

SUSTAINABILITY & TAX POLICY: FIXING A PATCHWORK OF POLICIES WITH A COHERENT FEDERAL FRAMEWORK

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While the private sector undoubtedly has a vital role to play in creating a sustainable economy, it can best do so with the aid of a clear, coherent federal tax policy that will consistently encourage and reward sustainable innovations. All stakeholders, ranging from advocates for ecosystems to members of the investment and business community, prefer predictability and coherence in regulatory environments. The alternatives—including patchworks of contradictory incentives (among states, between state and federal policy, and among federal agencies), ad hoc or short-term policymaking, and crisis-to-crisis inaction followed by retroactive disaster response—are counterproductive, illogical, and popular with no one. This article offers a vision for a federal framework that is both comprehensive and coherent and also efficient and expedient.

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I. INTRODUCTION

There are limits to the planet’s available resources. Promoting sustainability means working to ensure that our society, economy, and businesses have the necessary means to continue for future generations. Despite the broad necessity of sustainability efforts, recent legislative progress in this regard has primarily been relegated to the state and local arena. The patchwork of state efforts has met with varying levels of success and falls short of meeting the need for a national commitment to sustain the vitality of the environment and natural resources for generations to come. Federal congressional action has been primarily limited to a handful of tax incentives purported to encourage sustainable behavior. Because of the lack of congressional will to institute more robust sustainability incentives, the Obama administration has had to utilize regulatory authority based on extant legislation, such as boosting energy efficiency and emissions standards, to accomplish substantive progress.¹ While the private sector undoubtedly has a vital role to play in creating a sustainable economy, it can best do so with the aid of a clear, coherent federal tax policy that will consistently encourage and reward sustainable innovations.

Governments around the world, including the United States, have green tax systems.² Although particular aspects of green tax systems vary, a common element is the use of tax incentives and taxes/penalties³ as

¹ See, e.g., Alan Neuhauser, *Obama’s Climate Authority Came Straight From Congress*, U.S. NEWS AND WORLD REP., Apr. 10, 2015, <http://www.usnews.com/news/articles/2015/04/10/obama-not-sidestepping-congress-on-climate-action-experts-say>; Jehmal Terrence Hudson, *EPA’s Clean Power Plan Final Rule: What’s Next?*, INFRASTRUCTURE, Winter 2016, http://www.americanbar.org/publications/infrastructure/2015-16/winter/epas_clean_power_plan_final_rule_whats_next.html.

² For example, in its 2013 Green Tax Index, KPMG identified 21 emerging and developed countries that have notable green tax systems. See KPMG INT’L COOP., THE KPMG GREEN TAX INDEX 2013 1 (2013).

³ The terms “green taxes” and “green penalties” are used interchangeably in this article, based on the terminology adopted in KPMG 2013 Green Tax Index. For example, the KPMG Index classifies the Gas Guzzler Tax in the United States as a green tax penalty. See *id.* at 27.

tools to achieve national environmental and sustainability policy goals.⁴ Organizing and classifying tax incentives and penalties as part of a green tax system⁵ is a relatively new phenomenon.⁶ As policy tools, green tax incentives and green taxes/penalties aim to influence the behavior of consumers and corporations to encourage them to act in a more sustainable and environmentally responsible manner.⁷ Recognizing that corporations play a major role in contributing to environmental and sustainability problems and solutions, a green tax system encourages, and in some cases forces, corporations to participate in the process of improving energy efficiency, reducing greenhouse gas emissions, and contributing broadly to the development of sustainability policies and programs.⁸

A coherent federal tax policy will provide the necessary government support to make sustainable practices the rule rather than the exception. Working alone, industry cannot accomplish the task of securing the continuing vitality of our planet and its resources. Indeed, “[t]he issues identified here cannot be addressed by the private sector and the free market alone; they require government action The U.S. government will need to assume global leadership of the transition to a sustainable economy.”⁹ It is time to transition from simply focusing on environmental

⁴ For example, in preparing its 2013 Green Tax Index, KPMG determined that, in total, over 200 green tax incentives and penalties exist in the combined tax codes of the twenty-one countries it analyzed. Of the 200 incentives, thirty have been incorporated into the various tax codes since 2011. *See id.* at 1.

⁵ For purposes of this article, the terms “green taxation,” “green tax incentives,” and “green tax penalties” fall under the general concept of a green tax system.

⁶ Kali Waller, *Environmental Tax Incentives: What the United States Can Learn from the Netherlands and Japan*, 8 *GOLDEN GATE U. ENVTL. L.J.* 155, 159 (2015). For a discussion of some of the early thinking regarding the use of tax systems to influence environmental decisions, *see* Janet E. Milne, *Environmental Taxation in the United States: The Long View*, 15 *LEWIS & CLARK L. REV.* 417, 418–19 (2011) (reviewing the work of A.C. Pigou in the early part of the twentieth century where Pigou observed that “[it is] possible for the State, if it so chooses, to remove the divergence in any field [between trade and social net product] by ‘extraordinary encouragements’ or ‘extraordinary restraints’ upon investments in that field.” As Professor Milne noted based on Pigou’s theory, “Taxes that increase the cost of environmentally damaging activities can serve as ‘extraordinary restraints’ that bring the external environmental costs back into the private sector’s calculations. They can also reflect the polluter-pays principle and the concept of least-cost abatement that evolved later in the 20th century. On the other side of Pigou’s coin, environmental tax expenditures can serve as ‘extraordinary encouragements’ for environmentally positive activities that otherwise might not occur, allowing society as the beneficiary to assume some of the cost.”).

⁷ *See* KPMG INT’L COOP., *supra* note 2, at 1.

⁸ *Id.*

⁹ Steven Cohen, *The Role of Government in the Transition to a Sustainable Economy*, HUFFINGTON POST, Apr. 12, 2014, http://www.huffingtonpost.com/steven-cohen/the-role-of-government-in_b_4759621.html.

protection as a means of minimizing harm to devoting time and resources to promote sustainability.

Part II of this article provides an overview of some of the existing, albeit inconsistent, state and local tax and non-tax sustainability efforts that have developed in lieu of cohesive federal action to promote behavioral changes in sustainability. Parts III and IV focus on federal tax policies. Part III discusses the role that federal tax incentives have played and should continue to play in ensuring a sustainable future. Part IV then provides a look at an underutilized aspect of the U.S. federal tax system in this regard—green taxes. Part V provides an overview of how other countries—France, Japan, China, and the United Kingdom—have successfully integrated the use of tax penalties into their tax systems to achieve success in promoting sustainability. Drawing on these international examples, Part VI proposes the United States be a leader in sustainability efforts. The country needs a federal tax policy that eliminates subsidies discouraging to sustainability and employs the use of federal tax penalties. This article concludes that reform of the federal tax system could be the single policy arena with the greatest potential to encourage economic activity by creating wealth and well-being while maintaining ecological life support systems.

II. THE PATCHWORK OF STATE SUSTAINABILITY EFFORTS ARE INADEQUATE TO BRING ABOUT MEANINGFUL LONG-TERM CHANGE

It has been more than two decades since the United States has enacted any new environmental laws at the federal level.¹⁰ In the decades since, advancements have been made in our understanding of the planet, its resources, and their degradation.¹¹ It is apparent that Earth's resources are limited, and responsibility to future generations requires more than simply preventing environmental harms. The government, in fact, indicated as much by passing the National Environmental Policy Act of 1969. This Act “committed the United States to sustainability, declaring it a national policy ‘to create and maintain conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations.’”¹² However, in the decades since, legislative actions

¹⁰ *Id.*

¹¹ See, e.g., NAT'L RESEARCH COUNCIL, UNDERSTANDING THE CHANGING PLANET: STRATEGIC DIRECTIONS FOR GEOGRAPHICAL SCIENCES (2010).

¹² *Learn About Sustainability*, U.S. EPA, <http://www.epa.gov/sustainability/learn-about-sustainability> (last visited Mar. 27, 2016).

advancing sustainability efforts have been ineffective.¹³ Nonetheless, “rules must prevent damage to the environment, but must also insure that energy efficiency, recycling and water efficiency are integrated into our structures, institutions, and daily routines.”¹⁴

Since its inception in 1970, the Environmental Protection Agency (“EPA”) has engaged in research and monitoring as well as standard-setting and enforcement activities to ensure environmental protection.¹⁵ Although one of the tools at the EPA’s disposal is adopting regulations, “any further legislative changes to the EPA’s regulatory authority at this time would be controversial.”¹⁶ In fact, even the EPA’s regulatory rulemaking authority is under attack as indicated by the EPA’s recent attempts to implement the Clean Power Plan (“CPP”). During the Obama administration, the EPA issued the CPP, a set of greenhouse emission guidelines for existing power plants and states under the Clean Air Act, that would, in part, reduce plant emissions by 2030 to 32 percent below the 2005 levels.¹⁷ The EPA considers the CPP to be “the most ambitious climate-related undertaking in the agency’s history . . . that . . . would lead to the complete restructuring of the energy sector.”¹⁸ In response to the release of the CPP, twenty-four states and an energy company filed a lawsuit in the Court of Appeals for the D.C. Circuit alleging that the EPA exceeded its authority in issuing such onerous and extensive regulations.¹⁹ While awaiting a ruling in the case from the D.C. Circuit, five stay applications were filed with the U.S. Supreme Court, requesting the Court halt implementation of the Clean Power Plan until resolution of the pending case.²⁰ On February 9, 2016, the Supreme Court granted the stay, preventing the EPA from enforcing CPP regulations until the D.C. Circuit Court of Appeals decides the case on the merits.²¹

¹³ Cohen, *supra* note 9. For an explanation of why we do not have an effective national renewable energy policy see, E. Donald Elliott, *Why the United States Does Not Have a Renewable Energy Policy*, 43 ENVTL. L. REP. 10095 (2013).

¹⁴ Cohen, *supra* note 9.

¹⁵ *EPA History*, U.S. EPA, <http://www.epa.gov/aboutepa/epa-history> (last visited Mar. 27, 2016).

¹⁶ George B. Wyeth & Beth Termini, *Regulating for Sustainability*, 45 ENVTL. L. 663, 671–72 (2015).

¹⁷ Jonathan H. Adler, *Placing the Clean Power Plan in Context*, WASH. POST, Feb. 20, 2015, https://www.washingtonpost.com/news/volokh-conspiracy/wp/2016/02/10/placing-the-clean-power-plan-in-context/?utm_term=.e74e9732c97d.

¹⁸ Jonathan H. Adler, *Supreme Court Puts the Brakes on the EPA’s Clean Power Plan*, WASH. POST, Feb. 9, 2016, https://www.washingtonpost.com/news/volokh-conspiracy/wp/2016/02/09/supreme-court-puts-the-brakes-on-the-epas-clean-power-plan/?utm_term=.883c47419003.

¹⁹ Cole Mellino, *24 States Sue Obama Over Clean Power Plan*, ECOWATCH (Oct. 24, 2015, 9:18 AM), <http://ecowatch.com/2015/10/24/clean-power-plan-lawsuits/>.

²⁰ Adler, *supra* note 18.

²¹ Adler, *supra* note 17.

Apart from actions taken by the EPA, at the federal level President Obama has taken various actions to promote sustainability and to address climate change. For example, in 2013, President Obama announced the Climate Action Plan, a comprehensive strategy for addressing climate change.²² One measure taken to help meet the goals set forth in the Climate Action Plan is Executive Order 13693 (“Planning for Federal Sustainability in the Next Decade”) signed by President Obama in 2015 to ensure that the federal government serves as a leader in sustainability and greenhouse gas emission reductions.²³ Per this Order, beginning in 2015 and ending in 2025, designated federal agencies, acting under the direction of a Chief Sustainability Officer, will develop and implement annual updates to integrated Sustainability Performance Plans.²⁴

While actions at the executive level have been forthcoming, the lack of cohesive and comprehensive federal legislative efforts has limited the potential impact of such efforts. As a result, state and local governments have been taking up the mantle by seeking to address sustainability concerns independently. For example, in the area of climate change, “a growing number of cities—including many small suburban cities—are playing crucial roles in multi-level efforts to address climate change . . . However, the piecemeal nature of these urban efforts to address climate change constrains their overall impact.”²⁵ The remainder of this Part will examine various state and local incentives in order to illustrate the wide range of tax and non-tax incentives that exist to promote sustainability.

A. State and Local Sustainability Incentives

The National Governors Association has stated, “every single U.S. state has created some kind of financial incentive to promote clean energy. These incentives range from deductions for renewable energy production and energy conservation, to deductions for wood-burning heating systems, biomass, geothermal, and bio heating and oil use.”²⁶ State grant programs encourage sustainable behavior, with 26 states utilizing grant programs to promote energy efficient technology, and 24

²² ORI GUTIN & BRENDAN INGARGIOLA, ENVTL. & ENERGY STUDY INST., FACT SHEET: TIMELINE OF PROGRESS MADE IN PRESIDENT OBAMA’S CLIMATE ACTION PLAN I (2015).

²³ See Exec. Order No. 13,693, 3 C.F.R. 13693 (2015).

²⁴ Sustainability Performance Plans are to be prepared in accordance with guidance provided by the Chair of the Council of Environmental Quality and are used to assess an agency’s progress in meeting performance goals. *Id.* at § 2.

²⁵ Hari M. Osofsky, *Suburban Climate Change Efforts: Possibilities for Small and Nimble Cities Participating in State, Regional, National, and International Networks*, 22 CORNELL J. L. & PUB. POL’Y 395, 398 (2012).

²⁶ STEVEN COHEN, WILLIAM EIMICKE & ALISON MILLER, SUSTAINABILITY POLICY: HASTENING THE TRANSITION TO A CLEANER ECONOMY 101 (2015).

states providing grants for renewable energy technology in 2015.²⁷ Rebates are another means of encouraging renewable energy and energy efficiency by providing reimbursements that offset the cost of such technologies.²⁸

A 2010 nationally representative survey of 2,176 local governments conducted by the International City/County Management Association indicated that the majority of those surveyed considered environment and energy conservation as either a “high priority” or a “priority.”²⁹ However, only about one-third of the respondents indicated they had taken steps to pass resolutions to adopt policy goals that would work toward sustainability and energy conservation.³⁰ The survey indicated energy conservation is an issue which the majority of local governments have taken at least some preliminary actions to address: two-thirds of the respondents conducted energy audits of their government buildings, slightly more than half either retrofitted or upgraded office lighting, and almost half increased their use of fuel efficient vehicles.³¹

1. Green Building Incentives

One area garnering increasing interest is that of green building incentives,³² with state and local governments now offering a wide range of incentives for sustainable buildings. Table 1 highlights a few of those incentives: Expedited Permitting, Grants (including fee subsidization), Loans, Technical Assistance, and Permit/Zone Fee Reduction:

Table 1: State & Local Green Building Incentives

Incentive & Description ³³	Examples
<p>Expedited Permitting: Streamlining the permitting process for building, plan, and site saves green developers time and money. It is essential that the permitting bodies have knowledgeable and trained professionals.</p>	<p>Hawaii HRS § 46-19.6: Requires county agencies to establish an expedited permitting process, at no cost, for private building that meet or exceed certain recognized green building standards.³⁴</p> <p>Chicago Green Permit Program: Reduces permitting process for developers and owners who build green.³⁵</p>
<p>Grants: Grants can be used to offset some of the increased development costs. This allows</p>	<p>Pennsylvania: In May of 2016, 114 projects were awarded a total of over \$25 million for the protection of Pennsylvania’s water resources.³⁶</p>

<p>jurisdictions to award monetary amounts to subsidize the cost of certification or the total cost of building or to focus on particular features, such as HVAC systems.</p>	<p>Portland, Oregon: Green Investment Fund was a competitive grant program primarily used to support early building and site-related project activities that are part of a comprehensive green building project for the period 2005 through 2009.³⁷</p>
<p>Loans: Loan funds can be set up to help with green improvement costs or to provide reduced interest rate loans to developers that meet certain standards.</p>	<p>Pennsylvania: The Small Business Pollution Prevention Assistance Account provides low interest loans to small business investing in projects that reduce pollution, energy use, or waste.³⁸</p> <p>New York State Energy Research Development Authority Program: Provides low interest loans for energy efficiency measures and building materials that meet NY green building standards.³⁹</p>

²⁷ U.S. EPA, ENERGY AND ENVIRONMENT GUIDE TO ACTION 3-3 (2015).

²⁸ As of 2015 all states provided consumers with some variation of energy efficiency rebates and fifteen states offered rebates for purchase of renewable energy technology. *Id.* at 3–5.

²⁹ *Local Governments Slowly Adopting Sustainability Initiatives – Survey*, SUSTAINABLE BUSINESS.COM (Sept. 23, 2010), <http://www.sustainablebusiness.com/index.cfm/go/news.display/id/21100>.

³⁰ *Id.*

³¹ *Id.*

³² See, e.g., JERRY YUDELSON, THE GREEN BUILDING REVOLUTION 1 (2008).

³³ *Local Leaders in Sustainability – State and Local Green Building Incentives*, AM. INST. ARCHITECTS 6, 9, <http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aia076936.pdf> (last visited Nov. 20, 2016).

³⁴ HAW. REV. STAT. § 46-19.6 (West 2008).

³⁵ CITY OF CHICAGO, DEPARTMENT OF BUILDINGS GREEN PERMIT PROGRAM BENEFIT TIER STRUCTURE (2014), <https://www.cityofchicago.org/content/dam/city/depts/bldgs/general/GreenPermit/2014GreenPermitRequirements.pdf>; *Green Permit*, CITY OF CHICAGO, https://www.cityofchicago.org/city/en/depts/bldgs/provdrs/green_permit.html (last visited Nov. 21, 2016).

³⁶ Press Release, Commonwealth of Pennsylvania Dept. of Environmental Protection (May 18, 2016), <http://www.ahs.dep.pa.gov/NewsRoomPublic/articleviewer.aspx?id=20983&typeid=1>.

³⁷ *Green Investment Fund Grant*, CITY OF PORTLAND, <http://www.portlandoregon.gov/bps/42134> (last visited Nov. 20, 2016).

³⁸ *Grant and Loan Programs*, PA. DEP'T ENVTL. PROT., <http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?%2fGrants%2fGrantLoans> (last visited Nov. 20, 2016).

³⁹ *Home Energy Efficiency Programs*, N.Y. STATE ENERGY RESEARCH & DEVELOPMENT AUTH., <https://www.nysersda.ny.gov/All-Programs/Programs/Home-Energy-Efficiency-Upgrades> (last visited Nov. 20, 2016).

<p>Technical Assistance/ Design Assistance: Government provides quality service to the development and design community by training planners, building inspectors, and other local officials.</p>	<p>Minnesota: Law requires utilities to create conservation improvement programs offering a variety of energy saving options for consumers.⁴⁰</p> <p>Santa Monica, California: Santa Monica makes solar experts available to provide advice to residents on energy efficiency and financing options for solar panels.⁴¹</p>
<p>Permit/Zone Fee Reduction: In return for reaching specific levels of LEED or other green rating systems, several jurisdictions waive or partially reimburse the application, building, or permit fees charged.</p>	<p>Ashville, North Carolina: Waiver of building permit fees for certain energy efficient technologies and certifications.⁴²</p> <p>Riverhead, New York: Building permit fee discount for installation of energy conservation devices on either residential or commercial buildings.⁴³</p>

2. Recycling Efforts

States promote recycling efforts to varying degrees. Table 2 provides an overview of various state and local recycling measures:

⁴⁰ MINN. STAT. § 216B.241 Subd.1b (2012).

⁴¹ *Solar Santa Monica*, CITY OF SANTA MONICA OFFICE OF SUSTAINABILITY & ENV'T, <http://www.smgov.net/Departments/OSE/categories/solar.aspx> (last visited Nov. 20, 2016).

⁴² See CITY OF ASHVILLE, FEE REBATE PROGRAM APPLICATION PERMIT, <http://energy.gov/savings/city-ashville-building-permit-fee-rebates> (last visited Nov. 20, 2016); DEV. SERVS. DEPT., CITY OF ASHVILLE, FEE SCHEDULE (2016).

⁴³ *City of Riverhead – Energy Conservation Device Permitting Fees*, U.S. DEP'T ENERGY, <http://www.energy.gov/savings/city-riverhead-energy-conservation-device-permitting-fees> (last visited Nov. 20, 2016).

Table 2: State and Local Recycling Efforts

Incentive & Description	Examples
<p>E-Waste⁴⁴ Recycling Efforts: More than half the states have adopted e-waste legislation.</p>	<p>Illinois: Electronic manufacturers and retailers participate in the management of discarded and unwanted electronic products.⁴⁵</p> <p>Texas: Manufacturers selling new computer equipment must make a free recycling program available for consumers.⁴⁶</p> <p>West Virginia: Businesses manufacturing more than 1,000 video display devices per year must register with the state and also pay an annual tax that becomes part of the “Covered Electronic Devices Takeback Fund.”⁴⁷</p>
<p>Deposits and Refunds on Beverage Containers: A total of 11 states are “bottle bill” states, meaning they have a container redemption program that charges a small deposit on certain containers which is refunded when those empty containers are returned.⁴⁸</p>	<p>Connecticut: Containers for water and similar products sold in the state must have a refund value of at least five cents (certain containers are exempt).⁴⁹</p> <p>Maine: All beverages (except for dairy products and unprocessed cider) must have a refund value of 15 cents for wine and liquor or five cents for all other beverages.⁵⁰</p>

⁴⁴ E-waste refers to the disposal of electronics and electronic components. It is estimated that global e-waste may total 65.4 million tons by 2017. See Michelle Heacock et. al., *E-Waste and Harm to Vulnerable Populations: A Growing Global Problem*, 124 ENVTL. HEALTH PERSPECTIVES 550, 550 (2016).

⁴⁵ *Map of States With Legislation*, ELECTRONICS RECYCLING COORDINATION CLEARINGHOUSE, <http://www.ecycleclearinghouse.org/content.aspx?pageid=10> (last visited Nov. 20, 2016).

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ STATE OF CONN. DEP’T OF ENERGY & ENVTL. PROT., THE CONNECTICUT BOTTLE BILL, http://www.ct.gov/deep/cwp/view.asp?a=2714&q=324838&depNav_GID=1645 (last visited Nov. 20, 2016).

⁴⁹ *Bottle Bill FAQ*, STATE OF CONNECTICUT DEP’T OF ENERGY & ENVTL. PROT., http://www.ct.gov/deep/cwp/view.asp?a=2714&q=324834&depNav_GID=1645 (last visited Nov. 20, 2016).

⁵⁰ *Maine*, BOTTLE BILL RESOURCE GUIDE, <http://www.bottlebill.org/legislation/usa/maine.htm> (last visited Nov. 20, 2016).

	<p>Massachusetts: A five-cent deposit is charged on sealable containers of beer, malt, carbonated soft drinks, and mineral water.⁵¹</p>
<p>Mandatory Recycling: Some states and cities have enacted mandatory recycling laws that may fine those who fail to recycle.</p>	<p>California: Mandatory recycling applies to (1) commercial businesses and public entities that generate more than four cubic yards of solid waste per week and (2) multi-family complexes with five or more units.⁵²</p> <p>Seattle, Washington: Households, apartments, and businesses must recycle basic items such as paper, cardboard, aluminum, glass, and plastic or a fine will be imposed.⁵³</p> <p>Pittsburgh, Pennsylvania: Imposes mandatory recycling of glass, mixed paper, plastic, cardboard, and metal on all residents, businesses, offices, and institutions in the city.⁵⁴</p>

Despite the wide variety of programs, there seems to be no uniformity in state and local recycling priorities and efforts. In fact, there are stark differences in the approaches of various jurisdictions. Consider for example the single-use plastic bag. California was the first state to pass a state-wide ban on single-use plastic bags.⁵⁵ Several local jurisdictions followed suit. In fact, “between 2015 and 2016 at least seventy-seven bills have been proposed by twenty-three states regarding the regulation of plastic bags in retail settings.”⁵⁶ Every county in Hawaii has a single use plastic bag ban.⁵⁷ Contrast this with the situation in Arizona, where in April 2015, Governor Doug Ducey signed into law legislation that

⁵¹ *Massachusetts*, BOTTLE BILL RESOURCE GUIDE, <http://www.bottlebill.org/legislation/usa/massachusetts.htm> (last visited Nov. 20, 2016).

⁵² A.B. 341, ch. 476 (Cal. 2011).

⁵³ Jennifer Langston, *Mandatory Recycling Program Working Well*, SEATTLE PI 1 (Mar. 14, 2006), <http://www.seattlepi.com/local/article/Mandatory-recycling-program-working-well-1198413.php>.

⁵⁴ Mia Rupani, *Pittsburgh Looks to Clean Up with Mandatory Recycling*, POINT PARK NEWS SERV., Dec. 7, 2015, <http://www.pointparknewsservice.com/2015/12/07/pittsburgh-looks-to-clean-up-with-mandatory-recycling/>.

⁵⁵ *State Plastic and Paper Bag Legislation*, NAT'L CONFERENCE OF STATE LEGISLATURES, <http://www.ncsl.org/research/environment-and-natural-resources/plastic-bag-legislation.aspx> (last visited Nov. 20, 2016).

⁵⁶ *Id.* at 2.

⁵⁷ *Id.* at 1.

prohibits cities from passing a single-use plastic bag ban.⁵⁸ Such conflicting and contrasting approaches support the need for a cohesive approach to sustainability efforts.

3. Renewable Energy

State incentives to promote the production and use of renewable energy vary. Table 3 provides an overview of some of these non-tax incentives:

Table 3: State & Local Renewable Energy Incentives

Incentive	Description
New York: Clean Energy Fund	Designed to make energy bills more affordable, accelerate the use of clean energy, and accelerate the adoption of energy efficiency measures. ⁵⁹ The state's commitment to clean energy requires that 50 percent of New York State's electricity will come from renewable energy sources by 2030. ⁶⁰
Oklahoma: Electric Cooperative Energy Efficiency Rebate Program	The Oklahoma Electric Cooperative provides rebates of various dollar limits to residential customers who install energy-efficient heat pumps and water heaters. ⁶¹
Idaho: Power Irrigation Efficiency Rewards Program	The rewards program helps customers use electricity more efficiently by defraying the

⁵⁸ Mike Sunnucks, *Ducey Signs Bill Stopping Tempe Plastic Bag Ban*, *Phoenix Energy Rules*, PHOENIX BUS. J., Apr. 14, 2015, <http://www.bizjournals.com/phoenix/news/2015/04/14/ducey-signs-bill-stopping-tempe-plastic-bag-ban.html>. Interestingly, there is currently a pending lawsuit challenging the ability of the state legislature to dictate such a local matter. See Darren DaRonco, *Tempe Councilwoman Sues Arizona Over Law Blocking Plastic-Bag Bans*, *AZ CENTR.*, Sept. 30, 2015, <http://www.azcentral.com/story/news/local/tempe/2015/09/30/tempe-councilwoman-sues-state-plastic-bags-lauren-kuby/73107130/>.

⁵⁹ N.Y. STATE ENERGY RESEARCH & DEV. AUTH., *REFORMING THE ENERGY VISION: CLEAN ENERGY FUND*, <http://www.nyserda.ny.gov/About/Clean-Energy-Fund> (last visited Nov. 20, 2016).

⁶⁰ *Id.*

⁶¹ *Efficiency Rebate Program*, OKLA. ELECTRIC COOP., <http://www.okcoop.org/rebates> (last visited Nov. 20, 2016).

	cost of energy efficiency features in irrigation systems. ⁶²
Reno, Nevada: Energy Efficiency & Renewable Energy Initiative	As part of this initiative, projects were enacted to initiate wind turbine demonstration programs, solar photovoltaic systems, solar thermal heating systems, lighting retrofits, and various HVAC upgrades. ⁶³ For example, as part of this initiative the Reno Arch was relit with energy efficient LED bulbs. ⁶⁴
Houston, Texas: Lights Out Houston Initiative	A voluntary commitment to turn off all non-essential lights between Thursday, March 17, 2016 at 10:00 pm and the evening of Sunday, March 20, 2016. ⁶⁵ This initiative encourages individuals, households, and businesses to turn off non-essential lighting and commit to reducing energy consumption. ⁶⁶ Houston has participated in this initiative since 2008. ⁶⁷

In addition to the many state and local non-tax incentives available to encourage sustainable behavior in individuals and businesses alike, there are also a variety of tax measures offered to bring about behavioral change.

⁶² *Irrigation Efficiency Rewards Program*, IDA. POWER, <https://www.idahopower.com/EnergyEfficiency/Irrigation/Programs/EfficiencyRewards/default.cfm> (last visited Nov. 20, 2016).

⁶³ CITY OF RENO, ENERGY EFFICIENCY & RENEWABLE ENERGY INITIATIVE, <http://www.reno.gov/residents/sustainability/energy-efficiency-renewable-energy-initiative> (last visited Nov. 20, 2016).

⁶⁴ *Id.*

⁶⁵ *Earth Hour + Lights Out Houston 2016*, CITY OF HOUSTON, TEX. OFFICE OF SUSTAINABILITY, <http://www.greenhoustontx.gov/earthhour2016.html> (last visited Nov. 20, 2016).

⁶⁶ *Id.*

⁶⁷ *Id.*

B. State and Local Tax Incentives to Encourage Sustainable Behavior

Much like the federal government, “states can implement a range of tax credits, rebates, and subsidies to encourage business and consumers to take part in sustainability initiatives.”⁶⁸

1. The General Landscape of State & Local Tax Measures

There are eight incentives that are generally the most utilized: tax credits, tax deductions, tax exemptions, tax refunds, tax abatements, favorable tax valuations, exclusions from income, and tax financing programs.⁶⁹ Often, “the most popular and highest dollar value incentives are the tax credits, which provide a dollar-for-dollar reduction in tax liability of the taxpayer. Tax-exemptions usually provide a simpler tax incentive mechanism, but at often reduced dollar values.”⁷⁰

The forms of state tax incentives to encourage sustainability vary considerably, but those commonly offered seek to incentivize renewable energy.⁷¹ There are over 2,000 state-level incentives in various forms with one or more available in all states plus the District of Columbia,⁷² with an estimated forty-six states offering some form of tax incentive for renewables and energy efficiency.⁷³

As expected, state and local incentives are generally more limited than those provided by the federal government. While more generous incentives are reserved for energy providers—such as those bringing an infusion of investment and jobs, especially to an economically challenged community⁷⁴—individual state-level incentives often include sales tax and property tax exemptions.⁷⁵

2. Examples of State & Local Tax Measures

While there are numerous examples of state and local tax measures that promote sustainability efforts, this section will provide examples in three distinct areas: renewable energy, green building, and alternative fuel.

⁶⁸ COHEN, EIMICKE & MILLER, *supra* note 26, at 101.

⁶⁹ Jerome Garciano, *Green Tax Incentives: State and Federal Tax Incentives for Renewable Energy and Green Building*, 56 AM. INST. ARCHITECTS (2012), <http://www.aia.org/akr/Resources/Documents/AIAB096444SPP>.

⁷⁰ *Id.*

⁷¹ *Id.*

⁷² *Summary Tables, DSIRE*, <http://programs.dsireusa.org/system/program/tables> (last visited Nov. 25, 2016).

⁷³ *Id.*

⁷⁴ Garciano, *supra* note 69.

⁷⁵ *Id.*

a. Renewable Energy

Various state tax credits are available to support projects such as wind farms and solar equipment by providing a reduction in tax liability for those who either lease or own such renewable energy facilities.⁷⁶ One such example is Pennsylvania's Resource Enhancement and Protection ("REAP") program. This program is administered by the State Conservation Commission and allows farmers, businesses, and landowners to earn tax credits of up to 75 percent of eligible costs for implementing practices that protect natural resources and enhance farm production.⁷⁷ Nebraska also supports renewable energy, in part by providing sales tax exemptions for component parts used in wind farms.⁷⁸ New York has various programs and tax incentives in place to encourage solar energy projects, among them a tax credit for the cost of installing solar equipment on residential property.⁷⁹

b. Green Building

There are a wide range of green building tax incentives available, including income tax credits, property tax abatements, and sales tax exemptions.⁸⁰ The high value incentives provided by tax credits are enlarged in the context of green buildings.⁸¹ For example, Connecticut offers a tax credit of up to 10 percent for costs incurred in green-building projects.⁸² Maryland⁸³ and New York⁸⁴ also offer tax credits to both owners and tenants for using green building components.⁸⁵ Property tax abatements are offered by the city of Cincinnati for construction or remodeling in accordance with LEED standards, while the city of Honolulu goes even further by offering a full year property exemption for

⁷⁶ *Green Tax Incentives and Credits for Businesses and Individuals*, GRANT THORNTON 1, 6 (2010), <http://www.grantthornton.com/staticfiles/GTCom/Tax/Corp-SFTS%20files/GreenTaxCreditsWhitepaper2010.pdf>.

⁷⁷ *Resource Enhancement and Protection (REAP)*, PA. DEPT. OF AGRIC., <http://www.agriculture.pa.gov/Protect/StateConservationCommission/REAP/Pages/default.aspx#.VvG5-p3D-Uk> (last visited Nov. 20, 2016).

⁷⁸ COHEN, EIMICKE & MILLER, *supra* note 26, at 102.

⁷⁹ *Id.*

⁸⁰ *State and Local Green Building Incentives*, *supra* note 33, at 6–7.

⁸¹ *See supra* note 69 and accompanying text.

⁸² Garciano, *supra* note 69. CONN. GEN. STAT. § 12-217mm (2015).

⁸³ MD. CODE ANN., TAX-GEN. § 10-722(c)(1) (West 2015) (stating that credit is equal to 8 percent if certain green building costs).

⁸⁴ N.Y. TAX LAW § 19(b)(9)(A) (McKinney 2015) (explaining that a tax credit is available to be applied against individual or corporate income taxes, but the limit on the credit varies for new buildings versus rehabilitated buildings).

⁸⁵ *State and Local Green Building Incentives*, *supra* note 33.

developing an industrial, commercial, or resort property that receives LEED certification.⁸⁶

c. Transportation

Taxes on gasoline and diesel fuel are common to all states, and in many jurisdictions sales taxes, gross receipts taxes, and fees for oil inspection and underground storage tanks have also been imposed.⁸⁷ Colorado has implemented a Motor Vehicle Income Credit, available until 2021, that provides a tax credit for up to \$6,000 for the purchase or lease of an electric vehicle.⁸⁸ Colorado has also made available a lower flat registration fee for plug-in vehicles.⁸⁹

These state and local tax measures represent just a small portion of the myriad tax programs and incentives available at the state and local level. While these incentives and policies help to encourage behavioral changes that bolster sustainability efforts across the country, federal tax policies offer a more robust opportunity to accomplish further reaching change.

III. FEDERAL TAX INCENTIVES PLAY AN IMPORTANT ROLE IN SUSTAINABILITY EFFORTS

Tax policy often includes consideration of the following principles: simplicity, transparency, certainty, convenience of payment, equity (fairness), and neutrality.⁹⁰ The principle of neutrality means that the effect of the tax law should have minimal effect on taxpayer behavior,⁹¹ for the primary purpose of taxation is to raise revenue to pay for governmental services and functions.⁹² In reality, tax laws are often designed to influence taxpayer behavior.⁹³

Behavioral changes, whether those of an individual or a corporation, can generally be accomplished either through regulation or incentives.⁹⁴ Tax has proven to be quite an effective tool in this regard.⁹⁵ The most

⁸⁶ *Id.*

⁸⁷ Xu Yan, *Green Taxation in China: A Possible Consolidated Transport Fuel Tax To promote Clean Air?*, 21 *FORDHAM ENVTL. L. REV.* 295, 331 (2010).

⁸⁸ COHEN, EIMICKE & MILLER, *supra* note 26, at 102.

⁸⁹ *Id.*

⁹⁰ Annette Nellen & Monika Miles, *Taxes and Sustainability*, 2 *J. GREEN BUILDING* 57, 58 (2007).

⁹¹ Nick Fiore, *Guiding Principles of Good Tax Policy*, *J. ACCOUNTANCY* (Feb. 1, 2002), <http://www.journalofaccountancy.com/issues/2002/feb/guidingprinciplesofgoodtaxpolicy.html>.

⁹² *Taxes and Society*, U.S. DEP'T TREASURY, RESOURCE CENTER, <https://www.treasury.gov/resource-center/faqs/Taxes/Pages/taxes-society.aspx> (last visited Nov. 22, 2016).

⁹³ Nellen & Miles, *supra* note 90.

⁹⁴ Margaret Ryznar & Karen E. Woody, *A Framework on Mandating versus Incentivizing Corporate Social Responsibility*, 98 *MARQ. L. REV.* 1667, 1668 (2015).

⁹⁵ *Id.* at 1683.

popular means of incentivizing behavior via taxes include offering tax credits that provide taxpayers with a dollar-for-dollar offset against their tax liability and providing deductions that are used to reduce taxable income.⁹⁶ Of course, such efforts are not without costs and, indeed, for “every tax incentive, there is a corresponding cost resulting from the foregone tax revenue. However, unless obtained through lobbying, the cost is borne because of the value placed on the incentivized behavior.”⁹⁷

Over the years, the U.S. Congress has used the tax code as a way of influencing the behavior of individuals and entities to advance the U.S. economy.⁹⁸ For example, to encourage individuals to provide for family members and others after death, the Internal Revenue Code provides an exclusion from gross income amounts received from life insurance proceeds.⁹⁹ In a similar manner, the U.S. Congress uses the tax code as a vehicle for advancing its environmental goals,¹⁰⁰ relying heavily on tax incentives and, to a lesser extent, tax penalties as instruments to achieve its environmental aspirations.¹⁰¹ Tax incentives (alternatively referred to as tax expenditures) provide Congress with a way to promote government policy goals¹⁰² and encourage the private sector to contribute to the achievement of those goals by subsidizing private sector expenditures.¹⁰³ Tax incentives generally take the form of tax deductions, exclusions, and credits.¹⁰⁴ Although tax incentives result in a loss of tax revenues, they allow the U.S. government to achieve policy goals without the need to incur direct costs.¹⁰⁵

In the policy area of sustainability, tax incentives assist in achieving environmental goals by encouraging individuals and entities to make environmentally-sound decisions with corresponding benefits and actions.¹⁰⁶ Conversely, when corporations circumvent traditional command-and-control environmental regulations, minimal environmental benefit is achieved.¹⁰⁷ Tax incentives, unlike command-

⁹⁶ *Id.* at 1684.

⁹⁷ *Id.* at 1689.

⁹⁸ Waller, *supra* note 6, at 157.

⁹⁹ 26 U.S.C. § 101 (2012).

¹⁰⁰ See Milne, *Environmental Taxation in the United States: The Long View*, *supra* note 6, at 419.

¹⁰¹ Ruth Mason, *Federalism and the Taxing Power*, 99 CAL. L. REV. 975, 978 (2011).

¹⁰² *Policy Basics: Federal Tax Expenditures*, CTR. ON BUDGET & POL’Y PRIORITIES (Feb. 23, 2016), <http://www.cbpp.org/research/federal-tax/policy-basics-federal-tax-expenditures>.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Tax Expenditures: What Are They and How are They Structured?*, TAX POL’Y CTR., A JOINT PROJECT OF THE URBAN INST. & BROOKINGS INST., <http://www.taxpolicycenter.org/briefingbook/background/shelters/expenditures.cfm> (last visited Nov. 22, 2016).

¹⁰⁶ See Milne, *supra* note 6, at 419.

¹⁰⁷ Ryznar & Woody, *supra* note 94, at 1693.

and-control regulations, yield positive results as they provide a financial incentive (in the form of tax credits) to make environmentally friendly investment decisions.¹⁰⁸ Thus, tax incentives have the benefit of offering the federal government a relatively inexpensive way of protecting the environment by encouraging the private sector to invest in environmentally-sound goods, services, and structures, thereby relieving the government from incurring any direct costs associated with comparable sustainability investments.¹⁰⁹ For example, the tax credit for increasing research activities provides an incentive for taxpayers to conduct basic research, including sustainability-oriented research,¹¹⁰ which, in turn, allows the government to assume a facilitator role in protecting the environment.¹¹¹

Developing a tax incentive structure should help minimize governmental cost.¹¹² Although a given incentive may seem rather simple (e.g., receipt of a tax credit for purchasing an electric car),¹¹³ in reality such incentives represent an amalgamation of recordkeeping requirements, calculations, and integration with other tax provisions that may result in a reduction of the benefit.¹¹⁴ For example, a company's ability to utilize the General Business Tax Credit is limited when its net income tax for any taxable year exceeds certain threshold requirements including the corporate alternative minimum tax ("AMT").¹¹⁵ If a company is subject to the corporate AMT, it may utilize the PTC for only the first four years of the PTC.¹¹⁶ For those companies affected by the corporate AMT, this limitation may be a significant deterrent in deciding whether to invest in renewable energy facilities.¹¹⁷ Further limiting the reliability and effectiveness of tax incentives are a variety of sunset clauses (essentially expiration dates) that often leave taxpayers wondering whether such provisions will be available in future years.¹¹⁸

¹⁰⁸ *Id.*

¹⁰⁹ Waller, *supra* note 6, at 157–58.

¹¹⁰ 26 U.S.C. § 41 (2012).

¹¹¹ Waller, *supra* note 6, at 157–58.

¹¹² *Id.*

¹¹³ For example, the tax code provides a tax incentive for the purchase of new qualified plug-in electric drive motor vehicles. 26 U.S.C. § 30D (2012).

¹¹⁴ Nellen & Miles, *supra* note 90, at 59.

¹¹⁵ 26 U.S.C. § 38(c)(1) (2012).

¹¹⁶ *Id.* § 38(c)(4)(B).

¹¹⁷ MOLLY F. SHERLOCK, CONG. RESEARCH SERV., R43453, THE RENEWABLE ELECTRICITY PRODUCTION TAX CREDIT: IN BRIEF 2 (2015).

¹¹⁸ As an illustration of taxpayer uncertainty regarding tax extenders, Congress extended the Production Tax Credit ("PTC") for two weeks only at the end of 2014. This type of shortsightedness on the part of Congress fails to provide the certainty that the renewable energy industry needs to develop long-term strategies, plans, financing, and contracts. *Production Tax Credit for Renewable Energy*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/clean_energy/smart-energy-

Although a level of uncertainty exists regarding the long-term predictability of tax incentives, the U.S. government continues to offer incentives to consumers and businesses “to support energy efficiency, encourage the use of renewable energy sources, and support efforts to conserve energy and lessen pollution.”¹¹⁹ Examples of these incentives, discussed below, cover a wide spectrum of benefits.

A. Residential Green Tax Incentives

Globally, governmental policies favor an approach of encouraging consumers and corporations to adopt practices that improve the efficient use of energy.¹²⁰ As part of its environmental and sustainability policies, the U.S. Congress has offered green tax incentives and other energy efficiency measures since the 1970s.¹²¹ An early and important aspect of the tax incentive initiative has been Congress’s focus on residential energy consumption.¹²² Residential green tax incentives support the government’s national sustainability goals by increasing the efficient use of electricity.¹²³

In 2014, the residential sector consumed 22 percent of all energy used in the United States.¹²⁴ Although residential consumption of energy has increased by 6 percent during the past 15 years as the U.S. population has increased, energy efficiency measures introduced during the past 40 years have resulted in per capita residential energy use remaining relatively constant.¹²⁵ Some energy experts believe important energy efficiency gains remain to be realized in the residential sector.¹²⁶ However, concerns exist about whether residential consumers will invest in energy efficiency technologies at an optimal level.¹²⁷ This conundrum is sometimes referred to as the “energy efficiency paradox,” where rational consumers should invest in products that lower their overall energy costs because of the

solutions/increase-renewables/production-tax-credit-for.html#.VruQTbIrJD8 (last visited Nov. 22, 2016). Subsequent legislation extended the PTC through December 31, 2016 for non-wind renewable power facilities and through December 31, 2019 for wind power facilities. STAFF OF JOINT COMM. ON TAXATION, JCX-1-16, LIST OF EXPIRING FEDERAL TAX PROVISIONS 2016–2025 (Comm. Print 2016).

¹¹⁹ *Tax Credits, Rebates & Savings*, U.S. DEPARTMENT OF ENERGY, <http://energy.gov/savings> (last visited Nov. 22, 2016).

¹²⁰ See KPMG INT’L COOP., *supra* note 2, at 11.

¹²¹ MOLLY F. SHERLOCK & MARGOT L. CRANDALL-HOLLICK, CONG. RESEARCH SERV., R42089, RESIDENTIAL ENERGY TAX CREDIT: OVERVIEW AND ANALYSIS 1 (2016).

¹²² *Id.*

¹²³ *Id.*

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.* at 2.

¹²⁷ *Id.*

availability of green tax incentives, yet they often fail to make such cost-saving investments.¹²⁸ One explanation for the paradox is that consumers lack sufficient information about the savings available through the use of green tax credits, as well as information about the types of energy-saving technologies available.¹²⁹

1. Residential Energy Conservation Subsidy Exclusion

Consumers who receive a subsidy from a public utility¹³⁰ to assist with the installation of products or devices that conserve energy are allowed to exclude the value of such measures from the calculation of their gross income.¹³¹ The exclusion amount is limited.¹³² However, unlike other green tax incentives,¹³³ the residential energy conservation exclusion does not have a sunset clause.¹³⁴ To qualify for the exclusion, the subsidy must meet an energy conservation standard, which requires that “any installation or modification [be] primarily designed to reduce consumption of electricity or natural gas or to improve the management of energy demand¹³⁵ with respect to a dwelling unit.”¹³⁶ Because energy conservation measures must be associated with a “dwelling unit,”¹³⁷ any portion of a consumer’s residence that is used “exclusively as a hotel, motel, inn, or similar establishment” is unavailable for the benefit.¹³⁸

¹²⁸ *Id.* at 4.

¹²⁹ *Id.* at 6.

¹³⁰ 26 U.S.C. § 136(c)(2)(B) (2012) (stating that a public utility is “a person engaged in the sale of electricity or natural gas to residential, commercial, or industrial customers for use by such customers. For purposes of the preceding sentence, the term ‘person’ includes the Federal Government, a State or local government or any political subdivision thereof, or any instrumentality of any of the foregoing.”).

¹³¹ Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776; Small Business Job Protection Act of 1996, Pub. L. No. 104-188, 110 Stat. 1755 (codified at 26 U.S.C. § 136(a) (2012)).

¹³² 26 U.S.C. § 136(b) (stating that “no deduction or credit shall be allowed for, or by reason of, any expenditure to the extent of the amount excluded under subsection (a) for any subsidy which was provided with respect to such expenditure. The adjusted basis of any property shall be reduced by the amount excluded under subsection (a) which was provided with respect to such property.”).

¹³³ Most green tax incentives have a sunset clause, which requires regular legislation by the U.S. Congress to extend their effective dates. *See, e.g.*, STAFF OF JOINT COMM. ON TAXATION, JCX-1-16, *supra* note 118.

¹³⁴ LYNN J. CUNNINGHAM & BETH COOK, CONG. RESEARCH SERV., R40913, RENEWABLE ENERGY AND ENERGY EFFICIENCY INCENTIVES: A SUMMARY OF FEDERAL PROGRAMS 1, 21 (2015).

¹³⁵ For example, qualified technologies include solar water heat, solar space heat, and photovoltaics. *Id.*

¹³⁶ 26 U.S.C. § 136(c)(1).

¹³⁷ *Id.* § 136(c)(2)(A) (citing 26 U.S.C. § 280A(f)(1)(A) in defining a dwelling unit to include “a house, apartment, condominium, mobile home, boat, or similar property, and all structures or other property appurtenant to such dwelling unit.”).

¹³⁸ 26 U.S.C. § 280A(f)(1)(B) (2012).

2. Nonbusiness Energy Property Tax Credit

This green tax incentive allows consumers to receive a benefit in the form of a credit against their tax liability.¹³⁹ The incentive focuses on two aspects of a taxpayer's principal residence: the *building envelope* (e.g., insulation, exterior windows including skylights, exterior doors, and roof); and *energy property expenditures* (e.g., electric water heater, electric heat pump, central air conditioning, natural gas, propane, or oil water heater, and biomass fuel stoves).¹⁴⁰ To qualify for the credit, all improvements and property expenditures must satisfy specified energy efficiency standards.¹⁴¹ The amount of the credit is equal to 10 percent of building envelope improvements,¹⁴² plus the amount of energy property expenditures capped at various levels.¹⁴³ The overall maximum lifetime cap of the credit is \$500,¹⁴⁴ and it has a scheduled expiration date of December 31, 2016.¹⁴⁵ However, the credit for solar property expenditures does not expire until December 31, 2021.¹⁴⁶

3. Residential Energy Efficient Property Tax Credit

The Residential Energy Efficient Property Tax Credit promotes sustainability by providing a tax credit to consumers who install in their residences devices that generate renewable energy, including solar electric property expenditures, solar water heating property expenditures, fuel cell property expenditures, small wind energy property expenditures, and geothermal heat pump property expenditures.¹⁴⁷ Unlike the nonbusiness energy property credit, the energy-efficient property credit is available for installations of renewable energy generating technologies on each of a taxpayer's residences, not just the taxpayer's principal

¹³⁹ 26 U.S.C. § 25C (2012).

¹⁴⁰ *Id.* § 25C(c)(2)–(3), (d).

¹⁴¹ Generally, improvements must satisfy the criteria established by the 2009 International Energy Conservation Code. *Id.* § 25C(c)(1). Exterior windows, skylights, exterior doors, and roofs must meet the ENERGY STAR program requirements. *Id.* § 25C(c)(2)(C). ENERGY STAR is a voluntary program run by the U.S. Environmental Protection Agency (“EPA”) that assists consumers and businesses develop and adopt sustainable practices. The program “identif[ies] and promote[s] energy-efficient products and buildings in order to reduce energy consumption, improve energy security, and reduce pollution through voluntary labeling of or other forms of communication about products and buildings that meet the highest energy efficiency standards.” See *Origins and Mission*, U.S. EPA, ENERGY STAR, http://www.energystar.gov/about/origins_mission (last visited Nov. 22, 2016).

¹⁴² 26 U.S.C. § 25C(a)(1).

¹⁴³ For example, exterior windows have a lifetime cap of \$200. *Id.* § 25C(b)(2).

¹⁴⁴ *Id.* § 25C(b)(1).

¹⁴⁵ SHERLOCK & CRANDALL-HOLLICK, *supra* note 121, at 4.

¹⁴⁶ *Id.*

¹⁴⁷ 26 U.S.C. § 25D(a).

residence.¹⁴⁸ The maximum amount of the credit is 30 percent of expenditures on property that generate renewable energy,¹⁴⁹ including labor costs.¹⁵⁰ Other than expenditures for the acquisition of fuel cells,¹⁵¹ the energy-efficient property credit is not capped. With the exception of solar technologies, the energy-efficient property credit is scheduled to expire on December 31, 2016.¹⁵²

Although residential energy tax incentives seem rational from an economic perspective (lower utility costs and improved efficiency), the anticipated benefits emanating from the various residential tax incentives is unclear.¹⁵³ Factors contributing to the uncertainty include lack of consumer awareness of available incentives, major upfront cash investment without a known tax benefit at the time of purchase,¹⁵⁴ non-strategic purchasing (impulse buying irrespective of the incentives), and disconnection between buyers and users (e.g., in landlord/tenant relationships).¹⁵⁵ Furthermore, some consumers may purchase energy-efficient products because of the positive environmental consequence of their purchase regardless of the tax benefit, resulting in an inefficient tax windfall for those consumers.¹⁵⁶ Complicating the effectiveness of residential energy efficiency tax incentives, the U.S. Treasury Department's Inspector General for Tax Administration ("TIGTA") issued a report in April 2011 stating that the processing of residential energy tax credits provides "numerous opportunities for fraud."¹⁵⁷ The TIGTA report revealed that the Internal Revenue Service was unable to determine whether taxpayers who claimed residential energy tax credits actually made the energy saving modifications and whether the modifications were actually made to the claimant's residence.¹⁵⁸

B. Commercial/Industrial Green Tax Incentives

In addition to residential energy tax incentives, the U.S. government provides commercial tax incentives for expenditures related to renewable

¹⁴⁸ SHERLOCK & CRANDALL-HOLLICK, *supra* note 121, at 3 n.6.

¹⁴⁹ 26 U.S.C. § 25D(a).

¹⁵⁰ *Id.* § 25D(e)(1).

¹⁵¹ *Id.* § 25D(b)(1).

¹⁵² SHERLOCK & CRANDALL-HOLLICK, *supra* note 121, at 4.

¹⁵³ *See id.*

¹⁵⁴ Because residential incentives are nonrefundable tax credits, low-income taxpayers may not be able to utilize the credits as they may have no tax liability at year-end.

¹⁵⁵ NAT. RES. DEF. COUNCIL, NRDC ISSUE BRIEF, FEDERAL ENERGY EFFICIENCY TAX INCENTIVES: DRIVING INNOVATION AND INVESTMENT IN OUR BUILDINGS AND APPLIANCES TO SAVE MONEY AND ENERGY 1 (2013).

¹⁵⁶ *See* SHERLOCK & CRANDALL-HOLLICK, *supra* note 121.

¹⁵⁷ *Id.* at 11.

¹⁵⁸ *Id.*

energy, including the business energy investment tax credit and the renewable energy production tax credit.

1. Business Energy Investment Tax Credit

The Business Energy Investment Tax Credit (“BEITC”) supports the use of renewable energy by offering a 30 percent tax credit for investments in equipment that employ solar power to heat or cool a building, or to illuminate a building using fiber-optic distributed sunlight.¹⁵⁹ Investments in fuel cell property and small wind energy property are also eligible for the BEITC.¹⁶⁰ Furthermore, the BEITC is available for taxpayers who invest in equipment that uses microturbine property,¹⁶¹ and geothermal power to produce, distribute, or use energy.¹⁶² However, the credit is 10 percent for other types of energy property.¹⁶³ The BEITC is scheduled to expire on December 31, 2016.¹⁶⁴

2. Renewable Electricity Production Tax Credit

The Renewable Electricity Production Tax Credit (“PTC”) provides an incentive in the form of a tax credit based on the per-kilowatt hour (“kWh”)¹⁶⁵ production of electricity by qualified energy resources¹⁶⁶ at a qualified facility¹⁶⁷ and sold to an unrelated person during the taxable year.¹⁶⁸ The PTC benefits companies for the first 10 years of operations of a renewable energy facility.¹⁶⁹ The base of the maximum credit rate is set at \$0.015 per kWh¹⁷⁰ with an annual adjustment for inflation.¹⁷¹ Because the credit reduces a provider’s tax liability, it offers the opportunity for companies to deliver wind electricity, as an example, to

¹⁵⁹ 26 U.S.C. § 48(a)(3)(A).

¹⁶⁰ *Id.*

¹⁶¹ *Id.* § 48(a)(3)(A)(iv). A microturbine property is “a stationary microturbine power plant which (i) has a nameplate capacity of less than 2,000 kilowatts, and (ii) has an electricity-only generation efficiency of not less than 26 percent at International Standard Organization conditions.” *Id.* § 48(c)(2)(A).

¹⁶² *Id.* § 48(a)(3)(A)(iii).

¹⁶³ *Id.* § 48(a)(2)(A)(ii).

¹⁶⁴ STAFF OF JOINT COMM. ON TAXATION, JCX-1-16, *supra* note 118, at 4.

¹⁶⁵ 26 U.S.C. § 45(a)(2) (2012).

¹⁶⁶ *Id.* § 48(c)(2)(A); *id.* § 45(a)(2)(A)(i).

¹⁶⁷ *Id.* § 45(a)(2)(A)(ii).

¹⁶⁸ *Id.* § 45(a)(2)(B).

¹⁶⁹ *Id.* § 45(a)(2)(A)(ii).

¹⁷⁰ *Id.* § 45(a)(1).

¹⁷¹ *Id.* § 45(b)(2).

customers at a lower cost, which in turn lowers the cost of renewable electricity in the United States.¹⁷²

The following types of energy technologies qualify for the maximum PTC amount: wind, closed-loop biomass, and geothermal or solar energy.¹⁷³ For other technologies,¹⁷⁴ the PTC amount is reduced by one-half.¹⁷⁵ With the exception of wind power,¹⁷⁶ the PTC for other types of renewable energy is scheduled to terminate on December 31, 2016.¹⁷⁷ From a policy perspective, by not extending the PTC for a more definite time period, Congress may not be providing the type of certainty that industry leaders require to make strategic decisions about initiating new projects.¹⁷⁸

Since wind power first appeared in California during the 1980s, the U.S. has witnessed an increasing reliance on wind power to satisfy its demand for electricity.¹⁷⁹ Based on a 2013 report by the U.S. Department of Energy, U.S. wind facilities provide approximately 4.4 percent of the demand for electricity in the United States.¹⁸⁰ The same report observed that, in 2012, wind power represented the primary source of generating new electric power in the United States, and that \$25 billion was invested in new wind power facilities during the same year.¹⁸¹ Responding to the increasing demand for wind power electricity,¹⁸² approximately 550 companies in the United States in 2012 were engaged in the manufacturing of turbines, blades, and related equipment for the wind power industry.¹⁸³

Proponents of extending the PTC argue that it has propelled investment in wind power facilities in the United States, and that failure to extend the PTC could lead to a decrease in the demand for new wind power

¹⁷² *The Production Tax Credit is Key to a Strong U.S. Wind Industry*, U.S. DEP'T OF ENERGY (Apr. 10, 2014, 2:00 p.m.), <http://energy.gov/articles/production-tax-credit-key-strong-us-wind-industry>.

¹⁷³ 26 U.S.C. § 45(d).

¹⁷⁴ For example, open-loop biomass, *id.* § 45(d)(3), small irrigation power, *id.* § 45(d)(5), and municipal solid waste facilities, *id.* §§ 45(d)(6), (7).

¹⁷⁵ *Id.* § 45(b)(4)(A).

¹⁷⁶ The PTC for wind power is scheduled to terminate on December 31, 2019. STAFF OF JOINT COMM. ON TAXATION, JCX-1-16, *supra* note 118, at 11.

Id. at 3.

¹⁷⁸ *Production Tax Credit for Renewable Energy*, *supra* note 118, at 2.

¹⁷⁹ ERIC LANTZ ET. AL., NAT'L RENEWABLE ENERGY LAB., IMPLICATIONS OF A PTC EXTENSION ON U.S. WIND DEPLOYMENT 1 (2014).

¹⁸⁰ *Id.* (citing R. WISER & M. BOLINGER, U.S. DEP'T OF ENERGY, ANNUAL WIND TECHNOLOGIES MARKET REPORT (2013)).

¹⁸¹ *Id.*

¹⁸² *Id.*

¹⁸³ *Id.* (citing AM. WIND ENERGY ASS'N, AWEA U.S. WIND INDUSTRY ANNUAL MARKET REPORT: YEAR ENDING 2012 (2013)).

electricity generating facilities.¹⁸⁴ Further, proponents point to studies showing that the PTC has been an important source in motivating investment in wind power facilities.¹⁸⁵ Additionally, prominent scientists at the Department of Energy argue that the PTC has contributed significantly to the development of wind power in the United States, resulting in major economic benefits.¹⁸⁶ Although the increase in wind power electricity is notable, research shows that wind power has not contributed in a meaningful way to a decrease in greenhouse gas emissions.¹⁸⁷ In support of this observation, one estimate suggests that if the PTC were not extended, an increase of just 0.3 percent in power-sector emissions would occur.¹⁸⁸

The business energy investment tax credit and the renewable electricity production tax credit support billions of dollars of investments in new renewable energy. These energy incentives may play a pivotal role in the evolution of the United States from a nation highly dependent on fossil fuels to one relying increasingly on alternative, cleaner energy sources.¹⁸⁹

C. Green Buildings Tax Incentives

Globally, buildings produce a significant amount of energy-based CO₂ emissions.¹⁹⁰ However, buildings offer a major opportunity for reducing emissions in a cost-efficient manner when compared with other types of CO₂ polluters, such as transportation and agriculture.¹⁹¹ Consequently, governments around the world focus on ways of encouraging the private sector to reduce the amount of energy consumed by buildings.¹⁹² The United States has two green building tax incentives,¹⁹³ one that provides

¹⁸⁴ *Id.*

¹⁸⁵ SHERLOCK, *supra* note 117, at 8 n.26 (citing the following studies: Gireesh Shrimali, Melissa Lynes, & Joe Indvik, *Wind Energy Deployment in the U.S.: An Empirical Analysis of the Role of Federal and State Policies*, 43 RENEWABLE & SUSTAINABLE ENERGY REVS., 796 (March 2015); Claudia Hitaj, *Wind Power Development in the United States*, 65 J. ENVTL. ECON. & MGMT. 394 (2013); Xi Lu, Jeremy Tchou, Michael B. McElroy, & Chris P. Nielsen, *The Impact of Production Tax Credits on the Profitable Production of Electricity from Wind in the U.S.*, 39 ENERGY POL'Y 4207 (2011); Gilbert E. Metcalf, *Investment in Energy Infrastructure and the Tax Code*, 24 TAX POL'Y & ECON. 1 (2010)).

¹⁸⁶ *Production Tax Credit for Renewable Energy*, *supra* note 118, at 3.

¹⁸⁷ SHERLOCK, *supra* note 117, at 9.

¹⁸⁸ EFFECTS OF U.S. TAX POLICY ON GREENHOUSE GAS EMISSIONS, NAT'L ACADEMY OF SCIENCES 1, 3 (William D. Nordhaus, Stephen A. Merrill, & Paul T. Beaton eds., 2013).

¹⁸⁹ Daniel Cusick, *Experts Predict Renewable investment boom as Congress renews tax credits*, CLIMATEWIRE, Dec. 21, 2015, <http://www.eenews.net/stories/1060029809>.

¹⁹⁰ *See The KPMG Green Tax Index 2013*, *supra* note 2, at 23.

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ *Id.* at 24.

a credit for energy-efficient home construction¹⁹⁴ and another that offers a deduction for energy-efficient commercial buildings.¹⁹⁵

1. New Energy Efficient Home Credit

The Energy Efficient Homes Tax Credit provides eligible contractors with a \$2,000 credit for each energy-efficient dwelling unit they construct that is 50 percent or more efficient than standard construction.¹⁹⁶ Alternatively, a \$1,000 tax credit is available for each energy-efficient home constructed that is 30 percent more energy efficient than standard construction.¹⁹⁷ An eligible contractor is either the construction company that builds a qualified home or the manufacturing company that produces a qualified manufactured home.¹⁹⁸ The person purchasing the house must use the house as a residence.¹⁹⁹ In addition to newly constructed homes, substantially reconstructed or rehabilitated homes may also satisfy the requirements for establishing a qualified home for tax purposes.²⁰⁰

To satisfy the energy standard, a home's heating and cooling energy consumption must be at least 50 percent below that of a similar unit constructed in accordance with the 2006 International Energy Conservation Code and the National Appliance Energy Conservation Act of 1987, with at least 10 percent of the energy improvements attributable to the building envelope.²⁰¹ The credit is scheduled to expire on December 31, 2016.²⁰²

2. Energy Efficient Commercial Buildings Tax Deduction

The energy efficient commercial buildings deduction provides a tax incentive for the development of energy-efficient commercial building property.²⁰³ To qualify for the benefit, the property in question must otherwise satisfy the requirements for a depreciation deduction (or amortization in lieu of depreciation) and must be installed in a building as part of the interior lighting system, the heating, cooling, ventilation, and hot water systems, or the building envelope.²⁰⁴ Subsequent to installation, the property must be certified as being capable of reducing

¹⁹⁴ 26 U.S.C. §45L (2012).

¹⁹⁵ *Id.* §179D (2012).

¹⁹⁶ *Id.* § 45L(a)(2)(A).

¹⁹⁷ *Id.* § 45L(a)(2)(B).

¹⁹⁸ *Id.* § 45L(b)(1)(A)–(B).

¹⁹⁹ *Id.* § 45L(a)(1)(B).

²⁰⁰ *Id.* § 45L(b)(3).

²⁰¹ *Id.* § 45L(c).

²⁰² Staff of Joint Comm. on Taxation, JCX-1-16, *supra* note 118.

²⁰³ 26 U.S.C. § 179D(a) (2015).

²⁰⁴ *Id.* §§ 179D(c)(1)(A), (C).

annual energy costs of the “interior lighting systems, heating, cooling, ventilation, and hot water systems of the building by 50 percent or more in comparison to a reference building.”²⁰⁵ The energy-efficient commercial buildings deduction is scheduled to expire on December 31, 2016.²⁰⁶

Green building tax incentives represent one of the most effective and popular means for stimulating investment in green building energy-efficient technologies.²⁰⁷ By providing a financial incentive through the use of tax credits, builders are predisposed to make decisions favoring energy-efficient building materials and infrastructure installations such as heating and cooling systems.²⁰⁸

D. Green Vehicle Tax Incentives

Green vehicle tax incentives encourage manufactures to produce and consumers to purchase more fuel-efficient vehicles, including electric and hybrid vehicles, which helps reduce dependency on fossil fuels.²⁰⁹ This is important because 62 percent of global oil consumption is associated with transportation.²¹⁰ Compounding this problem, the International Energy Agency expects the number of passenger vehicles to double in the twenty-five year period between 2011 and 2035, reaching approximately 1.7 billion passenger vehicles.²¹¹ The United States uses tax incentives to encourage green vehicle use by offering tax credits for alternative motor vehicles,²¹² alternative fuel vehicle refueling property,²¹³ and plug-in vehicles.²¹⁴

As an illustration of one of these credits, the Plug-In Vehicles Credit provides a tax incentive for battery-powered vehicles.²¹⁵ The amount of the credit varies depending on the amount of propulsion energy a vehicle draws from the vehicle’s battery.²¹⁶ To qualify for the credit, the original use of the vehicle must begin with the taxpayer.²¹⁷ The taxpayer must

²⁰⁵ *Id.* § 179D(c)(1)(D) (stating that the reference building must meet the minimum requirements of Standard 90.1–2001).

²⁰⁶ Staff of Joint Comm. on Taxation, JCX-1-16, *supra* note 118.

²⁰⁷ *Good to Know: Green Building Incentive*, U.S. GREEN BUILDING COUNCIL (May 2, 2014), <http://www.usgbc.org/articles/good-know-green-building-incentive-strategies-0>.

²⁰⁸ *Id.*

²⁰⁹ *See* KPMG INT’L COOP., *supra* note 2, at 25.

²¹⁰ *Id.* at 26.

²¹¹ *Id.*

²¹² 26 U.S.C. § 30B (2015).

²¹³ *Id.* § 30C.

²¹⁴ *Id.* § 30D.

²¹⁵ *Id.* § 30D(a).

²¹⁶ *Id.* § 30D(b)(2)–(3).

²¹⁷ *Id.* § 30D(d)(1)(A).

acquire or lease the vehicle for use and not resale, and it must be produced by a manufacturer in accordance with Title II of the Clean Air Act.²¹⁸ An electric motor powered by a battery must be the primary source of propulsion for the vehicle.²¹⁹ The vehicle must weigh less than 14,000 pounds and possess the capacity to use an external source of electricity for recharging.²²⁰ The credit is scheduled to expire on December 31, 2016.²²¹

E. The Problem with Subsidies

While using subsidies to induce behavioral change has proven useful, subsidies also present a variety of difficulties. The most obvious difficulty is that the cost to cover the subsidy must be covered elsewhere and often comes from an increase in offsetting taxes, and “taxes are likely to be distorting the economy (a deadweight loss arises)—unless the tax base refers either to externalities or to land use.”²²² As explained more fully in Part VI.B, there are several perverse subsidies that have outlived the reasonable basis for their introduction. Such subsidies can take the form of favorable tax treatment or fees for economic activity that is harmful. Over the past several decades organizations such as the Organization for Economic Cooperation and Development (“OECD”), the International Energy Agency (“IEA”), the World Bank, the International Monetary Fund (“IMF”), the European Commission, and the European Environment Agency (“EEA”) have identified those subsidies that are, in fact, harmful in terms of their impact on the environment.²²³ Ultimately, the government must decide who will fund environmental protection: the general public through the inducements of tax subsidies, or those responsible for economic harm through application of a tax directly on those causing the harm.²²⁴

IV. USING GREEN TAXES TO REGULATE BEHAVIOR

Environmental tax measures seek to influence behavior while also raising additional revenue.²²⁵ Although some question whether using green taxes to modify behavior violates equal standing under the law,

²¹⁸ *Id.* § 30D(d)(1)(B)–(D).

²¹⁹ *Id.* § 30D(d)(1)(F).

²²⁰ *Id.* § 30D(d)(1)(E)–(F).

²²¹ Staff of Joint Comm. on Taxation, JCX-1-16, *supra* note 118, at 2.

²²² HANDBOOK OF RESEARCH ON ENVIRONMENTAL TAXATION 27 (Janet E. Milne & Mikael Skou Andersen eds., 2012).

²²³ ENVIRONMENTAL TAXATION AND GREEN FISCAL REFORM, THEORY AND IMPACT 147 (Larry Kreiser et al. eds., 2014).

²²⁴ HANDBOOK OF RESEARCH ON ENVIRONMENTAL TAXATION, *supra* note 222, at 28–29.

²²⁵ *Id.*

“many economists would argue that any tax can be expected to influence behavior, regardless of its purpose.”²²⁶

A. Existing Green Taxes/Penalties in the United States

Green taxes, also referred to as environmental taxes, typically impose an excise tax on products that create pollution or on products that use pollution-generating ingredients.²²⁷ As a vehicle for influencing consumer and corporate behavior, governments use green taxes less frequently than they use tax incentives as a sustainability tool.²²⁸ With the exception of the Gas Guzzler Tax and the Ozone Depleting Chemicals Tax,²²⁹ green taxes are essentially nonexistent²³⁰ in the United States.²³¹ However, as indicated in Part II of this article, a variety of taxes and fees exist at the sub-national level in the United States, administered by state governments or municipalities, including beverage deposit-refund programs and pay-per-bag requirements at local trash transfer stations.²³²

The United States also imposes an excise tax at the federal level on the sale of taxable fuels, including gasoline and diesel fuel.²³³ Opinions differ about classifying gasoline and diesel fuel taxes as green taxes. Opponents of classifying these fuel taxes as green taxes argue that over 80 percent

²²⁶ *Id.* at 23.

²²⁷ *Taxes and the Environment: What are Green Taxes?*, TAX POL’Y CTR., A JOINT PROJECT OF THE URBAN INST. & BROOKINGS INST. (July 31, 2007), <http://tpeprod.urban.org/briefing-book/key-elements/environment/what-is.cfm>.

²²⁸ *Id.*

²²⁹ Although other green taxes have been proposed over the years, the two primary green taxes in the United States are the Gas Guzzler Tax and the Ozone Depleting Chemicals Tax. See Milne, *Environmental Taxation in the United States: The Long View*, *supra* note 6, at 419.

²³⁰ In 1980, Congress passed legislation to impose an excise tax on chemicals to establish a Superfund trust fund for cleaning up hazardous waste sites. Hazardous Substance Response Revenue Act of 1980, Pub. L. No. 96-510, § 201, 94 Stat. 2767, 2796 (codified at 26 U.S.C. §§ 4661–62). Over the years, Congress has funded the Superfund program through funds generated by the excise tax imposed under Section 4661 and from general Treasury funds. The excise tax imposed under Section 4661 expired in December 1995, and funds generated from this source in the Superfund trust fund were depleted by 2003. Since then, in decreasing amounts, the U.S. government has provided funds for the Superfund trust exclusively through general Treasury funds. See *Reinstate Superfund Taxes*, TAX POL’Y CTR., A JOINT PROJECT OF THE URBAN INST. & BROOKINGS INST., <http://tpeprod.urban.org/taxtopics/2013-Reinstate-Superfund-Taxes.cfm> (last visited Nov. 20, 2016). Attempts have been made to extend and modify the Superfund excise tax. For example, the Superfund Polluter Pays Restoration Act of 2015 was introduced in the U.S. Senate on December 14, 2015, by Senators Booker, Menendez, Boxer, and Whitehouse, and was referred to the Committee on Finance. For more information visit <https://www.congress.gov/114/bills/s2400/BILLS-114s2400is.xml>.

²³¹ *Taxes and the Environment: What Green taxes Does the United States Impose?*, TAX POL’Y CTR., A JOINT PROJECT OF THE URBAN INST. & BROOKINGS INST. (July 31, 2007), <http://tpeprod.urban.org/briefing-book/key-elements/environment/usa.cfm>.

²³² *Id.*

²³³ 26 U.S.C. § 4081(a)(1)(A) (2012).

of the revenues generated by the taxes are used to finance road and highway construction projects, thereby incentivizing the continued use of fossil fuels and increasing the rate of pollution.²³⁴

1. The Gas Guzzler Tax

The Gas Guzzler Tax imposes an excise tax on manufacturers or importers who sell automobiles that fail to satisfy fuel economy requirements.²³⁵ The tax is based on a graduated scale²³⁶ and is imposed on a per-unit basis.²³⁷ The term “automobile” is defined by statute to include common four-wheeled vehicles designed for public road and highway travel.²³⁸ Vehicles over 6,000 pounds unloaded gross vehicle weight are excluded from this tax.²³⁹ The Internal Revenue Service (“IRS”) administers the tax, which is collected directly from manufacturers and importers.²⁴⁰ The tax is punitive in nature and designed to dissuade automobile manufactures from producing and selling passenger vehicles that fail to meet predetermined governmental fuel efficiency guidelines.²⁴¹

2. Ozone Depleting Substances Tax

Production of ozone depleting substances (“ODSs”)²⁴² ended in the United States in 1996.²⁴³ However, the United States has not banned the use of ODSs.²⁴⁴ Rather, the U.S imposes an excise tax on the use of ODSs in the country or on the importation of products containing ODSs.²⁴⁵ The

²³⁴ *Taxes and the Environment: What Green Taxes Does the United States Impose?*, *supra* note 231.

²³⁵ Energy Tax Act of 1978, Pub. L. No. 95-618, § 201, 92 Stat. 3174, 3180 (codified at 26 U.S.C. § 4064).

²³⁶ For example, a tax in the amount of \$1,000 is imposed on the sale of an automobile by the manufacturer if the fuel economy is at least 21.5 miles per gallon (“MPG”), but less than 22.5 MPG. At the high end of the range, a tax of \$7,700 is imposed on the sale of an automobile if its fuel economy is less than 12.5 MPG. *Id.*

²³⁷ *Id.*

²³⁸ *Id.* § 4064(b)(1)(A).

²³⁹ 26 U.S.C. § 4064(b)(1)(A)(ii). Such exclusion would encompass most trucks and SUVs. See, Gail Morse and Alexandra Dowling, *Jenner&Block: Federal and State Tax Incentives for Alternative Vehicles and Fuels Research Solutions*, July 2008, https://jenner.com/system/assets/publications/741/original/Federal_and_State_Tax_Incentives_for_Alt_Morse_Dowling.pdf?1319811577 (last visited Nov. 21, 2016).

²⁴⁰ *Id.*

²⁴¹ *Id.*

²⁴² Ozone Depleting Substances are also referred to as Ozone Depleting Chemicals.

²⁴³ U.S. INTERNAL REV. SERV., OZONE DEPLETING CHEMICALS (ODC) EXCISE TAX AUDIT TECHNIQUES GUIDE 5 (2007).

²⁴⁴ *Id.*

²⁴⁵ Revenue Reconciliation Act of 1989, Pub. L. No. 101-239, § 7506(a), 103 Stat. 2106, 2364 (codified at 26 U.S.C. §§ 4681–82 (2012)).

Ozone Depleting Substances Tax imposes an excise tax on the sale or use of ODSs by manufacturers, producers, or importers,²⁴⁶ and on the sale or use in the United States of any “imported taxable product”²⁴⁷ by importers of such products.²⁴⁸ The IRS administers the tax,²⁴⁹ which has recently bolstered its audit strategy for examining the ODS excise tax.²⁵⁰

The United States classifies ODSs as either a Class I or a Class II controlled substance.²⁵¹ As a means of protecting the earth’s ozone layer, the United States has adopted a program of phasing out ODSs.²⁵² The phase out is being administered by the U.S. EPA as part of the Clean Air Act.²⁵³ With several exceptions, the United States has phased out Class I substances because they have the highest potential for ozone depletion.²⁵⁴ Class II substances, which have a lower ozone depletion impact than Class I ODSs,²⁵⁵ are scheduled to be phased out in 2020.²⁵⁶

B. An Argument for New Green Taxes in the United States

As evidenced by examples detailed in Parts V and VI.A, green taxes can be implemented in a way that is revenue-neutral, progressive, and palatable to most parties on the political spectrum.²⁵⁷ One option is to refund to all taxpayers a share of the proceeds of a tax, for example, on fossil fuels.²⁵⁸ This incentivizes fewer choices that create harmful side effects while not growing the size of government, and eases the net tax burden on lower income households—a combination of outcomes that

²⁴⁶ 26 U.S.C. § 4681(a)(1).

²⁴⁷ The term Imported Taxable Product means “any product (other than an ozone-depleting chemical) entered into the United States for consumption, use, or warehousing if any ozone-depleting chemical was used as material in the manufacture or production of such product.” *Id.* § 4682(c)(1).

²⁴⁸ *Id.* § 4681(a)(2).

²⁴⁹ U.S. INTERNAL REV. SERV., *supra* note 243.

²⁵⁰ Jason Spitzer & Adam Rosner, *IRS Taking Firm Approach to Ozone-Depleting Chemical Excise Tax Compliance*, THE TAX ADVISOR (July 1, 2010), <http://www.thetaxadviser.com/issues/2010/jul/clinic-story-01.html>.

²⁵¹ *Phaseout of Ozone-Depleting Substances*, U.S. EPA, <http://www.epa.gov/ods-phaseout> (last visited Nov. 20, 2016).

²⁵² *Learn about the Phaseout of Ozone-Depleting Substances*, U.S. EPA, <http://www.epa.gov/ods-phaseout/learn-about-phaseout-ozone-depleting-substances> (last visited Nov. 20, 2016).

²⁵³ *Id.*

²⁵⁴ *Phaseout of Ozone-Depleting Substances*, *supra* note 251.

²⁵⁵ *Learn about the Phaseout of Ozone-Depleting Substances*, *supra* note 252.

²⁵⁶ *Phaseout of Ozone-Depleting Substances*, *supra* note 251.

²⁵⁷ See, e.g., David. G. Duff, *Carbon Taxation in British Columbia*, 10 VT. J. ENVTL. L. 87 (2008) (discussing the successful implementation of green taxes in British Columbia, Canada).

²⁵⁸ *Id.* at 93–94.

left-leaning and right-leaning politicians and economists have endorsed in a variety of contexts.²⁵⁹

This article argues for imposing new green taxes in the United States.²⁶⁰ Proponents of green taxation argue that it is a better approach to improving sustainability than alternative approaches such as cap and trade because taxes are “transparent, minimize the involvement of government, and avoid the creation of new markets subject to manipulation.”²⁶¹ Furthermore, economists theorize that imposing green taxes on pollution-causing activities and their resulting consequences enhance sustainability efforts and reduce environmental harm “in a least cost manner, by encouraging changes in behavior by those firms and households that can reduce their pollution at the lowest cost.”²⁶² Conversely, providing subsidies as an incentive to reduce pollution and other environmentally harmful practices may result in incentivizing more consumers and firms to join the subsidized group, thereby increasing the overall number of polluters with each member polluting less, but without realizing any net decrease in pollution and environmental harm.²⁶³

The goal of green taxation is to improve a government’s sustainability efforts by reducing the harmful behavior of consumers and organizations through the imposition of a tax.²⁶⁴ Unlike traditional command-and-control regulations, green taxation utilizes the market to realize low-cost gains in the reduction of pollution.²⁶⁵ A green tax incentivizes polluters to decrease their polluting activities because changing these activities is less expensive than incurring the tax cost of polluting.²⁶⁶ Pollution creates many types of costs, including those relating to health care and property damage caused by certain pollutants.²⁶⁷ However, the consumers and organizations creating pollution are generally not responsible for paying for the harm and damages caused by their behavior.²⁶⁸ Consequently, there is minimal incentive for consumers to consider such costs when

²⁵⁹ *Id.* at 104–05. See <http://climate-xchange.org/massachusetts-campaign/> for policy and economic and environmental impact analyses of a proposed revenue-neutral carbon fee in Massachusetts, as well as a link to the proposed legislation and sponsors.

²⁶⁰ See *infra* Section V.A.

²⁶¹ *Climate Policy Memo #1: Cap and Trade v Taxes*, CTR. FOR CLIMATE & ENERGY SOLUTIONS, <http://www.c2es.org/publications/cap-trade-vs-taxes> (last visited Nov. 20, 2016).

²⁶² *Taxes and the Environment: What Green Taxes Does the United States Impose?*, *supra* note 231.

²⁶³ *Id.*

²⁶⁴ Robert N. Stavins & Bradley W. Whitehead, *Greening of America’s Taxes: Pollution Charges and Environmental Protection* 9 (Harvard Univ. Kennedy Sch. of Gov’t, Discussion Paper No. 92-03, 1992).

²⁶⁵ *Climate Policy Memo #1*, *supra* note 261.

²⁶⁶ Stavins & Whitehead, *supra* note 264, at 9.

²⁶⁷ *Id.*

²⁶⁸ *Id.*

purchasing goods or services, or for organizations to consider pollution costs in the design and manufacturing of products or the rendering of services.²⁶⁹ Imposing new green taxes would help to correct this market failure.²⁷⁰

V. THE UNITED STATES CAN LEARN FROM THE EFFORTS OF THE INTERNATIONAL COMMUNITY

The international accounting firm KPMG has created the KPMG Green Tax Index to indicate the effectiveness of using a tax system as a mean of encouraging sustainable behavior.²⁷¹ The Green Tax Index, which collects information on 21 countries,²⁷² ranks countries on their green tax incentives as well as green tax penalties.²⁷³ The ranking of the countries is an indication of how active that country is in using the tax system to achieve green policy objectives and sustainability goals.²⁷⁴ The scoring for the ranking accords various weights to both incentives and penalties in relation to their supposed value and ability to influence behavior.²⁷⁵ Overall, the United States ranked first, primarily due to the vast incentives in place for renewable energy and green building.²⁷⁶ The United States is followed by Japan, the United Kingdom, France, and South Korea.²⁷⁷ The list was then further subdivided to look more specifically at country ranking based only on tax incentives and only on tax penalties.²⁷⁸ The top five countries in terms of tax incentives were: the United States, South Korea, China, India, and the United Kingdom.²⁷⁹ The top five countries in terms of tax penalties were: France, Japan, the United Kingdom, Finland, and China. The United States ranked fourteenth on the use of Tax Penalties.²⁸⁰

A look at the global use of environmental taxes reveals a mix of green taxes/penalties and tax incentives. The overall effect of sustainability

²⁶⁹ *Id.*

²⁷⁰ *Climate Policy Memo #1*, *supra* note 264.

²⁷¹ Kathy Hoffelder, *How Taxes Can Drive Sustainability*, CFO (Apr. 13, 2013), <http://www2.cfo.com/tax/2013/04/how-taxes-can-drive-sustainability/>.

²⁷² These countries are: United States, Japan, United Kingdom, France, Korea, China, Ireland, the Netherlands, Belgium, India, Canada, Spain, South Africa, Singapore, Finland, Germany, Australia, Brazil, Argentina, Mexico, and Russia.

²⁷³ *Top Countries Using Tax Code to Shape Sustainable Corporate Activity*, ACCOUNTINGWEB (Apr. 26, 2013), <http://www.accountingweb.com/aa/law-and-enforcement/top-countries-using-tax-code-to-shape-sustainable-corporate-activity>.

²⁷⁴ *See* KPMG INT'L COOP., *supra* note 2, at 2.

²⁷⁵ *Id.* at 3.

²⁷⁶ *Id.* at 5.

²⁷⁷ *Id.*

²⁷⁸ *Id.* at 4.

²⁷⁹ *Id.*

²⁸⁰ *Id.*

efforts in the United States and across the globe is to develop a broad-based green tax landscape.²⁸¹ While, as indicated above, the United States lags behind other nations in its use of green taxes, “[i]nternational organizations, in particular the OECD, have strongly promoted the use of environmental taxes.”²⁸² For example, in Italy, over a 10-year period ending in 2012, revenue from environmental taxes increased by 20 percent to reach \$60 billion.²⁸³ Looking at the EU, some suggest the European “governments are more likely to use policy tools that force polluters in the construction industry to pay for the pollution produced. The prevalence in the European Union of environmental taxes on construction debris deposited in landfills is but one example of taxing polluters to encourage sustainable construction.”²⁸⁴ Contrast this to the United States, where “[r]egulators . . . are less likely to impose financial burdens on polluters in the construction industry for making unsustainable design and construction choices.”²⁸⁵

A. France

France’s Environmental Charter of 2005, part of French constitutional law, is the cornerstone of French environmental protection policies.²⁸⁶ Most of France’s laws and administrative decrees are codified in The Environmental Code.²⁸⁷ *Préfets* and environmental inspectors enforce France’s environmental regulations.²⁸⁸ France’s green tax policies are more heavily weighted towards penalties rather than incentives. The primary environmental tax is the General Tax on Polluting Activities (*Taxe Generale sur les Activités Polluantes*) (“TGAP”).²⁸⁹ The TGAP, enacted 1999, is levied on a “pay-as-you-pollute” basis.²⁹⁰ While the tax originally covered only the disposal of waste, atmospheric pollution, and air traffic noise, it has been extended various times to include items such

²⁸¹ Waller, *supra* note 6, at 160.

²⁸² HANDBOOK OF RESEARCH ON ENVIRONMENTAL TAXATION, *supra* note 222, at 33–34.

²⁸³ ERNST & YOUNG, GLOBAL SUSTAINABILITY TAX PRIMER 4 (2016).

²⁸⁴ Nancy J. King & Brian J. King, *Creating Incentives for Sustainable Buildings: A Comparative Law Approach Featuring the United States and the European Union*, 23 VA. ENVTL. L.J. 397, 449–50 (2005).

²⁸⁵ *Id.*

²⁸⁶ Floriana Bianco, Annalisa Lucifora & Grazia Maria Vagliasindi, *Fighting Environmental Crime in France: A Country Report*, EUR. UNION ACTION TO FIGHT ENVTL. CRIME 7 (2015).

²⁸⁷ Vincent Brenot, *Environmental Law and Practice in France: Overview*, PRACTICAL LAW (Thompson Reuters, 2015).

²⁸⁸ *Id.* (discussing Article L. 170-1 of the Environmental Code). In France, *préfets* are individuals that represent the state and ministers with the goal of ensuring that the “local branches of state services function properly.” See *What Exactly Does a Prefet Do?*, THE CONNEXION (Sept. 2010), <http://www.connexionfrance.com/prefet-france-what-do-they-do-10662-news-article.html>.

²⁸⁹ Brenot, *supra* note 287, at 23–24.

²⁹⁰ See KPMG INT’L COOP., *supra* note 2, at 35.

as washing and insecticide products for agricultural use and, more recently, single-use plastic bags provided in stores.²⁹¹ France imposes a “Carbon Tax” based on CO₂ emissions.²⁹² This tax, introduced in 2014, imposes a surcharge on newly registered passenger vehicles. The amount of the surcharge is based on a vehicle’s level of CO₂ emissions.²⁹³ Rates are reduced by 40 percent for vehicles that use super-ethanol E85.²⁹⁴ While company cars are also subject to the tax, exemptions are available for hybrids.²⁹⁵ Any passenger car used by a business in France is subject to the tax, even if the car is not registered in France, and the tax rate varies according to the vehicle’s CO₂ emission rates.²⁹⁶ Trucks are also taxed, relative to maximum loaded weight in excess of 3.5 tons.²⁹⁷ France also utilizes local taxation on drinking water and household waste as a means of financing local public services.²⁹⁸

B. Japan

Japan seeks to bring about economic and environmental reform through innovation.²⁹⁹ In fact, “[b]etween 2000 and 2005, Japan accounted for 30 [percent] of world inventions in air, water and waste management technologies.”³⁰⁰ Japan also makes use of a variety of green taxes. “Tax for Climate Change Mitigation” is a carbon tax targeting crude and refined products, gaseous hydrocarbon and coal, and has been gradually enforced since October 2012 as part of Japan’s 2012 Carbon Dioxide Tax of Global Warming Countermeasure.³⁰¹ Japan imposes vehicle-related tax penalties including taxes on oil, petroleum, and gas and vehicles taxes based on vehicle size, types, and use.³⁰² Car owners are

²⁹¹ *Id.*

²⁹² Brenot, *supra* note 287, at 23.

²⁹³ See KPMG INT’L COOP., *supra* note 2, at 26.

²⁹⁴ *Id.*

²⁹⁵ *Id.*

²⁹⁶ *Id.*

²⁹⁷ *Id.*

²⁹⁸ Brenot, *supra* note 287, at 23.

²⁹⁹ *OECD Environmental Performance Reviews: Japan 2010*, ORG. FOR ECON. CO-OPERATION & DEV. 13 (Nov. 2010), http://www.oecd-ilibrary.org/environment/oecd-environmental-performance-reviews_19900090.

³⁰⁰ *Id.*

³⁰¹ Hideaki Ozawa & Shogo Umeda, *Environmental Law and Practice in Japan: Overview*, PRACTICAL LAW 8 (Thompson Reuters, 2015–16); see KPMG INT’L COOP., *supra* note 2, at 16; see also *Green Tax to Come into Force in October*, THE JAPAN TIMES, Sept. 29, 2012, <http://www.japantimes.co.jp/news/2012/09/29/business/green-tax-to-come-into-force-in-october> (reporting that, in 2012, the Japanese government announced it would introduce a new tax to curb carbon emissions, which was expected to generate revenue of 262 billion Japanese yen (JPY) (\$2.7 billion) from fiscal year 2016).

³⁰² See KPMG INT’L COOP., *supra* note 2, at 26.

charged an annual tax based on engine size.³⁰³ Additional taxes are due upon vehicle registration and registration transfers, although certain fuel-efficient vehicles may qualify for a reduced rate.³⁰⁴ A motor vehicle tonnage tax is also due at the time of inspection or registration, the amount of which varies depending on vehicle type, weight, and intended use.³⁰⁵ Some jurisdictions in Japan impose an industrial waste/landfill tax,³⁰⁶ which taxes per ton of industrial waste at a rate set by local governments.³⁰⁷ The Electric Power-Development Promotion Tax, which was levied in the 1970s, is imposed on electric utilities to promote the generation of clean power as an alternative to oil, and is passed on to end users by the utilities.³⁰⁸ In the 10-year period ending in 2012, Japan's environmental tax revenues increased 40 percent, to a total of \$93 billion.³⁰⁹ Although, "Japan has managed to reduce some of the pressures on the environment, notably energy use, air emissions, water abstractions and municipal waste generation . . . greenhouse gas emissions and generation of non-municipal waste have grown, pressures on nature and biodiversity have intensified, and air and water pollution remain of concern in some areas."³¹⁰

C. United Kingdom

The Climate Change Levy is the principal environmental tax in the United Kingdom³¹¹ It is a use tax imposed on agriculture, commerce, industry and the public energy sector, including electricity, coal, and gas.³¹² The Levy is intended to help the United Kingdom meet its goals for the reduction of greenhouse gases and to encourage energy efficiency. Industries that are energy intensive have the opportunity to reduce the levy by up to 90 percent by complying with the carbon saving targets or energy efficiency standards that are part of the U.K.'s Climate Change Agreements.³¹³

The United Kingdom also imposes a Carbon Price Floor, a tax paid by electricity generators on CO₂ emissions.³¹⁴ The tax is intended to provide

³⁰³ *Id.*

³⁰⁴ *Id.*

³⁰⁵ *See id.* at 26.

³⁰⁶ Ozawa & Umeda, *supra* note 301, at 9.

³⁰⁷ *The KPMG INT'L COOP.*, *supra* note 2, at 33.

³⁰⁸ *Id.* at 21.

³⁰⁹ ERNST & YOUNG, *supra* 283, at 4.

³¹⁰ *OECD Environmental Performance Reviews: Japan 2010*, *supra* note 299, at 19.

³¹¹ Michael Coxall & Elizabeth Hardacre, *Environmental Law and Practice in UK (England and Wales): Overview*, PRACTICAL LAW 13 (Thompson Reuters, 2015–16).

³¹² *Id.* at 13.

³¹³ *See KPMG INT'L COOP.*, *supra* note 2, at 14.

³¹⁴ *Id.*

an incentive to invest in low-carbon power generation through increased support and greater certainty with regard to the carbon price.³¹⁵ In addition, the UK also has in place a Carbon Reduction Commitment Energy Efficiency Scheme, that applies to businesses having a certain amount of energy consumption. The purpose of this is to ensure that CO₂ emissions not already covered by other carbon initiatives are addressed.³¹⁶ Organizations in this program are required to buy allowances for their energy use, with significant penalties imposed for non-compliance.³¹⁷

A country-wide Aggregates Levy is payable on the commercial exploitation of rock, sand, and gravel.³¹⁸ The Levy is designed to promote the efficient use of such materials and increase the use of alternative untaxed construction materials, such as demolition waste.³¹⁹ A per-ton Landfill Tax is imposed on waste sent to a landfill.³²⁰ The goal of the tax is to encourage waste reduction and alternative forms of waste management.³²¹

The United Kingdom also imposes a duty tax on diesel fuel and unleaded gasoline.³²² This duty when combined with the Value-Added Tax, result in 60 percent of the pump price of diesel and gasoline being allocated for tax.³²³ The United Kingdom also imposes an annual automobile tax based on CO₂ emissions and fuel type.³²⁴ At the local level, London imposes a congestion charge fee of ten pounds (fifteen dollars) per day with exemptions available for low-emission vehicles.³²⁵

D. China

China's "rapid economic growth, industrialization and urbanization have generated high pressures on the environment, and consequent damage to health and natural resources."³²⁶ In response, China has taken measures that seek to further sound environmental policies, including legislative efforts that give additional authority to environmental institutions and place a priority on managing natural resources.³²⁷

³¹⁵ *Id.*

³¹⁶ *Id.*

³¹⁷ *Id.*

³¹⁸ Coxall & Hardacre, *supra* note 311, at 14; *see* KPMG INT'L COOP., *supra* note 2, at 32.

³¹⁹ *See* KPMG INT'L COOP., *supra* note 2, at 32.

³²⁰ *Id.*

³²¹ Coxall & Hardacre, *supra* note 311, at 14.

³²² *See* KPMG INT'L COOP., *supra* note 2, at 21–22.

³²³ *Id.* at 22.

³²⁴ *Id.* at 26.

³²⁵ *Id.*

³²⁶ ORG. FOR ECON. CO-OPERATION & DEV., OECD ENVIRONMENTAL PERFORMANCE REVIEWS: CHINA 2007 15 (2007).

³²⁷ *Id.*

To support its goals of resource conservation and environmental preservation, in 2012 China increased resource taxes on various minerals, including iron and tin ore.³²⁸ China also imposes a standard enterprise income tax of 25 percent on a company's profits,³²⁹ but makes preferential treatment available in relation to environmental protection, including: 1) 10 percent of the acquisition and operation costs of equipment used for water conservations and environmental protection;³³⁰ 2) a tax exemption for three years of revenue derived from certain conservation and environmental protection projects, including, for example, public sewage treatment and seawater desalination, followed by three years of a half deduction³³¹ 3) a 10 percent deduction for income resulting from products produced by comprehensive use of major raw materials and resources;³³² and 4) a three-year exemption for energy service companies on income derived from energy performance contracting projects, followed three years of half deductions of this revenue..³³³

China has also taken steps to reform fuel taxes, which are low by international standards, to ensure that "retail fuel prices reflect the full cost of the environmental damage associated with fossil fuel use—including GHG emissions and local air pollution."³³⁴

For many years China has been deliberating how to ensure that companies are more proactive in protecting the environment.³³⁵ In 2015, a draft of China's first environmental protection tax law was released for comments in 2015.³³⁶ If passed, this law would "impose heavier penalties on polluters than ever before,"³³⁷ imposing levies on pollutants in air, water, solid waste, and noise.³³⁸ As of this writing, there is no timetable

³²⁸ See KPMG INT'L COOP., *supra* note 2, at 32; see also *China Raises Resources Tax on Iron Ore, Tin, Molybdenum*, BLOOMBERG NEWS (Feb. 17, 2012), <http://www.bloomberg.com/news/articles/2012-02-17/china-raises-resources-tax-on-iron-tin-molybdenum-production> (reporting that, in 2012, China announced increases in resource taxes on six minerals, including iron and tin ore; reports attributed the increases to China's policy objective of conserving domestic mineral resources and the environment).

³²⁹ *Id.*

³³⁰ *Id.*

³³¹ *Id.*

³³² *Id.*

³³³ *Id.* at 29.

³³⁴ Bert Brys et. al., *Tax Policy and Tax Reform in the People's Republic of China* 29 (OECD Taxation Working Papers, Paper No. 18, 2013).

³³⁵ Zhang Chun, *China Issues Draft on Environmental Taxes to Combat Pollution*, CHINA DIALOGUE (June 11, 2015), <https://www.chinadialogue.net/article/show/single/en/7975-China-issues-draft-on-environmental-taxes-to-combat-pollution>.

³³⁶ Qin Yu, *Environmental Law and Practice in China: Overview*, PRACTICAL LAW 29 (Thompson Reuters, 2016).

³³⁷ Zheng Jinran and Cao Yin, *Pollution Fees Could Become Law of the Land*, CHINA DAILY, Aug. 30, 2016, http://www.chinadaily.com.cn/china/2016-08/30/content_26636015.htm.

³³⁸ *Id.*

for its finalization.³³⁹ Under the proposed law, taxes and levies will replace the pollution fees that have been in place since 1982, but which are not meeting their objectives since they are not compulsory and often remain uncollected.³⁴⁰ A key issue to be decided is how the money that would result from imposition of the new taxes would be used.³⁴¹ This proposed legislation follows a series of other recent efforts in China to increase accountability, such as 1) higher fines imposed on polluters,³⁴² 2) increased power for courts,³⁴³ and 3) encouraging NGOs to file lawsuit against polluters.³⁴⁴

With these examples in mind, we now turn to U.S. federal tax policy and opportunities to use it as a lever to encourage sustainability.

VI. A PROPOSAL FOR MOVING FORWARD: FORTIFYING THE USE OF THE TAX CODE

The Internal Revenue Code may be one of the more optimal (in terms of outcomes) and expedient (in terms of process) means for bringing about a coherent, cohesive, and comprehensive framework to encourage long-term, predictable, and transparent investment in sustainable development. This is because there is “low hanging fruit” in terms of large perverse subsidies to eliminate and palatable alternatives to the way we presently tax that the left, right, and centrist parts of the political spectrum may agree upon. This approach should include the imposition of new green taxes/penalties and the elimination of subsidies that have a harmful net impact on society. In general, green taxes benefit society by being economically efficient, environmentally effective, socially transparent, and revenue-raising.³⁴⁵ The tax code can indeed be an effective driver of change.

As just one element of the environmental reform landscape, taxes are used as both a revenue source and a means of bringing about behavioral changes.³⁴⁶ Therefore, it is not surprising that:

³³⁹ Qin Yu, *supra* note 336.

³⁴⁰ *Id.*

³⁴¹ *Id.*

³⁴² Zhang Chun, *China's polluters hit with biggest fines ever*, CHINA DIALOGUE (June 1, 2015), <https://www.chinadialogue.net/blog/7643-China-s-polluters-hit-with-biggest-ever-fines/en>.

³⁴³ Liu Qin, *China's Top Court May Lean on Local Govt to Enforce Environmental Law*, CHINA DIALOGUE (Nov. 2, 2015), <https://www.chinadialogue.net/article/show/single/en/7717-China-s-top-court-may-lean-on-local-govt-to-enforce-environmental-law>.

³⁴⁴ Liu Qin, *China Court to Hear 30m Yuan Air Pollution Lawsuit*, CHINA DIALOGUE (Mar. 25, 2015), <https://www.chinadialogue.net/article/show/single/en/7790-China-court-to-hear-3-m-yuan-air-pollution-lawsuit->.

³⁴⁵ ORG. FOR ECON. CO-OPERATION & DEV., ENVIRONMENTAL TAXATION: A GUIDE FOR POLICY MAKERS I (2011).

³⁴⁶ ERNST & YOUNG, *supra* note 283, at 4.

There has been an increase in environmental and energy taxes in recent years, including new legislation and the development of regulations for existing taxes. In fact, the Organisation for Economic Co-operation and Development identifies more than 5,600 environmental and energy taxes across the major global economies . . . These taxes cover activities such as emissions, manufacturing of certain products, transportation, energy generation, resource use, and other negative externalities.³⁴⁷

In the United States, political differences between and among the states have an effect on environmental policy and tax decisions.³⁴⁸ Such factors certainly may make the ability to implement and enforce environmental measures difficult.³⁴⁹ As early as the 1960s and 1970s, efforts were underway to figure out how the tax system could best be used to address environmental concerns.³⁵⁰ Although President Nixon sought to impose taxes on gasoline, lead, and sulfur dioxide emissions in the early 1970s, his efforts failed.³⁵¹ Soon after these unsuccessful efforts, a tax on inefficient cars was passed in 1978, followed a few years later by a tax used to help create the Superfund.³⁵² Unfortunately, after this time period, there was a shift, in which time “federal environmental tax policy [have] focused on tax incentives and deductions to create actions with positive environmental effects, as opposed to penalties and negative price signals for damaging activities.”³⁵³

As detailed below, the United States should take a two-prong approach to addressing sustainability concerns: 1) implementing green taxes to help ensure that those most responsible for harm bear its costs, and 2) eliminating those subsidies which mask the true cost of environmentally harmful activities.

A. Add New Green Taxes to the Internal Revenue Code

Imposing taxes on those actions or products that negatively impact the environment will result in including the costs of harm in market prices.³⁵⁴ Such information will better enable consumers to make choices with a greater sense of the environmental footprint and costs associated with those choices.³⁵⁵ In addition, as explained more fully in Part VI.A.6,

³⁴⁷ *Id.*

³⁴⁸ Waller, *supra* note 6, at 176.

³⁴⁹ *Id.*

³⁵⁰ *Id.* at 158.

³⁵¹ *Id.*

³⁵² *Id.*

³⁵³ *Id.*

³⁵⁴ Brys, *supra* note 334, at 27.

³⁵⁵ *Id.*

below, revenue-generating consumption taxes can provide needed funds to help mitigate the deleterious effects of pollution.³⁵⁶ A study by researchers at the Inter-American Development Bank examined the effectiveness of environmental taxes by evaluating the environmental performance of fifty countries in relation to revenue collected from environmental taxes and found that “countries with higher revenues seem to perform better in the environmental domain.”³⁵⁷ This translated into “lower emissions, including CO₂ and PM₁₀ levels, decreasing water pollutants, and reducing energy consumption and production, especially from fossil fuel sources.”³⁵⁸ Such findings support the argument that green taxes can be effective drivers of change.

A common rationale for using a country’s tax code as a vehicle to influence consumer and commercial behavior is to respond to externalities in the marketplace.³⁵⁹ When “there is a difference between the cost (or benefit) to an individual from consumption or production and the cost (or benefit) to society as a whole,” an externality exists.³⁶⁰ Thus, externalities are a function of the consumption and production behaviors and practices of a society.³⁶¹ The problem with externalities is that they cause market failures,³⁶² which occur when too much or too little economic activity transpires regarding a particular phenomenon in relation to the optimal societal level of activity for that phenomenon.³⁶³

Both positive and negative externalities exist.³⁶⁴ A positive externality occurs when the benefits of consumption or production for society exceeds those for the individual (private interests).³⁶⁵ On the other hand, if the costs of consumption or production are higher for society than they are for the individual, a negative externality exists.³⁶⁶ Overconsumption of a good results in a negative externality when such consumption is matched against the level of consumption that would be optimal from a societal perspective.³⁶⁷ Correspondingly, under-consumption may result in a positive externality.³⁶⁸

³⁵⁶ *Id.*

³⁵⁷ Sebastian J. Miller & Mauricio Vela, *Are Environmentally Related Taxes Effective?* 16 (IDB Working Paper Series, Paper No. IDB-WP-467, 2013).

³⁵⁸ *Id.* at 16.

³⁵⁹ STAFF OF JOINT COMM. ON TAXATION, 112TH CONG., JCX-28-12, PRESENT LAW AND ANALYSIS OF ENERGY-RELATED TAX EXPENDITURES 22 (2012).

³⁶⁰ *Id.*

³⁶¹ *Id.*

³⁶² *Id.*

³⁶³ *Id.*

³⁶⁴ *Id.*

³⁶⁵ *Id.*

³⁶⁶ *Id.*

³⁶⁷ *Id.*

³⁶⁸ *Id.*

To address the extent to which environmental harms result from consumption choices, the United States should implement the following taxing measures: 1) an increase in targeted food taxes; 2) an increase in taxes on certain choices of building materials and methods; 3) imposition of pollution taxes; 4) implementation of a carbon tax; and 5) an increase in gasoline tax rates, which are presently among the lowest in the world.³⁶⁹ In each case, the goal is to ensure that to the extent feasible, the tax be imposed on the product or action causing the harm.³⁷⁰ Uniform application of the newly imposed taxes will ease compliance costs both for the government and for taxpayers, while also making avoidance of such taxes more difficult.³⁷¹

1. Increased and Targeted Food Taxes

A choice as basic as the food we eat each day has a significant effect on the environment.³⁷² While considerable attention has been paid to the transportation sector as a source of greenhouse gases, agriculture is responsible for a greater percentage of greenhouse gas production (14.9 percent) than transportation (13.5 percent).³⁷³ If agriculture is defined broadly to include “forestry, land use changes, and crop and cattle farming, agriculture’s shared contribution of global [greenhouse gas] emissions rises to 33.1 [percent].”³⁷⁴

Food prices should reflect the cumulative environmental impact of the production and distribution chain needed to bring that food to market. Increased costs that take into account the environmental impacts of production may negatively impact demand and, therefore, possibly harm entire industries. But, the question remains whether an industry that exists because of subsidies is a sustainable industry in the long-term. When environmental harms result from the means of production, shared costs will be incurred. To illustrate, consider the environmental impacts of production in the meat industry, as well as the variety of foods made possible by the unnatural reallocation of water.

³⁶⁹ *Gasoline Prices Around the World: The Real Cost of Filling Up*, Bloomberg (July 18, 2016), <http://www.bloomberg.com/graphics/gas-prices/>.

³⁷⁰ Brys, *supra* note 334, at 28.

³⁷¹ *Id.*

³⁷² *How Our Food Choices Impact Global Warming*, BORGEN MAGAZINE (May 6, 2013), <http://www.borgenmagazine.com/how-our-food-choices-impact-global-warming/>.

³⁷³ Annise Maguire, *Shifting the Paradigm: Broadening Our Understanding of Agriculture and Its Impact on Climate Change*, 33 ENVIRONS ENVTL. L. & POL’Y 275, 277 (2010).

³⁷⁴ *Id.*

a. The Meat Industry

A significant industry both in the United States and in much of the world is the livestock industry.³⁷⁵ In its current form, livestock production is unsustainable due to its numerous environmental consequences: large amounts of water consumption, water pollution, loss of rain forests due to deforestation, soil erosion and desertification, use of fossil fuels, and global warming resulting from the release of methane and carbon dioxide.³⁷⁶ In fact, livestock is estimated to be responsible for up to 20 percent of global methane emissions, which is particularly significant considering methane is believed to be a greater threat to global warming than carbon dioxide.³⁷⁷ Consider further the fact that “if every American eliminated just a quarter-pound serving of beef each week, it would have the equivalent impact of removing four to six million cars from the roads.”³⁷⁸ Beef has the largest carbon footprint of any food³⁷⁹ and yet the one-dollar hamburger remains a value meal in U.S. society, a price that clearly fails to reflect the burger’s “true cost.”³⁸⁰

b. Products Made Possible by Water Reallocation

Agricultural practices that fail to take into account environmentally sustainable methods, and instead put greater emphasis on profits, have detrimental consequences on the ecosystem.³⁸¹ One problem that arises is the pattern of water use: “In developing countries agriculture uses 87 [percent] of extracted water . . . in the United States, agriculture is responsible for 80 [percent] to 90 [percent] of consumptive water use.”³⁸²

Consider the Central Valley of California, where over 250 varieties of crops are grown.³⁸³ This area contains 17 percent of the irrigated land in the United States and is a source of 25 percent of the food in the United States, supplying up to 40 percent of the country’s fruits and nuts.³⁸⁴ In

³⁷⁵ Robert Smith, *Livestock Production: The Unsustainable Environmental and Economic Effects of an Industry Out of Control*, 4 BUFF. ENV’T L. L.J. 45, 47 (1996).

³⁷⁶ *Id.* at 48–64.

³⁷⁷ *Id.* at 64.

³⁷⁸ *How Our Food Choices Impact Global Warming*, BORDEN MAGAZINE (May 6, 2013), <http://www.bordenmagazine.com/how-our-food-choices-impact-global-warming/>.

³⁷⁹ *Id.*

³⁸⁰ This “cost” does not take into account the health costs which can result from a meat-based diet high in cholesterol, fat, and pesticides of livestock industry as well as the potential harm cause by the plants of the rain forest with medicinal properties that are destroyed in the process of making room for cattle pastures. *See* Robert Smith, *supra* note 375, at 128–29.

³⁸¹ Annise Maguire, *supra* note 373, at 283.

³⁸² *Id.*

³⁸³ *California’s Central Valley*, U.S. GEOLOGICAL SURVEY, <http://ca.water.usgs.gov/projects/central-valley/about-central-valley.html> (last visited Nov. 25, 2016).

³⁸⁴ *Id.*

2015, California Governor Jerry Brown was criticized for exempting California farmers, who use 80 percent of the state's water, from mandatory cuts in water use.³⁸⁵ Governor Brown's defense of the farmers—"they're providing most of the fruits and vegetables of America to a significant part of the world"—is indicative of how reliant the United States has become on California produce, and also causes one to wonder what will happen to U.S. food supplies in the event drought conditions become more commonplace and make such continued California production levels untenable.³⁸⁶ While some crops, such as grapes, citrus, and nuts, are best suited to the California climate, a multitude of other crops, such as tomatoes, lettuce, and carrots, could certainly thrive elsewhere and with less reliance on water reallocation.³⁸⁷ Imposition of taxes to ensure that the sales price reflects the environmental impact of growing agricultural products made possible only by reallocation of scarce water resources has the potential to provide an incentive for regional and local farms to once again engage in fruit and vegetable production.³⁸⁸

2. Building Taxes

The EPA reports that buildings are a major contributor to energy consumption and environmental harm.³⁸⁹ Construction and building use "account for 39 percent of total energy use, 12 percent of the total water consumption, 68 percent of total electricity consumption, 38 percent of the carbon dioxide emissions."³⁹⁰ In addition, real estate development generates 136 million tons of waste, amounting to 40 percent of total landfill material.³⁹¹ Given the massive impact buildings have on the health

³⁸⁵ Natasha Geiling, *California's Drought Could Upend America's Entire Food System*, THINKPROGRESS (May 5, 2015), <http://thinkprogress.org/climate/2015/05/05/3646965/california-drought-and-agriculture-explainer/>.

³⁸⁶ *Id.*

³⁸⁷ *Id.*

³⁸⁸ *Id.* Consider, for example, the tobacco industry of North Carolina. In 2002 tobacco brought in 12 percent of North Carolina's agricultural revenue. But, in 2004 federal law eliminated price protections for tobacco farmers and, as a result, the number of tobacco farms, which had been at 7,000 in 1982 had dropped to only 94 by 2012. But, instead of disappearing, farming diversified and fruits and vegetables were produced, which met almost 40 percent of the annual needs of the local community.

³⁸⁹ *Why Build Green?*, U.S. EPA, <https://archive.epa.gov/greenbuilding/web/html/whybuild.html> (last visited Nov. 22, 2016).

³⁹⁰ *Id.*

³⁹¹ Adam J. Sulkowski, *LEEDigation: The Risks, Why We Don't See More, and Practical Guidance Related to Green Building Contracts*, 39 REAL ESTATE L.J. 192, 195 (2010) ("Worldwide 40 [percent]—or 3 billion tons annually of raw material is dedicated to construction.").

of humans, the natural environment, and the economy,³⁹² any comprehensive and meaningful federal framework for sustainability has to internalize the costs on developers who do not adopt best building practices.

One way for the United States to ensure that most new construction and remodeling become green would be to impose a Building Green Tax on all new construction or remodeling projects that do not meet the requirements of a LEED certification level.³⁹³ The tax could be graduated in a way such that buildings with the highest certification standards are taxed least or not at all, and tax rates would increase as building projects fail to meet LEED certification criteria. For example, one green building option recognized in LEED criteria is brownfielding—building on previously used land rather than clearing greenfields. With tens of thousands of acres of land abandoned in hundreds of cities, it makes sense to tax at a higher rate new construction proposed for virgin land.³⁹⁴ Another green building technique is to equip structures with monitoring and control systems to better eliminate waste in energy and water use.³⁹⁵ Wasteful buildings ought to be taxed more than smart buildings.³⁹⁶ While basic LEED certification levels do not assure greater efficiencies in every regard,³⁹⁷ as more criteria are met and higher certification levels are achieved, the probability of both saving and eliminating environmental harms increases.³⁹⁸ Therefore, a graduated tax rewarding best building practices is both effective as a matter of public policy and environmental protection.

³⁹² *Why Build Green?*, *supra* note 389.

³⁹³ The following information about LEED (Leadership in Energy and Environmental Design) is from the U.S. Green Building Council website: “Leaders around the world have made LEED the most widely used third-party verification for green buildings, with around 1.85 million square feet being certified daily. LEED works for all buildings—from homes to corporate headquarters—at all phases of development. Projects pursuing LEED certification earn points across several areas that address sustainability issues. Based on the number of points achieved, a project then receives one of four LEED rating levels: Certified, Silver, Gold and Platinum.” More information is available at *LEED*, U.S. GREEN BUILDING COUNCIL, <http://www.usgbc.org/leed> (last visited Nov. 22, 2016).

³⁹⁴ Adam J. Sulkowski, *There’s Gold in Them Thar Brownfields: The Legal Framework of Brownfield Redevelopment and Some Tips for Getting Started*, 39 REAL ESTATE L. J. 100, 100–01 (2010).

³⁹⁵ Adam J. Sulkowski, *The Growing Trend of Voluntary Corporate Responsibility Disclosure and Its Implications for Real Estate Attorneys*, 38 REAL ESTATE L.J. 475, 479–80 (2010).

³⁹⁶ Definitions of smart buildings vary greatly, but generally include mentions of technologies that assure efficiency and low environmental impact. *Eight Definitions of “Smart Buildings”*, SUSTAINABLE TECH. FORUM (May 13, 2011), http://sustainabletechnologyforum.com/from-inspired-to-awful-8-definitions-of-smart-buildings_18078.html

³⁹⁷ Sulkowski, *supra* note 394, at 195–96.

³⁹⁸ *Id.* at 194.

3. Pollution Taxes

Pollution occurs when the earth's air, water, land, and other environmental elements become unsafe, unusable, or otherwise impaired.³⁹⁹ Although a tangible contaminant, such as nanoparticles,⁴⁰⁰ generally is the source of pollution, intangible factors such as noise, light, and temperature may serve as a source of pollution when introduced artificially into a particular environmental setting.⁴⁰¹ Toxic pollutants are pervasive, causing harm and injury to more than 200 million people globally.⁴⁰²

In addition to the harm caused by pollutants, pollution itself creates a negative externality in the U.S. economy,⁴⁰³ because the parties who create pollution are not responsible for the costs associated with pollution.⁴⁰⁴ Rather, the general population of the United States absorbs the costs of pollution.⁴⁰⁵ The existence of this type of negative externality supports the argument that some form of governmental intervention is required.⁴⁰⁶ For example, Congress could pass a bill aimed directly at the industries causing pollution, requiring industry to lower pollution levels over time.⁴⁰⁷ For example, "in 2010, Americans produced about 250 million tons (226.8 million kilograms) of garbage, consisting of product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint and batteries."⁴⁰⁸ In response to this type of land pollution, Congress could pass a bill requiring a nationwide bottle bill similar to the type designed and implemented by the Commonwealth of Massachusetts.⁴⁰⁹

An alternative approach in response to pollution is to impose a pollution tax.⁴¹⁰ There is general agreement among economists that

³⁹⁹ Alina Bradford, *Pollution Facts & Types of Pollution*, LIVESCIENCE (Mar. 10, 2015), <http://www.livescience.com/22728-pollution-facts.html>.

⁴⁰⁰ See, e.g., *Nanoparticles*, THE COMMONWEALTH OF MASSACHUSETTS EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS, <http://www.mass.gov/eea/agencies/massdep/toxics/sources/nanoparticles.html>.

⁴⁰¹ Bradford, *supra* note 399.

⁴⁰² *Id.* For a list of over 60 toxic pollutants, see 40 C.F.R. § 401.15 (2016).

⁴⁰³ STAFF OF JOINT COMM. ON TAXATION, JCX-28-12, *supra* note 359, at 23.

⁴⁰⁴ *Id.* at 23.

⁴⁰⁵ *Id.*

⁴⁰⁶ *Id.*

⁴⁰⁷ *Id.*

⁴⁰⁸ Bradford, *supra* note 399.

⁴⁰⁹ The Commonwealth of Massachusetts enacted a Bottle Bill 1983, which requires "a five cent deposit on all carbonated soft drink, beer, malt beverage and sparkling water containers sold in the state." See *Bottle & Can Recycling, The Massachusetts Bottle Deposit Law*, COMMONWEALTH OF MASS. EXEC. OFFICE OF ENERGY & ENVTL. AFFAIRS, <http://www.mass.gov/eea/agencies/massdep/recycle/reduce/bottle-and-can-recycling.html> (last visited Nov. 22, 2016).

⁴¹⁰ STAFF OF JOINT COMM. ON TAXATION, JCX-28-12, *supra* note 359, at 23.

imposing a direct tax on the activity causing the pollution would be the most optimal way of eliminating the negative externality, with the resulting benefit accruing to society as a whole.⁴¹¹ A direct tax is favored over a more indirect approach, such as providing targeted tax incentives, to address the pollution problem and corresponding negative externalities.⁴¹²

Government intervention in the form of a pollution tax is necessary in order to incentivize consumers and industry to change their consumption and production behavior.⁴¹³ A direct pollution tax on the activity causing the pollution addresses the negative externality and resulting market failure by shifting the cost of protecting the environment from society to the polluter.⁴¹⁴ Imposing a direct tax on the industries causing pollution has not been a popular environmental policy.⁴¹⁵ Rather, the policy approach has been one of “command-and-control” regulations, whereby certain types of practices and technologies have been banned or pollution emission levels have been proscribed.⁴¹⁶ However, interest in imposing environmental taxes has gained traction in recent years.⁴¹⁷ The benefit of imposing a pollution tax, rather than trying to control the levels of pollution through a regulatory structure, is that the industries that cause pollution, along with the consumers who purchase their goods and services, directly bear the costs associated with the pollution rather than the costs being spread across society in general.⁴¹⁸ An increase in costs may serve as a catalyst for the development of new innovations by business, and for adoption of more environmentally conscious consumption choices by businesses and consumers alike.⁴¹⁹

4. Carbon Tax

Much like a pollution tax, a carbon tax would seek to tax “bad behavior”, which is “superior to subsidizing goods because the ‘bads’ or causes of the climate change problem are easier to identify than the proper solutions.”⁴²⁰ Like most consumption taxes, a carbon tax is a means of influencing consumer behavior that can bring about effective

⁴¹¹ *Id.* at 24.

⁴¹² *Id.*

⁴¹³ ORG. FOR ECON. CO-OPERATION & DEV., *supra* note 345, at 1.

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*

⁴¹⁶ *Id.*

⁴¹⁷ *Id.*

⁴¹⁸ STAFF OF JOINT COMM. ON TAXATION, JCX-28-12, *supra* note 359, at 23.

⁴¹⁹ Brys, *supra* note 334, at 28.

⁴²⁰ Jeremy Freeman, *Efficacy of Carbon Taxes and Recommendations for Cutting Carbon*, 15 HOUS. BUS. & TAX L.J. 268, 288 (2015).

environmental change without mandating actions. For example, rather than regulating consumer behavior through various types of directives, a carbon tax becomes a part of a consumer's decision-making process.⁴²¹

The goal of designing the carbon tax would be to set a price point such that:

[T]he marginal damage caused by the polluter would be charged to the polluter in such a manner that it would no longer be profitable for the polluter to manufacture beyond a certain point. If the price is set correctly, then the "right amount" of carbon emissions would be reduced because "further reductions would cost too much and lesser reductions would be too environmentally harmful."⁴²²

British Columbia, Canada represents a successful model of implementation of a carbon tax. A carbon tax of ten dollars per ton of emissions was imposed on individuals and corporations beginning in 2008.⁴²³ By 2012 this amount reached thirty dollars per ton and the province decided to maintain this level of carbon tax since, "it appear[ed] to be working quite well," according to economist James Brander.⁴²⁴ By 2011, British Columbia's greenhouse gas emissions were 5.8 percent below their 2007 levels, during a time of population growth and an increase in the GDP.⁴²⁵ Interestingly, the tax was designed to be revenue-neutral, meaning that the increased revenues generated by the carbon tax were returned to individuals and corporations via rebates.⁴²⁶

5. Increase the Gasoline Tax

In 1993, Congress set the gas tax at a rate of 18.4 cents per gallon with the intention of funding the Federal Highway Trust Fund used to maintain roads and bridges.⁴²⁷ Although the decades since 1993 have witnessed increased prices in many areas, the gas tax has remained steady and the Federal Highway Trust Fund has been depleted.⁴²⁸ Jeffrey Sachs, director of the Earth Institute at Columbia University, has proposed that the

⁴²¹ Alex Rice Kerr, *Why We Need a Carbon Tax*, 34 ENVIRONS ENV'T'L L. & POL'Y J. 69, 75 (2010).

⁴²² Jeremy Freeman, *supra* note 420, at 286.

⁴²³ Jeff Buckstein, *Counting the Benefits, Costs of Green Policies*, THE BOTTOM LINE, Sept. 2014, at 9.

⁴²⁴ *Id.* at 9.

⁴²⁵ *Id.* at 23.

⁴²⁶ *Id.* at 9, 23.

⁴²⁷ Jeffrey D. Sachs, *Why It's Time to Raise the Federal Tax on Gasoline*, POLITICO, Jan. 19, 2015, <http://www.politico.com/magazine/story/2015/01/why-its-time-to-raise-the-federal-tax-on-gasoline-114380>.

⁴²⁸ *Id.*

current environment of declining world oil prices represents the perfect opportunity to increase the gas tax by 35 cents per gallon, enabling the government to add \$50 billion a year to the highway fund while at the same time still allowing consumers to enjoy the bulk of the savings resulting from falling oil prices.⁴²⁹

A review of worldwide gasoline and diesel fuel taxes indicates that the United States has the lowest tax share on gasoline and diesel prices of 34 countries reviewed by OECD.⁴³⁰ The United Kingdom has the highest rates.⁴³¹ In the United Kingdom, “gasoline tax revenues are several times highway spending, and the Labour government has argued that if gasoline taxes are reduced, schools and hospitals will have to close.”⁴³² In the United States higher gasoline taxes, in addition to funding needed highway and bridge projects, would more importantly discourage driving and fuel combustion, and have the benefit of reducing carbon dioxide emissions, air pollution, traffic congestion, and dependency on oil.⁴³³

6. Shouldn't We Have a Federal "Rainy Day Fund?"

Tax policy offers both an effective and expedient lever with which to offer the private sector the predictability and support it needs to invest in innovation and efficiency. In a perfect world, at least some of the revenue that comes from taxing undesirable activity ought to be put aside for disaster relief. Regardless of whether a tax or fee is revenue-generating or revenue-neutral, the first priority, as discussed above, is to associate the cost of an environmental harm with the creation of the harm. Ideally, another common sense principle with deep roots in Anglo-American law is that those creating harms should bear the cost. This is obvious in tort law, in nuisance law, and the “polluter pays” principle. In an ideal situation, revenue-positive taxes would allow the government to set aside at least some revenue in an Environmental Disaster Trust Fund (or a Disaster Relief Trust Fund, or Rainy Day Fund, as it is known in some states). As a result, those who contribute to the environmental problem ultimately pay for the costs of its detrimental effects. Presently, federal disaster relief efforts are funded by the general fund. As a result, all taxpayers ultimately bear the costs, even those who do not contribute to the problem. In the current political climate especially, revenue neutral

⁴²⁹ *Id.*

⁴³⁰ KPMG INT'L COOP., MAKING GREEN GREENER –TAX INCENTIVES FOR ENERGY SUSTAINABILITY (2011).

⁴³¹ *Id.*

⁴³² Ian W.H. Parry, *Is Gasoline Undertaxed in the United States?*, 148 RESOURCES 28, 28 (2002).

⁴³³ *Id.*

taxes are more pragmatic and more realistic, even though such taxes would deny a logical source of revenue for the creation of a disaster fund. Anyone doubting the need for a disaster relief fund need only recall hurricanes Sandy and Katrina, the western wildfires of unprecedented scale, and extreme storm events and disaster declarations in every region of the United States.

B. Eliminate Harmful Subsidies

An OECD tally of environmental tax exemptions and other special environmental tax subsidies indicates that approximately 1,150 such provisions are currently in place in OECD countries.⁴³⁴ Unfortunately, in many instances such provisions may further environmental harms rather than solve an environmental problem.⁴³⁵ Consider, for example, the fact that “coal is taxed in all but five OECD countries, and in these countries the most significant coal users are benefiting from many tax exemptions and rebates.”⁴³⁶

In the United States, four examples are illustrative of subsidies that are perverse and should be eliminated. Some may have appeared justifiable as serving the collective interest at another point in time, but presently all of these only serve a narrow set of stakeholders at great expense and detriment to society and the environment. At their most perverse, subsidies can take the form of favorable tax treatment or permitting fees for economic activities that are harmful.

1. Eliminate Corn Subsidies—The Farm Bill

Originally introduced in response to crop failures in the 1930s and the Great Depression, and later used to combat food price inflation, the Farm Bill⁴³⁷ is a sacred cow of agricultural policy in the United States.⁴³⁸ Neither political party strives to eliminate or fundamentally alter it because of the power of the businesses with enormous stakes in perpetuating (in its current form) \$20 billion of price supports and crop insurance.⁴³⁹ Key provisions encourage agribusinesses to overproduce

⁴³⁴ HANDBOOK OF RESEARCH ON ENVIRONMENTAL TAXATION, *supra* note 222, at 42–43.

⁴³⁵ *Id.*

⁴³⁶ *Id.*

⁴³⁷ The Agricultural Act of 2014, Pub. L. No. 113–79 (2014), 128 Stat. 649 (also known as the 2014 U.S. Farm Bill).

⁴³⁸ *Should Washington End Agricultural Subsidies?*, WALL STREET J., July 12, 2015, <http://www.wsj.com/articles/should-washington-end-agriculture-subsidies-1436757020>.

⁴³⁹ *Id.* Despite claims that the 2014 iteration included reforms, the current amount of subsidies is actually larger than before and changes to qualification criteria removed food assistance from some households below the poverty line. For more information, see Anne Weir Schechinger, *Crop*

corn and soy.⁴⁴⁰ While it has achieved a key aim of stabilizing supplies of food staples, it has distorted the entire supply chain of food.⁴⁴¹ Corn is used for everything from feeding livestock in concentrated feeding operations to sweetening beverages in the form of high fructose corn syrup found in most major carbonated drinks.⁴⁴² Corn is so prevalent that Americans' tissue samples can be identified in global comparisons based on an elevated level of an isotope of carbon found in the corn that we collectively pay to overproduce.⁴⁴³ Overreliance on a single species of corn has created a strategic risk because a single blight affecting this variety could create a costly and destabilizing crisis with widespread ripple effects throughout the food supply.⁴⁴⁴

The Farm Bill is therefore a contributing factor to several costly problems, including the epidemic of obesity in the United States,⁴⁴⁵ plus various environmental problems and potentially catastrophic systemic risks.⁴⁴⁶ By artificially keeping commodity prices low, it also makes it difficult for farmers in the developing world to prosper by selling their produce in export markets—another undesirable impact on sustainable development.⁴⁴⁷ While it is not politically feasible at present to drastically reform the Farm Bill, from the point of view of pragmatic and utilitarian public policy, it should be reformed to distort the agricultural and food industries less.

Subsidies Soar under 2014 Farm Bill "Reforms" (Mar. 13, 2015), <http://www.ewg.org/agmag/2015/03/crop-subsidies-soar-under-2014-farm-bill-reforms>.

⁴⁴⁰ William Moseley, *The Silver Lining in the Drought*, N.Y. TIMES, Aug. 7, 2012, <http://www.nytimes.com/2012/08/08/opinion/the-droughts-alert-for-corn.html>.

⁴⁴¹ *Id.*

⁴⁴² Tamar Haspel, *Why Don't Taxpayers Subsidize the Foods That Are Better For Us?*, WASH. POST, Jan. 18, 2014, https://www.washingtonpost.com/lifestyle/food/farm-bill-why-dont-taxpayers-subsidize-the-foods-that-are-better-for-us/2014/02/14/d7642a3c-9434-11e3-84e1-27626c5ef5fb_story.html.

⁴⁴³ "But carbon 13 [the carbon from corn] doesn't lie, and researchers who have compared the isotopes in the flesh or hair of Americans to those in the same tissues of Mexicans report that it is now we in the North who are the true people of corn. . . . Compared to us, Mexicans today consume a far more varied carbon diet: the animals they eat still eat grass (until recently, Mexicans regarded feeding corn to livestock as a sacrilege); much of their protein comes from legumes; and they still sweeten their beverages with cane sugar. So that's us: processed corn, walking." MICHAEL POLLAN, *OMNIVORE'S DILEMMA* 22–23 (2011).

⁴⁴⁴ Margaret L. Margosian, Karen A. Garrett, J. M. Shawn Hutchinson & Kimberly A., *With Connectivity of the American Agricultural Landscape: Assessing the National Risk of Crop Pest and Disease Spread*, 59 *BIOSCIENCE* 2, 141–51 (2009).

⁴⁴⁵ Haspel, *supra* note 442.

⁴⁴⁶ William G. Moseley, *The Silver Lining in the Drought*, N.Y. TIMES, Aug. 7, 2012, <http://www.nytimes.com/2012/08/08/opinion/the-droughts-alert-for-corn.html>.

⁴⁴⁷ Kevin C. Kennedy, *The Incoherence of Agricultural, Trade, and Development Policy for Sub-Saharan Africa: Sowing The Seeds of False Hope for Sub-Saharan Africa's Cotton Farmers?*, 14 *KAN. J.L. & PUB. POLICY* 307 (2005).

2. Mining on Public Lands

An example of a perverse fee can be found in the Mining on Public Lands Act of 1872 (“the Mining Act”),⁴⁴⁸ amounting to dollars-per-acre for the right to potentially extract hundreds of millions of dollars of ore. As with the Farm Bill, despite claims of reforms over time,⁴⁴⁹ the Mining Act is an example of government largesse, charging negligible fees for mining rights and requiring nothing in royalties or reporting, such that the federal government does not even know exactly how much value has been extracted from public lands.⁴⁵⁰ Further, the federal government often pays for access roads and hundreds of millions of dollars to clean up toxic mining pollution.⁴⁵¹

The law may have made sense in the 1800s, when it was passed with the intent of encouraging mining in spite of the novelty and risks in a frontier context.⁴⁵² Despite updates through the 1976 Federal Land Policy Management Act (“FLPMA”) effective as of January 1981,⁴⁵³ many authors remain hypercritical of its provisions. One compilation of criticism reads as follows:

Mining and the Mining Law are regularly the subject of heavy criticism by a variety of interest groups. The Mining Law is derided as “an anachronism,” “outdated since its inception,” “a ‘tawdry process,’” “not only grossly outdated, but in most meaningful ways, inimical to today’s needs and values,” “a disgrace to the Government of the United States,” a “gargantuan prehistoric fire breathing dragon,” “one of the last remaining American dinosaurs of the old public resource giveaways,” “passed in the spirit of Manifest Destiny,” a “relic of pioneer days,” and

⁴⁴⁸ General Mining Act of 1872, ch. 152, 17 Stat. 91 (1872), amended by Mining and Minerals Policy Act of 1970, Pub. L. No. 91-631, 84 Stat. 1876 (codified as amended at 30 U.S.C. §§ 21–54 (2012)).

⁴⁴⁹ See, e.g., Federal Land Policy and Management Act, Pub. L. No. 94-557 (1976), 90 Stat. 2743 (codified as amended at 43 U.S.C. §§ 1701–84 (2012)). For an unusual perspective arguing that this law set the stage for vigorous environmental regulatory protections, see Beckett G. Cantley, *Environmental Protection or Mineral Theft: Potential Application of the Fifth Amendment Takings Clause to U.S. Termination of Unpatented Mining Claims*, 4 WASH. & LEE J. ENERGY, CLIMATE & ENV’T 203 (2013).

⁴⁵⁰ Juliet Eilperin, *Mining Firms Profits From Public Lands Remain a Mystery*, *New GAO Study Shows*, WASH. POST, Dec. 11, 2012, https://www.washingtonpost.com/national/health-science/mining-firm-profits-from-public-lands-remain-a-mystery-new-gao-study-shows/2012/12/11/c3416110-43c1-11e2-8061-253bccfc7532_story.html.

⁴⁵¹ William Barlow, *Insult to Injury: How Government Requirements Should Protect the Public From Hardrock Mine Contamination and the Financial Liability of Reclamation*, 26 J. LAND RES. & ENVTL. L. 339 (2006).

⁴⁵² Alison A. Ochs, *Glamis Gold Ltd.—A Foreign United States Citizen? NAFTA and Its Potential Effect on Environmental Regulations and the Mining Law of 1872*, 16 COLO. J. INT’L ENVTL. L. & POL’Y 495, 761 (2005) (citations omitted).

⁴⁵³ Pub. L. No. 94-597 (1976), 90 Stat. 2744.

“obsolete and antiquated.” It is “corporate welfare” and a gift of public resources to private interests; it allows “[u]ncontrolled mining[,] . . . a menace which can strike almost anywhere, often in the midst of the most environmentally valuable and vulnerable places,” and lets “huge mining conglomerates . . . wreak environmental havoc on public lands.” It “plunders taxpayers” and is “the largest ongoing scam in American history.” It allows “foreign-owned corporations from ten countries [to] have collectively gained control of metals beneath one of every five acres of claimed lands in the United States.”⁴⁵⁴

The cost of cleaning up hundreds of thousands of abandoned mines in the United States could cost a total of \$32 to \$72 billion.⁴⁵⁵ It is worth noting that mine tailings can be highly toxic—they can include cyanide.⁴⁵⁶ The expectation of large returns on investment in mineral exploration combined with investor protection provisions in free trade agreements means that foreign investors have a means of pressuring governments against implementation or enforcement of laws intended to protect the environment and people.⁴⁵⁷

3. Fossil Fuel Tax Breaks

Examples of subsidies also include the ability of fossil fuel companies to reduce their tax burden by writing off the value of oil removed from the ground as a diminishment of the value of that property.⁴⁵⁸ This is a relic of the early days of the oil industry, when favorable tax treatment was deemed necessary to encourage investments in these risky new ventures.⁴⁵⁹ Yet the tax subsidy has persisted into the current era, when oil giants measure profits in tens of billions of dollars per year. In the fiscal year 2016 budget, President Obama proposed repealing \$44 billion in fossil fuel industry tax breaks.⁴⁶⁰

⁴⁵⁴ Andrew P. Morriss et. al., *Homesteading Rock: A Defense of Free Access Under the General Mining Law of 1872*, 34 ENVTL. L. 745, 749–50 (2004).

⁴⁵⁵ *Mining Factsheet*, THE SIERRA CLUB, <http://www.sierraclub.org/arizona/mining-factsheet> (last visited Nov. 25, 2016).

⁴⁵⁶ Zagury, Gérald J., Kahina Oudjehani & Louise Deschênes, *Characterization and Availability of Cyanide in Solid Mine Tailings From Gold Extraction Plants*, 320 SCI. TOTAL ENV'T 211 (2004).

⁴⁵⁷ See, e.g., Allan Ingelson & Lincoln Mitchell, *NAFTA, The Mining Law of 1872, and Environmental Protection*, 51 NAT. RESOURCES J. 261 (2011) (discussing investor Glamis Gold Ltd.'s interactions with state and federal governments).

⁴⁵⁸ Carrie Cecil, *Budget Battles: Would Obama Administration's Proposal to Eliminate Oil and Gas Subsidies Injure the Industry?*, 8 PITT. TAX REV. 209 (2011).

⁴⁵⁹ *Id.* at 212–13.

⁴⁶⁰ *Obama Budget Permanently Extends Renewable Energy Tax Credits*, SUSTAINABLEBUSINESS.COM (Feb. 2, 2015, 5:13 PM), <http://www.sustainablebusiness.com/index.cfm/go/news.display/id/26132>.

4. *Deductibility of Environmental Fines*

Another perverse example is the ability of companies to write-off environmental fines as tax deductible. For example, BP settled with the Justice Department for the Deepwater Horizon oil spill for approximately 20.8 billion. Although roughly \$5.5 billion is considered a non-deductible, it is estimated that the remaining \$15 billion is considered a deductible expense.⁴⁶¹ At least one commenter has noted, “[t]his not only sends the wrong message . . . but it also hurts taxpayers by forcing us to shoulder the burden of BP’s tax windfall in the form of higher taxes, cuts to public programs, and more national debt.”⁴⁶² In addition, the \$32 billion of cleanup costs incurred by BP were also a deductible expense, meaning they cost taxpayers an estimated \$10 billion.⁴⁶³

5. *Subsidies that Appear to be Green but Are Not*

Even when a subsidy appears to be green, it may not in fact be environmentally friendly. An example of this is the 2009 Car Allowance Rebate (“CARS”), or Cash for Clunkers program.⁴⁶⁴ The environmental footprint of producing a new car—even a more efficient one—can be greater than that of operating an existing car, even one that burns more fuel, until it is fully depreciated.⁴⁶⁵ This is because close to 30 percent of emissions (to take one measure of environmental impact) related to a car purchase occur during manufacturing and transportation to the customer.⁴⁶⁶ The Cash for Clunkers program incentivized the opposite: it encouraged consumers to destroy existing vehicles and then replace them with new ones. The benefactors were the car industry and scrap metal companies (since cars were required to be shredded or crushed rather than resold), and by some appraisals the program failed to deliver more than a temporary stimulus.⁴⁶⁷ Even favorable evaluations acknowledge that a multi-dimensional measure of sustainability would improve the ability to

⁴⁶¹ Michael Hiltzik, *BP’s \$20.8 billion oil spill settlement may give it a huge tax deduction*, L.A. TIMES, Oct. 5, 2015, <http://www.latimes.com/business/hiltzik/la-fi-mh-bp-s-20-8-billion-oil-spill-20151005-column.html>.

⁴⁶² *Id.*

⁴⁶³ Robert W. Wood, *BP’s \$20.8 Billion Gulf Spill Settlement Nets \$15.3 Billion Tax Write-Off*, FORBES (Oct. 6, 2015, 8:38 AM), <http://www.forbes.com/sites/robertwood/2015/10/06/bps-20-8-billion-gulf-spill-settlement-nets-15-3-billion-tax-write-off/#4dffa76971a6>.

⁴⁶⁴ Consumer Assistance to Recycle and Save Act of 2009, Pub. L. No. 111-32, 123 Stat. 1909–15.

⁴⁶⁵ *When Used Cars Are More Ecofriendly Than New Cars*, SCIENTIFIC AM. (Jan. 14, 2009), <http://www.scientificamerican.com/article/when-used-cars-are-more-ecofriendly/>.

⁴⁶⁶ *Id.*

⁴⁶⁷ Atif Mian & Amir Sufi, *The Effects of Fiscal Stimulus: Evidence from the 2009 Cash for Clunkers Program*, 127 Q. J. ECON. 1107, 1108–10 (2012).

judge such a scheme's effectiveness, rather than just taking into account average miles-per-gallon of the cars involved.⁴⁶⁸

C. Interagency Cooperation

Although employing a variety of incentives and technologies aimed at maximizing energy efficiency in the United States is an important and laudable policy goal, determining the proper mix of green tools remains unclear.⁴⁶⁹ The tax code certainly has a role to play in bringing about necessary changes, but an interesting question remains as to how the new environmental taxes will be managed. While tax collection is the forte of the taxing authorities, environmental agencies have the skills needed to understand and monitor compliance efforts.⁴⁷⁰ The EPA has decades of expertise crafting environmental rules using notice-and-comment rulemaking. Other departments and agencies such as the Department of Interior, Department of Transportation, NOAA, and NASA also have expertise and scientific data that could be useful in establishing exactly what should be taxed and how much. Much as 9/11 catalyzed better inter-agency coordination under the auspices of the Department of Homeland Security, our environmental crises should prompt departments and agencies to share data, know-how, and expertise in rule-making, investigation, and enforcement.

A related policy tool that could be used as a complementary component to the newly enacted green taxes is the imposition of civil tax penalties for failure to comply with tax laws.⁴⁷¹ As a commonly used tool, there are over 600 distinct civil tax penalty provisions currently in place.⁴⁷² A look at tax penalties figures for the most recent three years for which information is available indicates the number of net penalty assessments has slightly increased steadily from 2012 through 2014. In 2014, 35,388,089 assessments resulted in \$15,668,563 in penalties.⁴⁷³ These 2014 figures represented an increase from 33,047,024 assessments in 2013 resulting in \$14,435,099 being assessed.⁴⁷⁴ In 2012 the total

⁴⁶⁸ Marianne Tyrell & John Dernbach, *The Cash for Clunkers Program: A Sustainability Evaluation*, 42 U. TOL. L. REV. 467, 489–90 (2011).

⁴⁶⁹ Sherlock & Crandall-Hollick, *supra* note 121, at 1.

⁴⁷⁰ HANDBOOK OF RESEARCH ON ENVIRONMENTAL TAXATION, *supra* note 222, at 95.

⁴⁷¹ Craig A. Max IV, *Hand-Holding, Brow-Beating, and Shaming into Compliance: A Comparative Survey of Enforcement Mechanisms for Tax Compliance*, 40 VAND. J. TRANSNAT'L L. 541, 543 (2007).

⁴⁷² *Id.* at 573.

⁴⁷³ This is a net figure. There were initially 37,942,652 assessed and of those 11,458,194 were abated. INTERNAL REV. SERV., INTERNAL REVENUE SERVICE DATA BOOK, 2014 44 (2014).

⁴⁷⁴ This is a net figure. There were initially 40,357,481 assessments and of those 4,891,799 were abated. INTERNAL REV. SERV., INTERNAL REVENUE SERVICE DATA BOOK, 2013 42 (2013).

number of net assessments was 32,915,567.⁴⁷⁵ Policy planners should keep in mind whether the effectiveness of the threat of penalty helps increase compliance. Again, the potential of using civil fines raises the obvious question of how existing departments and agencies can cooperate so that their knowledge and expertise can be coordinated and optimally leveraged.⁴⁷⁶

VII. CONCLUSION

All stakeholders, ranging from advocates for ecosystems to members of the investment and business community, prefer predictability and coherence in regulatory environments. The alternatives—including patchworks of contradictory incentives (among states, between states and federal policy, and among federal agencies), ad hoc or short-term policy-making, and crisis-to-crisis inaction followed by retroactive disaster response—are counterproductive, illogical, and popular with no one. This article has endeavored to offer a vision for a federal framework that is both comprehensive and coherent and at the same time efficient and expedient. The authors have not proposed establishing new bureaucracies or even necessarily net tax increases (taxes on polluting activities, for example, can be offset by reducing taxes on income). The system of federal taxation and subsidies can be altered without creating new agencies, and is unquestionably constitutional given the U.S. Constitution's grant of power to tax and spend to Congress.

Both from the perspective of pragmatism and the ideological predisposition of all parts of the political spectrum, tax and subsidy reform should be palatable to all stakeholders except specific and narrow interest groups. All ought to embrace removing perverse subsidies and imposing costs on those who generate negative environmental side effects—the cost of which is foisted onto all other taxpayers. Ideally, all ought to embrace the timeless and universal wisdom manifested in the suggestion to set aside extra resources on a regular basis—especially those garnered from harm-and-risk generators—to cover the costs of the environmental cataclysms that are increasing in severity and frequency.

The United States should seek to be a leader rather than a laggard. Although the United States represents 5 percent of the world's population, it is responsible for up to 25 percent of its resource

⁴⁷⁵ This is a net figure. There were initially 37,910,493 assessments and of those 4,994,926 were abated. INTERNAL REV. SERV., INTERNAL REVENUE SERVICE DATA BOOK, 2012, 42 (2012).

⁴⁷⁶ While a detailed discussion is beyond the scope of this article, this question raises comparative political science and public policy concerns.

consumption,⁴⁷⁷ 15 percent of its CO₂ emissions,⁴⁷⁸ and 50 percent of its solid waste.⁴⁷⁹ As it has done in other contexts, the United States should strive to be a role model. The United States has the tools and the systems in place. We have shown enlightened leadership in public-and-private long-term planning cooperation, such as the space program, the human genome project, and other infrastructure and research endeavors. When we have cooperative foresight, the fruits include wealth-generating commercial endeavors and improved health, well-being, knowledge, and inspiration. All stakeholders, including most of the business community (outside of those who have enjoyed perverse subsidies) should embrace this suggestion of a predictable, cooperative, coherent tax system that we are proposing. The alternatives—including our status quo—are paths that are reckless, short-sighted, incoherent, unjust, and morally inexcusable. A coherent, comprehensive, and cooperative overhaul of our federal tax framework and subsidies reflects the best of both our traditions and our aspirations for the future. These issues concern respecting life in all forms and stages, including the rights of children yet unborn, and ultimately the natural life support systems of us all. Tax reform may be one of the most pragmatic legal levers with which we can steer society away from contributing to current systemic deterioration and acute cataclysms, for the sake of life, prosperity, and well-being in the United States and on the planet.

⁴⁷⁷ JOHN L. SEITZ, GLOBAL ISSUES: AN INTRODUCTION 121 (2001). This percentage share appears to have remained roughly constant. *The State of Consumption Today*, WORLDWATCH INSTITUTE, <http://www.worldwatch.org/node/810> (last visited Nov. 24, 2016).

⁴⁷⁸ JOS. G.J. OLIVER ET. AL., EUR. COMM'N PBL NETHERLANDS ENVTL. ASSESSMENT AGENCY, TRENDS IN GLOBAL CO₂ EMISSIONS, 2015 REPORT 4 (2015).

⁴⁷⁹ *Use It or Lose It: The Outsize Effect of U.S. Consumption on the Environment*, SCIENTIFIC AM., Sept. 14, 2012, <http://www.scientificamerican.com/article/american-consumption-habits/>.