, *supra* note 18, at 30 (explaining that "[f]rom an economic standpoint, however, carbon dioxide emissions are the classic externality: emissions occur at no cost to the emitting facility, but at an enormous cost to society as a whole."). See generally Dieter Helm, *Economic Instruments and Environmental Policy*, 36 ECON. & SOC. REV. 205 (2005) (explaining that the classic solution to environmental externalities is imposing a tax equal to the marginal social cost of the externality).

118. G.W. YOHE, ET AL., CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY, ch. 20, at 823 (Martin Parry et al. eds., 2007) ("According to economic theory, if the social cost calculations were complete and markets were perfect, then efforts to cut back the emissions of greenhouse gases would continue as long as the marginal cost of the cutbacks were lower than the social cost of the impacts they cause. If taxes were used, then they should be set equal to the [social cost of carbon].").

119. See Avi-Yonah & Uhlmann, *supra* note 18, at 42 (discussing this advantage of carbon taxes as "cost certainty").

cap-and-trade schemes cause companies to spend fluctuating sums of money on carbon credits, and companies can game the system.¹²⁰

A carbon tax scheme is also less prone to lobbying, fraud, and corruption than a cap-and-trade scheme would be.¹²¹ Under a carbon tax scheme, all carbon-emitting companies must pay taxes based on a set, yearly, carbon tax rate. There is no incentive to pollute more initially, as there would be under the Free Allocation form of cap-and-trade discussed. Instead, companies would have an incentive to emit less, so they pay less in taxes.

Current carbon tax schemes in other countries reveal possible pros and cons of imposing a carbon tax here in the United States. For example, a Norwegian carbon tax has not led to a reduction in carbon emissions.¹²² Instead, emissions have increased by 43% per capita in Norway.¹²³ This phenomenon is a possibility in the U.S. as well. It is possible that if the U.S. implements a carbon tax, companies could keep producing emissions at previous levels, and consumers could keep consuming at the same rate, in effect just absorbing the added cost.

In Denmark, on the other hand, a carbon tax has led to emissions decreases of 15% from 1990 emissions levels.¹²⁴ Denmark has made these reductions by returning much of the carbon tax revenue to the companies in the form of subsidies for research and investment in alternative energy technologies.¹²⁵ This is a strategy policymakers could use in the United States as well. The United States could further incentivize emissions reductions by exempting companies that reduce their emissions from a certain amount of the tax each year. These reductions can be industry specific to make it fairer for industries that have difficulty reducing emissions.

The contrast between the successful reductions in Denmark and the failure to reduce emissions in Norway highlights another criticized aspect of carbon taxes: the tax does not guarantee a

120. See OPEN EUROPE, *supra* note 66, at 33–40 (explaining the pitfalls of a cap-and-trade system based on allocating credits). See, e.g., *id.* at 36 (“Because companies in different member states are subject to different levels of stringency in their overall emissions caps and their entitlement to use (cheaper) Kyoto credits, there will be differentiated levels of ‘effort’ they need to make in order to comply with the ETS.”).

121. The reason this scheme would be less prone to lobbying, fraud, and corruption is because it is not susceptible to the same weaknesses as a cap-and-trade scheme. See *supra* Part III.

122. See, e.g., Prasad, *supra* note 125.

123. *Id.*

124. *Id.*

125. *Id.*

reduction.¹²⁶ Unlike a cap, which imposes an overall limit on emissions, companies subject to a tax can continue to pollute and just opt to pay the increasing carbon taxes if the conditions of the market warrant doing so. However, as previously discussed, the hope is that, by offering incentives to reduce carbon emissions and to invest in cleaner energy sources, overall carbon emissions would decrease. Also, if the desired decrease is not achieved, the carbon tax rate could be raised in response.¹²⁷

Detractors of a Denmark-style carbon tax point to the high cost of energy in that country as the reason for its emission reductions.¹²⁸ Indeed, in Denmark, energy prices are much higher than energy prices in the U.S., and this very well might be the cause of the reductions of carbon dioxide emissions in Denmark.¹²⁹ Further, the high cost of energy in Denmark might provide another argument against implementing a carbon tax in the U.S.

Another popular criticism of carbon taxes is that taxes of this sort are regressive, meaning that they disproportionately affect poorer consumers.¹³⁰ Specifically, fossil fuel producers will pass the extra cost of these taxes on to the consumer, which hurts less wealthy consumers who cannot reduce their gasoline or electricity use as much as wealthy consumers who can afford to buy new more fuel-efficient cars or afford more energy-efficient appliances in their homes.¹³¹ One way to remedy this inequity would be to offer carbon

126. A tax would need to be high enough to change consumers' behavior. *See* Avi-Yonah & Uhlmann, *supra* note 18, at 46 ("The main substantive disadvantage of a carbon tax compared to cap and trade is Benefit Uncertainty. There can be no assurance that any given tax level will result in the desired reduction in greenhouse gas emissions. If the desired benefit is not achieved, the tax may have to be raised, resulting in renewed political opposition, which could defeat the tax increase and thereby limit the environmental benefits of the tax.").

127. *Id.*

128. Jeff Rubin, Commentary, *High Energy Prices Make Copenhagen Green*, GLOBE AND MAIL (Sept. 1, 2010, 6:17 AM), <http://www.theglobeandmail.com/report-on-business/commentary/jeff-rubins-smaller-world/high-energy-prices-make-copenhagen-green/article1691382>.

129. *Id.* (noting that electricity in Denmark costs anywhere from three to five times what the average North American would pay at 30 cents per kilowatt-hour).

130. *See* IPCC FOURTH ASSESSMENT REPORT, *supra* note 22 ("Furthermore, emissions or energy taxes often fall disproportionately on lower income classes, thereby creating negative distributional consequences.").

131. A similar tax proposed by President Clinton in 1993 was defeated at least in part because of claims that it would be regressive. Chris Casteel, *Boren Targets Clinton Btu Tax with Own Plan*, NEWSOK (May 21, 1993), <http://newsok.com/boren-targets-clinton-btu-tax-with-own-plan/article/2431196> ("[Clinton's proposed Btu tax] is terribly regressive. It affects the lower and middle-income people and, above all, it raises the cost of all our products in the world marketplace at a time when we're trying to regain our competitive positions," Boren said.").

tax rebates to those individuals below a certain tax bracket. However, this once-a-year “fix” might not be sufficient to help those people living paycheck-to-paycheck.

The main disadvantage of the carbon tax perhaps is its name: “tax.” The current political climate demonizes everything labeled a tax.¹³² Former Alaska Governor Sarah Palin and other conservative pundits have repeatedly referred to cap-and-trade as “cap-and-tax.”¹³³ Likewise, many members of the current Republican-controlled House of Representatives were elected on campaign platforms based on lowering taxes or at least keeping taxes at their current rates. Calling a new carbon tax a “carbon fee” instead can remedy this stigma to some extent. Instituting a Denmark-style carbon tax could potentially fix the problem by returning most of the tax proceeds to the emitting industries so long as they invest in renewable energy sources.¹³⁴ Additionally, a Denmark-style carbon tax would be less stifling to the industry and face the least amount of opposition from conservatives in Congress of all the forms of carbon taxes, but projected increases in energy costs should be closely scrutinized when considering this kind of tax.

Regardless of these disadvantages, carbon taxes have received at least passing approval from even the staunchest of anti-tax lobbyists, Grover Norquist.¹³⁵ This approval was based on instituting carbon taxes as a “carbon tax swap.”¹³⁶ The attractiveness of a “swap” is that it could allow for a new tax on carbon emissions, as long as that new tax is accompanied by a tax reduction elsewhere.¹³⁷ Therefore,

132. See Stavins, *supra* note 54, at 357 (claiming that the main disadvantage of a carbon tax is the overriding resistance to new taxes in the current political climate).

133. See Palin, *supra* note 111.

134. See Prasad, *supra* note 125 (characterizing Denmark’s successful carbon tax as one that “you want to impose but never collect”).

135. Coral Davenport, *Norquist: Carbon-Tax Swap for Income-Tax Cut Wouldn't Violate No-Tax-Hike Pledge*, NAT’L J. (Nov. 12, 2012, 5:09 PM), <http://www.nationaljournal.com/energy/norquist-carbon-tax-swap-for-income-tax-cut-wouldn-t-violate-no-tax-hike-pledge-20121112> (“In a step that may help crack open the partisan impasse on climate change, Grover Norquist, the influential lobbyist who has bound hundreds of Republicans to a pledge never to raise taxes, told *National Journal* that a proposed ‘carbon tax swap’—taxing carbon pollution in exchange for cutting the income tax—would not violate his pledge.”). *But see* Chris Prandoni, *Americans for Tax Reform Opposes a Carbon Tax*, AMERICANS FOR TAX REFORM (Nov. 13, 2012, 9:27 AM), <http://www.atr.org/americans-tax-reform-opposes-carbon-a7346> (Grover Norquist reversing course on his support for a carbon tax).

136. Davenport, *supra* note 145.

137. *Id.*

a “swap” could allow Congress to pass a carbon tax despite the current anti-tax climate in Washington.¹³⁸

CONCLUSION

The two best options for reducing greenhouse gas emissions in the United States are a cap-and-trade system that auctions off carbon credits or a carbon tax. Denmark provides an example of a country that successfully cut national carbon dioxide emissions by instituting a carbon tax. On the other hand, cap-and-trade has not worked as designed in the past, and it is still largely untested in the United States. However, the Northeast’s RGGI offers a possible model for instituting an auction cap-and-trade system across the United States. The choice between the two schemes will be based on the specific terms of each. A carbon tax can work in the United States if the government offers the right incentives to participating companies and if the tax is not too high, but a carbon tax might not reduce carbon dioxide emissions at all. A cap-and-trade system could work in the United States if it were set up to avoid the problems associated with such systems in the past. A cap-and-trade system that gives away carbon credits is the least desirable method of reducing carbon emissions. Free Allocation schemes are prone to fraud and lobbying. Past examples have shown that they are probably the least efficient of the proposed methods. Regulating carbon dioxide under the Clean Air Act does not seem to be the best option available because that Act is a poor fit for the goals of carbon dioxide emission reductions.

The EPA has enacted regulatory measures under the Clean Air Act to reduce carbon dioxide emissions, but these will not be fast or far-reaching enough to be preferable to a carbon tax or a cap-and-trade scheme. Between President Obama spending what political capital he has on other more popular issues and a Republican House of Representatives that seems opposed to all methods of carbon emission reduction, Congress seems unlikely to pass any environmental protection legislation to combat climate change in the near future. However, a carbon tax would incentivize reductions of emissions and would encourage technological innovations to reduce emissions. Additionally, a carbon tax might be able to pass in conjunction with a tax decrease elsewhere—in other words, even policymakers that categorically refuse to raise taxes may be willing to introduce a carbon tax if it is coupled with tax reductions elsewhere. (The flexibility of this sort of “swap” would make instituting a carbon tax a good option for combating climate

138. *Id.*

change.) After considering traditional options for reducing carbon emissions, recent trends in policy seem to suggest that the passage of a carbon tax would be a logical, and perhaps politically agreeable, step toward solving the climate crisis.