How to Love the One You’re With:  
Changing Tax Policy to Fit  
Cap-and-Trade

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Many scholars and economists prefer carbon taxes (the one I love) to  
cap-and-trade (the one I’m with) as a mechanism to address climate change  
concerns. A carbon tax is arguably simpler and more transparent. However, the  
political momentum appears to be behind some form of

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LL.M., Georgetown University Law Center. Thank you to my hosts at University of San  
Diego School of Law, Professor Lesley McAllister, Professor Karen Burke, and program  
coordinator Leilani Sharrett. Thanks are also due to my fellow panelists, Reuven Avi-  
Yonah, David Duff and Walter Wang.
cap-and-trade system. Not wanting to have the perfect (carbon tax) be the enemy of the better-than-nothing (cap-and-trade), I support cap-and-trade legislation. Recognizing that a federal cap-and-trade program will affect the tax system both directly and indirectly, this paper will consider how the direct and indirect tax issues should be resolved. Direct tax issues include how emissions credits should be treated, the tax consequences of the receipt of emission allowances, and the tax consequences of the sale of emission allowances. A cap-and-trade system will affect the tax system in two broad indirect ways: 1) it will alter the effectiveness of energy tax incentives contained in the tax system under current law, and 2) the additional costs imposed by a cap-and-trade program will fall disproportionately on low-income taxpayers. The regressive impact of cap-and-trade could be resolved in a number of ways, which may include changing the tax system. The resolution of tax issues should maintain the environmental effectiveness of the cap-and-trade program without increasing the complexity of the tax system. The ideal solution would mitigate climate change while improving the clarity and transparency of the tax system.

This paper will begin with an introduction of climate change issues, including a brief history of international mitigation efforts. The next section will give an overview of cap-and-trade systems and describe how a typical cap-and-trade system would interact with the current federal income tax system. The discussion of the interaction of cap-and-trade with the income tax will include both direct and indirect effects. This section will then compare those effects with the potential impact of a carbon tax. The direct impacts of cap-and-trade on the income tax system occur because the “trade” part of cap-and-trade creates a new financial instrument that needs to be accounted for within the tax system. A carbon tax would not create a new financial instrument. Both a carbon tax and a cap-and-trade system could cause international trade issues that could affect the income tax system. Both a carbon tax and a cap-and-trade system, by placing an additional cost on energy-intensive products, could alter the effectiveness of existing energy tax incentives and place a disproportionate burden on low-income populations.

I. INTRODUCTION: THE NEED FOR ACTION

The Intergovernmental Panel on Climate Change (IPCC) states “warming of the climate is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting
of snow and ice, and rising average global sea level.\textsuperscript{1} The Pew Center for Global Climate Change notes “the scientific evidence is clear and compelling: the climate is changing due to human activities.”\textsuperscript{2} The IPCC found that “global increases in CO\textsubscript{2} concentrations are due primarily to fossil fuel use, with land-use change providing another significant but smaller contribution.”\textsuperscript{3} Despite increasing scientific consensus, polls show Americans’ declining concern about climate change. The Pew Center for Climate Change found that the proportion of Americans who “think that there is solid evidence that the average temperature on earth has been getting warmer over the last few decades” dropped to 57 percent from 71 percent.\textsuperscript{4} ‘Climate fatigue’ has set in.

Why do I think legislative action will happen in the future? First, hope springs eternal, and second, the Gulf of Mexico has sprung a big leak, not of hope, but of oil. On April 20, 2010, a British Petroleum (BP) oil rig, the Deepwater Horizon, exploded in the Gulf of Mexico.\textsuperscript{5} On April 24, a remotely operated vehicle discovered that oil was leaking from the well.\textsuperscript{6} BP’s first estimate was that 42,000 gallons of oil per day (1,000 barrels) were leaking from the well 50 miles offshore and a mile under the sea.\textsuperscript{7} On April 28, a scientist at the National Oceanic and Atmospheric Administration (NOAA) concluded that the broken well was spewing five times as much oil as previously estimated, over 200,000 gallons per day.\textsuperscript{8} The government has struggled to contain the leak, which has spilled over 4 million barrels of oil into the Gulf of Mexico in less than a month. The spill has damaged the local fishing industry and threatens marine habitats and ecosystems. The government has taken a number of steps to address the spill, including deploying thousands of workers and equipment to the site and implementing a series of measures to contain the leak and mitigate its effects. However, the challenge of cleaning up the spill and preventing further releases remains daunting. The spill has also raised questions about the safety of offshore drilling in the Gulf of Mexico and the adequacy of federal regulations governing oil and gas activities in the region. The spill hasprompted calls for increased oversight and regulation of offshore oil and gas operations, as well as for greater emphasis on renewable energy sources and other forms of sustainable energy.

3. IPCC 4\textsuperscript{TH ASSESSMENT SYNTHESIS, supra note 2, at 37.}
4. Richard A. Kerr, Amid Worrisome Signs of Warming, ‘Climate Fatigue’ Sets In, 326 SCI., 926, 928 (2009). Disclosures of e-mails between British climate scientists using the words “trick” and “hide” also eroded public belief in climate science. See Sheila Jasanoff, Testing Time for Climate Science, 328 SCI. 695, 695 (2010). However, a more recent survey showed that Americans still strongly believe that the earth is warming, and puts the blame for the reported decline in climate concern on the way the Pew Center framed its survey questions. See Jon A. Krosnick, The Climate Majority, N.Y. TIMES, June 8, 2010. The Stanford Political Psychology Research Group Survey found that 88 percent believed that global warming has been happening, and 75 percent believed that climate change is due to human activity. Id.
5. See Campbell Robertson, Search Continues after Oil Rig Blast, N.Y. TIMES, Apr. 21, 2010, at A13.
day. On May 13, a group of scientists examining live video of the oil leaks concluded that the leak was “easily four or five times greater” than previously estimated. On May 22, three scientists estimated the discharge from the well to be at least 40,000 barrels per day (1.7 million gallons) and possibly up to 100,000 barrels per day (4.2 million gallons per day). Federal officials later raised their estimate of the leak to 12,000 to 19,000 barrels per day (500,000 to 800,000 gallons). After trying several failed procedures to stem the flow of oil, BP snipped off the damaged well riser with giant shears, lowered a cap, and began collecting up to 11,000 barrels of oil per day. However, the operation may have made the flow of oil from the well much larger, and there was still no consensus on the amount of oil flowing into the Gulf. On Day 50 after the rig explosion, the number of oiled birds arriving at the wildlife rescue center in Fort Jackson, Louisiana, had quintupled. On June 10, 2010, the government raised their estimate of the oil flow to 25,000 to 30,000 barrels per day (1 million to 1.3 million gallons per day). The disaster will affect sea life and coastal regions for years to come. The fact that we are seeking oil 50 miles offshore and a mile under the sea itself should be cause for concern. One commentator stated, “[w]e’ve entered an age in which the production of energy, particularly from fossil fuels, demands ever-more-expensive environmental trade-offs . . . we’ve entered . . . the era of ‘extreme energy.’” Another commentator, drawing an analogy with banks ‘too big to fail,’ noted, “[i]f an oil well is too far beneath the sea to be plugged when something goes wrong, it’s too deep to be drilled in the first place.”

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13. Id.
Jean-Michel Cousteau, son of the famous ocean explorer Jacques Cousteau, was asked recently about his hopes for the Gulf oil disaster. He responded, “My hope is that this is the kick in the butt that we needed to change, . . . and make . . . strong decisions to create a system which will protect us, which will protect nature, because we depend on nature for our own survival and well-being.”\(^{19}\) After the election of Barack Obama, his policy advisor and future Chief of Staff Rahm Emmanuel famously said, “You never want a serious crisis to go to waste. [A] crisis provides the opportunity for us to do things that you could not do before.”\(^{20}\) President Obama wasted little time in connecting the disaster in the Gulf with his clean energy agenda, endorsing the pending Senate climate bill,\(^{21}\) stating that “the challenges we face—underscored by the immense tragedy in the Gulf of Mexico—are reason to redouble our efforts to reform our nation’s energy policies.”\(^{22}\) A few days later, the President reiterated, “We know that our dependence on foreign oil endangers our security and our economy. And the disaster in the gulf only underscores that even as we pursue domestic production to reduce our reliance on imported oil, our long-term security depends on the development of alternative sources of fuel and new transportation technologies.”\(^{23}\) With unfortunate timing, however, the President had proposed new offshore drilling just weeks before the rig exploded.\(^{24}\) The offshore drilling proposal was designed to help win political support for comprehensive energy and climate legislation.\(^{25}\) The Administration’s back-tracking on support for broad off-shore drilling, among other issues, caused the loss of some key Senate allies on energy legislation. Senator Lindsey Graham (R-NC), a former supporter of comprehensive energy reform, stated that “the problems created by the historic oil spill in the gulf, along with the uncertainty of immigration politics, have

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25. Id.
made it extremely difficult for transformational legislation in the area of energy and climate to garner bipartisan support at this time.”

However, even before the Gulf disaster, climate change legislation faced frenzied political activity. After the American Clean Energy and Security Act27 (ACES, a.k.a. Waxman-Markey) climate bill passed in June of last year, the Open Secrets Blog reported that according to data collected by the Center for Responsive Politics, legislators opposed to the climate bill received more than double the funds from energy sector lobbyists than those who voted for the bill.28 Others see splits in the “once-monolithic oil and gas industry” potentially improving the prospects for climate legislation.29 Reporters note that “onetime allies in the utility sector, like Exelon, which operates low-emission nuclear plants, and the Southern Company, a big consumer of coal, find themselves on opposite sides of the debate over renewable energy.”30 BP succeeded in stopping the flow from the damaged wellhead on July 15, 2010.31 A week later, Senate Majority Leader Harry Reid abandoned plans to take up comprehensive climate change legislation before the 2010 elections.32 The Gulf of Mexico appears to be recovering rapidly from the massive spill, although environmental concerns persist.33 This crisis appears to have become a wasted opportunity, and using a divide-and-conquer strategy may be challenging given the current political climate. Nonetheless, climate change mitigation continues to be an important issue, and cap-and-trade legislation has gotten further politically than carbon taxes.

30. Id.
II. HISTORY OF CLIMATE CHANGE MITIGATION

Scientists have long been aware of the issue of human-caused climate change.34 Large-scale action to slow climate change began in 1988 with the establishment of the IPCC, an independent body under the auspices of the World Meteorological Organization and the United Nations Environment Program.35 In 1992, the United Nations adopted the Framework Convention on Climate Change (UNFCCC). In 1994, the UNFCCC entered into force after receiving its 50th ratification. The United States is a party to the UNFCCC. The United States did not take the next step—it did not ratify the Kyoto Protocol, which was added to the UNFCCC in 1997. While the UNFCCC set out a framework, the Kyoto Protocol required actual emission reductions. Under the administration of President George W. Bush, the United States refused to agree to the Kyoto Protocol, which was nonetheless adopted in 2005 after Russia decided to ratify.36

The implementation of the Kyoto protocol stimulated the development of national and regional greenhouse gas (GHG) trading systems, most prominently the European Union’s Emissions Trading System (EU-ETS). The EU-ETS, a carbon cap-and-trade system, was developed to reduce the economic costs of meeting the European Union’s Kyoto target of eight percent CO2 reduction by 2012.37 The UNFCCC notes

34. In 1898, Svante Arrhenius, the Swedish chemist warned that CO2 emissions could change the world’s climate. ROSS GELBSPAN, THE HEAT IS ON: THE HIGH STAKES BATTLE OVER THE EARTH’S THREATENED CLIMATE 176 (1997).
the importance of carbon markets, stating that they help reduce the overall cost of reducing GHG emissions in three ways: 1) by enabling companies to purchase emission reductions at the lowest cost; 2) by allowing companies that are cleaner and more efficient to profit from their technologies and practices by selling excess allowances; and 3) by lowering transaction costs by making it easier for buyers and sellers of emission credits to connect.38

The EU-ETS, which began trading in 2005, is the world’s largest carbon market.39 The EU-ETS is being implemented in three phases.40 The first phase of the EU-ETS, which ran from January 1, 2005, to December 31, 2007, included approximately 10,000 large industrial plants in the power generation, iron and steel, glass, brick, and pottery industries, but excluded the transport sector. Operators of these facilities received emission allowances good for a one-year period, based on a share of a national cap. The assigned operator could either use the allowance or sell any unused portion to other covered facilities. At least 95 percent of the allowances in the first phase were given to the affected operators.41 The EU-ETS covers about 40 percent of the greenhouse gas sources for the EU.42

The second phase, which began on January 1, 2008, and will run through December 31, 2012, features a tighter cap, reducing emissions allowances 6.5 percent below the 2005 level. The participants are the 27 member states of the EU, plus Iceland, Liechtenstein, and Norway.43 Each Member of the EU must submit a National Allowance Plan (NAP) that lays out its allocation scheme under the ETS, including individual allocations to each affected unit.44 These plans must be approved by the

40. EUROPEAN COMMISSION, supra note 38, at 8.
41. Id. at 9.
42. Id. at 13.
43. Id. at 7. The 27 countries in the EU are the EU-15 (see note 7) plus Bulgaria, the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia, and Slovakia. Collectively, these 27 countries are known as the EU-27.
European Commission (EC) and must guarantee the eight-percent GHG reduction under Kyoto. After review, the EC reduced the proposed NAPs by an average 10.5 percent to increase the likelihood of meeting the Kyoto target. During the second phase, emissions of nitrous oxide from the production of nitric acid are also included. At least 90 percent of the allowances in the second phase will be given to operators. In 2012, emissions from civil aviation will be included.

The third phase, which will run from January 1, 2013, to December 31, 2020, will feature an EU-wide cap, and include additional emission sources. The initial cap will be set at the mid-point emissions level of Phase 2, and decrease by 1.74 percent each year until 2020, resulting in a 21 percent reduction in allowances from 2005 levels. After 2013, the scheme will move towards auctioning allowances, but under certain circumstances the Member States may be able to grant power plants up to 70 percent of their allowances for free in 2013, decreasing to zero percent for free by 2020.

In the United States, the debate has been framed as cap-and-trade or carbon taxes. However, in Europe, carbon taxes preceded cap-and-trade and continue to exist together with the EU-ETS. The Nordic countries were the first adopters of carbon taxes: Finland and Sweden in 1990, Norway in 1991, and Denmark in 1992. The Netherlands, Slovenia, Germany, and the UK followed with their own carbon taxes. Carbon taxes are a form of energy tax, and all 27 of the countries in the EU have some form of energy tax. The EC, the governing body for the EU, issued several directives—in 1992, 1994, 1997, and 2003—recommending the use of energy taxation to address climate change.

45. Id.
46. Id.
47. EUROPEAN COMMISSION, supra note 38, at 9.
48. EU-ETC 2009, supra note 38, at 17.
49. See Mikael Skou Andersen, Environmental and Economic Implications of Taxing and Trading Carbon: Some European Experiences, 10 VT. J. ENVTL. L. 61, 80 (2008).
50. Andersen, supra note 50, at 63.
51. Id.
52. Carbon taxes are measured in emission units, while energy taxes are measured in fuel volume or energy units.
The 2003 Energy Taxation Directive established a EU-wide minimum energy tax levels to be imposed through national law.\(^55\) Energy tax revenues in the EU vary between 1.6 (Belgium) and 3.9 percent (Slovenia) of gross domestic product.\(^56\) Between 1990 and 2005, energy related CO\(_2\) emissions declined in Europe by 3 percent, while increasing in the U.S. by 20 percent.\(^57\) Per capita emissions declined by 6.7 percent over the same time period in the EU, and are less than half of those in the U.S.\(^58\) The higher per capita emissions in the U.S. are driven by lower efficiency, particularly in the transport sector.\(^59\) As the EU-ETS did not come into operation until 2005, most of the EU GHG reductions cannot be credited to the EU-ETS. A 2004 survey of CO\(_2\) based taxes found that they had contributed to the reduction of emissions.\(^60\) Dr. Mikael Skou Andersen notes, however, that “evaluating the impact of carbon-energy taxes on CO\(_2\) emissions is complicated because taxes in certain sectors have replaced pre-existing energy taxes, but now come under a different name and with a modified tax base—carbon content rather than gigajoules.”\(^61\)

In Europe, interest has shifted from new carbon taxes towards a more complete reliance on the EU-ETS cap-and-trade system.\(^62\) The United Kingdom’s Climate Change levy, enacted in 2001, was the last carbon tax enacted in the EU.\(^63\) France considered a carbon tax in 2009, but abandoned the proposal due to political and legal obstacles.\(^64\) Ireland is


\(^{56}\) Eurostat, supra note 54, at 160.


\(^{58}\) EEA Report, supra note 58, at 83.

\(^{59}\) Id.


\(^{61}\) Anderson, supra note 50, at 65.

\(^{62}\) Speck, supra note 55, at 56.


\(^{64}\) See James Kanter and Matthew Saltmarsh, More in Europe Look to Carbon Tax to Curb Emissions, N.Y. TIMES, Sept. 10, 2009, (stating that French president Nicolas Sarkozy unveiled a proposal to tax carbon at 17 Euro per ton); Gabriele Parussini,
currently considering a carbon revenue levy, which is essentially an income tax on the value of free ETS allowances.65 Some European governments are considering repealing carbon and energy taxes on industries covered by the EU-ETS.66 Dr. Andersen expects CO₂ emissions to increase if carbon costs decrease by the amount of the tax relief. The additional emissions would need to be offset by additional allowances, causing an increase in the price of ETS allowances offsetting the value of the tax relief.67

The United States is lagging far behind Europe in its climate change efforts. Only two cities in the U.S.—Boulder, Colorado68 and San Francisco, California69—have enacted a carbon tax. The Regional Greenhouse Gas Initiative (RGGI) is a functioning cap-and-trade program covering power plant emissions across several Northeastern states.70 The Western Climate Initiative (WCI)71 and the Midwestern Greenhouse Gas Reduction Accord (MGGRA)72 are still in the planning stages. At the federal level, the first comprehensive climate change bill, the American Clean Energy and Security Act (ACES, a.k.a. Waxman-Markey), passed the House of Representatives on June 26, 2009.73 Both cap-and-trade and a carbon tax will increase the cost of carbon-intensive activities and thus create incentives to conserve energy, improve energy efficiency, and adopt clean-


66. Andersen, supra note 50, at 83.
67. Id.
energy technologies. A carbon cap sets an absolute emission quantity limitation while a carbon tax limits the cost of carbon emission reduction. While there are many reasons to prefer carbon taxes to a cap-and-trade system, and many do prefer carbon taxes, the most promising legislative solution is cap-and-trade. In a choice between the perfect, the good, and the planet, I choose the good of the planet. The next step is to review common elements in a cap-and-trade system, and then consider how a cap-and-trade system would affect the existing tax system.

III. COMMON ELEMENTS OF CAP-AND-TRADE

While cap-and-trade programs vary in their details, they all contain three essential elements: 1) the “cap,” which represents the annual allowable emissions of the targeted pollutant; 2) the allocation of rights, called allowances or permits, to emit the pollutant, which may be auctioned or given away; and 3) the “trade,” which requires the development of a secondary market where allowances may be bought and sold. Cap-and-trade programs also utilize additional features such as offsets, banking, borrowing, and safety values. Offset provisions allow market participants to substitute investment in pollution mitigating activities for pollution allowances. Banking permits market participants to carry over unused permits to future years. Borrowing allows market participants to “borrow” allowances, rather than purchasing them. Safety values may apply in the


75. Roberta F. Mann, The Case for the Carbon Tax: How to Overcome Politics and Find Our Green Destiny, 39 ENVTL. L. REP. 10,118, 10,122 (2009) (“A carbon tax is better than a cap-and-trade system because of its simplicity, transparency, efficiency, and certainty [of cost].”).


77. Paul Krugman, Op-Ed., The Perfect, the Good, the Planet, N.Y. TIMES, May 18, 2009, at A23 (“So opponents of the proposed legislation [Waxman-Markey] have to ask themselves whether they’re making the perfect the enemy of the good. I think they are.”).
case of volatility in pollution allowance markets. If a safety valve is triggered, the government will sell additional allowances at a specified safety valve price. Recent legislative proposals have included many or all of the foregoing elements. To the extent that particular elements pose either direct or indirect tax issues, they will be discussed below. Finally, the goal of a cap-and-trade program is to reduce greenhouse gas (GHG) emissions. This paper will also consider the possibility that certain tax provisions may enhance or conflict with that goal.

IV. THE CAP

The imposition of a cap itself has no direct interaction with the tax system. A cap without trading would not create any new asset to be accounted for under the tax system. A federal cap-and-trade program will affect the tax system in two broad indirect ways: 1) it will alter the effectiveness of energy tax incentives contained in the tax system under current law, and 2) alter the distributive pattern of tax burdens as a cap-and-trade program is likely to impose a higher proportional costs on poor households. A carbon tax regime raises the same issues, and would similarly increase the cost of carbon-intensive energy. A cost increase is the essential part of any carbon mitigation system; the price signal reduces demand. The cap is the primary cost driver for a cap-and-trade system, so the cap will influence effectiveness of existing tax incentives. The costs imposed by the cap will likely fall disproportionately on lower income persons. The distributional inequity could be ameliorated by adjustments to the income and payroll tax systems. This paper will first address the interaction between the cap and the tax incentives for energy and then discuss possibilities for evening the distributional burden.

V. TAX INCENTIVES

Before 2007, the majority of energy subsidies provided through the Internal Revenue Code benefited the use of traditional fossil fuels. After 2007, renewable energy began receiving the majority of the tax benefits for energy, but fossil fuel sources still receive a significant amount of support through the tax system. Use of fossil energy results in greenhouse

gas (GHG) emissions, although the magnitude of the emissions depends on the particular fossil fuel source.\(^7\) Market mechanisms designed to reduce GHG emissions tend to increase the cost of using fossil fuel based energy. Tax subsidies tend to decrease the cost of the subsidized product. Hence, it is possible that a cap-and-trade program could reduce the effectiveness of fossil fuel tax subsidies while increasing the effectiveness of renewable energy subsidies. However, the interaction between a cap-and-trade program and a particular fuel subsidy is likely to be more complex depending upon the nature of the market for the fuel in question.\(^8\)

Tax incentives, also called tax expenditures or subsidies, reduce cost and convey benefit by reducing the tax burden on those who engage in the preferred activity.\(^9\) Tax incentives may assume different forms. They may be in the form of tax credits, which reduce tax liability dollar for dollar. They may be in the form of reduced tax rates on income from the preferred activity. They may provide additional deductions, which reduce taxable income. They may be in the form of accelerated deductions, which convey benefit by reducing taxable income more rapidly than the normal rule.

Oil and gas tax preferences in the Code include the credit for enhanced oil recovery costs,\(^7\) the marginal well tax credit,\(^8\) expensing of intangible drilling costs,\(^9\) the deduction for qualified tertiary injectants,\(^9\) percentage depletion for oil and natural gas,\(^9\) and a shortened amortization period

\(^7\) See U.S. Energy Information Administration, Environment FAQs—Energy Information Administration, http://tonto.eia.doe.gov/ask/environment_faqs.asp (last visited Oct. 13, 2010) (For example, per million Btu generated, the following pounds of CO2 are emitted: gasoline—156; bituminous coal—205; natural gas—117).


\(^9\) Congressional Budget and Impoundment Act of 1974, 2 U.S.C. § 622(3) (2006) (tax expenditures are “revenue losses attributable to provisions of the Federal tax laws which allow a special exclusion, exemption, or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability”); A Reconsideration of Tax Expenditure Analysis, JOINT STAFF OF THE J. COMM. ON TAXATION, 110th Cong. 9 (2008) [hereinafter JCX-37-08] (tax subsidy is defined as “a specific tax provision that is deliberately inconsistent with an identifiable general rule of the present tax law (not a hypothetical ‘normal’ tax), and that collects less revenue than does the general rule.”). See Roberta F. Mann, Back to the Future: Recommendations and Predictions for Greener Tax Policy, 88 OR. L. REV. 355, 358–69 (2009) (a more detailed explanation of the tax expenditure budget and the recent modifications to the Joint Committee methodology).

\(^7\) I.R.C. § 43 (2010).


\(^9\) I.R.C. § 263(c) (2010).

\(^9\) I.R.C. § 193(a) (2010).

\(^9\) I.R.C. § 615(a) (2010).
for geological and geophysical costs. Working interests in oil and gas property also benefit by exemption from the passive activity loss rules, which limit the deductibility of expenses from many passive investments. Domestic oil and gas production activities qualify for the deduction for domestic production activities. The President’s fiscal year 2010 budget proposes eliminating several of the tax benefits for oil and gas. If the effect of the particular oil and gas subsidy is to favor domestically produced oil and gas over foreign oil and gas, then a cap-and-trade system would not alter such a relationship, which is based on a world market price for oil. The cost of both domestic and foreign oil would be increased by cap-and-trade, and the domestically produced oil would continue to have a cost advantage relative to foreign oil. If the tax incentive equally benefits foreign and domestically produced oil, then the subsidy would have the effect of negating the cost increase due to cap-and-trade, and would restrain the desired shift to alternative fuels. The deduction for tertiary injectants arguably encourages the sequestration of CO₂, so may be viewed as consistent with the goals of a cap-and-trade program. On the other hand, the cap-and-trade program itself, if it included offset provisions, would encourage using CO₂ as a tertiary injectant, so the additional subsidy provided by the deduction may not be necessary.

Coal, the most carbon intensive fuel, also receives tax benefits, including investment tax credits for clean coal and coal gasification projects as well as production tax credits for Indian coal and refined coal. Subsidizing investment in clean coal technologies may ease the transition to a carbon-neutral energy system, as clean coal technologies facilitate the use of carbon capture and storage (CCS) techniques. Tax subsidies for CCS technologies may be an appropriate means of smoothing the economic transition. On the other hand, some may view continuing to subsidize coal as counter to the goal of shifting to a renewable energy

91. See Rafferty et al., supra note 81, at 1354, 1356.
based economy. As imported coal is not a significant factor in U.S. energy generation, domestic subsidies reduce the price of coal-fired energy and would negate the cost increase due to cap-and-trade.

The marginal cost of cap-and-trade depends on the design elements of the scheme, such as the level of the emissions cap and the permissible sources of emission reductions (or offsets). Those features of cap and trade also have consequences for the scheme’s interaction with existing tax incentives for renewable energy sources. The relationship depends on whether the emissions reductions efforts occur inside the United States or abroad.

Various sources of renewable and alternative energy receive federal tax subsidies, primarily in the form of production tax credits and/or investment tax credits. Qualified energy sources for the renewable electricity production credit include wind, closed-loop biomass, open-loop biomass, geothermal energy, solar energy (placed in service before 2006), small irrigation power, municipal solid waste, qualified hydropower production, and marine and hydrokinetic energy. Homeowners can receive personal tax credits for installing certain equipment that uses solar, wind, or geothermal power. There is also a production credit for new nuclear power. The investment tax credit applies to solar, geothermal, fuel cell, combined heat and power, and small wind electricity generation projects. There is an investment tax credit for property used in a qualified advanced energy manufacturing process.

The Internal Revenue Code (IRC) also includes tax subsidies for conservation of energy. For example, homeowners may receive tax credits for insulating their homes or installing more efficient heating systems. Consumers purchasing alternative fuel vehicles may be eligible for tax credits. Producers of energy-efficient appliances may be eligible for a tax credit. Owners of commercial property may receive a tax

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100. I.R.C. § 25(d) (West 2009).
102. I.R.C. § 25(c) (West 2009).
104. I.R.C. § 25(c) (West 2009).
105. I.R.C. §§ 30(b), (d) (West 2009).
106. I.R.C. § 45(m) (West 2008).
deduction for certain energy-efficient commercial building property expenditures. Taxpayers may exclude from taxable income any amount received from a public utility for the installation of an energy conservation measure. Energy conservation measure means any installation or modification primarily designed to reduce consumption of electricity or to improve the management of energy with respect to a dwelling unit. In addition, many States provide tax incentives for renewable energy production and conservation.

If the cap-and-trade program only allows domestic reductions to count, then existing tax incentives for low-carbon energy and conservation would be factored into the market price of carbon allowances. By making low-carbon energy less costly, the tax incentives will lower the cost of carbon allowances by an equivalent amount. In effect, the tax incentives will shift a portion of the cost of abatement to taxpayers and away from electricity ratepayers or other energy consumers. A carbon tax scheme, in contrast, does not automatically adjust for changing abatement costs, but instead must be adjusted, either by design or regulation. If the cap-and-trade scheme allows foreign emission reduction credits, at least some of the emission reductions will occur outside the U.S. As U.S. tax incentives do not affect the marginal cost of abatement abroad, the domestic incentives would no longer affect the price of carbon allowances. Both the Senate-proposed American Power Act and the House-passed ACES allow use of international allowances. Some may argue that subsidies for renewable energy will be redundant if cap-and-trade legislation increases the cost of fossil energy. Others may argue that incentives for renewable energy are still important because the technology for developing those energy sources is still in the early stages of development and because industry structure and regulation weaken incentives for investment. Consumer

109. For a helpful database of State renewable energy and conservation incentives, see www.dsire.org.
110. Rafferty et al., supra note 81, at 33.
111. See Pew Ctr. For Global Climate Change, Comparison of the American Clean Energy and Security Act of 2009 (Waxman-Markey) and the American Power Act (Kerry-Liberman) 8 (June 2010), pew-comparison-matrix-wm-and-kl_0.pdf.
112. See Rafferty et al., supra note 81, at 27.
113. CBO Study, Fed. Climate Change Programs: Funding History and Policy Issues 15 (2010) (“Notably, difficulties in engaging in a coordinated collected effort and sorting out the question of which consumers ultimately will bear the cost of new facilities could decrease or slow investments in renewable-energy generators and the transmission lines
incentives for conservation may still be required because the price signals from cap-and-trade may not be adequately reflected in consumer response. On the other hand, pricing carbon is more efficient than subsidizing particular sources of energy. All tax incentives are not created equal, and different sources of energy receive markedly different levels of preference. It is particularly hard to incentivize low cost energy saving methods through tax benefits. As one study observes: “[t]here is a tax credit to encourage people to reduce consumption of home heating oil by installing solar-powered heating units, but there is no similar incentive to turn down the thermostat or put on a sweater, even though doing so could reduce GHG emissions at lower cost than installing solar-powered heating units.” Significantly, tax incentives inevitably involve the government picking “technology winners.” Professor Michael Waggoner asks, “[H]ow can the government determine whether subsidies to electric cars or wind generation or efficiency or something else will be more effective? We would like to believe that legislation is the product of the combined wisdom of the legislators, but it may be more realistic to consider legislation as the product of trading votes and political power.”

VI. DISTRIBUTIONAL IMPACT OF CAP-AND-TRADE

Most cap-and-trade schemes do not impose emissions caps on individuals. Instead, as in the EU-ETS and both current U.S. cap-and-trade proposals, the emissions cap covers power generators and fossil fuel producers and distributors. Although the incidence of the cap does not fall on individual consumers, households will bear the ultimate necessary to carry power from wind farms or solar arrays to densely populated and industrial areas where the electricity is consumed.”

114. CBO Study, Fed. Climate Change Programs: Funding History and Policy Issues 14–15 (2010) (explaining that builders and landlords often make the decision about which household appliances to purchase and about how much insulation a dwelling will have, while the buyers and tenants pay the monthly energy bills. The study concludes that “in the trade-off between energy efficiency and initial cost, the divergent incentives of landlords and developers and those of tenants and home buyers might not encourage socially optimal choices.”).

115. CBO Study, supra note 115, at 22.


117. CBO Study, supra note 115, at 22.


costs of cap-and-trade. Energy producers facing the cap may make their own emissions reductions by choosing less carbon intensive fuels or operating more efficiently, passing the costs of new equipment and higher priced fuel on to their customers. Alternatively, energy producers can purchase emissions permits and pass the costs on to their consumers. On average, lower-income households pay a larger share of their income toward the costs of residential energy and transportation fuel. A household’s energy burden refers to the amount of funds spent on residential energy relative to income. The poorest households have a median energy burden of 15.3%; low-income households have a median energy burden of 9.5%, while non-low-income households have a median energy burden of 3.1%. A cap-and-trade program that does not address the increased costs faced by low-income households could result in the lowest income group bearing a cost almost five times that of the highest income group. Interestingly, the consumption patterns of the highest income households result in more than three times the carbon emissions of the lowest income households, although representing a much lower proportion of the highest income households’ incomes. The cost impact will occur whether the emission permits are allocated for free or auctioned, as the cap itself will restrict the ability to use carbon-emitting fuels. If permits are auctioned, it will generate government revenue that could be distributed to disproportionately affected households.

Congress could use a variety of options to reduce the cap-and-trade program’s disparate impact on low-income households. Policies that disproportionately burden the poor are called regressive; policies that impose greater burdens on the wealthy are called progressive. Tax related options to address cap-and-trade’s regressivity include: energy tax credits for low and/or middle-income households with earned income or

123. Grainger & Kolstad, supra note 121, at 12 tbl.4 (comparing mean household emissions for Quintile 1 (27.47) with those for Quintile 5 (93.96)). On a per capita basis, the lowest income households emitted 15.2 CO2 equivalents while the highest income households emitted 30.3.
qualifying retirement income, adding an energy component to the Earned Income Tax credit, and reducing Social Security payroll taxes. Considerations in choosing a method include: the ability to reach households, administrative feasibility, consumer flexibility, tailoring benefits for household size and income, accounting for regional differences, and promoting energy efficiency.

Using either the income tax system or the payroll tax system would reach working households. If the cap-and-trade program does not generate auction revenue, cutting taxes would increase the deficit. Cutting payroll taxes could threaten the viability of the Social Security system. Using the tax system to deliver funds would not require a new administrative infrastructure, although it would place additional burdens on the tax system. By reducing tax liability or creating a refund, a tax credit would provide funds that could be used by households in a flexible way to meet energy needs or for any other purpose. As the income tax system already tracks household size by dependency exemptions, the benefit could be easily tailored. Accounting for regional differences in energy prices would require additional information to be submitted, and possibly third party reporting by energy providers. As an important part of the effectiveness of cap-and-trade is the delivery of a price signal, e.g., higher GHG emitting fuels should cost more, reducing the price by redistribution of funds weakens the effectiveness of the program. If funds are tied to energy expenditures, like the Low Income Home Energy Assistance Program (LIHEAP), it may lead to higher energy use by low-income households.124 The House-passed bill, ACES, would use the proceeds from auctioning 15 percent of the allowances to make cash payments to eligible low-income households to reimburse them for the estimated loss in purchasing power resulting from the legislation.125 The Senate proposal, the American Power Act, would use the proceeds from the auction of approximately 12 percent of the allowances to provide an energy refund and the working families refundable credit.126

Some legislative proposals have included an equal per capita dividend of cap-and-trade auction revenues,127 based on the theory that all households will bear the burden of higher energy costs and thus should

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125. See Pew Ctr. For Global Climate Change, supra note 111, at 3.
126. Id.
share the benefits of government revenues generated by auction of cap-and-trade permits. The tax consequences of such payments should be considered. Such payments are similar to Alaska’s permanent fund dividends, which are a per capita distribution of a portion of Alaska’s oil revenues to Alaska residents. Alaska permanent fund dividends are taxable income for federal purposes.\footnote{Permanent Fund Dividend Division: Tax Reporting, STATE OF ALASKA-PERMANENT FUND DIVIDEND DIVISION, http://www.pfd.state.ak.us/taxes/index.aspx (last visited Oct. 13, 2010).} On the other hand, energy conservation subsidies provided by public utilities are not taxed to the recipients.\footnote{I.R.C. § 136 (2006).}

While the cost of cap-and-trade permits should have the effect of encouraging energy conservation, the receipt of cap-and-trade dividends would not encourage energy conservation. Surprisingly, one study finds that per capita dividends to be the most progressive way to mitigate the regressive effect of carbon pricing.\footnote{See Gilbert E. Metcalf, A Proposal for a U.S. Carbon Tax Swap: An Equitable Tax Reform to Address Global Climate Change 18 (The Brookings Inst., Hamilton Project, Discussion Paper No. 2007-12, 2007), available at http://www.brookings.edu/~/media/files/rc/papers/2007/10carbontax_metcalf/10_carbontax_metcalf.pdf.} Another study found that taxing the per capita dividend produced an even more progressive effect.\footnote{Burtraw et al., supra note 123, at 14.}

Behavioral research suggests that making a cap-and-trade scheme fair to the poor may be much more complex. Reviewing proposals to mitigate the disproportionate impact of carbon pricing, Professors Brian Galle and Manuel Utset observe that rebates may be ineffective in easing the burden on the poor.\footnote{Brian Galle & Manuel Utset, Is Cap-and-Trade Fair to the Poor? Short-Sighted Households and the Timing of Consumption Taxes (Fla. State Univ. Coll. of Law, Pub. Law Research Paper, Paper #444, 2010), available at http://ssrn.com/abstract=1576263.} They note that an end of the year rebate does not help a household face increased expenses if the household does not have adequate liquidity to meet the ongoing expenses or ability to borrow at a reasonable cost.\footnote{Id. at 16.} Moreover, the problem cannot be easily solved by front-loading the rebate (“prebate”) as immediately available funds may induce lower income households to over-consume carbon intensive products.\footnote{Id. at 43.} Their interesting proposal to overcome these problems is a self-directed debit card.\footnote{Id. at 62.} The debate about the most effective way to mitigate the regressive effect of carbon pricing mirrors the debate about
the most effective means for carbon pricing. It is important to consider fairness, but as in the design of climate mitigation, the perfect should not be the enemy of the good.\textsuperscript{136}

A carbon tax, which would also raise prices on energy intensive goods and services, would likely have effects similar to those described above on existing tax incentives and poor households. However, a carbon tax would raise revenue to ameliorate the effects. A cap-and-trade scheme only raises government revenue when the allowances are auctioned. Both of the proposals pending in Congress give away the majority of the allowances, at least in the first years of the programs.\textsuperscript{137} The Center for Budget and Policy Priorities concluded, however, that both proposals adequately met “the goal of protecting the typical household in the poorest fifth of the population from incurring a financial loss as a result of policies necessary to fight global warming.”\textsuperscript{138}

\textbf{VII. THE ALLOWANCES}

The second essential element of a cap-and-trade system is the allowance, or carbon permit. The cap is divided into allowances, each of which authorizes the holder to emit the applicable unit of carbon, usually one (metric) ton of CO\textsubscript{2} equivalent.\textsuperscript{139} The scheme is designed so that allowances are valuable market commodities. A Congressional Research Service report noted that “allocating allowances is essentially allocating money with the marketplace determining the exchange rate.”\textsuperscript{140} Both the IRS and the recipients of the allowances need to know: 1) whether and when the initial receipt of allowances constitutes taxable income, 2) the tax basis of the allowance, 3) whether the cost of acquiring an allowance is deductible, 4) if the cost of acquiring the allowance is not deductible, when and if such cost can be recovered through depreciation or amortization, and 5) how the sale of an allowance will be taxed. This section will cover the first four issues. The last issue will be covered in the following section on “trading.”

The first two issues turn on whether the allowances will be freely allocated or auctioned. The tax considerations are simpler if the permits

\begin{footnotes}
\item[136] Id. at 60 (“We do not propose, though, to maintain fairness even if it means the polar icecaps melt.”).
\item[137] Pew Center for Global Climate Change, supra note 112, at 2–3.
\item[140] Parker, supra note 45, at CRS-27.
\end{footnotes}
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are auctioned. If a power plant pays $100 for the right to emit a ton of CO₂ equivalent in 2012, then under normal tax rules that apply to most assets, the power plant has acquired an asset with a basis of $100.141 As the power plant has paid full fair market value, it has no accession to wealth and thus no taxable income. If the power plant sells the permit rather than using it, it will calculate its gain or loss using the $100 basis.142 Furthermore, if the cost is deductible, the power plant will have a $100 deduction.143 If the cost is treated as a capital expenditure, the amortizable basis will be $100.144

Commentators have argued vigorously that all allowances should be auctioned.145 Arguments for auctions include that auctions create a level playing field between existing entities and new firms, and that the auctions improve market liquidity and transparency.146 President Obama advocated a cap-and-trade system with 100 percent auctioned allowances during his Presidential campaign. The primary argument against free allowances is that they provide a windfall to the firm, which will pass the cost of restricting carbon on to its customers anyway. Although it has been argued that free allowances are necessary to reduce cost increases to consumers, economic analysis shows that free allowances do not prevent cost increases. Because allowances have economic value, if a firm uses the allowance to emit carbon, it foregoes the opportunity to cash in by selling the allowance. Thus, the firm will pass the cost of using the allowance on to its customers,147 creating wealth for shareholders at the expense of (generally) poorer customers. It also constrains revenue available to the government for mitigating the regressive effect of carbon pricing. The free allocation program under the EU-ETS produced windfalls for the allowance recipients.148 In the EU scheme, the power producers succeeded in marking up the market price of electricity to include the opportunity-cost value of the allowances.149 A research paper by Deutsche

145. See, e.g., Alan D. Viard, Don’t Give Away the Cap-and-Trade Permits!, 123 TAX NOTES 613 (May 4, 2009) (also citing five other analysts with similar views, see id. at 618).
146. Parker, supra note 45, at CRS-15.
148. Parker, supra note 45, at CRS-27.
149. Id.
Bank concluded that the EU-ETS failed as a market mechanism: “the result is a greenhouse gas reduction scheme that is influenced as much or more by national policy than by the emissions marketplace.”150

However, as noted above, the bulk of the allowances in either pending legislative proposal will be freely allocated. As a general principle of tax law, all benefits received are taxable unless a specific statutory exclusion applies.151 In addition to the statutory exclusions, unrealized appreciation and imputed income also escape taxation. Unrealized appreciation represents the increase in value of assets held by the taxpayer, which is generally not taxed unless a specific statutory provision requires it to be taxed.152 Imputed income represents the value of self-performed services, like mowing your own lawn, or the value of using a durable asset, like the rental value of your principal residence.153 Freely allocated carbon permits would appear to be taxable unless specifically excluded by statute. However, the same would be true of sulfur dioxide and nitrogen oxide (SOx and NOx) permits freely allocated under the Clean Air Act, and the IRS ruled that no tax results from the receipt of SOx and NOx permits.154 Thus, it seems at least possible that firms could avoid taxation on the receipt of carbon permits.

The tax consequences of receipt determine the tax basis of the permits. If the recipient is taxed on receipt, then the permit’s basis is the amount taken into income, the fair market value of the permit.155 If the recipient avoids tax on receipt, then the permit’s basis is zero. An intermediate option would be permitting receipt of allowances without current tax consequences, but requiring tax inclusion upon surrender of the permits.156 Except for timing issues, the result of these options would be the same. Because of the timing issues, however, commentators recommend

150. Id. at CRS-28.
151. Examples include the exclusion for gifts and inheritances, I.R.C. § 102 (2010), and the exclusion for damages received on account of personal physical injury, I.R.C. § 104 (2010).
152. See, e.g., I.R.C. § 475 (2010), requiring securities dealers to recognize unrealized gains and losses by “marking-to-market” their inventory at the end of each taxable year.
153. See Boris I. Bittker, Martin J. McMahon, Jr., & Lawrence A. Zelenak, Federal Income Taxation of Individuals ¶ 3.02 (unrealized appreciation) and ¶ 3.03 (imputed income) (2d ed. 2009).
156. This option would be analogous to the receipt of property by a service provider as compensation. Under IRC § 83(a), the service provider usually has income in the amount of the fair market value of the property when received. If the property is subject to a substantial risk of forfeiture or is non-transferable (e.g., a stock option which may not be transferred until after a number of years of employment), the service provider need not take the value into income until the restriction is lifted. Alternatively, the service provider may elect to take the value of the property into income immediately. I.R.C. § 83(b) (2004).
taxing receipt of free permits. Consider the following hypothetical: Power plant “A” receives a carbon permit for $100. “A” takes $100 into taxable income. “A” uses the permit in the same taxable year and is allowed a $100 deduction. The $100 deduction would cancel out the $100 of income, leaving a net income of zero. If “A” had to purchase the carbon permit on the market, the same result would obtain. Now assume instead that Power Plant “B” may exclude the $100 value of its carbon permit from income. When “B” uses the carbon permit, its deduction will be zero, again leaving a net income of zero. What if “B” could bank the permit for use in future years? “B” can defer income from the tax-free receipt of the permit by holding the permit and not using it. Of course, “B” would either have to suffer a business decline or spend on increased efficiency (or offsets) to meet the cap. But what if “B” could also borrow a permit (or borrow money to acquire a permit) to use this year? Borrowing is not included in taxable income because of the obligation to repay. “B” could potentially get basis in the borrowed permit, deduct the cost of the permit and the interest costs, and still defer the income of the freely allocated permit. “B” can defer the income as long as the banked permit does not expire. “B” could enter into a forward contract to sell the permit to another power plant for future use, continuing to defer taxation until the forward contract is settled. Depending on the flexibility of the cap-and-trade scheme, “B” could reap substantial value from deferral. Furthermore, the tax preference for banking will increase the cost of carbon mitigation, because fewer permits will be for sale and thus will command a higher price. The researchers who have analyzed this issue in detail argue that freely allocated carbon permits

157. See Ethan Yale, Taxing Cap-and-Trade Environmental Regulation, 37 J. LEGAL STUD. 535, 536 (2008) (finding that the income tax can distort decisions whether to save permits for future use); Gary M. Lucas, Jr., The Taxation of Emissions Permits Distributed for Free as Part of a Carbon Cap-And-Trade Program, 1 GEO. WASH. J. ENERGY & ENVTL. L. 1, 3 (2010).

158. Lucas, supra note 158, at 16 (noting that if a firm banks its permits, it matters a great deal whether those permits were included or excluded from income.).

159. Lucas notes that even if B spends on abatement, and then banks the permit, the likely appreciation in the value of the permit, which will be untaxed, will give B a substantial benefit. Lucas, supra note 158, at 24.

160. A forward contract is a contract to buy or sell a commodity on a future date for a set price. It may be cash settled or physically settled. Forward contracts are taxed like options. The granting of an option does not result in a taxable event to the grantor. Bittker & McMahon, ¶ 28.01, p. 28–19.

161. Lucas, supra note 158, at 25.
should result in taxable income for the recipient.\textsuperscript{162} On the other hand, Congressional Research Service analysis of the implications of transaction costs and taxes on sulfur dioxide allowance trading found only limited reasons to expect any influence of the tax system on allowance trading.\textsuperscript{163} The experience of the EU-ETS is no help in this regard, as the Phase 1 pilot program did not allow banking. One study concludes that the failure to allow banking made the EU-ETS less liquid and therefore less efficient.\textsuperscript{164}

The prior discussion assumes that the cost of carbon allowances would be deductible when used. However, whether the cost of allowances should be deducted or amortized remains an open question. The allowances could be treated as an intangible property right—the right to emit carbon. Intangible assets are generally amortizable over 15 years, if they are amortizable at all.\textsuperscript{165} Again, the appropriate answer depends on the details of the cap-and-trade program. If allowances can only be used in the current year, then the cost of allowances should be currently deductible.\textsuperscript{166} The pending proposals both allow unlimited banking of permits.\textsuperscript{167} The proposals also allow borrowing. Banking and borrowing mean that permits may be used beyond the current year. However, the regulations provide an exception to the general rule of 15-year amortization for rights to a fixed amount.\textsuperscript{168} In the case of sulfur dioxide allowances, the IRS allows a deduction in the year of surrender.\textsuperscript{169}

\section*{VIII. Offsets}

The pending cap-and-trade proposals both allow participants to use offset investments to meet their obligations under the cap. Carbon tax advocates cite carbon “leakage” from unreliable offset projects as one of the reasons to favor carbon taxes over cap-and-trade.\textsuperscript{170} “In a carbon bubble, unscrupulous intermediaries may overpromise on offset projects by selling future credits based on projects that do not yet exist, are not additional, or which simply do not deliver the promised GHG reductions. This would not only have financial impacts, but also environmental

\textsuperscript{162} See Yale, supra note 158; see also Lucas, supra note 158.


\textsuperscript{164} Daskalakis & Markellos, supra note 40, at 116.

\textsuperscript{165} I.R.C. § 197 (2004).

\textsuperscript{166} IRC § 162 (2010); Treas. Reg. § 1.263(a)-2(a) (1994).

\textsuperscript{167} Jasanoff, supra note 5.

\textsuperscript{168} Treas. Reg. 1.167(a)-14(c)(2)(ii) (1971).


\textsuperscript{170} See, e.g., Mann, Carbon Tax, supra note 10,121 (noting that offsets and international credits pose significant compliance issues).
Carbon offsets are projects that absorb or sequester carbon. The offset project generates the equivalent of an emission allowance, which could be sold and traded in the same manner as emission allowances allocated or sold by a governmental agency. Assume that Power Plant “C” received permits to emit 100 tons of CO₂ equivalents. Power plant “C” planned to emit 150 tons. “C” could either purchase 50 permits on the market, or invest in a carbon-offset project that would absorb 50 tons of CO₂ equivalents. Both pending proposals allow investment in verified domestic or international offset projects to partially fulfill participants’ requirements under the cap. Under ACES, for example, qualifying domestic offset projects would include winter cover cropping and reforestation of unforest ed land. The American Power Act includes similar agricultural and forestry projects as qualified offsets. The agriculture and the forestry industries each have their own special tax provisions, so the tax treatment of the offset projects will depend upon the nature of the project and whether the generation of offsets is the primary objective of the project.

The Joint Committee on Taxation identified numerous tax issues relating to carbon offsets, including:

- How does the taxpayer determine its basis in the offsets?
- Are all costs incurred with respect to the project included in the basis of the offset where the principal purpose of the project is to obtain the offset? If allocation is required, how is such allocation determined?
- When are such costs recognized (e.g., expensed as incurred, included in basis and recognized when the offset is sold)?
- Are the continued maintenance costs of a project undertaken primarily to generate offsets deductible as incurred?

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175. For a detailed analysis of tax issues relating to agriculture, see BNA TAX MGT. PORTFOLIO, INCOME, DEDUCTIONS, CREDITS AND COMPUTATION OF TAX, 505-3rd T.M. VI-B. For a detailed analysis of tax issues relating to the timber industry, see BNA Tax Mgt. Portfolio 505-3rd T.M. VI-C.
176. STAFF OF J. COMM. ON TAXATION, 111th Cong., *supra* note 140, at 16.
The Joint Committee concluded that the rules governing the treatment of offset production costs should be coordinated with the rules governing income inclusion upon receipt of allocated emission allowances.177

IX. THE TRADE

The “trade” part of cap-and-trade is theoretically essential to obtain carbon emissions reductions at the lowest cost. In theory, covered firms would be able to identify and compare the cost of self-funded abatement with the cost of acquiring additional permits from firms that have a lower cost of abatement. Several tax issues arise. First of which is whether the carbon allowance is a capital asset or not. The tax consequences of the sale of any asset depends upon its tax characterization. Sale of capital assets generally produce capital gains or losses.178 For individuals, long-term capital gain is taxed at a preferential rate, usually 15 percent.179 Capital losses may reduce capital gain, and for individuals only, a limited amount of ordinary income.180 If the asset is not a capital asset, its sale produces ordinary income or loss. Inventory and supplies regularly used in a trade or business are not capital assets.181 The IRS held sulfur dioxide (SOx) allowances to be capital assets.182 The IRS also ruled that EU-ETS carbon emission allowances are capital assets.183 Thus, if carbon allowances are distributed to covered firms for free, the basis is zero. Upon sale of the allowances, all of the proceeds will be capital gains. The Joint Committee observed that: “[t]his approach would not provide parity between taxpayers (non-dealers) that sell allowances and those that surrender allowances to meet their obligations under a cap-and-trade system, because the latter would receive an ordinary deduction equal to their basis in the surrendered allowances.”184 While it is not perfectly clear what the Joint Committee means by that statement, it appears that recipients of freely allocated “tax-free” allowances would be placed in a better financial position by selling, rather than surrendering them. The IRS has also allowed tax-deferred exchanges of differently dated SOx allowances under the like-kind exchange rules.185

Determining the tax consequences of receiving and transferring carbon allowances is simple compared to determining the tax consequences of

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177. STAFF OF J. COMM. ON TAXATION, 111th Cong., supra note 140, at 17.
183. STAFF OF J. COMM. ON TAXATION, 111th Cong., supra note 140, at 19.
financial derivatives based on carbon allowances. Taxation of financial derivatives is complex because the instruments are complex and sometimes deliberately opaque. It is difficult to determine the tax ownership of the underlying asset, which affects tax treatment. It is difficult to determine whether the income streams from the instrument constitute debt or equity, which affects tax treatment. To some commentators, the carbon market is the most dangerous part of cap-and-trade. The Friends of the Earth produced a report drawing an analogy between the potential carbon derivatives market under a cap-and-trade system with the market in collateralized debt obligations (CDOs), which led to the burst of the housing bubble and the collapse of the financial markets in late 2008. An economist finds two dangers in energy derivatives trading: mispricing and illiquidity. She writes, “[l]ike credit derivatives, energy derivatives can be similar to hell: easy to enter and impossible to exit.”

Derivatives are so called because they derive their value from an underlying asset, such as a mortgage or a carbon permit. Financial derivatives include options, forward contracts, futures contracts, and interest rate swaps. Derivatives can represent a long position, meaning that the value of the derivative fluctuates in the same direction as the value of the underlying asset. For example, the value of an option to buy stock (a call option) at $100 per share will increase as the market value of the stock increases above $100 per share. Derivatives can represent a short position, meaning that the value of the derivative fluctuates in the opposite direction as the value of the underlying asset. For example, the value of


188. Id. at 4.


190. Id. at 4.

an option to sell stock (a put option) for $100 per share will decline as the value of the stock increases above $100 per share. Derivatives have their own vocabulary. A premium is the price paid for purchasing an option. For example, Homer pays Mr. Burns $10 for the right to purchase Animatronics stock for $100 per share by December 19. The strike price is the price paid for exercising an option. If Homer exercises the option, he will pay a strike price of $100 per share. Most options have an expiration date, the date by which the option must be exercised or lapse. If Homer fails to exercise his option by December 19, Mr. Burns will keep his $10 and Homer loses the right to purchase the stock at the strike price. Mr. Burns will not be taxed until either Homer exercises the option or the option lapses. The grant of an option is not generally considered a realization event under the federal income tax system.192

Derivatives can be used as a hedge to protect businesses from risk. Company CP makes sweeteners and other products based on corn. CP purchases a corn futures contract193 that requires it to purchase corn at $100 per bushel on a date two years in the future. CP has now locked in the cost of supply at $100 and protected its business from price increases over $100. In two years, if the price of corn is $250, CP will either buy corn at $100 (physical settlement) or will receive a $150 payment (cash settlement). If instead the price of corn is $90, CP will likely cash settle the contract for $10. If a derivative instrument that would otherwise be a capital asset, like a corn future, is used as a hedge against business risk, then the gains and losses recognized on the disposition of that asset will be treated as ordinary.194

Investors (or speculators, if you prefer) also purchase derivatives. In essence, a derivative is a wager on which way the price of an asset will vary.195 In the energy sector, as in the financial sector, the business needing risk management can become the speculator. A commentator, arguing


193. A futures contract is a forward contract (an obligation to buy a commodity for a specified price on a specified date) that is publicly traded on a futures exchange.


195. “Overall, we can put hedging and traditional gambling contracts on the same spectrum. To some extent, they are all contracts that allow people to make profits or avoid loss from predicting future uncertainties.” CHAO-HUNG CHRISTOPHER CHEN, DIVIDING HEDGING AND GAMBLING: LEGAL IMPLICATIONS OF DERIVATIVE INSTRUMENTS 1 (2006). Chen also notes that insurance contracts fall along this spectrum.
for regulatory oversight of energy derivative markets, advised policymakers to remember Enron:

“[Enron] started as a provider of natural gas and electricity. Like energy companies today, it also claimed to use derivatives for hedging. But as it grew, Enron gradually morphed into what amounted to a giant, and utterly reckless, trading firm. To put it another way, a benign energy provider that is shielded from regulation today could in time evolve into a far more malevolent beast, especially as the line between hedging and trading for profit erodes.”

The EU-ETS experience raises a cautionary tale. During Phase 1, oil and natural gas price changes were the most important variable in determining allowance price changes. The Congressional Research Service notes that “[t]his apparent linkage between allowance price changes and price changes in two commodities markets raises the possibility of market manipulation, particularly with the inclusion of financial instruments such as options and futures contracts.” Even so, the EU experience may not foreshadow all the dangers faced by the potential U.S. market in carbon derivatives. In the EU-ETS, the majority of trades involve the carbon allowances themselves, not derivatives, and the allowances are physically settled. The U.S. cap-and-trade scheme envisions derivative trading and unlike the EU-ETS Phase I, both pending legislative proposals allow significant time-shifting of the carbon allowances.

As noted above, the use of financial derivatives may allow tax deferral because the grant of an option or like instrument is not a realization event. The tax treatment of any derivative instrument depends on many factors, such as whether the instrument is held in the course of business or as an investment or whether it is considered to be debt or equity.

197. Parker, supra note 45, at CRS-29.
198. Id.
200. Id. However, Dr. Oldani notes that cash settled derivatives are less likely to cause an “energy crunch” than physically settled derivatives. Oldani, supra note 191, at 4.
Congress will have to decide whether to specify the tax treatment of carbon derivatives or whether to leave the decision to the IRS and the courts. In response to the concerns about carbon market bubbles, Congress has considered limiting access to the carbon markets to "registered participants." On the other hand, broader participation by investors could make the carbon market more efficient and more liquid. As the Joint Committee on Taxation noted, “Tax rules that make a secondary market less transparent and/or less liquid could undermine the efficacy of the cap-and-trade program, which relies on the secondary markets to allocate the emission allowances efficiently.”

It is unclear which particular tax rules would make the market less transparent or liquid. The foregoing discussion may have raised a mental fog thicker than any greenhouse gas. To attempt to clarify, the tax system should consider the following issues with respect to trading of carbon allowances:

- Should investors and firms covered under the cap-and-trade scheme be treated differently?
- Should participants in the carbon markets be able to defer gain or loss, and for how long?
- Should explicit tax rules be provided for carbon allowances and their derivatives, or should Congress rely on the IRS and the courts?

A carbon tax would raise none of these issues, as it would not create a new financial instrument.

X. INTERNATIONAL TRADE ISSUES

A discussion of the U.S. tax system relating to cross-border business activities affected by cap-and-trade is beyond the scope of this article. In general, those issues turn on the characterization of the allowance or

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203. The Joint Committee observed: “[T]here are dangers inherent in developing statutory rules for every new financial product. First, instruments can often be replicated through combinations of other instruments, thereby undoing some of the categorizations contemplated by new statutes. Second, drawing the line between different instruments (i.e., assigning one instrument to one cubbyhole, and another to a different one) itself can be very difficult, and may result in economically similar instruments being taxed quite differently.” JCX-21-08, supra note 204, at 13.

204. Gronewold, supra note 40, at 1.

205. J. COMM. ON TAXATION, CLIMATE CHANGE LEGISLATION: TAX CONSIDERATIONS 2, at 24 (June 12, 2009).
derivative for U.S. tax purposes, as covered in the previous discussion.\textsuperscript{206} International trade issues, however, raise unique concerns. Congress has tried to use the tax system to accomplish international trade goals for years, with some unfortunate results.\textsuperscript{207} The prior disputes with the World Trade Organization (WTO) involved export-related tax benefits. The WTO found that those tax benefits were prohibited export subsidies that violated the General Agreement on Tariffs and Trade (GATT).\textsuperscript{208} The tariff on imported ethanol, designed to protect the domestic ethanol industry, has also been challenged under WTO rules.\textsuperscript{209} One of the main political arguments against U.S. participation in climate change mitigation efforts is the potential impact on the international competitiveness of U.S. industries.\textsuperscript{210} Another concern is “carbon leakage.” Carbon leakage occurs when carbon-intensive industries move from countries with carbon restrictions to countries with less stringent carbon policies. Carbon leakage threatens not only competitiveness and domestic jobs, but the environmental effectiveness of the carbon mitigation scheme.\textsuperscript{211} In the U.S., carbon-intensive manufacturing industries such as iron and steel, aluminum and copper, nonmetal mineral products, paper and pulp, and basic chemicals, are already facing pressure from international competition, particularly large emerging economies without carbon emissions commitments such as China, India, and Brazil.\textsuperscript{212} These industries produce more than half of all CO\textsubscript{2} emissions from the manufacturing sector.\textsuperscript{213}

\textsuperscript{206} Id. at 28–31.
\textsuperscript{207} See J. COMM. ON TAXATION, BACKGROUND AND HISTORY OF THE TRADE DISPUTE RELATING TO THE PRIOR-LAW FOREIGN SALES CORPORATION PROVISIONS AND THE PRESENT-LAW EXCLUSIONS FOR EXTRA TERRITORIAL INCOME AND A DESCRIPTION OF THESE RULES (July 26, 2002).
\textsuperscript{208} Id. at 2–5.
\textsuperscript{209} Alan Beattie & Sheila McNulty, Green Barricade Trade Faces a New Test as Carbon Taxes Go Global, FIN. TIMES, Jan. 23, 2008, at 7 (stating Brazil has filed a formal complaint with WTO challenging the tariff). Brazil seeks to have ethanol classified as an “environmental good” in the Doha Development Round, which would result in tariff cuts. Id. See also Roberta F. Mann & Mona L. Hymel, Moonshine to Motorfuel: Tax Incentives for Fuel Ethanol, 19 DUKE ENVTL. L. POL’Y F. 43, 54 (2008).
\textsuperscript{211} Tamiotti et al., supra note 61, at 99.
\textsuperscript{212} Houser et al., supra note 212, at xv–xvi.
\textsuperscript{213} Houser et al., supra note 212, at xvi.
Measures to avoid competitive disadvantage and reduce carbon leakage will be a key part of any politically successful climate legislation.

To protect the competitiveness of U.S. products within the U.S., the measure might attempt to impose the same costs on imported goods as U.S. climate legislation imposes on domestic production. To protect the global competitiveness of U.S. businesses, the measure might exclude goods exported from the U.S. from the domestic carbon pricing scheme. There are a number of methods to meet these goals, but some of those methods may be more likely to face challenge under WTO trade rules. WTO trade rules require trade measures to comply with nondiscrimination standards, and usually require showing that the measure is designed to achieve a legitimate policy objective in the least trade restrictive way. WTO trade rules do not consider protection of domestic producers from foreign competition a legitimate policy objective.

A border tax adjustment (BTA) has the best chance of preserving competitiveness while avoiding WTO challenge. The BTA could be explained as “simply the import-equivalent of domestic U.S. climate policy.” The BTA should be carefully crafted to avoid discrimination against imports, both as against U.S. products and between products imported from different countries. Of course, this is more easily said than done. The GHG emissions from the production of similar or identical products may vary depending on the individual producer as well as the country of production. A WTO-compliant BTA may be fairly simple to craft if the U.S. adopts a carbon tax, but faces additional complexity if the U.S. adopts a cap-and-trade system. In a cap-and-trade system with fluctuating market prices, it is difficult to determine whether the BTA accurately reflects the burden that the imported product would have imposed had it been made domestically. The issue becomes even


216. Id.


219. Id.

220. Tamioìti et al, supra note 61, at 101 (“The main challenges [to implementing a border tax adjustment are] (i) the difficulty in assessing product specific emissions, and (ii) the fluctuations of the carbon price (or allowance price) in the context of an emission trading scheme.”).
more complex if the allowances are not auctioned but rather distributed for free. 221

XI. CONCLUSION

Coordinating a cap-and-trade scheme with the existing Federal income tax system, while perhaps not as challenging as nuclear physics or string theory, is a task of daunting complexity. Assuming, as I have been, that the U.S. enacts cap-and-trade legislation in essentially similar form to the pending legislative proposals, the first step is to determine the tax consequences of receiving the allowances. If all the allowances were auctioned, the answer would be simple: the receipt would not be taxable and the allowance would have a tax basis that equals the purchase price. For a free allowance, the value of the allowance could either be taxable on receipt (in whole or in part), taxable when used, or not taxable at all. Commentators have persuasively argued that the allowances should be taxable when received. Taxing the allowances when received would provide rough parity between those businesses who use the allowances and those who sell them.

Next, what tax consequences flow from the use or sale of the allowances? The use of the allowances will likely produce a current deduction for tax purposes. The gain or loss recognized on the allowances could either be characterized as capital or ordinary. Current tax rules would likely characterize allowances as ordinary assets in the hands of covered firms but as capital assets in the hands of investors. Covered firms could benefit from significant deferral of tax consequences by banking and borrowing allowances. Treating the allowances as ordinary assets in the hands of all holders would simplify the tax treatment and may reduce speculation, but would create inconsistent tax treatment vis-a-vis other investment assets. This inconsistency could reduce the liquidity and transparency of the carbon market.

The taxation of carbon derivatives is a perplexing problem, although perhaps not more so than the taxation of any derivative financial product. Particularly in the early years of carbon trading, uncertainty about the tax consequences may cause burdens on investors and the IRS alike. On

221. Pauwelyn, supra note 216, at 21–22. See also Houser et al., supra note 212, at 34 (noting that “given the number of variables in terms of production methods, capital stock, and energy sources, it is nearly impossible to accurately assess embedded emissions of goods at the border on a case-by-case basis”).
the other hand, the IRS has developed rules for taxing SO\(_x\) and NO\(_x\) allowance trades, which could provide guidance.

Implementing a cap-and-trade system has significant international trade implications that could best be addressed by a border tax adjustment (BTA). A WTO-compliant BTA is easier to craft if the domestic carbon mitigation scheme is a carbon tax rather than cap-and-trade. A cap-and-trade scheme results in fluctuating carbon prices, making it difficult to impose a BTA that is similar to the cost impact of the domestic cap-and-trade. Free distribution of allowances further complicates the calculation.

Finally, imposing a cost on carbon, whether via a cap-and-trade scheme or a carbon tax will change the effectiveness of tax incentives for low-carbon energy. Each tax incentive should be carefully examined to assess whether it is still needed. Renewable energy tax incentives might still be justified because of barriers to capital investment and slow consumer response.

Similarly, either a cap-and-trade scheme or a carbon tax would impose disproportionate costs on lower income households. In fairness, the burden of saving the planet should not fall on the poor. The tax system can smooth the impact. Auctioning carbon allowances would provide the necessary revenue. In sum, a cap-and-trade system represents a more complicated alternative to restricting carbon emissions. Policymakers should not forget the tax system when implementing cap-and-trade. Thoughtful attention to tax consequences of cap-and-trade design could produce a smoother transition to a cooler world.