

Picking Winners and Losers: A Structural Examination of Tax Subsidies to the Energy Industry

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I. INTRODUCTION

In debates over whether government should continue to subsidize renewable energy, politicians have repeatedly warned that government should not be “picking winners and losers.”¹ This way

1. See Tom Hamburger, *Conservative Groups Seek Limits During Lame Duck on Wind Energy Subsidies*, WASH. POST (Dec. 8, 2014), <http://www.washingtonpost.com/blogs/post-politics/wp/2014/12/08/conservative-groups-seek-limits-during-lame-duck-on-wind-energy-subsidies/> [<http://perma.cc/U7YV-SLE3>]; Timothy Cama, *Senate Calls Hearing on Energy Tax Policy*, HILL (Sept. 11, 2014), <http://thehill.com/policy/energy-environment/217451-senate-calls-hearing-on-energy-tax-policy> [<http://perma.cc/GHJ7-ZXNL>]. This has been the rallying cry for conservative Congress members for some time and is currently a part of the Republican platform. See *America's Natural Resources*, GOP, <https://www.gop.com/platform/americas-natural-resources/> [<https://perma.cc/FU67-JPB3>] (last visited Nov. 29, 2015). Recently, conservatives have proposed to eliminate tax credits, the primary source of federal support for renewable energy resources. See Michael Sandoval, *It's Time to Stop Picking Winners and Losers in the Energy Industry*, DAILY SIGNAL (Jan. 28, 2013), <http://dailysignal.com/2013/01/28/its-time-to-stop-picking-winners-and-losers-in-the-energy-industry/> [<http://perma.cc/5HKR-LFQE>]; see also Patrick Burke, *GOP Congressmen: Gov't Should Stop 'Picking Winners and Losers' in Energy Sector*, CNS NEWS (Mar. 2, 2012), <http://cnsnews.com/news/article/gop-congressmen-gov-t-should-stop-picking-winners-and-losers-energy-sector> [<http://perma.cc/6DKF-2Q4C>]. As discussed below, these bills do not touch the vast majority of the subsidies for fossil fuels which are set forth in other areas of the tax code. Some have argued that the government's track record has been more successful than the private market's. See Laurent Belsie, *Romney Zinger: Obama Backs 'Green' Energy Losers. Is He Right?*, CHRISTIAN SCI. MONITOR (Oct. 4, 2012), <http://www.csmonitor.com/Environment/EnergyVoices/2012/1004/Romney-zinger-Obama-backs-green-energy-losers-is-he-right-video> [<http://perma.cc/DDJ6-ZRWZ>]; see also Susan

of framing the debate undermines sensible policy analysis in two ways. First, it obscures the long history of federal support for fossil fuels; the United States has been picking winners and losers for over 100 years. Second, it fails to articulate what it means to “pick winners and losers,” to explain why doing so is less efficient than pursuing other economic policies, and to inquire why this suboptimal choice has been made. This article addresses these failings by examining two sets of tax subsidies to the energy industry, one for fossil fuels and the other for renewables.

The federal government has employed a variety of mechanisms to support the growth and development of the economy,² to diversify the country’s energy portfolio,³ and more recently, to reduce carbon emissions.⁴ These subsidies include direct grants, loans, loan guarantees, research and development support, preferential sales of electricity to public bodies and cooperatives,⁵ forbearance against regulation,⁶ and tax subsidies.⁷

Most of these forms of support have been scrutinized in detail. For example, a number of scholars have drawn attention to the

Kraemer, *Obama DOE Picked More Energy Winners than Silicon Valley VCs*, CLEAN TECHNICA (Oct. 21, 2011), <http://cleantechnica.com/2011/10/21/obama-doe-picked-more-energy-winners-than-silicon-valley-vc/> [<http://perma.cc/2L2E-TQVG>].

2. NANCY PFUND & BEN HEALEY, DBL INVESTORS, WHAT WOULD JEFFERSON DO? THE HISTORICAL ROLE OF FEDERAL SUBSIDIES IN SHAPING AMERICA’S ENERGY FUTURE (2011), <http://www.dblpartners.vc/wp-content/uploads/2012/09/What-Would-Jefferson-Do-2.4.pdf?597435&48d1ff> [<http://perma.cc/E5PH-4VUA>].

3. Diversifying the energy portfolio of the United States reduces security risks. See RYAN WISER, MARK BOLINGER & GALEN BARBOSE, USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND POWER IN THE UNITED STATES 1 (2007), https://emp.lbl.gov/sites/all/files/REPORT%20bnl%20-%2063583_0.pdf [<https://perma.cc/Q5DT-GANE>] (discussing the federal production tax credit, a government created incentive for investors in wind power). The United States has a much higher renewable resource base than most of countries in Europe, yet meets far fewer of its needs with renewable energy. See *id.*

4. President Barack Obama, Remarks on Climate Change at Georgetown University (June 25, 2013), <http://www.whitehouse.gov/the-press-office/2013/06/25/remarks-president-climate-change> [<http://perma.cc/TWW8-5WRY>].

5. U.S. ENERGY INFO. ADMIN., DIRECT FEDERAL FINANCIAL INTERVENTIONS AND SUBSIDIES IN ENERGY IN FISCAL YEAR 2010 viii–x (2011), <https://www.eia.gov/analysis/requests/subsidy/archive/2010/pdf/subsidy.pdf> [<https://perma.cc/VV2U-YF7H>] [hereinafter EIA 2010 REPORT].

6. See IMF, ENERGY SUBSIDY REFORM: LESSONS AND IMPLICATIONS 6 (Jan. 28, 2013), <http://www.imf.org/external/np/pp/eng/2013/012813.pdf> [perma.cc/HLM5-3L3S]. In estimating global annual energy subsidies, the IMF counted the absence of corrective taxation to address market failures as a subsidy. *Id.*

7. Mona L. Hymel, *Environmental Tax Policy in the United States, a “Bit” of History*, 3 ARIZ. J. ENVTL. L. & POL’Y 157, 159 (2013).

significant conflicts between energy law and environmental policy.⁸ Historically, the Department of Energy and its precursors have sought to maximize the potential of fossil fuels, reduce scarcity, address inefficiencies in the market, and promote sensible consumption.⁹ Fragmented authority,¹⁰ public choice dilemmas,¹¹ and entrenched interests¹² have constrained executive branch attempts to reform energy policy both by way of centralized decision-making under President Carter and through market deregulation under both Presidents Carter and Reagan.¹³ Energy law and environmental policy have developed as separate disciplines with little coordination.¹⁴

Other scholars have seen environmental law, itself, as an impediment to environmental goals. They have traced the transformation of environmental law in the United States, from its beginnings in tort law to the enactment of command and control regulation in the 1970s¹⁵ and the implementation of market-based mechanisms in the 1990s, as a drive toward increasing efficiency.¹⁶ Some critics have noted that environmental regulatory activity has stalled through the ossification of environmental regulations¹⁷ and

8. See JOSEPH P. TOMAIN, *ENDING DIRTY ENERGY POLICY* 235–38 (2011).

9. See *id.*

10. See *id.* at 44. Authority over energy regulation is divided between the Department of Energy, the Department of the Interior, and the Federal Regulatory Energy Commission. See *id.*

11. *Id.* at 121–23.

12. *Id.* at 239–43.

13. *Id.* at 32.

14. *Id.* at 51–52.

15. See Richard J. Lazarus, *The Greening of America and the Graying of United States Environmental Law: Reflections on Environmental Law's First Three Decades in the United States*, 20 VA. ENVTL. L.J. 75, 76–78 (2001). Rapid industrialization in the United States during and after World War II resulted in significant air and water pollution and hazardous waste production. See *id.* at 76. When tort law proved ill equipped to address these kinds of challenges, command-and-control regulations were developed to limit pollution by reducing production or installing equipment. *Id.* at 76, 78, 88. Firms were, at times, barred from certain activities that depleted key natural resources. *Id.* at 78.

16. See Richard Stewart, *A New Generation of Environmental Regulation*, 29 CAP. U. L. REV. 21, 97 (2001). To address the inefficiencies of command-and-control regulation, policymakers turned to market-based economic systems such as taxes, subsidies, and cap-and-trade programs and conducted cost-benefit analyses to determine when to take regulatory action. See *id.* at 38–128.

17. See Uma Outka, *Environmental Law and Fossil Fuels: Barriers to Renewable Energy*, 65 VAND. L. REV. 1679, 1680–83 (2012) (arguing that existing regulations contain significant accommodations for fossil fuels, that cost-effectiveness and cost-competitiveness models provide skewed analyses because they fail to consider the long-term health and

Congressional stalemate, yielding no significant environmental legislation in the last twenty years and leaving the advancement of environmental goals to private governance mechanisms.¹⁸ A number of scholars have argued that the complexity of current environmental challenges will call for flexible, multi-scalar, multimodal responses and collaboration between the national, regional, state, and local levels of government and the private sector.¹⁹

Tax subsidies to the energy industry have received considerably less attention, in part, because of their complexity and obscurity. A handful of scholars have examined how tax policy has affected land use decisions and impeded environmental goals.²⁰ They have also explored the use of tax as a tool to address concerns about the climate²¹ and the natural and built environment.²² Only a few

environmental costs incurred over the lifecycle of the fuel, and that the constrain-but-permit model entrenches fossil fuel dominance); *see also* Michael A. Livermore, *Reviving Environmental Protection: Preference Directed Regulation and Regulatory Ossification*, 25 VA. ENVTL. L.J. 311, 332–33 (2007).

18. *See* Michael P. Vandenberg, *Private Environmental Governance*, 99 CORNELL L. REV. 129, 133 (2013).

19. *See* Hari M. Osofsky, *Multiscalar Governance and Climate Change: Reflections on the Role of States and Cities at Copenhagen*, 25 MD. J. INT'L L. 64 (2010); *see also* Craig Anthony Arnold, *Fourth-Generation Environmental Law: Integrationist and Multimodal*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 771 (2011) (arguing that neither monolithic nor fragmented approaches to environmental problems are working, and that environmental law is evolving toward use of multiple methods to manage complex environmental problems, requiring coordination for success); Elinor Ostrom, *A Diagnostic Approach for Going Beyond Panaceas*, 104 PROC. NAT'L. ACAD. SCI. 15,181 (2007), <http://www.pnas.org/content/104/39/15181.full.pdf> [perma.cc/4YD7-DHLR] (arguing that there are no panaceas that will address the challenges faced by complex social ecological systems and offering an expanded version of her analytical framework to identify the rules, institutions, networks, and nested enterprises that will best manage these systems); J.B. Ruhl & James E. Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 CAL. L. REV. 59 (2010) (describing problems resistant to any one policy response because of disproportionate aggregation, feedback loops, negative policy response spill-overs, and discontinuities).

20. *See* Janet Milne, *Watersheds: Runoff from the Tax Code*, 34 VT. L. REV. 883 (2010); Roberta Mann, *On the Road Again: How Tax Policy Drives Transportation Choice*, 24 VA. TAX REV. 587 (2005); *see also* Roberta Mann, *The (Not So) Little House on the Prairie: The Hidden Costs of the Home Mortgage Interest Deduction*, 32 ARIZ. ST. L.J. 1347 (2000).

21. *See* SHI-LING HSU, *THE CASE FOR A CARBON TAX, GETTING PAST OUR HANG-UPS TO EFFECTIVE CLIMATE POLICY* (2011); *see also* Reuven S. Avi-Yonah & David M. Uhlmann, *Combating Global Climate Change: Why a Carbon Tax Is a Better Response to Global Warming than Cap and Trade*, 28 STAN. ENVTL. L.J. 3 (2009).

22. Roberta Mann, *Smart Incentives for the Smart Grid*, 43 N.M. L. REV. 127 (2013); Roberta Mann, *Lightning in a Bottle: Using Tax Policy to Solve Renewable Energy's Storage Challenges*, 20 J.

articles have addressed the long history of tax subsidies for the energy industry.²³ Even when tax subsidies have been addressed as a part of a broader examination of energy subsidies, the analysis has frequently been incomplete.²⁴

This article advances this literature in three ways. Part II describes economic situations that would justify government intervention in the energy markets and explains why Congress has chosen to “pick winners and losers.” Part III examines the history of subsidies to both fossil fuels and renewable energy resources in light of those rationales and describes the divergent market trajectories of the two sets of subsidies. Part IV evaluates the subsidies on a qualitative basis, developing the thesis that the disparate market impacts derive from the differences in the way the subsidies are structured. This Part examines the subsidies’ relative risks, information costs, and transaction costs, liquidity and marketability. Part V examines the political economy associated with the subsidies, including their budgetary history, the first mover advantage available to fossil fuels, and the political advantages and administrative bias favoring subsidies that are shared with other sectors. It argues that certain structures have provided stability and certainty for fossil fuels and expanded their market share and that other structures have exposed renewables to legislative volatility and failure. Part VI discusses recent proposals for reform and Part VII concludes the article.

ENVTL. & SUSTAINABILITY L. 71 (2013); Roberta Mann, *Tax Incentives for Historic Preservation: An Antidote to Sprawl?*, 8 WIDENER L. SYMP. J. 207 (2002).

23. See Hymel, *supra* note 7; see also ENVTL. LAW INST., ESTIMATING U.S. GOVERNMENT SUBSIDIES TO ENERGY SOURCES: 2002–2008 (2009), https://www.eli.org/sites/default/files/eli-pubs/d19_07.pdf [<http://perma.cc/N55Q-NV4P>]; Roberta Mann, *Another Day Older and Deeper in Debt: How Tax Incentives Encourage Burning Coal and the Consequences for Global Warming*, 20 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 111 (2007); Mona L. Hymel, *The United States’ Experience with Energy-Based Tax Incentives: The Evidence for Supporting Tax Incentives for Renewable Energy*, 38 LOY. U. CHI. L.J. 43 (2006).

24. TOMAIN, *supra* note 8, at 133–35 (describing shortcomings of the 2007 report on subsidies to the energy industry by Department of Energy’s Energy Information Administration).

II. RATIONALES FOR GOVERNMENT INTERVENTION IN THE ENERGY MARKETS

Historically, the federal government has intervened in energy markets²⁵ to develop public goods,²⁶ such as national security and defense, to promote positive externalities,²⁷ such as economic development within the United States and an expansion of power abroad,²⁸ and to overcome market barriers,²⁹ such as the high cost and financial risks of transporting remote natural resources to markets. State subsidies, succeeded by federal subsidies, helped to support timber harvesting and coal extraction, processing, and transport operations which were historically highly capital intensive,³⁰ including the construction of the railroad lines that brought the coal to buyers, and the smelting of iron and forging of steel for their construction.³¹ In another example, at the turn of the twentieth century, oil and gas exploration involved significant risk. With the outbreak of World War I, the federal government provided subsidies to share that risk and to prepare the country for military engagement.³² Subsidies encouraged private actors to

25. Economists generally find or assume that markets efficiently distribute goods and services. See JONATHAN GRUBER, PUBLIC FINANCE AND PUBLIC POLICY 3 (4th ed., 2010). In principle, market participants will trade until they reach equilibrium, when the combination of price and quantity meet the parties' needs and no further trades will enhance one party's welfare without diminishing that of another. *Id.* Markets will not deliver efficient outcomes, however, when there are substantial market failures. *Id.* at 123–26. In such cases, government intervention to address these failures can enhance efficiency. *Id.* at 4.

26. Public goods are nonrival and nonexcludable; consumption of the good does not keep others from consuming it, and one does not have the physical capacity to exclude others. *Id.* at 184. The private markets will decline to invest at the appropriate level in public goods because they cannot appropriate all of the benefits from the activity. *Id.* at 128–29.

27. When third parties enjoy the benefits of a good, those benefits are described as positive externalities. Unless the third parties pay the individual providing the good for the value they receive, the good will be produced in less-than-optimal volumes, which is said to be a market failure. *Id.* at 128–29.

28. PFUND & HEALEY, *supra* note 2, at 11.

29. See *id.* at 14–16.

30. See *id.* at 13–16. When the stream of real benefits and returns to projects occur over time, the returns and benefits for competing projects must be discounted to present value for comparison. Investors will prefer the project that has the higher present value, that is, the one that projects higher returns over a shorter period of time. HARVEY S. ROSEN AND TED GAYER, PUBLIC FINANCE 153–55 (2008). Consequently, private actors will tend not to invest in projects with high initial capital costs and delayed returns on investment if other investments are more profitable. *Id.*

31. See *id.* at 14–16.

32. Hymel, *supra* note 7, at 158.

provide the levels of investment that would produce public goods and positive externalities that benefit American society generally.³³ As the risks and costs associated with the extraction, development, and marketing of coal, oil, and natural gas have been reduced or eliminated, so has the justification for subsidizing these resources.³⁴

National security has also been an important reason to provide government support for fossil fuels on the theory that subsidies will counter price shocks from international conflicts and lessen the impact of coercion from foreign energy resource owners.³⁵ Even with decades of support, however, U.S. energy buyers remain sensitive to price changes and volatility because coal and oil—and to a lesser extent, gas—are global commodities and trade in international markets.³⁶ Furthermore, incidence models suggest that the benefits of these subsidies accrue primarily to producers, shareholders, and workers in the fossil fuel industry, not to consumers, limiting the impact on the broader economy.³⁷ If the subsidies are ineffective in stabilizing prices and the benefits accrue to a narrow group, the rationale for public support disappears.

Finally, policymakers have known since the 1970s that fossil fuels have negative effects on human health and the environment and have regulated their production and use.³⁸ The United States has nevertheless continued to subsidize fossil fuel production. Since the 1990s policymakers have known that carbon dioxide emitted during the combustion process causes climate change.³⁹

33. See *supra* note 27.

34. See, e.g., WILLIAM STANLEY JEVONS, *THE COAL QUESTION* (1865) (describing the reduced costs of surface mining over deep mining and the increased efficiency and electrical output from the development of the Watts steam engine). While earlier technological risks and costs have been mitigated, new ones have arisen as oil and gas have become more difficult to extract. New technologies, such as deep water drilling, tar sands extraction, and hydraulic fracturing, have been developed in recent years to access previously inaccessible fossil fuels.

35. See Gilbert E. Metcalf, *Federal Tax Policy Towards Energy*, in *TAX POLICY AND THE ECONOMY* 145, 147 (2007).

36. *Id.* at 148.

37. *Id.* at 166. Advocates have also argued for continued support because market barriers keep consumers from reducing their demand. *Id.* Consumers are often poorly informed, tenants lack the authority, and landlords lack the incentive to make energy efficiency improvements on rental properties. *Id.* at 148–49. However, these challenges are more readily solved through information programs, labeling, and energy efficiency subsidies to tenants than through direct and tax subsidies to the fossil fuel industry. *Id.*

38. Lazarus, *supra* note 15, at 77–82. Fossil fuels emit air pollution when burned, including nitrous oxides, sulfur dioxides, and particulates. See Metcalf, *supra* note 35, at 147.

39. Metcalf, *supra* note 35, at 147.

Economists have reached some consensus⁴⁰ that the most efficient way to address climate change and the other negative externalities⁴¹ associated with the use of fossil fuels is to impose a carbon tax or greenhouse gas tax.⁴² By setting the tax equal to the social cost of the pollution to society on a per unit basis,⁴³ the government would

40. See J. SCOTT HOLLADAY, JONATHAN HORNE & JASON A. SCHWARTZ, *ECONOMISTS AND CLIMATE CHANGE: CONSENSUS AND OPEN QUESTIONS* vii (2009), <http://policyintegrity.org/files/publications/EconomistsandClimateChange.pdf> [<http://perma.cc/8SRJ-A3Z7>] (finding that eighty-four percent of economists concur that climate change is having a negative effect on the economy of the United States, and about ninety-eight percent agreed that a market-based solution would reduce carbon emissions significantly while encouraging more efficient energy production). Supporters come from across the political spectrum. See N. Gregory Mankiw, *Smart Taxes: An Open Invitation to Join the Pigou Club*, 35 *EAST. ECON. J.* 14 (2009); see also Alan S. Blinder, *The Carbon Tax Miracle Cure*, *WALL ST. J.* (Jan. 31, 2011, 12:01 AM), <http://www.wsj.com/articles/SB10001424052748703893104576108610681576914> [<http://perma.cc/6KPZ-7ZJG>]; Robert Reich, *Inherit the Windfall*, *AM. PROSPECT* (Feb. 7, 2007), <http://prospect.org/article/inherit-windfall> [<https://perma.cc/JPR8-QRFW>]; Joseph Stiglitz, *Showdown in Bali*, *PROJECT SYNDICATE* (Dec. 7, 2007), <http://www.project-syndicate.org/commentary/showdown-in-bali> [<http://perma.cc/S8QY-M4BQ>].

41. Negative externalities occur when a portion of the costs of a good are borne by parties not involved in the market transaction. If the costs of production are shifted to third parties, then the producer will offer the good for a lower price than she would have if she had borne the total costs of production herself. If the costs of consumption are shifted to third parties, then the consumer will offer a higher price for the good than she would have if she had borne the total costs of consumption herself. Theoretically, those who are harmed by another party's activities may pay them to stop or reduce those activities, but transaction costs and information constraints are likely to impede this exchange. See GRUBER, *supra* note 25, at 130–34. Transaction costs are the costs associated with finding the right parties with whom to bargain, negotiating an agreement that binds all parties and addressing the challenges associated with strategic behavior. Such exchanges are not always feasible when common pool resources, such as air and water, are involved. See *id.* at 134.

42. See STAFF OF JOINT COMM. ON TAXATION, JCX-28-12, *PRESENT LAW AND ANALYSIS OF ENERGY-RELATED TAX EXPENDITURES* (2012).

43. Estimating those social costs is challenging. Many costs will be incurred in the present, and the benefits (or the costs of failure to act) will be borne primarily in the future. Economic analysts must select a discount rate to estimate the present value of future costs and benefits and compare them with those of the present. Determining the appropriate discount rate is a thorny question. Nicholas Stern, the former chief economist of the World Bank, estimates the marginal damages per metric ton of carbon dioxide at approximately eighty-five dollars. See NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE* 287 (2007), http://www.wwf.se/source.php/1169157/Stern%20Report_Exec%20Summary.pdf [<http://perma.cc/LZ4Z-EHGC>]. William Nordhaus, a Yale economist, estimated that the marginal social damage would be much lower—\$7.50 per ton of carbon dioxide. See WILLIAM D. NORDHAUS, *A QUESTION OF BALANCE* 90, 92–93 tbl.5-4 (2008), http://www.econ.yale.edu/~nordhaus/homepage/Balance_2nd_proofs.pdf [<http://perma.cc/7D63-7JLB>]. Economist Martin Weitzman suggests that the pricing of carbon by Nicholas Stern should be used based on the possibility of catastrophic loss and the fat tail of risk distribution. See Martin L. Weitzman, *A Review of the Stern Review on the Economics of Climate Change*, 45 *J. ECON. LIT.* 686, 703, 719 (2007); see also HSU, *supra* note 21, at 23. Others have concluded that if Nordhaus's model had included nonmarket impacts in

establish an economically efficient price for the pollution, internalizing the negative externality.⁴⁴ A carbon tax or greenhouse gas tax is precise,⁴⁵ flexible,⁴⁶ and easily implemented⁴⁷ and administered.⁴⁸ It is less susceptible to arbitrage⁴⁹ and gaming⁵⁰ and raises fewer sovereignty⁵¹ and trade issues.⁵² It also generates revenue.⁵³

A less efficient market-based alternative would be to provide subsidies⁵⁴ to encourage private production of substitute goods.⁵⁵ Subsidizing substitute goods necessarily entails the picking winners

his model, his damage estimates would have matched Stern's. *See* HSU, *supra* note 21, at 28–29. Nonmarket impacts include harm to the environment, such as ecosystem change and species loss; harm to human health, including the spread of infectious diseases; and increases in extreme events and catastrophes. *Id.* at 28.

44. *See* HSU, *supra* note 21, at 22–23.

45. HSU, *supra* note 21, at 27. A carbon tax can place an increment of cost on an increment of damage, the estimated marginal damage, caused by a ton of carbon dioxide emitted. *See id.* The carbon tax would increase prices at every stage of manufacture and use when fossil fuels are used; the effect on the price of each good is proportionate to the carbon emissions of its production process and transmission. *See id.*

46. *See id.* at 70. A carbon tax sends a steady price signal. If the carbon tax at some level does not reduce emissions, legislation may index the tax to carbon emissions levels so that the tax ratchets up until it has an impact. *See id.* at 104–113.

47. A carbon tax may draw on existing infrastructure for quick implementation. A carbon tax may be implemented as a tax on large-scale energy producers and consumers. *See* Gilbert E. Metcalf et al., *Analysis of U.S. Greenhouse Gas Tax Proposals* 9–10 (Nat'l Bureau of Econ. Research, Working Paper No. 13980, 2008), <http://www.nber.org/papers/w13980> [<http://perma.cc/2J67-8JNL>] (noting that applying a tax at an upstream point reduces administrative costs to the government).

48. HSU, *supra* note 21, at 84–89. A carbon tax has pervasive effects. It sends a consistent price signal over time. It therefore continues to incentivize investments in energy efficiency and alternative energy resources when those changes might be cheapest—in a down economy. *See id.* at 70.

49. *Id.* at 77–83.

50. *Id.* at 27.

51. *Id.* at 46–52. A global carbon tax would function similarly to other international treaties, requiring all signatories to take the same actions, avoiding concerns about sovereignty. *Id.* at 93–95.

52. *Id.* at 91–100; *see also* Timothy Meyer, *Energy Subsidies and the World Trade Organization*, 17 ASIL INSIGHTS 22 (2013), <https://www.asil.org/insights/volume/17/issue/22/energy-subsidies-and-world-trade-organization> [<http://perma.cc/4WE2-BZL7>].

53. HSU, *supra* note 21, at 101–03. In the United States, a carbon tax of thirty dollars per ton would generate an estimated \$145 billion in annual revenue. *See* Yoram Bauman & Shiling Hsu, *The Most Sensible Tax of All*, N.Y. TIMES (July 4, 2012), http://www.nytimes.com/2012/07/05/opinion/a-carbon-tax-sensible-for-all.html?_r=1 [<https://perma.cc/FS3N-E8JU>].

54. Subsidies lower the cost of goods and encourage private purchases and sales. *See* GRUBER, *supra* note 25, at 7.

55. *See id.*

and losers. To reduce the harm from fossil fuels by encouraging specific alternatives, policymakers must choose the alternate behaviors and the substitute technologies to support, expanding their need for information and the scope of agreement.⁵⁶ In contrast, taxes on negative externalities are superior to subsidies because they are neutral with respect to the behavioral and technological choices⁵⁷ the public might make to avoid the higher prices that result from the tax on the harmful activity.⁵⁸ Market processes determine the most efficient means for responding to the tax.⁵⁹

At each stage, Congress has chosen inefficient mechanisms to manage fossil fuel externalities. Instead of using market-based mechanisms, such as taxes⁶⁰ or cap-and-trade programs, it uses command-and-control regulation.⁶¹ Instead of fully internalizing

56. See STAFF OF JOINT COMM. ON TAXATION, *supra* note 42, at 24.

57. See HSU, *supra* note 21, at 53–64. It offers no incentive to invest in any particular form of capital. Firms can respond to carbon taxes in ways that they think are efficient and effective. Innovators may compete to develop the best and cheapest technologies to reduce emissions. The incentives to innovate are broad and reach not only energy generation, but also energy use (energy efficient building envelope structures, heating and cooling systems, etc.). See *id.* at 64–68.

58. See STAFF OF JOINT COMM. ON TAXATION, *supra* note 42, at 24.

59. Brian D. Galle, *The Tragedy of the Carrots: Economics & Politics in the Choice of Price Instruments*, 64 STAN. L. REV. 797 (2012). Furthermore, a tax on greenhouse gases is better as a matter of political economy. Because entrepreneurs will respond to the carbon tax in many different ways, no single innovation will have sufficiently broad support to resist future policy changes that might reduce the value of their initial capital investments. See HSU, *supra* note 21, at 41–46.

60. While Congress has developed a number of greenhouse gas tax proposals in the recent years, no plans for such taxes are currently under consideration. See generally American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009); America's Climate Security Act of 2007, S. 2191, 110th Cong. (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. (2007); Global Warming Reduction Act, S. 485, 110th Cong. (2007); Global Warming Pollution Reduction Act, S. 309, 110th Cong. (2007); Climate Stewardship and Innovation Act of 2007, S. 280, 110th Cong. (2007); Safe Climate Act of 2006, H.R. 5642, 109th Cong. (2006); Keep America Competitive Global Warming Policy Act of 2006, H.R. 5049, 109th Cong. (2006).

61. The Obama Administration recently sought to regulate carbon emissions under the Clean Air Act, directing the Environmental Protection Agency to promulgate regulations to regulate carbon dioxide emissions. These regulations have been published as the Clean Power Plan. See *Clean Power Plan for Existing Power Plants*, EPA (Nov. 20, 2015), <http://www.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants> [<https://perma.cc/9XBL-N73W>]. The regulations are currently embroiled in lawsuits brought by the attorneys general in twenty-four states. Suzanne Goldenberg, *Obama's Carbon Reduction Plan Under Attack from 24 States and Republicans*, GUARDIAN (Oct. 23, 2015, 1:22 PM), <http://www.theguardian.com/us-news/2015/oct/23/obama-carbon-coal-power-plant-epa-lawsuit-republicans> [<https://perma.cc/R7ZP-YGWR>].

the social costs in the price of fossil fuels, Congress undercuts its own regulation by subsidizing them through the income tax.⁶² Instead of taxing the negative externalities associated with fossil fuels, it subsidizes alternatives to fossil fuels,⁶³ a process which necessarily entails picking winners and losers.

III. THE HISTORY OF ENERGY INDUSTRY TAX SUBSIDIES

Stanley Surrey coined the phrase “tax expenditure” to describe the array of exclusions, exemptions, deductions, credits and special rates that depart from the normal tax base and the central function of the income tax to raise revenue for the federal government.⁶⁴ He saw the subsidies as the functional equivalent of budgetary spending,⁶⁵ but considered them to be ill-conceived, inequitable, and inefficient, and foresaw that they would increase complexity and add to taxpayer and government administrative burdens.⁶⁶ He argued that only by making tax expenditures more transparent and subjecting them to the regular scrutiny that Congress imposes on direct spending could Congress effectively control its budget and manage its tax policy.⁶⁷ To facilitate Congress’s review and analysis of these forms of spending through the tax code, the Department of the Treasury, the Joint Committee on Taxation and the Congressional Budget Office have periodically prepared tax expenditure budgets describing the variety of tax subsidies and the magnitude of their cost to the government.⁶⁸ None of these entities are charged with the responsibility for assessing the effectiveness of these subsidies, however.⁶⁹ Consequently, evaluations of the performance of tax expenditures are relatively

62. See *infra* Part III.A.

63. See *infra* Part III.B.

64. See Stanley S. Surrey, *Excerpts from Remarks by Assistant Secretary Surrey, November 15, 1967, Before the Money Marketeers, on the U.S. Income Tax System—The Need for a Full Accounting*, in U.S. DEP’T. OF THE TREASURY, DOC. NO. 3245, ANNUAL REPORT OF THE SECRETARY OF THE TREASURY ON THE STATE OF THE FINANCES FOR THE FISCAL YEAR ENDED JUNE 30, 1968, at 322, 322–23 (1969).

65. See STANLEY S. SURREY, *PATHWAYS TO TAX REFORM* 6 (1973).

66. See STANLEY S. SURREY & PAUL R. MCDANIEL, *TAX EXPENDITURES* 25–26 (1985).

67. See *id.* at 2.

68. See STAFF OF JOINT COMM. ON TAXATION, JCX-37-08, *A RECONSIDERATION OF TAX EXPENDITURE ANALYSIS* (2008).

69. See U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-13-479, *TAX EXPENDITURES: IRS DATA AVAILABLE FOR EVALUATIONS ARE LIMITED* 13 (2013), <http://www.gao.gov/assets/660/654273.pdf> [<https://perma.cc/8Q5U-9CHM>].

limited.⁷⁰ This Part surveys the array of tax expenditures for fossil fuels and renewable energy resources and then examines the market response to those subsidies.

A. Fossil Fuel Tax Subsidies

From its inception, the U.S. income tax has included significant subsidies to support the development of energy resources.⁷¹ The income tax initially included a deduction for depletion of oil, gas, and other natural resources as they are extracted.⁷² Tax subsidies

70. Some of the early legal scholarship critiqued the tax expenditure concept, exploring the boundaries of the normal tax base and questioning normative assumptions undergirding the distinction between the “normal” tax base and “spending.” See, e.g., Boris I. Bittker, *Accounting for Federal “Tax Subsidies” in the National Budget*, 22 NAT’L TAX J. 244 (1969); Boris I. Bittker, *Income Tax Deductions, Credits, and Subsidies for Personal Expenditures*, 16 J.L. & ECON. 193 (1973). Some have sought to reframe the analysis between allocation and distribution. See Daniel N. Shaviro, *Rethinking Tax Expenditures and Fiscal Language*, 57 TAX. L. REV. 187 (2004). A number of scholars have concluded that the tax system may actually be a more efficient and effective mechanism for delivering subsidies than the administrative systems developed and funded through the annual budgetary process. See David A. Weisbach & Jacob Nussim, *The Integration of Tax and Spending Programs*, 113 YALE L.J. 955 (2004) (comparing the administrative costs and error rates between the Earned Income Tax Credit, delivered through the income tax system, favorably against those for the Food Stamp Program); Lawrence Zelenak, *Tax or Welfare? The Administration of the Earned Income Tax Credit*, 52 U.C.L.A. L. REV. 1867, 1915 (2005) (reporting that among families with children, the participation rate is fifty percent for the Food Stamp program (a direct subsidy), but the participation rate is ninety percent for this group for the Earned Income Tax Credit, a tax benefit); Leonard E. Burman & Deborah I. Kobes, *EITC Reaches More Eligible Families Than TANF, Food Stamps*, 98 TAX NOTES 1769, 1769 (Mar. 17, 2003), <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/1000467-EITC-Reaches-More-Eligible-Families-Than-TANF-Food-Stamps.PDF> [perma.cc/NXA9-KGXX]; see also Tracey M. Roberts, *Mitigating the Distributional Impacts of Climate Change Policy*, 67 WASH. & LEE L. REV. 209 (2010) (arguing that any rebate of revenues from a carbon tax or cap-and-trade program should be used to offset the distributional impacts of the policy, and that the rebate would be delivered most efficiently through income tax). More recent scholarship has questioned whether a tax expenditure budget is relevant any longer, given that Congress expanded tax expenditures rather than eliminating them, tripling the number of subsidies and increasing annual outlays by trillions of dollars. See Leonard E. Burman, *Is the Tax Expenditure Concept Still Relevant?*, 56 NAT’L TAX J. 613 (2003). Others have critiqued the tax expenditure budget for its failure to adequately estimate the true cost of the subsidies. See Rebecca Kysar, *Lasting Legislation*, 159 PENN. L. REV. 1007 (2011) (describing the unreliability of estimates of the costs of tax expenditures and budget items based on the instability of baseline estimates and Congress’s predilection for waiving or changing the rules to pursue new policies, ignoring estimates, and ignoring costs that will occur beyond a particular budget window).

71. See Hymel, *supra* note 7, at 159.

72. See *id.* at 158. The Revenue Act of 1913, also known as the Underwood Tariff Act, included “a reasonable allowance for depletion” for up to five percent of the output of an oil well on an annual basis until the initial capital investment was recovered. *Id.* at 165. The depletion allowance has been modified on numerous occasions. The Revenue Act of 1918,

to support the development of fossil fuels now include deductions for intangible drilling costs,⁷³ subsidies for extraction of oil and gas from shale, tar sands and coal seams,⁷⁴ and credits for enhanced oil recovery projects.⁷⁵ While some of the subsidies were restricted during the 1990s, the restrictions have been loosened in recent years to accommodate the demands of war and a faltering economy.⁷⁶ This Section describes each type of tax subsidy to the fossil fuel industry and the related research, extraction, refining, and transportation processes.

1. Accelerated Cost Recovery

In general, income taxes are levied only against net income, the profits a business enjoys. To calculate net income, businesses deduct their expenses from their gross revenues. Some purchases a business may make, such as equipment, will generate income over time. Therefore, instead of allowing a company to deduct the full cost of equipment at the time of purchase, the income tax requires that these kinds of investments be capitalized and allows the business to deduct only a portion of the cost each year.⁷⁷ The deduction may take the form of depreciation allowances, which were initially designed to reflect the decline in value of the property from wear and tear, or depletion, the decline in value of property that results from extraction of natural resources.⁷⁸ Capitalization and depreciation or depletion deductions better match the income generated from using the property with the recovery of the costs associated with acquiring the property.

to support U.S. involvement in World War I, expanded the allowance to permit investors to recover costs in excess of their capital investments. *Id.* In 1926, the allowance was based on the estimated fair market value of the wells at the time of discovery. *Id.* at 166. Until 1932, the deduction did not decrease the owner's basis in the property, permitting investors to recover their investment twice. *Id.* at 167. By 1969, the depletion rate was 27.5%, permitting the oil and gas industry to cut its tax rates by 50%. *Id.*

73. See I.R.C. § 617 (2012); see also Hymel, *supra* note 7, at 169–70.

74. See Hymel, *supra* note 7, at 171.

75. *Id.* at 171–72.

76. *Id.* at 178–80.

77. *Overview of Depreciation*, IRS, <https://www.irs.gov/publications/p946/ch01.html> [<https://perma.cc/28LD-8VMQ>] (last visited Jan. 1, 2016) (“Depreciation is an annual income tax deduction that allows you to recover the cost or other basis of certain property over the time you use the property.”).

78. *Id.*

The income tax initially provided for taxpayers to recover the costs of equipment over the economic life of the property; tax depreciation followed economic depreciation.⁷⁹ Since 1981, however, the depreciation system has provided for accelerated cost recovery. The Modified Accelerated Cost Recovery System (“MACRS”) provides for the entire purchase price to be recovered within a period shorter than the useful life of the property.⁸⁰ No salvage value is taken into account even though there is a robust market for fully depreciated assets.⁸¹ The permissible recovery methods allow businesses to front-load their depreciation deductions; they may take larger deductions in earlier years.⁸² This system allows taxpayers to recover their costs at an accelerated rate rather than at a pace that tracks their earnings from property they are using in their trade or business.

A number of tax provisions allow the fossil fuel industry to recover their investments even more quickly than MACRS. Bonus depreciation, under section 168(k), allows businesses to deduct a fraction of the cost of depreciable property immediately. Under the original authorization, the Job Creation and Worker Assistance Act of 2002, taxpayers could immediately deduct thirty percent of their cost basis in depreciable property in addition to taking normal depreciation deductions on their remaining basis in the property.⁸³ The following year the rate was increased to fifty percent.⁸⁴ The provision, which was originally designed as a short term stimulus,⁸⁵ was extended from 2002 to 2005 and from 2008 to

79. For some types of property, not otherwise covered under the modified accelerated depreciation system under section 168 or under the amortization provisions of section 197, this is still the case. *See* I.R.C. § 167 (2012).

80. *See* I.R.C. § 168 (Supp. 2015).

81. *Id.* § 168(b)(4).

82. *See id.* Straight-line depreciation divides the total amount of the expenditure by the recovery period to give an aliquot portion of depreciation per year. The double declining balance method allows taxpayers to deduct two times the depreciation allowed under the straight-line method in the first few years of the recovery period. The 150% declining balance method allows the taxpayer to deduct one and a half times the depreciation allowed under the straight-line method. *See id.*

83. *See* Job Creation and Worker Assistance Act of 2002, Pub. L. No. 107-147, 116 Stat. 21.

84. *See* Jobs and Growth Tax Relief Reconciliation Act of 2003, Pub. L. No. 108-27, 117 Stat. 752.

85. JANE GRAVELLE, CONG. RESEARCH SERV., BONUS DEPRECIATION: ECONOMIC AND BUDGETARY ISSUES (2014).

2014, after which it expired.⁸⁶ Bonus depreciation has recently been reinstated and extended to apply to property placed in service from 2015 through 2020.⁸⁷ Bonus depreciation drops to forty percent for properties placed in service in 2018 and to thirty percent for properties placed in service in 2019.⁸⁸

More dramatically, section 179 permits the immediate deduction of the entire cost of property placed in service in a given year.⁸⁹ Subject to certain limits, the section permits the full cost of equipment to be “expensed” rather than capitalized and recovered over time through depreciation deductions. The deduction is subject to an investment limit⁹⁰ and an income limit.⁹¹ New and used tangible property qualifies if it is acquired for use in a trade or business and may be depreciated under the MACRS system.⁹² The maximum deduction is reduced dollar for dollar, but not below zero, by the amount by which the aggregate cost of qualifying property a taxpayer purchases and places in service during the year exceeds an investment threshold.⁹³ The deduction is also limited by the taxable income of the taxpayer for the year.⁹⁴ If the deduction exceeds the firm’s income for the year, the excess may be carried forward and deducted in the following year.⁹⁵ This expensing provision has been a part of the tax code since 1958, when it was justified as a way of simplifying taxes for small businesses.⁹⁶ In general, the limits on expensing of equipment have been \$25,000 per year with a dollar for dollar reduction to the extent that the cost of all depreciable property placed in service

86. See American Taxpayer Relief Act of 2012, Pub. L. No. 112-240, 126 Stat. 2313; Tax Relief, Unemployment Compensation Reauthorization, and Job Creation Act of 2010, Pub. L. No. 111-312, 124 Stat. 3296; Small Business Jobs Act of 2010, Pub. L. No. 111-240, 124 Stat. 2504; American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115; Economic Stimulus Act of 2008, Pub. L. No. 110-185, 122 Stat. 613.

87. Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, § 143, 129 Stat. 2242 (2015). The Act also applies retroactively to permit taxpayers to take bonus depreciation on qualified property placed in service in 2015. *Id.*

88. *Id.*

89. I.R.C. § 179 (Supp. 2015).

90. *Id.* § 179(b)(1).

91. *Id.* § 179(b)(3).

92. *Id.* § 179(d)(1).

93. *Id.* § 179(b)(2).

94. *Id.* § 179(b)(3)(A).

95. *Id.* § 179(b)(3)(B).

96. GRAVELLE, *supra* note 85, at 3 n.6.

exceeded \$200,000.⁹⁷ The provision has been used in more recent years to stimulate the economy; by setting higher limits, Congress makes the benefit available to larger businesses.⁹⁸ A temporary expansion of the parameters for expensing equipment under section 179 may stimulate business investment in qualified assets in the short term by reducing the cost of capital for businesses to acquire those assets and by increasing the cash flow of firms investing in those businesses.⁹⁹

The Consolidated Appropriations Act, 2016 provides for these limits to be increased to \$500,000 and \$2,000,000 respectively.¹⁰⁰ Businesses may immediately deduct the cost of up to \$500,000 of equipment, with a dollar-for-dollar reduction to the extent that the cost of property placed into service exceeds \$2,000,000.¹⁰¹ The Act also makes section 179 permanent.¹⁰²

Oil and gas companies may also take an immediate business deduction for “intangible drilling costs.”¹⁰³ Instead of capitalizing these expenditures and recovering them over time through depreciation, the companies may deduct wages and the full cost of machinery and unsalvageable materials used in exploration and development of oil and gas properties as those expenses are incurred.¹⁰⁴ This tax expenditure also permits the coal industry to expense the exploration and development costs associated with coal extraction, including surface mining (strip mining, open-pit mining and mountaintop removal activities) and the construction of shafts and tunnels for underground mining.¹⁰⁵ Similarly, section 179C permits the costs associated with refining crude oil and other liquid fuels¹⁰⁶ to be deducted immediately as an expense.¹⁰⁷

97. See I.R.C. § 179.

98. GRAVELLE, *supra* note 85, at 3 n.6; GARY GUENTHER, CONG. RESEARCH SERV., SECTION 179 AND BONUS DEPRECIATION EXPENSING ALLOWANCES: CURRENT LAW AND ISSUES FOR THE 114TH CONGRESS 10 (2015).

99. GUENTHER, *supra* note 98, at 10–11. If a business may acquire equipment and immediately deduct the cost of that equipment from its taxes, it may redeploy the tax savings in other things, such as returns to shareholders.

100. Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, § 124, 129 Stat. 2242.

101. *Id.*

102. *Id.*

103. I.R.C. § 617 (2012).

104. *Id.*

105. *Id.*

106. I.R.C. § 45K(c) (Supp. 2014).

107. I.R.C. § 179C (2012).

Several other tax expenditures hasten the period for cost recovery. Qualifying natural gas gathering lines¹⁰⁸ and distribution lines¹⁰⁹ have shorter recovery periods than under MACRS. Oil and gas geological and geophysical costs are amortized; major integrated oil companies may recover their costs over a seven-year period and other oil companies may recover their costs over two years.¹¹⁰

A number of studies have indicated that accelerated depreciation is generally an ineffective tool for stimulating the economy during periods of recession or slow growth.¹¹¹ Furthermore, allowing businesses to expense equipment creates opportunities for tax arbitrage¹¹² and interferes with the efficient allocation of capital,¹¹³ diverting funds from other uses that may be more productive. Together, the favorable tax treatment from accelerated depreciation and debt financing can yield a negative tax rate.¹¹⁴

108. I.R.C. § 168(e)(3)(C)(iv) (Supp. 2015). This provision treats natural gas gathering lines as seven-year property, allowing natural gas companies to recover their investment in the lines in seven and a half years rather than the ten to sixteen-year class life period. *Id.* In addition, the provision provides taxpayers who invest in the lines to receive relief from the Alternative Minimum Tax ("AMT"). The AMT provides an alternative tax base with significantly reduced exclusions, exemptions and deductions than the usual tax base and provides for relatively high flat rates instead of graduated rates. This provision allows taxpayers who would otherwise be subject to the AMT to continue to take depreciation under MACRS rather than employing the alternative depreciation system otherwise mandated under the AMT. *See id.*

109. I.R.C. § 168(e)(3)(E)(viii) (Supp. 2015). This provision treats natural gas distribution lines as fifteen-year property and reduces the recovery period by five to ten years based on class life. *Id.*

110. I.R.C. § 167(h) (2012). In general, a major integrated oil company is a producer of crude oil with an average daily worldwide production of crude oil of at least 500,000 barrels for the taxable year and gross receipts in excess of \$1 billion for its taxable year ending during calendar year 2005. *Id.*

111. GUENTHER, *supra* note 98, at 13.

112. GUENTHER, *supra* note 98, at 14. Taxpayers may borrow funds to purchase new depreciable assets, immediately deduct the full cost of the assets in the year the assets are placed in service and then also deduct the interest on the loan used to buy the assets over time. *Id.*

113. *Id.* Tax subsidies encourage taxpayers to make decisions not on the actual costs and benefits of the goods and services they acquire, but on the after-tax costs and benefits, distorting the decision-making process. The tax cost, the loss in revenue, from the tax preference may exceed the economic benefits of those decisions, creating a deadweight loss. *Id.*

114. GRAVELLE, *supra* note 85, at 9-10 ("Under the average 26% effective tax rate for equipment under current [2014] law without bonus depreciation, the effective tax rate on debt financed investment is -19%. With bonus depreciation, it is -37%.").

With the current oil glut,¹¹⁵ these subsidies for the oil and gas industry can only contribute to oversupply and divert resources from other important activities. Some scholars have argued that the assorted tax provisions for accelerated cost recovery may have shifted investment toward the purchase of equipment and away from hiring employees, yielding a jobless recovery.¹¹⁶

2. Preferential Tax Rates

One of the oldest and most significant tax expenditures is also one of the most expensive in terms of lost revenue. Oil depletion allowances¹¹⁷ were first incorporated in the income tax during World War I, to encourage investment in a high-risk industry.¹¹⁸ As nonrenewable natural resources, such as coal, oil, gas and minerals, are extracted, the reserves of those resources are depleted. Initially, companies that extracted natural resources were simply allowed to recover the costs of their initial investment through depletion deductions.¹¹⁹ However, in 1921 Congress modified the depletion provisions of the income tax to permit percentage depletion, which allows companies to deduct a fixed percentage of their gross sales in calculating their income tax liability.¹²⁰ Now coal, oil, and gas companies, instead of simply recovering their costs, receive tax benefits well in excess of the amount they invested in acquiring the property for resource extraction.¹²¹ In recent

115. Clifford Krauss, *Stock Prices Sink in a Rising Ocean of Oil*, N.Y. TIMES (Jan. 15, 2016), <http://www.nytimes.com/2016/01/16/business/energy-environment/oil-prices-one-million-barrel-glut.html> [<https://perma.cc/B9VR-PAFJ>] (describing the growing 1 million barrel per day oil glut).

116. See Theodore P. Seto, *The Problem with Bonus Depreciation*, 126 TAX NOTES 782 (Feb. 8, 2010).

117. The percentage depletion allowance has regularly been hailed as a classic example of an open-handed response by Congress to rent-seeking from the industries that fund their campaigns. See JOSEPH J. THORNDIKE, *THEIR FAIR SHARE: TAXING THE RICH IN THE AGE OF FDR* 14 (2013); see also W. ELLIOTT BROWNLEE, *FEDERAL TAXATION IN AMERICA: A SHORT HISTORY* 73–75 (2d ed. 2004).

118. See THORNDIKE, *supra* note 117, at 304 n.19.

119. See *id.* at 13.

120. See *id.*

121. See *id.* at 14. The executive branch sought repeatedly to modify the depletion allowance since it was first passed in 1918. Presidents Franklin D. Roosevelt, Harry S. Truman, and John F. Kennedy all attempted to eliminate the percentage depletion allowance. During the Ford administration, Congress repealed the depletion allowance for large companies. However, in 1990 Congress reduced the requirements to claim the depletion allowance and in 1999, it extended the period for which these changes would remain in effect. In 2005, Congress expanded the depletion allowance to permit more

years, the benefit has been restricted to independent oil and gas companies; integrated oil and gas companies are required to take cost depletion.¹²² Today, sections 613 and 613A permit independent oil and gas producers and royalty owners to deduct fifteen percent of the gross income they earn from qualifying oil, gas, and oil shale deposits as depletion.¹²³ Coal companies may deduct ten percent of their gross income from coal production as depletion allowances.¹²⁴ These depletion deductions effectively impose a tax rate of zero percent on a portion of coal, oil and gas company revenues.

Similarly, the domestic activities production deduction, codified at section 199, authorizes businesses to deduct a percentage of the income earned from certain favored activities,¹²⁵ again, imposing an effective rate of zero percent on a portion of that income.¹²⁶ While the subsidy was initially designed to support manufacturing,¹²⁷ it was quickly expanded to include other selected industries including coal mining and oil and gas production.¹²⁸ Currently oil and gas industry firms may take a deduction of six percent of their income from specified activities and coal producers may deduct nine percent.¹²⁹ While the stated congressional goal for the subsidy was to create jobs, there is no

companies undertaking drilling activities to claim the deduction. Hymel, *supra* note 7, at 165–69.

122. I.R.C. §§ 613, 613A (2012). “Independent” companies concentrate their business on exploration and production of oil and gas from the wellhead, upstream activities, and are not involved in refining and marketing oil and gas products, downstream activities. “Integrated” companies are vertically integrated and derive revenue from both upstream and downstream activities.

123. *See* THORNDIKE, *supra* note 117, at 14.

124. *See id.*

125. I.R.C. § 199 (Supp. 2015).

126. *See id.*

127. ROBERT J. SHAPIRO, ANATOMY OF A SPECIAL TAX BREAK AND THE CASE FOR BROAD CORPORATE TAX REFORM 3 (2013), http://www.progressivepolicy.org/wp-content/uploads/2013/03/2013.3.20-Shapiro_Anatomy-of-a-Special-Tax-Break-and-the-Case-for-Broad-Corporate-Tax-Reform.pdf [<http://perma.cc/E75X-SMQH>]. In 2002, the World Trade Organization held that a tax exemption designed to support manufacturing in the United States by exempting income from exports and from foreign operations was an unreasonable restraint on trade in violation of the General Agreement on Tariffs and Trade. Congress responded by enacting the 2004 American Jobs Creation Act, which created an alternate subsidy commonly known as the domestic production deduction. *See id.* at 2–3.

128. *See id.* at 2–3. Industries that are ineligible for the deduction include healthcare, insurance, education, transportation, warehousing, retail, hotel, and food services. *Id.* at 2.

129. *See id.*

evidence that the provision has done so.¹³⁰ In addition, the provision distorts the allocation of capital within industries by steering the purchasing decisions of companies that seek to claim the deduction.¹³¹ The provision distorts the market more broadly by enhancing the after-tax return to the benefited industries, skewing alternative investment incentives.¹³²

In general, royalties paid to individuals are subject to the system of graduated rates applied to ordinary income.¹³³ Section 631(c), however, treats income received under a royalty contract for the sale of coal as capital gain, which is taxed at lower rates.¹³⁴ Congress originally provided this tax benefit to owners of mining rights in coal properties in 1950 and 1951,¹³⁵ when the top marginal rate on ordinary income was 91% and capital gains were taxed at 25%.¹³⁶ Today, the top marginal rate on ordinary income is 39.6%, the top preferential rate on capital gains is 20%, and the health and environmental costs of generating electricity from coal renders the special treatment for coal royalties unnecessary and harmful to public health.

3. Exemptions from the Application of Tax Rules

Fossil fuels also enjoy a number of exemptions from the application of tax rules. The passive activity loss rules were designed to keep taxpayers from using tax shelters to shield their

130. *See id.* at 6–7.

131. *See id.*

132. *See id.*

133. In 2016, for unmarried individuals, the income tax rate applied to the first \$9,275 of taxable income is 10%, the next \$28,375 of taxable income is taxed at 15%, the next \$53,500 of income is taxed at 25%, the next \$99,000 of taxable income is taxed at 28%, the next \$223,200 of income is taxed at 33%, the next \$1,700 of income is taxed at 35%, and income exceeding \$415,050 is taxed at 39.6%. *See* Rev. Proc. 2015-53, § 3.01 tbl.3, 2015-44 I.R.B. 615. Preferential rates for capital gains are roughly 0% for taxpayers in the first 0, 10, and 15% brackets, 15% for taxpayers in the 25, 28, 33 and 35% brackets, and 20% for taxpayers in the top bracket. *See e.g.*, Kelly Phillips Erb, *IRS Announces 2015 Tax Brackets, Standard Deduction Amounts and More*, FORBES (Oct. 30, 2014, 12:34 PM), <http://www.forbes.com/sites/kellyphillipserb/2014/10/30/irs-announces-2015-tax-brackets-standard-deduction-amounts-and-more>.

134. *See* I.R.C. § 631(c) (Supp. 2014).

135. Revenue Act of 1951, Pub. L. No. 82-183, 65 Stat. 124.

136. *See* DAVID SHER, ENVTL. & ENERGY STUDY INST., FOSSIL FUEL SUBSIDIES: A CLOSER LOOK AT TAX BREAKS, SPECIAL ACCOUNTING, AND SOCIETAL COSTS 2 (2011), http://www.esi.org/files/fossil_fuel_subsidies_062311a.pdf [<http://perma.cc/5GTG-G3MH>].

income.¹³⁷ Section 469 provides that businesses in which the taxpayer does not materially participate are passive activities.¹³⁸ Losses from those activities may not be deducted against ordinary income.¹³⁹ However, the oil and gas industry enjoys an exception; taxpayers with working interests in oil and gas properties may deduct losses from those businesses against their other income sources.¹⁴⁰

States issue bonds to raise money to build public structures and improvements and to finance other public goods. The federal government supports these state activities by excluding from taxation the interest on the bonds received by bondholders.¹⁴¹ States could use revenue from the sale of the bonds to purchase higher-yielding investment properties, a form of tax arbitrage.¹⁴² To prevent tax arbitrage, section 148 denies tax exemption for bonds that are used to obtain “investment-type property.”¹⁴³ However, the natural gas industry enjoys an exception to this rule. Section 148(b)(4) provides that prepayments under qualified natural gas supply contracts are excluded from the definition of “investment-type property.”¹⁴⁴

4. Tax Benefits to Boost Compliance with Environmental and Labor Regulations

Fossil fuel firms also receive a number of tax benefits to support compliance with long-standing environmental and labor laws. Small business refiners receive a credit for producing diesel fuels that comply with the sulfur control requirements for highway diesel fuels set by the EPA,¹⁴⁵ and small business refiners may immediately

137. *Passive Activity Losses—Real Estate Tax Tips*, IRS (Dec. 23, 2015), <https://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Passive-Activity-Losses-Real-Estate-Tax-Tips> [<https://perma.cc/4B7X-UZTT>].

138. *See* I.R.C. § 469 (Supp. 2014).

139. *See id.*

140. *See* I.R.C. § 469(c)(3).

141. *See* I.R.C. § 103 (2012). Taxpayers, particularly those in higher tax brackets, are encouraged to purchase tax-exempt bonds to receive tax-free interest income. *Id.*

142. The states are then using bond revenue from tax-free investments to obtain higher yields on investments that are already amply supported by a market, not to create public goods.

143. *See* I.R.C. § 148 (2012); *see also* I.R.C. § 103.

144. *See* I.R.C. § 148(b)(4). This provision is known as the “Natural Gas Arbitrage Exemption.”

145. I.R.C. § 179B (2012); I.R.C. § 45H (2012).

expense seventy-five percent of the capital costs associated with purchasing sulfur control equipment instead of taking depreciation.¹⁴⁶ Coal-fired energy producers are also given a special cost recovery period for pollution control equipment.¹⁴⁷

The Surface Mining Control and Reclamation Act requires mining companies to fund trusts to cover the costs associated with reclaiming and restoring properties that have been destroyed during the mining process.¹⁴⁸ The income tax provides a deduction for mining companies that make early payments to reserve trusts to cover these activities.¹⁴⁹ Mining companies are also permitted to take an immediate deduction for the full cost of mine safety equipment rather than recovering those costs gradually through depreciation.¹⁵⁰ Finally, coal companies are required to contribute funds to the Black Lung Disability Trust Fund.¹⁵¹ Disabled miners suffering from black lung and other mining-related illnesses receive payments from this fund.¹⁵² The payments to miners are not taxed as income to the miners.¹⁵³ The exclusion provides a benefit to mining companies because they would be required to pay greater sums to cover the injuries and lost wages of the miners if the benefits were taxable.

5. Exemption from the Corporate Tax for Certain Publicly Traded Partnerships

Other than the business corporation, the primary vehicle for encouraging capital formation for fossil fuel resources is the publicly traded partnership. By organizing entities in partnership form, businesses may avoid being taxed twice, once at the corporate level on net income and again at the shareholder level on dividends, and instead enjoy the benefit of flow-through taxation under Subchapter K.¹⁵⁴ Partnerships are not taxed on

146. See I.R.C. § 179B; see also I.R.C. § 45H.

147. I.R.C. § 169(d)(5) extends the amortization period for recovering an investment in pollution control equipment to eighty-four months from the sixty-month period that is generally available for other types of pollution control facilities. I.R.C. § 169(d)(5) (2012).

148. See 30 U.S.C. §§ 1231–32 (2012).

149. I.R.C. § 468 (2012).

150. I.R.C. § 179E (Supp. 2014).

151. See I.R.C. § 9501 (2012).

152. 30 U.S.C. § 922 (2012).

153. *Id.*

154. Under Subchapter K, partnerships enjoy one level of taxation; income generated by the partnership is taxed only at the partner level. Items of income, gain, loss, deduction, and

their earnings;¹⁵⁵ instead, items of income, gain, deduction, loss and credit flow through to the partners and are reported on their individual tax returns.¹⁵⁶ In addition, distributions of property from a partnership to its partners will not usually trigger gain or loss.¹⁵⁷ Under certain circumstances, publicly traded partnerships combine flow-through taxation, non-recognition on distributions of property (benefits usually reserved to partnerships) with public trading and limited liability (benefits usually reserved to publicly-traded corporations).

In 1987, concerned about the erosion of the corporate tax base,¹⁵⁸ and the provision of an unfair advantage to businesses organized in corporate form,¹⁵⁹ Congress modified the rules¹⁶⁰ to

credit flow through to the partners and are reported on each partner's individual income tax return. Under Subchapter C, however, corporate income is taxed twice, both at the corporate level on net income and at the shareholder level, on dividends. For example, Corporation C calculates its net income, and then pays the appropriate income tax. If Corporation C elects to distribute its earnings and profits to its shareholders, the shareholders will have income tax liability on the dividends received. Corporate earnings are therefore said to be subject to "double taxation." Publicly traded partnerships enjoy public trading, undertake business functions similar to corporations, provide limited liability to their owners, and income from their operations resembles dividend income. See LYNN E. FOWLER, PUBLICLY TRADED PARTNERSHIPS (2011).

155. I.R.C. § 701 (2012).

156. I.R.C. § 702 (2012).

157. Publicly traded partnerships were first developed following the reduction in marginal rates on individual income taxes under the Tax Reform Act of 1981 and the Tax Reform Act of 1986. See MOLLY F. SHERLOCK & MARK P. KEIGHTLEY, CONG. RESEARCH SERV., MASTER LIMITED PARTNERSHIPS: A POLICY OPTION FOR THE RENEWABLE ENERGY INDUSTRY 5 (2011), <http://acore.org/wp-content/uploads/2011/02/CRS-MLPs-for-RE-6-28-11.pdf> [<http://perma.cc/T85U-FZ2F>]; see also Deborah Fields et al., *Triangles in a World of Squares: A Primer on Significant U.S. Federal Income Tax Issues for Natural Resources Publicly Traded Partnerships (Part I)*, TAXES, Dec. 2009, at 21, 23, http://www.mlpassociation.org/wp-content/uploads/2015/08/KPMG_PTP_Primer_Part_I.pdf [<http://perma.cc/D7WJ-XPEV>]. This trend accelerated after Congress repealed the *General Utilities* doctrine. In *General Utilities & Operating Co. v. Helvering*, the Supreme Court held that a corporation recognized no gain or loss on the distribution of appreciated property to its shareholders. See *Gen. Utils. & Operating Co. v. Helvering*, 296 U.S. 200 (1935). The case was repealed when Congress passed the Tax Reform Act of 1986. With the amendment to the corporate income tax, distributions of appreciated property to corporate shareholders were no longer non-recognition events; instead, they were treated as sales. Upon a distribution of property, the corporation realizes gain that will be taxed under the corporate tax and the shareholders receiving dividends will be taxed at the individual level. See I.R.C. § 311(b) (2012). Partnership taxation, governed under Subchapter K, provides that distributions of property from the partnership to the partners are non-recognition events. See I.R.C. § 731 (2012).

158. FOWLER, *supra* note 154; see H. R. Rep. No. 100-495 (1987) (Conf. Rep.), *reprinted in* 1987 U.S.C.C.A.N. 2313-1245.

159. Fields et al., *supra* note 157, at 23.

160. See I.R.C. § 469 (Supp. 2014); see also SHERLOCK & KEIGHTLEY, *supra* note 157, at 6.

require publicly traded partnerships to be treated as corporations for tax purposes.¹⁶¹ A partnership is “publicly traded”¹⁶² if its partnership interests¹⁶³ are traded on an established securities exchange or any other readily tradable secondary market.¹⁶⁴ While publicly traded partnerships are generally treated as corporations for tax purposes,¹⁶⁵ Congress carved out an exception¹⁶⁶ for publicly traded partnerships for which ninety percent of their gross income is “qualifying income.”¹⁶⁷ If ninety percent of the income

161. I.R.C. § 7704 (2012) (providing for most publicly traded partnerships to be taxed as corporations even if they would otherwise be characterized as partnerships under section 7701).

162. *See* I.R.C. § 7704(b) (2012).

163. A partner holds an “interest in a partnership” if the partner has any interest in the capital or profits of the partnership, financial instruments, or contracts, the value of which are determined in whole or in part by reference to the partnership income and equity-flavored debt instrument instruments, such as convertible debt. *See* 26 C.F.R. § 1.7704-1(a)(2)(i) (2015).

164. “Securities exchanges” include public exchanges, national securities exchanges that are exempt from registration under the Securities Exchange Act of 1934 because of limited volume, foreign securities exchanges, regional or local exchanges, and over the counter markets comprised of interdealer quotation systems. *See* 26 C.F.R. § 1.7704-1(b) (2015).

165. *See* I.R.C. § 7704 (2012) (providing for most publicly traded partnerships to be taxed as corporations even if they would otherwise be characterized as partnerships under section 7701).

166. *See* I.R.C. § 7704(c). In addition, existing partnerships that did not meet the qualifying income requirement could remain a partnership for ten years but would be taxed as a corporation after that. When that ten-year period expired in 1997, instead of forcing the publicly traded partnerships that had been grandfathered to be taxed as corporations, Congress permitted them to elect to continue operating as partnerships, and in lieu of the corporate tax, pay an additional 3.5% tax on gross income. *See* SHERLOCK & KEIGHTLEY, *supra* note 157, at 6.

167. “Qualifying income” consists generally of passive forms of income including interest, dividends, real property rents, gains from the dispositions of real property, income and gains derived from exploration, development, mining or production, processing, refining, transportation, or the marketing of any mineral or natural resource, industrial source carbon dioxide, or the transportation or storage of certain fuels. *See* I.R.C. § 7704(d) (“Except as otherwise provided in this subsection, the term “qualifying income” means—(A) interest, (B) dividends, (C) real property rents, (D) gain from the sale or other disposition of real property (including property described in section 1221(a)(1)), (E) income and gains derived from the exploration, development, mining or production, processing, refining, transportation (including pipelines transporting gas, oil, or products thereof), or the marketing of any mineral or natural resource (including fertilizer, geothermal energy, and timber), industrial source carbon dioxide, or the transportation or storage of [certain] fuel[s], or any alcohol fuel . . . or any biodiesel fuel . . . any gain from the sale or disposition of a capital asset (or property described in section 1231(b)) held for the production of income described in any of the foregoing subparagraphs of this paragraph, and (G) in the case of a partnership described in the second sentence of subsection (c)(3), income and gains from commodities (not described in section 1221(a)(1) or futures, forwards, and options with respect to commodities.”).

The rationale for the exemption from the corporate tax under section 7704(c) was that firms undertaking active corporate business activities should pay the corporate income tax, and entities engaged in activities that were essentially “no more than investments” should not.¹⁷³ While publicly traded partnerships may initially have been used to finance proven technologies with passive income and stable cash flows,¹⁷⁴ fossil fuel companies are using the entities to finance increasingly risky extraction activities.¹⁷⁵ In 2008 the Emergency Economic Stabilization Act¹⁷⁶ expanded the definition of qualifying income for publicly traded partnerships to include transportation and storage of renewable and alternative fuels, allowing pipelines transporting alternative fuels to receive the

years to ensure that they will be able to maintain their tax shield. *See id.* Limited partners enjoy a tax shield that covers eighty percent of their distributions. *See* DOUG KOPLOW, TOO BIG TO IGNORE: SUBSIDIES TO FOSSIL FUEL MASTER LIMITED PARTNERSHIPS 8 (2013), http://priceofoil.org/content/uploads/2013/07/OCI_MLP_2013.pdf [<http://perma.cc/D4T8-BNSM>].

173. H.R. Rep. 100-391(II), *reprinted in* 1987 U.S.C.C.A.N. 2313-378, 2313-683 (“In general, the purpose of distinguishing between passive-type income and other income is to distinguish those partnerships that are engaged in activities commonly considered as essentially no more than investments, and those activities more typically conducted in corporate form that are in the nature of active business activities. In the former case, the rationale for imposing an additional corporate-level tax on investments in publicly traded partnership form is less compelling, because purchasers of such partnership interest could in most cases independently acquire such investments (or the income has already been subject to corporate-level tax, in the case of dividends). Where the activity of the partnership does not fall into the category of generating passive-type income, however, it is less likely that direct interests in the activity would be available to investors; rather it is more likely that such activities would be conducted in corporate form and would therefore be subject to corporate level tax before profits reached the hands of investors.”). This language was not included in the conference report, however. *See* H.R. No. 100-495 (1987) (Conf. Rep.), *reprinted in* 1987 U.S.C.C.A.N. 2313.

174. *See* SHERLOCK & KEIGHTLEY, *supra* note 157, at 9.

175. Victor Fleischer, *How the IRS Encourages Oil and Gas Spinoffs*, N.Y. TIMES: DEALBOOK (June 18, 2013, 10:43 AM), <http://dealbook.nytimes.com/2013/06/18/how-the-i-r-s-encourages-oil-and-gas-spinoffs/> [<https://perma.cc/4J9N-9EU4>] (“The problem today is that MLPs are no longer the sleepy equivalents of regulated utility companies. Led by companies like Kinder Morgan energy partners, many MLPs are growth companies with volatile earnings. They hold out the promise of capital appreciation, not just steady income, to attract investors.”). *But see* H.R. Rep. 100-391(II), *reprinted in* 1987 U.S.C.C.A.N. 2313-378, 2313-684 (“In the case of natural resources activities, special considerations apply. Thus, passive-type income from such activities is considerably broader, and includes income and gains from exploration, development, mining or production, refining, transportation (including through pipelines transporting gas, oil or products thereof), or marketing of, any mineral or natural resource, including geothermal energy and timber.”). This language was not included in the conference report, however. *See* H.R. No. 100-495 (1987) (Conf. Rep.), *reprinted in* 1987 U.S.C.C.A.N. 2313.

176. Emergency Economic Stabilization Act, 12 U.S.C. §§ 5201–61 (2012).

same tax treatment as petroleum lines.¹⁷⁷ The Internal Revenue Service (“IRS”), with a series of private letter rulings, has further expanded qualifying income to reach businesses that supply natural resource extraction and distribution firms, such as those that supply, store, and transport fracturing fluids, and remove, treat and dispose of fracturing fluid flow back.¹⁷⁸ Companies that lease equipment to oil exploration and production companies and that provide transportation and storage for oil and gas and deliver them from production to the refinery and to retailers may also operate as publicly traded partnerships.¹⁷⁹

6. Tax Credits

In general, tax credit provisions authorize taxpayers to reduce their tax liabilities by an amount equal to a certain percentage of the cost basis¹⁸⁰ of equipment or other property acquired and used in connection with specified activities. Numerous tax credits are available to the fossil fuel industries. For example, U.S. corporations are entitled to receive a credit for foreign taxes paid.¹⁸¹ Under a special rule, corporations are allowed to treat oil and gas royalty payments made to foreign governments as payments of foreign taxes and credit them against the company’s corporate tax liability.¹⁸²

The United States imposes a federal excise tax of 18.4 cents per gallon on gasoline and 24.4 cents per gallon on diesel fuels.¹⁸³ The funds are deposited in the United States Highway Trust Fund,¹⁸⁴

177. See SHERLOCK & KEIGHTLEY, *supra* note 157, at 7.

178. See Fleischer, *supra* note 175.

179. See *id.*

180. A taxpayer’s basis tracks his investment in the property. *Topic 703—Basis of Assets*, IRS, <https://www.irs.gov/taxtopics/tc703.html> [<https://perma.cc/6EQY-LP7J>] (last updated Dec. 30, 2015). Initially, upon purchasing property, a taxpayer’s basis would be the price he paid for purchasing the property plus any transaction costs, such as attorney’s fees, brokerage fees, or survey costs, for example, that he incurred in acquiring the asset. See *id.* A taxpayer is permitted to recover her investment over time for most property used in her trade or business through depreciation allowances, depletion deductions, or amortization. See *Overview of Depreciation*, *supra* note 77. Depreciation, depletion, and amortization deductions are subtracted from the taxpayer’s basis in the asset annually. *Id.*

181. See I.R.C. § 901 (2012).

182. The tax credit is available even if the foreign government to which the royalties are being paid does not have an income tax, as with Kuwait, Qatar, and Saudi Arabia. See *id.*

183. See I.R.C. § 4041 (Supp. 2015).

184. The excise tax is not indexed to inflation and was last raised in 1993. This has led to shortfalls in the Highway Trust Fund, hampering the federal government’s ability to fund

1. Residential Renewable Energy Tax Credit

Following their expiration in 1982, Congress made another set of residential tax credits available for the use of solar energy systems under the Energy Policy Act of 2005.²⁰¹ The Act established a federal tax credit for residential energy property equal to thirty percent of qualified expenditures for systems serving a taxpayer's residence in the United States.²⁰² The credit is available when the unit is installed, or for new homes, when the taxpayer moves into the unit.²⁰³ Initially, the credit was limited to solar-electric systems, solar water heating systems, and fuel cells, but in 2008, the credit was extended to small wind-energy systems and geothermal heat pumps.²⁰⁴ The American Recovery and Reinvestment Act of 2009 further expanded the credit in a number of ways. It repealed the \$2,000 limit on the amount of credits that could be claimed for all systems placed in service after 2008, except for fuel cells, which have a maximum credit of \$500 per 0.5 kilowatt hour.²⁰⁵ It permitted the credit to be combined with other subsidies and to be applied against any alternative minimum tax liability.²⁰⁶ However, under this Act, all systems except solar and solar thermal technologies must be placed in service on or before December 31, 2016, after which the credit expires.²⁰⁷ The Consolidated Appropriations Act, 2016 extended the credit for photovoltaic energy and solar thermal technologies until 2022, with a gradual reduction in the amount of the credit through that period.²⁰⁸

Congress has provided separate support for renewable energy developers to fund high startup costs on ventures with long future

201. Energy Policy Act of 2005, Pub. L. 109-58, 119 Stat. 594.

202. See I.R.C. § 25D (Supp. 2015).

203. *Residential Renewable Energy Tax Credit*, DATABASE ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://programs.dsireusa.org/system/program/detail/1235> [<https://perma.cc/C37N-CF2J>] (last updated Jan. 14, 2016).

204. Energy Improvement and Extension Act of 2008, Pub. L. 110-343, 122 Stat. 3765.

205. *Residential Renewable Energy Tax Credit*, *supra* note 203.

206. See *id.*

207. See *id.*

208. The credit for photovoltaic and solar water heating technology is thirty percent for systems placed in service by December 31, 2019, twenty-six percent for systems placed in service after that date and by December 31, 2020, and twenty-two percent for systems placed in service between January 1 and December 31, 2021. The credits expire as of January 1, 2022 unless renewed or reinstated by Congress. See Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, § 304, 129 Stat. 2242 (2015); I.R.C. § 25D (Supp. 2015).

revenue streams.²⁰⁹ Subsidies help to mitigate these risks. By granting credits against an investor's tax liabilities, the government induces "tax equity investors" to assume a portion of the risk associated with the development of renewable energy.²¹⁰ The investors then apply the tax credits to reduce their tax liability in later years.²¹¹ The main vehicles Congress uses to support investment in renewable energy projects are the production tax credit²¹² and the investment tax credit.²¹³

2. Production Tax Credit

The production tax credit²¹⁴ ("PTC") was first made available with The Energy Policy Act of 1992.²¹⁵ Production tax credits provide taxpayers with a credit against income tax liability based on the per unit production of electricity generated by a qualifying project over a set period of years.²¹⁶ In general, the PTC provides a ten-year,²¹⁷ inflation-adjusted,²¹⁸ production-based credit for power

209. *Barriers to Renewable Energy Technologies*, UNION CONCERNED SCIENTISTS, http://www.ucsusa.org/clean_energy/smart-energy-solutions/increase-renewables/barriers-to-renewable-energy.html#.VeXyDpcpV_A [<http://perma.cc/D2PV-W3NA>] (last visited Nov. 29, 2015). These startup costs include the expenses of finding and negotiating rights to purchase sites for facilities with access to transmission lines, funding the permitting process, construction, installation, operation and maintenance, marketing, growing and transporting biomass, and training workers to perform these tasks. *See id.*

210. Roberta F. Mann & E. Margaret Rowe, *Taxation*, in *THE LAW OF CLEAN ENERGY: EFFICIENCY AND RENEWABLES* 146 (Michael B. Gerrard ed., 2011).

211. In general, tax credit provisions authorize taxpayers to reduce their tax liabilities by an amount equal to a certain percentage of the cost basis of equipment or other property used in connection with specified activities. Initially, a taxpayer's basis is the price paid to purchase the property plus any transaction costs (such as attorney's fees, brokerage fees, or survey costs) incurred in acquiring the property. *See supra* note 180 and accompanying text.

212. *See* I.R.C. § 45 (Supp. 2015).

213. *See* I.R.C. § 48 (Supp. 2015).

214. I.R.C. § 45.

215. The Energy Policy Act of 1992, Pub. L. 102-486, 106 Stat. 2776. Significant federal funding for renewable energy only became available with the Energy Policy Act of 1992, and firms first began taking advantage of this support in 1994. *See* PFUND & HEALEY, *supra* note 2, at 24. The PTC was originally enacted in 1992 as a temporary subsidy for investment in renewable energy. Congress has repeatedly extended the PTC and re-enacted the legislation after allowing it to lapse. *Renewable Electricity Production Tax Credit (PTC)*, U.S. DEP'T OF ENERGY, <http://energy.gov/savings/renewable-electricity-production-tax-credit-ptc> [<https://perma.cc/JQP7-XTXS>] (last visited Nov. 29, 2015); *Residential Renewable Energy Tax Credit*, *supra* note 203.

216. *See* Mann & Rowe, *supra* note 210, at 146.

217. *See id.* The duration of the production tax credit is ten years after the facility is placed in service. Open loop biomass, geothermal, small irrigation hydroelectric power, and

generated by qualifying facilities.²¹⁹ The credits flow for a five- or ten-year period from the date the project is placed in service.²²⁰ The PTC is not tradable.²²¹ Initially, the PTC provided support for wind energy and closed loop biomass²²² and the credit was briefly expanded to include solar. Projects currently eligible for PTC credits include projects generating electricity produced by wind, closed loop biomass, open loop biomass,²²³ geothermal, small irrigation power, municipal solid waste,²²⁴ qualified hydropower, and marine and hydro-kinetic power.²²⁵

Developers of renewable energy projects employ a variety of financing structures that permit tax equity investors to receive the tax benefits.²²⁶ A common structure is the “flip transaction,”²²⁷ which allows the tax credit investors to acquire their interests for

landfill gas technologies used in municipal solid waste combustion facilities have five-year credit periods. *Renewable Electricity Production Tax Credit (PTC)*, *supra* note 215.

218. The initial credit was set at 1.5 cents per kilowatt hour. The credit is currently 2.3 cents per kilowatt hour of energy produced by wind, geothermal, and closed loop biomass facilities and 1.2 cents per kilowatt hour for open-loop biomass, landfill gas, municipal solid waste, qualified hydroelectric, and marine and hydrokinetic energy resources. *Renewable Electricity Production Tax Credit (PTC)*, *supra* note 215; see Ari Natter, *Credits to Spur Renewable Energy Sources Seen Set to End: Taxes*, BLOOMBERG (Sept. 30, 2013, 12:00 AM), <http://www.bloomberg.com/news/articles/2013-09-30/credits-to-spur-renewable-energy-sources-seen-set-to-end-taxes> [<http://perma.cc/SA6Z-NCPB>].

219. With the production tax credit subsidy set at 2.3 cents per kilowatt hour, the price of energy produced by wind facilities is competitive with conventional energy resources. See Diane Cardwell, *Renewed Tax Credit Buys Wind Power Projects*, N.Y. TIMES (Mar. 21, 2013), <http://www.nytimes.com/2013/03/22/business/energy-environment/a-tax-credits-renewal-lifts-wind-projects.html> [<https://perma.cc/5VGR-8EMK>].

220. See *Renewable Electricity Production Tax Credit (PTC)*, *supra* note 215; see also *Residential Renewable Energy Tax Credit*, *supra* note 203.

221. MARK BOLINGER ET AL., NAT'L RENEWABLE ENERGY LAB., PTC, ITC, OR CASH GRANT? AN ANALYSIS OF THE CHOICE FACING RENEWABLE POWER PROJECTS IN THE UNITED STATES 11–12 (2009), <http://www.nrel.gov/docs/fy09osti/45359.pdf> [<http://perma.cc/3SQM-CB3L>].

222. See Mann & Rowe, *supra* note 210, at 146. Closed loop biomass uses the organic material from a plant grown exclusively for use to produce electricity at a qualifying facility.

223. See *id.* Open loop biomass generates electricity from agricultural livestock waste and cellulose waste material from crops, wood, or forests. Open loop biomass receives a credit of 0.75 cents per kilowatt hour of electricity generated.

224. See *id.* Municipal solid waste facilities include trash combustion and landfill facilities that produce natural gas from biodegradation.

225. See *id.*

226. See *id.*

227. The IRS has provided guidance on the structure of these transactions. See I.R.S. Announcement 2009-69, 2009-40 I.R.B. 475 (Oct. 5, 2009), <https://www.irs.gov/pub/irs-drop/a-09-69.pdf> [<https://perma.cc/SC64-CU9F>].

the tax credit period and then exit the venture.²²⁸ Before investors commit equity to a project that will receive the PTC, they verify that they will have tax liability over a ten-year period to use the tax credits. PTC credits are realized each year over the ten-year credit period as the project generates power. If the project is sold, the remaining credits go to the new owner. However, the sellers may be subject to depreciation recapture.²²⁹ As of 2005, developers must reduce the PTC by the portion of project costs that are financed using other government subsidies, such as government grants, loan guarantees, tax-exempt bonds, and other federal tax credits.²³⁰ In general, under the PTC, the project owner must also operate the project and sell power to an unrelated third party.²³¹

The PTC has always been a temporary subsidy, with automatic sunsets included in the legislation, indicating the date by which the credits would expire. Congress has repeatedly extended the PTC beyond the initial sunset dates, or, after allowing the credits to expire, re-enacted the legislation. The PTC was most recently extended under the Consolidated Appropriations Act, 2016.²³²

228. See BOLINGER ET AL., *supra* note 221, at 11; see also Mann & Rowe, *supra* note 210, at 146. The developer acts as a general partner and manages the development and operation of the facility. The tax credit investors are limited partners. See Mann & Rowe, *supra* note 210, at 146. During the period the credits flow, the limited partners may receive up to ninety-nine percent of the items of income, gain, loss, deduction, and credit. See Rev. Proc. 2007-65, 2007-2 C.B. 967, modified by I.R.S. Announcement 2009-69, 2009-40 I.R.B. 475 (Oct. 5, 2009). At the end of the credit period, once the tax credit investors reach certain targets set forth in the partnership or limited liability company agreement that governs the entity that owns and operates the facility, the interests of the investors are reduced and the interests of the developer, the general partner, are increased. See Mann & Rowe, *supra* note 210, at 146. At that point, the developer may acquire the interests of the investors. See *id.*

229. See I.R.C. § 1245 (Supp. 2014). Under MACRS system, depreciation deductions are taken in advance of actual economic depreciation of the equipment. See *supra* notes 79–82 and accompanying text. If property is sold at a gain, much of the gain may be attributable to accelerated depreciation under MACRS. Section 1245 ensures that the taxpayer pays tax on gains at ordinary rates (rather than at the lower capital gains rates which are otherwise applied under section 1231) to reflect depreciation deductions which reduced income taxed at ordinary rates. This is known as depreciation recapture. See I.R.C. § 1245.

230. See *Renewable Electricity Production Tax Credit (PTC)*, *supra* note 215; see also *Renewable Electricity Production Tax Credit (PTC)*, DATABASE ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://programs.dsireusa.org/system/program/detail/734> [<https://perma.cc/KA92-LAMU>] (last updated Dec. 21, 2015).

231. BOLINGER ET AL., *supra* note 221, at 12. The rules for open and closed loop biomass do not mandate that the projects be owned and operated by the same party and that power be sold to an unrelated third party. See *id.*

232. See Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, § 301, 129 Stat. 2242 (2015).

Furthermore, ITC projects need not be owned and operated by the same entity;²⁴¹ this permits the use of sale-leaseback structures²⁴² and inverted pass-through leases.²⁴³ The ITC is realized the first year after the facility is placed in service, but the project owner is the only party eligible to use the credit.²⁴⁴ A tax equity investor must retain his interest in the project for at least five years for the full amount of the credits to vest; if the project is sold before all the credits have vested, the credits are disgorged.²⁴⁵ The ITC has expired periodically and Congress has reinstated and modified it a number of times.²⁴⁶ The ITC has been most recently extended under the Consolidated Appropriations Act, 2016.²⁴⁷ A number of solar technologies will continue to receive the thirty percent ITC

by federal energy financing. *See Renewable Electricity Production Tax Credit (PTC)*, *supra* note 215.

241. *See* JOHN F. WITTE, *THE POLITICS AND DEVELOPMENT OF THE FEDERAL INCOME TAX* 225 (1985). Congress authorized these tax credit lease arrangements under the Tax Credit Reform Act of 1981. *See id.*

242. BOLINGER ET AL., *supra* note 221, at 11. Sale-leaseback transactions are the main vehicle for structuring the flow of investment and the receipt of tax benefits for ITC transactions; developers enter into sale-leaseback transactions with investors that want to offset their income tax liability. *See* Mann & Rowe, *supra* note 210, at 146. Typically, the investors acquire the energy project and then lease it back to the project developer. The term of the lease may not extend beyond eighty percent of the expected life of the project. *See* I.R.C. § 50(d)(5) (Supp. 2014). The tax benefits, including both the investment tax credits and accelerated depreciation deductions, remain with the owner investor. Mann & Rowe, *supra* note 210, at 146–47. The sale-leaseback provides 100% financing for the project, allowing the investor to receive 100% of the tax benefits. *Id.* The sale-leaseback structure must be in place within three months after the project is placed in service. *Id.* At the end of the lease, the developer may renew the lease at the fair market rent or may buy the project at fair market value. *Id.*

243. BOLINGER ET AL., *supra* note 221, at 11. In an inverted pass-through lease, the developer of the project owns the project and leases it to the tax credit investor. The tax credit investor may claim the investment tax credit and also deduct rent paid under the lease, but the developer retains the depreciation deductions. Accelerated depreciation allows projects to depreciate over an accelerated five-year schedule. *See* I.R.C. § 168 (Supp. 2015). In addition, the projects were permitted to have a fifty percent first-year bonus depreciation allowance available through the end of 2014. *See id.*; I.R.C. § 168(k). Consequently, at the end of the lease the developer retains ownership of the project; there are no additional payments to be made to the tax credit investor and no significant transfers or additional transaction costs are necessary for the investor to exit the project. *See* Mann & Rowe, *supra* note 210, at 147.

244. *See* BOLINGER ET AL., *supra* note 221, at 11.

245. *See id.*

246. *See* WITTE, *supra* note 241, at 312; *see also* NOVOGRADAC & CO., *RENEWABLE ENERGY TAX CREDIT HANDBOOK* (2010).

247. *See* Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, § 303, 129 Stat. 2242 (2015).

tax and incorporated in a wide variety of code sections used to calculate taxable income.⁴¹¹ Even when some fossil fuel subsidies are targeted for removal, elimination of all fossil fuels would require a comprehensive effort. Many of the exclusions, deductions, special rates, and other provisions are broadly available.⁴¹² Depriving fossil fuel industries of these tax expenditures would require carve-outs to exclude the fossil fuel industry from benefits provided to other industries, creating even more complexity.

In contrast, tax credit provisions are appended to the front of the Internal Revenue Code and remain separate from the structural parts of the tax code used to measure income. Tax credits are simply subtracted from tentative tax liability to determine the amount of tax to be paid. Tax credit provisions are easily excised or allowed to lapse without ramifications to the effective functioning of the income tax system.⁴¹³ Historically, the tax credit provisions have also been more volatile⁴¹⁴ and more likely to be subject to expiration, repeal, reinstatement, and revision than other more “embedded” subsidies.

VI. PROPOSALS FOR REFORM

In recent years, proposals for tax reform have included plans to expand fossil fuel tax subsidies,⁴¹⁵ to eliminate fossil fuel tax subsidies,⁴¹⁶ to expand subsidies to renewables,⁴¹⁷ to eliminate the

411. See U.S. DEP’T OF THE TREASURY, PROGRESS REPORT ON FOSSIL FUEL SUBSIDIES 3–7 (2015).

412. *Id.*

413. For example, the PTC, addressed earlier, has “expired and been renewed numerous times” with no sign of such activity impacting the overall functioning of the U.S. tax system. See *Renewable Electricity Production Tax Credit (PTC)*, *supra* note 215; see also DATABASE ST. INCENTIVES FOR RENEWABLES & EFFICIENCY, *supra* note 230.

414. In the period leading up to the passage of the Tax Reform Act of 1986, John Witte examined the volatility of assorted tax expenditures. At the time, capital gains treatment for coal royalties had never been modified since it was passed in 1951 and the ITC was subject to the most modifications for the time it had been in place. See WITTE, *supra* note 241, at 312.

415. See EXPAND Act, Energy Exploration and Production to Achieve National Demand Act, H.R. 3895, 113th Cong. (2014).

416. See End Big Oil Tax Subsidies Act of 2013; H.R. 609, 113th Cong. (2013); Repeal Big Oil Tax Subsidies Act, S. 2204, 112th Cong. (2012).

417. Press Release, U.S. Senate Comm. on Fin., Baucus Unveils Proposal for Energy Tax Reform (Dec. 18, 2013), <http://www.finance.senate.gov/newsroom/chairman/release/?id=3a90679c-f8d0-4cb6-b775-ca559f91ebb4> [<http://perma.cc/R5P5-YJK7>].

remaining tax subsidies to renewables,⁴¹⁸ and to extend to renewables the tax benefits currently available to fossil fuels.⁴¹⁹ This Part reviews each of the proposals based on their likely transaction costs, information costs, technological risk, legislative risk, successful passage into law, and longevity.

In January 2014 Representative Jeff Duncan, a Republican from South Carolina, introduced the EXPAND Act.⁴²⁰ First, the Act would repeal the energy tax credits.⁴²¹ While the repeal of tax credits under the EXPAND Act gives the appearance of even-handedness because tax credits are used to subsidize both renewable energy and fossil fuels, all of the other embedded subsidies for fossil fuels would remain intact.⁴²²

Second, the Act would permit taxpayers to deduct immediately the full cost of property used in the production of energy in the taxable year in which the property is placed in service.⁴²³ The EXPAND Act facilitates tax sheltering activities; it provides for owners of energy properties to expense those costs immediately rather than capitalizing and depreciating them over time.⁴²⁴ This would, in effect, expand the provisions for expensing property under section 179 by removing the income and investment limitations for energy properties. The provisions allowing property owners to expense the capital costs of energy facilities benefit fossil fuel investors preferentially. While both renewable energy and

418. For example, House Bill 1569, The New Fair Deal Busting America's Rigid Outdated & Needless Subsidies Act of 2013, sponsored by Representative Mike Pompeo of Kansas, proposed to eliminate the tax credits for energy and use the savings to achieve a flat tax rate for corporations. The tax credits covered a wide variety of production methods, but they eliminated the main form of subsidy for renewables while leaving the bulk of subsidies for fossil fuels unscathed. New Fair Deal Busting America's Rigid Outdated & Needless Subsidies Act of 2013, H.R. 1569, 113th Cong. (2013); *see also* Energy Freedom and Economic Prosperity Act of 2014, S. 2279, 113th Cong. (2014).

419. *See* Master Limited Partnerships Parity Act, H.R. 1696, 113th Cong. (2013).

420. *See* EXPAND Act, Energy Exploration and Production to Achieve National Demand Act, H.R. 3895, 113th Cong. (2014).

421. *See id.* (noting that if this bill passed, Title XI would repeal several energy tax credits).

422. Similarly, the Energy Freedom and Economic Prosperity Act of 2014 proposed to repeal the provisions for energy-only tax credits. *See* Energy Freedom and Economic Prosperity Act of 2014, S. 2279 113th Cong. (2014). EFEP, proposed by Mike Lee, a Republican from Utah, proposed to amend the Internal Revenue Code to repeal tax credits for energy and use the savings to reduce the existing corporate tax rates by uniform percentage. *See id.*

423. *See id.* § 617.

424. *See id.*

fossil fuel investors may employ pass-through structures that would allow the flow-through of losses, the passive activity rules differ for each industry. Investors with working interests in the oil and gas industry have exemptions from the passive activity loss rules, so their investors may immediately use these losses to offset their ordinary income.⁴²⁵ In contrast, the passive activity loss rules would suspend losses from expensing equipment for the renewable energy industry until an investor has gains from other passive activities to be offset or until the investor terminates her interest.⁴²⁶

As mentioned above, accelerated depreciation and expensing may yield a negative tax rate, interfere with the efficient allocation of capital, and create deadweight loss by diverting resources to activities that are not socially beneficial. First, remaining tax preferences for fossil fuels, along with the subsidies in this bill, if enacted, would continue to contribute to health and environmental harms, including climate change.⁴²⁷ Second, even without taking into account the health and environmental impacts, providing additional subsidies to oil and gas equipment purchases would likely produce few economic gains for the revenue cost and result in additional waste. The current glut in the oil and gas markets⁴²⁸ has reduced prices in the United States but not produced widespread economic gains.⁴²⁹

The legislation contains no sunset provisions,⁴³⁰ so it would generate little legislative uncertainty. Representative Duncan suggests that the legislation avoids “picking winners and losers,”⁴³¹

425. See I.R.C. § 469(c)(3) (Supp. 2014).

426. See I.R.C. §§ 469(a), (b), (g) (Supp. 2014).

427. The EXPAND Act also proposes to eliminate moratoria and restrictions on energy exploration, renew and extend gas leases, limit actions to conserve coastal lands, expedite refinery permitting, exempt the Keystone XL pipeline from the permitting process, streamline the process for nuclear energy, construct the Yucca Mountain repository for radioactive waste, and limit the regulatory scope of the Endangered Species Act of 1973, the Clean Air Act, and the Solid Waste Disposal Act. Finally, Congress and administrative agencies would be barred from including the social costs of pollution in their analyses. See EXPAND Act, Energy Exploration and Production to Achieve National Demand Act, H.R. 3895, 113th Cong. (2014).

428. Krauss, *supra* note 115 (describing the growing 1 million barrel per day oil glut).

429. See Binyamin Appelbaum, *This Time, Cheaper Oil Does Little for the U.S. Economy*, N.Y. TIMES (Jan. 21, 2016), <http://www.nytimes.com/2016/01/22/business/energy-environment/this-time-cheaper-oil-does-little-for-the-us-economy.html> [<https://perma.cc/24UY-TBRK>].

430. See H.R. 3895 (containing no expiration dates).

431. See Press Release, Jeff Duncan, U.S. Congressman, Duncan Introduces the All-of-the-Above Energy Bill (Jan. 17, 2014), <http://jeffduncan.house.gov/press-release/duncan->

but unless Congress makes affirmative decisions about the minimum qualifications for the projects that will receive the tax benefits, it cannot limit the technological risk or evaluate whether the proposal is cost effective or beneficial. Furthermore, without guidance on the kinds of projects that will qualify for the deduction, the IRS will be unable to administer the program.⁴³² At best, the proposal will commit taxpayer funds to inefficient and ineffective projects; at worst, it provides an expansive opportunity for fraud.

Subsidies for fossil fuels have also recently come under Congressional scrutiny. In 2012, Senators Bob Menendez and Harry Reid introduced the Repeal Big Oil Tax Subsidies Act.⁴³³ The bill proposed to terminate a handful of the tax subsidies for the fossil fuel industry, including the application of the foreign tax credit to royalties and other funds paid to foreign sovereigns for oil and gas extraction and production rights, and the domestic production deduction for coal, oil and gas, expensing of intangible drilling and development costs, the deduction for tertiary injectants, and the percentage depletion allowance for oil and gas interests.⁴³⁴ While the bill identified a number of the larger subsidies, it failed to include the exemption from the corporate tax for natural resources publicly traded partnerships under section

introduces-all-above-energy-bill-expand-act [<http://perma.cc/4669-WXT2>]; *see also* Nicolas Loris, *10 Ways the EXPAND Act Would Take the Energy Market in the Right Direction*, HERITAGE FOUND. (Feb. 4, 2014), <http://www.heritage.org/research/reports/2014/02/10-ways-the-expand-act-would-take-the-energy-market-in-the-right-direction> [<http://perma.cc/GJ7H-GVZA>].

432. The IRS has been under regular attack for its administrative failures in recent years. *See* Stephen Ohlemacher, *Bipartisan Investigation Cites Management Flaws at IRS*, YAHOO! NEWS (Aug. 5, 2015, 5:27 PM), <http://news.yahoo.com/bipartisan-investigation-cites-management-flaws-irs-202056639—finance.html> [<https://perma.cc/9KJL-37CH>]; Stephen Ohlemacher, *IRS: Computer Breach Bigger than First Thought; 334K Victims*, BUS. INSIDER (Aug. 17, 2015, 6:06 PM), <http://www.businessinsider.com/ap-irs-computer-breach-bigger-than-first-thought-334k-victims-2015-8> [<http://perma.cc/Y5BC-YMR3>]; *Senate Probe into IRS Targeting of Tea Party Groups Issues Mixed Report*, REUTERS (Aug. 5, 2015, 8:40 PM), <http://www.reuters.com/article/2015/08/06/us-usa-congress-irs-idUSKCN0QB01N20150806> [<http://perma.cc/JEP3-ZC86>]; Andrew Taylor & Stephen Ohlemacher, *Staff Cuts Take Toll on IRS Tax Enforcement Efforts*, PIONEER PRESS (June 17, 2015), http://www.twincities.com/business/ci_28331036/staff-cuts-take-toll-irs-tax-enforcement-efforts [<http://perma.cc/HVM9-B4LV>]; *see also* Philip T. Hackney, *Should the IRS Never 'Target' Taxpayers? An Examination of the IRS Tea Party Affair*, 49 VAL. U. L. REV. 453 (2015) (providing a detailed discussion of the issues).

433. Repeal Big Oil Tax Subsidies Act, S. 2204, 112th Cong. (2012).

434. *See id.*

7704(c).⁴³⁵ Even if the bill were enacted, the income tax would remain littered with over a dozen other fossil fuel subsidies. The variety of embedded subsidies for fossil fuels makes the delivery of comprehensive reform difficult.⁴³⁶

435. *See id.* (failing to mention or address the natural resources publicly traded partnerships carve out from section 7704(c)).

436. Recently, however, Vermont Senator Bernie Sanders and Minnesota Representative Keith Ellison have sponsored the End Polluter Welfare Act of 2015. *See* End Polluter Welfare Act of 2015, S. 1041, 114th Cong. (2015); End Polluter Welfare Act of 2015, H.R. 1030, 114th Cong. (2015). The bill proposes to end the tax subsidies for oil, natural gas, and coal and includes a far more exhaustive list of the fossil fuel subsidies to be eliminated. The Act amends the Internal Revenue Code to limit or repeal provisions that incentivize investment in fossil fuels. The Act terminates tax credits under section 43 (relating to enhanced oil recovery credit), section 45I (relating to credit for producing oil and natural gas from marginal wells), section 45K (relating to credit for producing fuel from a nonconventional source), and section 45Q (relating to credit for carbon dioxide sequestration). It prevents the certification of any new credits under section 48A (relating to qualifying advanced coal project credit) or section 48B (relating to qualifying gasification project credit). It eliminates deductions under section 193 (deduction for tertiary injectants), section 199 (deduction of a percentage of income for oil, natural gas, and coal production activities), section 263(c) (expensing of intangible drilling and development costs), section 468 (for mining and solid waste reclamation and closing costs), section 613 (percentage depletion for coal and hard mineral fossil fuels), section 613A (percentage depletion for oil and natural gas properties), and section 617 (relating to the deduction and recapture of certain mining exploration expenditures). It reinstates the passive activity loss rules for working interests in oil and natural gas property by terminating section 469(c)(3) and eliminates a safe harbor for arbitrage activities for prepaid natural gas contracts under section 148(b)(4). It eliminates a number of beneficial timing provisions, including section 39(a)(3) (relating to five-year carryback for the marginal oil and natural gas well production credit), section 168(e)(3) (relating to class life of natural gas gathering lines), section 461(i)(2) (allowing acceleration of deductions for spudding of oil or natural gas wells), section 169 (relating to amortization of pollution control facilities), and section 179B (relating to deduction for capital costs incurred in complying with Environmental Protection Agency sulfur regulations). The amendment to section 167(h) extends the cost recovery period from two years to seven to eleven. It eliminates last-in first-out accounting practices for inventories of coal, oil, and gas under section 472 and section 473. It addresses preferential rates. It eliminates capital gains treatment for royalties from coal under section 631 and eliminates use of the foreign tax credit for sums paid to foreign sovereigns in connection with oil, natural gas, and coal extraction and production. The Act also repeals the corporate income tax exemption for publicly traded partnerships with qualifying income and gains from activities relating to fossil fuels and eliminates accelerated depreciation for property that is receiving a tax subsidy for fossil fuel production. The bill would also change a number of the excise taxes on gasoline and create additional new taxes. Based on the number of industries that currently enjoy these subsidies and the current composition of Congress, however, this bill is likely to suffer the same fate as the Repeal Big Oil Tax Subsidies Act and die in Congress. GovTrack.us estimates that the bill has a two percent chance of being enacted. *See S. 1041: End Polluter Welfare Act of 2015*, GOVTRACK, <https://www.govtrack.us/congress/bills/114/s1041> [<https://perma.cc/93RJ-KKKW>] (last visited Jan. 4, 2016).

In 2012 Senator Chris Coons of Delaware proposed the Master Limited Partnerships Parity Act to expand the definition of qualifying income to permit renewable energy projects to be financed under section 7704(c) as publicly traded partnerships.⁴³⁷ The bill would permit renewable energy businesses to gain access to the financing structures available to fossil fuels.⁴³⁸ The bill died in 2012, but was reintroduced in 2013⁴³⁹ and 2015.⁴⁴⁰ Currently, the exemption from the corporate tax under section 7704(c) is available only for publicly traded partnerships with income from “exhaustible” natural resources as defined in section 613.⁴⁴¹ The Act would eliminate this reference so that the definition of “qualified income” would include revenues from wind, solar, and other energy technologies currently subsidized under the ITC and PTC,⁴⁴² which do not otherwise qualify as “exhaustible” natural resources.⁴⁴³ By expanding the definition of “qualifying income” for publicly traded partnerships to include income from alternative energy resources, the bill seeks to allow investors in green energy to enjoy the tax shield currently enjoyed by investors in fossil fuels.⁴⁴⁴

437. S. 3275, 112th Cong. (2012) (“A bill to amend the Internal Revenue Code of 1986 to extend the publicly traded partnership ownership structure to energy power generation projects and transportation fuels, and for other purposes.”); *see also* Chris Coons, *Master Limited Partnerships Parity Act*, U.S. SENATE, <http://www.coons.senate.gov/MLP> [<http://perma.cc/HH9B-UGRW>] (last visited Nov. 28, 2015).

438. Coons, *supra* note 437. In other words, this expansion would offer renewable energy businesses the opportunity to organize under a publicly traded partnership structure and therefore receive the favorable tax consequences discussed earlier. *See id.*

439. *See* Press Release, U.S. Senator Christopher Coons, Senators Coons, Moran, Stabenow and Murkowski Re-introduce Bill to Level the Playing Field for Renewable Energy Technologies (April 24, 2013), <http://www.coons.senate.gov/newsroom/releases/release/senators-coons-moran-stabenow-and-murkowski-re-introduce-bill-to-level-the-playing-field-for-renewable-energy-technologies> [<http://perma.cc/2D7R-65E2>].

440. *See* Master Limited Partnerships Parity Act of 2015, S. 1656, 114th Cong. (2015).

441. I.R.C. § 7704(d)(1)(G) (2012).

442. This includes wind, closed-loop and open-loop biomass, geothermal, solar, municipal solid waste, hydropower, marine and hydrokinetic power, fuel cells, and geothermal heat power. The Act would also allow cellulosic biodiesel fuels to qualify. S. 1656.

443. Renewable energy *transmission* projects are currently using the publicly traded partnership form to attract capital.

444. While some advocates suggest that this would democratize the pool of renewable energy investors by allowing taxpayers to invest in publicly traded partnerships, few members of the public would actually meet the rules to become investors because of passive activity loss rules. The Tax Reform Act of 1986 introduced the passive activity loss rules. *See* I.R.C. § 469 (Supp. 2014); *see also* SHERLOCK & KEIGHTLEY, *supra* note 157, at 21. These rules prevent investors from using operating loss deductions from businesses in which they are not materially participating to offset their income from employment or other businesses in which

revised on an annual basis. Therefore, modifications to the current sets of tax subsidy structures may provide an avenue for progress.

When Congress uses the income tax to address market failures it should consider the sources and extent of risk and the reward that will be needed to induce private parties to share that risk. It should model the incidence of the tax subsidy. Taxes are borne mainly by those with the least elastic response to them; subsidies are enjoyed by the parties with the most flexible response to them. If, as with fossil fuel subsidies, the beneficiaries are not consumers but fossil fuel industry shareholders, the goal for the subsidy, economic growth, is not being served. Furthermore, such subsidies may generate economic waste.

Congress should also consider whether the structure of the tax subsidy creates or reduces information and transaction costs, creates lock-in, or facilitates trading and marketability. Sunsets should be reconsidered, since they may increase the risks faced by the investors. Even if the subsidies are temporary, Congress should provide sufficient time for projects to complete siting, permitting and construction, and begin operations. Furthermore, temporary legislation empowers entrenched industries to interfere with the capital formation, growth, and expansion of new technologies. Finally, Congress should require the Department of the Treasury to develop tax forms that collect data from all taxpayers claiming any energy subsidy and make the aggregate data publicly available for evaluation. Even with all the current disadvantages, many forms of renewable energy have begun to approach parity with fossil fuels in terms of cost.⁴⁶⁵ This progress may be accelerated if Congress provides a more thoughtful set of subsidies for renewable energy.

465. In recent years, wind and solar have reached parity with natural gas on a cost per BTU basis, even without subsidies. See Diane Cardwell, *Solar and Wind Energy Start to Win on Price vs. Conventional Fuels*, N.Y. TIMES (Nov. 23, 2014), <http://www.nytimes.com/2014/11/24/business/energy-environment/solar-and-wind-energy-start-to-win-on-price-vs-conventional-fuels.html> [<http://perma.cc/LFH4-4HNG>].