

RENEWABLE ENERGY THROUGH AGENCY ACTION

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Despite the many societal benefits associated with renewable energy, it is used to generate only about 5 percent of our nation's electricity needs. The bulk of governmental efforts to rectify this situation have disproportionately impacted private actors. This Article argues that the federal government should expand its efforts to more fully capture the gains that can be achieved by targeting both private and public actors, particularly federal agencies. Federal agencies have enormous purchasing power that can be channeled toward using electricity and fuels derived from renewable energy. Federal agencies are some of the largest consumers of electricity. Federal agencies manage millions of acres of lands with ample renewable energy potential. Federal agencies stand to serve as models for the rest of the country through their support of renewable energy. Perhaps most importantly, the government is able to direct agencies to promote renewable energy with a power that it cannot exert on states or private actors. This Article evaluates a number of recent efforts to direct federal agencies to consume, produce, or facilitate the development of renewable energy, and highlights significant considerations associated with enlisting federal agencies to advance the nation's ambitious renewable energy goals.

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INTRODUCTION

The presence of positive externalities associated with a given activity is generally recognized as a justification for government intervention.¹ Positive externalities are societal benefits that are external to the market, and where these benefits are external to a market transaction, the result is an undersupply of the good or service desired. A number of societal benefits exist with respect to renewable energy—benefits that economists may characterize as positive externalities. As opposed to fossil fuel-powered energy,² renewable energy generates less climate-warming greenhouse gases (e.g., carbon dioxide),³ it generates less harmful air pollutants (e.g., mercury and sulfur dioxide),⁴ it eliminates the extraction-impacting activities associated with fossil fuel resources (e.g., hydraulic fracturing),⁵ and it can even lessen our dependence on finite resources (e.g., coal and natural gas).⁶ These societal benefits cannot be fully captured by the parties involved in developing renewable energy, however, and we are left with an undersupply of renewable energy.⁷ As a result, state and federal governments have intervened to promote

1. Thomas Helbling, *What Are Externalities?*, FIN. & DEV., Dec. 2010, at 48, <http://www.imf.org/external/pubs/ft/fandd/2010/12/pdf/fd1210.pdf>.

2. The conventional definition of fossil fuels is used to include petroleum and its byproducts, natural gas, and coal products. ENVTL. LAW INST., ESTIMATING U.S. GOVERNMENT SUBSIDIES TO ENERGY SOURCES: 2002–2008, at 4 (2009), http://www.elistore.org/Data/products/d19_07.pdf.

3. *Human-Related Sources and Sinks of Carbon Dioxide*, U.S. ENVTL. PROTECTION AGENCY, http://www.northernpasseis.us/media/attachments/a9_epa_human-related_sources_and_sinks_of_co2.pdf (last updated June 9, 2011); *Nonrenewable Coal*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/kids/energy.cfm?page=coal_home-basics (last visited Nov. 11, 2012) (stating that 79 percent of these fossil fuel carbon dioxide emissions come from coal).

4. *What Is the Role of Coal in the United States?*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/cfapps/energy_in_brief/role_coal_us.cfm (last updated July 18, 2012) [hereinafter *Role of Coal*].

5. *How Natural Gas Works*, UNION OF CONCERNED SCIENTISTS, http://www.ucsusa.org/clean_energy/our-energy-choices/coal-and-other-fossil-fuels/how-natural-gas-works.html#enviroimpacts (last updated Aug. 31, 2010).

6. See U.S. ENERGY INFO. ADMIN., DOE/EIA-0383(2012), ANNUAL ENERGY OUTLOOK 2012 WITH PROJECTIONS TO 2035, at 45 (2012), [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf) (noting the predicted “decrease in coal’s share of total generation is offset primarily by increases in the shares of natural gas and renewables”).

7. See JONATHAN HARRIS & ANNE-MARIE CODUR, TUFTS UNIV. GLOBAL DEV. & ENV’T INST., MICROECONOMICS AND THE ENVIRONMENT 3 (2004), http://www.ase.tufts.edu/gdae/education_materials/modules/Microeconomics_and_the_Environment.pdf.

more renewable energy.

The dilemma for our government is how to correct for the undersupply of this important energy resource. The government has considered a wide range of alternative approaches, which can be loosely categorized as “carrots and sticks.” The government can either dangle “carrots” as rewards to entice certain behavior or hold up the threat of “sticks” as penalties for failing to achieve certain behavior. Some government tools function more as carrots (e.g., tax incentives for wind energy) and some function more as sticks (e.g., clamping down on air pollutants emitted from coal plants or mandating that utilities obtain a certain percentage of their electricity from renewable energy).

One thing common to these government responses is that the brunt of these policies has been directed primarily at private actors. Tax incentives are generally only available to private developers.⁸ Renewable mandates apply disproportionately to privately owned utilities.⁹ Recent air-pollutant restrictions most significantly affect coal plant operators, a swath of industry that is predominantly private.¹⁰

This Article argues that in addition to these approaches that predominantly affect private entities, the federal government should expand its efforts to more fully capture the massive consumption and land potential under the jurisdiction of federal agencies.¹¹ Federal agencies are some of the largest consumers of electricity, with the Department of Defense (“DOD”) alone spending billions of dollars each year on its

8. See, e.g., *infra* notes 124–27 and accompanying text.

9. See *infra* notes 151–53 and accompanying text.

10. See Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22,392 (Apr. 13, 2012) (to be codified at 40 C.F.R. pt. 60) (effectively mandating that all new fossil-fuel (i.e., nonrenewable) plants must be natural gas, resulting in a potential phase-out of coal and oil plants); Amy L. Stein, *The Tipping Point of Federalism*, 45 CONN. L. REV. 217, pt. VI.B. (2012).

11. Although this analysis is focused on the federal government targeting federal agencies, state governments can also target *state* agencies to further magnify the benefits. This is consistent with the idea that where the regulatory goal is to facilitate some behavior, the target should be as broad as possible. Just as targeting federal agencies and private actors should result in more renewable energy than merely targeting private actors, targeting federal and state agencies, as well as private actors should result in even more. See, e.g., *Statewide Renewable Energy Project*, NEV. STATE OFFICE OF ENERGY, http://energy.nv.gov/Programs/Statewide_Renewable_Energy_Project/ (last visited Nov. 21, 2012) (allowing state agencies to offset the amounts spent on renewable power).

energy bill.¹² Federal agencies also manage approximately one third of all land in our country, much of which is closely aligned with areas of strong solar and wind intensity to power renewable generation.¹³ Federal agencies stand to serve as models for the rest of the country through their support of renewable energy. Their immense purchasing power can support a nascent industry in need of stabilization and a steady demand. Perhaps most importantly, the government is able to direct agencies to promote renewable energy with a power that it cannot exert on states or private actors.

Directing federal agencies to promote renewable energy is not without its own limitations. First, such policies may be difficult to enforce, and their enforceability may depend on whether the agency is responding to directives by Congress, the executive, or acting on its own initiative. Second, while federal agencies are generally not motivated by traditional wealth-maximization, they can be motivated by a unique set of carrots and sticks. Third, directing federal agencies to act may raise concerns about the source of money to implement these directives, particularly when a premium is to be paid for a good or service. Economists are likely to object to any government intervention that can be characterized as economically inefficient.¹⁴ Lastly, some may object to the use of federal lands for such purposes. Federal agencies are tasked with managing multiple uses of the federal lands, and even construction of clean energy generators can have significant impacts on the environment. Involving federal agencies may also increase the level of bureaucracy associated with renewable energy projects,

12. See *infra* text accompanying note 245. “The federal government is also the single largest user of energy in the United States.” U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-12-260, RENEWABLE ENERGY: FEDERAL AGENCIES IMPLEMENT HUNDREDS OF INITIATIVES 3 (2012), <http://www.gao.gov/assets/590/588876.pdf>.

13. See *infra* notes 189–94 and accompanying text.

14. See, e.g., Jim Rossi, *The Limits of a National Renewable Portfolio Standard*, 42 CONN. L. REV. 1425, 1442 n.58, 1450 (2010) (citing economist Robert Michaels in concluding that a mandated renewable procurement requirements constitutes “a poor intervention for resolving problems that markets can handle only imperfectly”); MARC LABONTE, CONG. RESEARCH SERV., RL32162, THE SIZE AND ROLE OF GOVERNMENT: ECONOMIC ISSUES 26 (2010), <http://www.fas.org/sgp/crs/misc/RL32162.pdf> (“Not all government spending is created equally. Economists universally agree that some government spending, on a well-functioning legal system, for example, increases economic efficiency and growth. Agreement is nearly as universal that some government spending, on subsidies to industries, for example, reduces economic efficiency or growth. In between are policies that are a jumble of efficiency-enhancing and efficiency-reducing provisions.”).

as illustrated by the additional environmental review obligations imposed on federal agencies under the National Environmental Policy Act (“NEPA”).¹⁵

Part I of this Article demonstrates the positive externalities associated with renewable energy and describes the market failure resulting in an undersupply of renewable energy in this country. Part II explains how the government policies to correct this undersupply have disproportionately impacted private actors. Part III makes the argument that a narrow focus on private actors is not sufficient to achieve our nation’s ambitious renewable energy goals. Instead of this narrow focus, this part provides a number of reasons why the federal government should expand its regulatory target to include private and public entities, most notably federal agencies. Part IV illustrates federal agency action that is harnessing both the powerful purchasing power of the federal government and harnessing federal agencies’ power over federal lands. Part V highlights some of the complicating factors associated with directing agencies to advance these goals. On balance, this Article concludes that the government should continue to expand its targets to include both private actors and its own federal agencies to advance the nation’s ambitious renewable energy goals.

I. POSITIVE EXTERNALITIES OF RENEWABLE ENERGY

Externalities occur when prices in a competitive market do not reflect the full costs or benefits of producing a good. Although negative externalities often receive the most attention in environmental law (where third parties bear some costs outside of a market transaction), positive externalities can also play a significant role in decision-making (where third parties enjoy some benefits external to the market transaction).¹⁶ Both can justify government intervention to

15. 42 U.S.C.A. § 4332(2)(C) (West 2004).

16. Brett M. Frischmann, *An Economic Theory of Infrastructure and Commons Management*, 89 MINN. L. REV. 917, 988–89 (2005) (discussing how economists have opined that “[T]he market mechanism exhibits a bias for outputs that generate observable and appropriable benefits at the expense of outputs that generate positive externalities. . . . The problem with relying on [private property rights and] the market is that potential positive externalities may remain unrealized if they cannot be easily valued and appropriated by those that produce them, even though society as a whole may be better off if those potential externalities were actually produced.”).

correct for the market failure caused by externalities.¹⁷

Externalities lead to an inefficient quantity of production and consumption. This can be remedied by either private arrangements or public policy. Negative externalities lead markets to produce more than the socially optimal level of a good, imposing a social cost.¹⁸ A classic example is a factory that pollutes a river, which imposes involuntary costs on society that are not incorporated into the factory's private costs, resulting in an overproduction of the pollution. Conversely, positive externalities lead markets to produce less than the most socially optimal level of a good, preventing a social gain.¹⁹ The classic example involves a honey-farmer.

A honey-farmer raises bees for his own benefit—in order to sell the honey they produce. This is a private activity with private benefits and costs. However, bees contribute to the pollenization of flowers in the gardens and orchards of other people, who benefit freely from this positive externality. The owners of these gardens, harvesting flowers and fruits, receive an external benefit from the fact that their neighbor is a honey-farmer.²⁰

17. Market failure typically occurs where there are information asymmetries, markets that are not truly competitive, principal-agent problems, public goods, or externalities. See generally DAVID J. BJORNSTAD & MARILYN A. BROWN, JOINT INST. FOR ENERGY & ENV'T, A MARKET FAILURES FRAMEWORK FOR DEFINING THE GOVERNMENT'S ROLE IN ENERGY EFFICIENCY (2004), http://www.ornl.gov/sci/mkt_trans/pdf/2004_02marketfail.pdf. “Externalities are probably the argument for government intervention that economists most respect.” Bryan Caplan, *Externalities*, LIBRARY OF ECON. & LIBERTY, <http://www.econlib.org/library/Enc/Externalities.html> (last visited Nov. 11, 2012).

18. Daniel B. Kelly, *Strategic Spillovers*, 111 COLUM. L. REV. 1641, 1644 (2011) (“For example, in deciding whether to build a subdivision, a developer will consider his or her own costs but may disregard certain social costs such as increased congestion on nearby streets or additional runoff on adjacent parcels. Similarly, in deciding whether to operate a factory, a firm will calculate its own costs but may ignore certain harms to others like external health risks arising from elevated concentrations of particulate matter. The primary reason these harms are socially problematic is straightforward: A party may have an incentive to engage in an activity if the activity's private benefits exceed its private costs even though, as a result of the externality, the activity is undesirable as its social costs exceed its social benefits.”).

19. The existence of a positive externality means that marginal social benefit is greater than marginal private benefit, resulting in a net welfare loss. *Id.* at 1649. “A party may not have an incentive to engage in an activity if the activity's private costs exceed its private benefits, even though the activity is desirable because its social benefits exceed its social costs.” *Id.*

20. HARRIS & CODUR, *supra* note 7, at 3.

Other “examples of positive externalities are provided by activities such as education, health care, national defense, lawmaking, and law enforcement. As such, these activities are largely provided, subsidized, or rewarded by the government.”²¹ Each of these activities results in third parties enjoying societal benefits that are external to the market transaction. These activities do not only benefit the person engaging in them, but they benefit society as well through a healthy, educated populace. In an effort to avoid an inadequate supply of these goods, the government intervenes in an effort to obtain the optimal production of the good.

Similarly, renewable energy not only benefits the developer of the energy source but also benefits society. Because these benefits are not fully captured in the market transaction, a positive externality results. This section provides a flavor for the diffuse societal benefits associated with renewable energy and demonstrates the resulting undersupply of renewable energy in the United States.

A. *Renewable Energy Positive Externalities*

Generation²² of renewable energy to supply a larger percentage of the nation’s electricity has a number of societal benefits for our country.²³ Reliance on more renewable energy can strengthen the economy, eliminate the need for disruptive extraction techniques, further diversify the nation’s electricity portfolio to better insulate the nation from service disruptions, reduce air pollutants that adversely affect human health, and reduce greenhouse gas (“GHG”) emissions that intensify events related to climate change.²⁴

Furthermore, the benefits associated with renewable energy are additive. That is, with each successive renewable energy project, additional benefits are realized. More benefits

21. Giuseppe Dari-Mattiacci, *Negative Liability*, 38 J. LEGAL STUD. 21, 54 (2009).

22. Generation refers to the conversion of one type of energy (e.g., fossil fuels, solar, or wind) to electric energy. *Electricity Terms and Definitions*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/cneaf/electricity/page/glossary.html#gh> (last visited Nov. 16, 2012).

23. Helbling, *supra* note 1, at 48 (stating that in the economics literature, societal benefits are those that are enjoyed by actors external to the transaction).

24. See NAT’L RENEWABLE ENERGY LABS., DOLLARS FROM SENSE: THE ECONOMIC BENEFITS OF RENEWABLE ENERGY 1 (1997), <http://www.nrel.gov/docs/legosti/fy97/20505.pdf>.

are realized with 500 megawatts of renewable energy than are realized with 50 megawatts. Finally, the marginal social benefits of renewable energy are higher than marginal private benefits of renewable energy because they include gains to society as well as to private renewable energy developers.²⁵ The benefits of renewable energy are briefly discussed below.

1. Strengthen the Economy

More electricity generation from renewable energy would necessarily entail construction of more renewable energy facilities, including generation, transmission, and distribution infrastructure.²⁶ This additional construction would bring with it more jobs, and some have argued that the renewable energy jobs created would more than offset the loss of jobs in the fossil fuel industry.²⁷ Germany, for example, has seen an economic benefit from its enhanced renewable energy production resulting in a 50 percent increase in renewable energy jobs from 2004 to 2006.²⁸

2. Further Diversify the Nation's Electricity Portfolio to Better Insulate the Nation from Service Disruptions and Finite Supplies

More renewable energy would also help diversify the energy sources of the United States and help ensure that there are reliable energy sources in the future.²⁹ Distributed renewable energy would reduce the vulnerability of the

25. At the social optimum, there is a higher quantity of renewable energy than at the private market equilibrium. See HARRIS & CODUR, *supra* note 7, at 7 (describing the disparity between the social optimum and the private equilibrium with respect to open rural land).

26. Mark Z. Jacobson & Mark A. Delucchi, *A Plan to Power 100 Percent of the Planet with Renewables*, SCI. AM. (Oct. 26, 2009), <http://www.scientificamerican.com/article.cfm?id=a-path-to-sustainable-energy-by-2030>.

27. ELIZABETH A. STANTON & MATTHEW TAYLOR, ECON. FOR EQUITY & ENV'T, A GOOD ENVIRONMENT FOR JOBS 15 (2012), <http://www.sei-international.org/mediamanager/documents/Publications/Climate/sei-e3-2012-a-good-environment-for-jobs.pdf> ("clean energy alternatives create more jobs than the fossil fuels that they replace").

28. Steven Ferrey et al., *Fire and Ice: World Renewable Energy and Carbon Control Mechanisms Confront Constitutional Barriers*, 20 DUKE ENVTL. L. & POL'Y F. 125, 172 (2010).

29. Jodi Britton, *The National Energy Policy, Renewable Energy, and the Johannesburg Convention: Has the United States Been All Talk and No Action?*, 12 PENN ST. ENVTL. L. REV. 241, 250–51 (2004).

electricity grid to terrorist attacks³⁰ and weather-related disruptions.³¹ As the Indiana Utility Regulatory Commission explained, “[S]ome utilities have recently implemented diversified planning strategies that balance least-cost reliable service with social and environmental concerns. Within this context, fuel diversity is an available alternative to reduce operational and financial risks.”³²

Furthermore, fossil fuels are finite. Talk of “new reserves” and “increased supplies” of fossil fuels is really a celebration of new technology that allows extraction companies to dig deeper and scrape the barrel to obtain fossil fuels that were previously difficult and costly to extract.³³ Faith in these new supplies includes recognition that traditional methods of extraction have uncovered their maximum supplies and that new, more complicated and expensive methods are needed to extract those supplies that were previously unavailable under older technologies.³⁴ In fact, the finite nature of fossil fuels is the ultimate “technology-forcing” phenomenon.

Even nuclear power, with its limited emissions, carries with it a reliance on a finite resource (uranium).³⁵ It also requires a significant amount of its fuel source to be imported from foreign nations.³⁶ Furthermore, nuclear power is imbued

30. Ferrey et al., *supra* note 28, at 131.

31. Richard Graves, *Disasters and Resilience: Clean Energy Can Save Us*, IT'S GETTING HOT IN HERE (Mar. 15, 2011), <http://itsgettinghotinhere.org/2011/03/15/disasters-and-resilience-clean-energy-can-save-us/>.

32. IND. UTIL. REGULATORY COMM'N, ENERGY POLICY ACT OF 2005: SUGGESTED STANDARDS FOR STATE CONSIDERATION 5 (2006), http://www.in.gov/iurc/files/EPAct05_Suggested_Standards_for_State_Consideration_Final2006.pdf.

33. Though hydraulic fracking has been used in oil for over 50 years, this technology, combined with horizontal drilling, has only recently allowed companies to economically access the unconventional natural gas formations for additional natural gas supplies. *What is shale gas and why is it important?*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/energy_in_brief/about_shale_gas.cfm (last updated July 9, 2012); see also *The Future of Natural Gas: Coming Soon to a Terminal Near You*, ECONOMIST (Aug. 6, 2011), <http://www.economist.com/node/21525381>.

34. For example, “[i]n Saudi Arabia, seawater is injected into the giant fields to help move the oil toward the top of the reservoir. But over time, the volume of water that is lifted along with the oil increases, and the volume of oil declines proportionally. Eventually, it becomes uneconomical to extract the oil.” Jeff Gerth, *Forecast of Rising Oil Demand Challenges Tired Saudi Fields*, N.Y. TIMES, Feb. 24, 2004, <http://www.nytimes.com/2004/02/24/business/24OIL.html?pagewanted=2>.

35. *Supply of Uranium*, WORLD NUCLEAR ASS'N, <http://www.world-nuclear.org/info/default.aspx?id=438> (last updated Aug. 2012).

36. *Id.*

with a legacy of safety concerns associated with nuclear accidents and the lack of a permanent solution to the growing high-level nuclear waste generated at nuclear power plants.³⁷

3. Eliminate the Need for Disruptive Extraction Techniques

Coal and natural gas must be extracted, raising a multitude of issues, including water, air, and land impacts associated with mining and drilling.³⁸ More electricity from renewable energy would displace some of the reliance on fossil fuels.³⁹ Fossil fuels like coal are obtained from techniques like surface mining,⁴⁰ which raise a host of environmental issues related to destruction of natural environments. For example, one extraction technique, mountaintop removal, results in the filling in of natural habitats like valleys and rivers.⁴¹ Another example is illustrated by the failure of coal ash impoundments,⁴² which has resulted in intensive pollutant

37. See, e.g., 42 U.S.C. § 10172 (2006) (1987 Amendments to the Nuclear Waste Policy Act, designating Yucca Mountain as the permanent repository); JOHN M. DEUTCH ET AL., MASS. INST. OF TECH. ENERGY INITIATIVE, UPDATE OF THE MIT 2003 FUTURE OF NUCLEAR POWER 11 (2009), <http://web.mit.edu/nuclearpower/pdf/nuclearpower-update2009.pdf> (noting the difficulty of finding a suitable permanent disposal site); CHARLES MILLER, U.S. NUCLEAR REGULATORY COMM'N, RECOMMENDATIONS FOR ENHANCING REACTOR SAFETY IN THE 21ST CENTURY 50 (2011), <http://pbadupws.nrc.gov/docs/ML1118/ML111861807.pdf> (finding that enhancements to safety and emergency preparedness are warranted and making a dozen recommendations for Commission consideration post-Fukushima). The storage facility was abandoned for other reasons, but only after over \$12 billion had been spent on characterizing and developing the site. Hannah Northey, *GAO: Death of Yucca Mountain Caused by Political Maneuvering*, N.Y. TIMES, May 10, 2011, <http://www.nytimes.com/gwire/2011/05/10/10greenwire-gao-death-of-yucca-mountain-caused-by-politica-36298.html?pagewanted=all>.

38. See MARY TIEMANN & ADAM VANN, CONG. RESEARCH SERV., R41760, HYDRAULIC FRACTURING AND SAFE DRINKING WATER ACT ISSUES 4–6 (2012) (discussing hydraulic fracturing and related water contamination issues); M. A. Palmer et al., *Mountaintop Mining Consequences*, SCI., Jan. 8, 2010, at 148–49 (reviewing peer-reviewed studies and concluding that mountaintop mining has serious impacts on the environment that cannot be alleviated by current mitigation efforts).

39. Jacobson & Delucchi, *supra* note 26.

40. *Coal Production in the United States—An Historical Overview*, U.S. ENERGY INFO. ADMIN., 4 (Oct. 2006), http://www.eia.gov/cneaf/coal/page/coal_production_review.pdf.

41. *Id.*

42. *Coal Combustion Residuals*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/osw/nonhaz/industrial/special/fossil/coalashletter.htm> (last updated Nov. 15, 2012).

loading to watersheds and damage to homes.⁴³ More recent extraction problems are related to natural gas. The extraction process for natural gas places a significant strain on water supplies,⁴⁴ and substandard construction of natural gas wells has also been identified as a source of groundwater contamination.⁴⁵

4. Reduce Air Pollutants that Adversely Affect Human Health

The combustion of fossil fuels emits a number of air pollutants that adversely affect human health and the environment.⁴⁶ Renewable energy that displaces fossil fuel energy can eliminate the corresponding air emissions that result from fossil fuel combustion.⁴⁷ Fossil fuels emit sulfur dioxide, which contributes to acid rain⁴⁸ and respiratory illness;⁴⁹ nitrogen oxides, which contribute to smog;⁵⁰ and mercury and other heavy metals,⁵¹ which are deposited in aquatic ecosystems and can bioaccumulate in fish species consumed by humans.⁵² A boom in natural gas production through hydraulic fracturing, a technique used to access unconventional natural gas formations,⁵³ has brought with it a

43. *Id.*

44. *How Natural Gas Works*, *supra* note 5.

45. GREGORY S. MCRAE & CAROLYN RUPPEL, MASS. INST. OF TECH., THE FUTURE OF NATURAL GAS: AN INTERDISCIPLINARY MIT STUDY 7 (2011), http://mitei.mit.edu/system/files/NaturalGas_Report.pdf.

46. *See Human-Related Sources and Sinks of Carbon Dioxide*, *supra* note 3.

47. *Air Emissions*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/cleanenergy/energy-and-you/affect/air-emissions.html> (last updated Oct. 17, 2012).

48. *Electric Power Industry Overview—Environmental Aspects*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/cneaf/electricity/page/prim2/chapter6.html> (last visited Nov. 12, 2012).

49. Brian H. Potts, *A Clearer Skies Proposal: The Multi-Category Ratio Approach*, 12 N.Y.U. ENVTL. L.J. 286, 307 (2003) (citing *AIR Trends 1995 Summary: Sulfur Dioxide (SO₂)*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/airtrends/aqtrnd95/so2.html> (last updated Jan. 5, 2012)).

50. *Role of Coal*, *supra* note 4.

51. *Id.*

52. *Mercury Study Report to Congress: Overview*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/hg/reportover.htm> (last updated Feb. 7, 2012).

53. *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, 2010*, U.S. ENERGY INFO. ADMIN., 1 (Aug. 2012), <http://www.eia.gov/naturalgas/crudeoilreserves/pdf/uscruideoil.pdf> (stating that proven reserves of natural gas grew dramatically “in step with intensifying horizontal drilling programs”); *see also The Process of Hydraulic Fracturing*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/hydraulicfracturing/process.html> (last visited Mar. 26, 2013) (noting how hydraulic fracturing and horizontal drilling have opened up

tremendous potential for hot spots of air emissions.⁵⁴ The Environmental Protection Agency (“EPA”) has determined that “[s]ome of the largest air emissions in the oil and gas industry occur as natural gas wells that have been fractured are being prepared for production.”⁵⁵

5. Reduce GHG that Intensify Events Related to Climate Change

Of all anthropogenic contributors to GHG levels, fossil fuel combustion is the primary culprit.⁵⁶ As the Intergovernmental Panel on Climate Change has demonstrated, “[l]ifecycle assessments . . . for electricity generation indicate that [GHG] emissions from [renewable energy] technologies are, in general,

new areas for oil and gas development).

54. David Kelly, *Study Shows Air Emissions Near Fracking Sites May Impact Health*, EUREKALERT! (Mar. 19, 2012), http://www.eurekalert.org/pub_releases/2012-03/uocd-ssa031612.php (“In a new study, researchers from the Colorado School of Public Health have shown that air pollution caused by hydraulic fracturing or fracking may contribute to acute and chronic health problems for those living near natural gas drilling sites.”); see also Wendy Koch, *Wyoming’s Smog Exceeds Los Angeles’ Due to Gas Drilling*, USA TODAY (Mar. 9, 2011, 11:52 AM), <http://content.usatoday.com/communities/greenhouse/post/2011/03/wyoming-gs-smog-exceeds-los-angeles-due-to-gas-drilling/1> (“Rural Wyoming, known for breathtaking vistas, now has worse smog than Los Angeles because of its boom in natural gas drilling. Residents who live near the gas fields in the state’s western corner are complaining of watery eyes, shortness of breath and bloody noses, reports the Associated Press. The cause is clearer than the air: local ozone levels recently exceeded the highest levels recorded in the biggest U.S. cities last year.”).

55. U.S. ENVTL. PROT. AGENCY, PROPOSED AMENDMENTS TO AIR REGULATIONS FOR THE OIL AND NATURAL GAS INDUSTRY: FACT SHEET 2, <http://www.epa.gov/airquality/oilandgas/pdfs/20110728factsheet.pdf> (last visited Mar. 26, 2013) (stating that “[d]uring a stage of well completion known as ‘flowback,’ fracturing fluids, water, and reservoir gas come to the surface at a high velocity and volume. This mixture includes a high volume of VOCs and methane, along with air toxics such as benzene, ethylbenzene and n-hexane. The typical flowback process lasts from three to 10 days.”). The EPA has recently issued a new regulation that imposes the first federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level. Oil and Natural Gas Sector: New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews, 77 Fed. Reg. 49,490 (Aug. 16, 2012) (to be codified at 40 C.F.R. pts. 60, 63), <http://www.gpo.gov/fdsys/pkg/FR-2012-08-16/pdf/2012-16806.pdf>. Pennsylvania alone has permitted 2,349 wells to be drilled in the Marcellus Shale between 2008 and 2010, “with 1,386 of those wells drilled in 2010 alone.” Beren Argetsinger, Comment, *The Marcellus Shale: Bridge to a Clean Energy Future or Bridge to Nowhere? Environmental, Energy and Climate Policy Considerations for Shale Gas Development in New York State*, 29 PACE ENVTL. L. REV. 321, 326 (2011).

56. See *Human-Related Sources and Sinks of Carbon Dioxide*, *supra* note 3.

significantly lower than those associated with fossil fuel options.”⁵⁷ The EPA recognizes that “[i]ncreasing the use of renewable energy is one of the most effective ways to quickly reduce [GHG] emissions.”⁵⁸

Together, these societal benefits result in positive externalities that are not fully captured in the decisions of renewable energy developers.

B. Undersupply of Renewable Energy

Despite the benefits of renewable energy, relatively small amounts of our electricity are generated from renewable resources. For many years, coal has dominated the energy source portfolio of our country,⁵⁹ and it currently provides almost half of the nation’s electricity.⁶⁰ Renewable energy has long been in the mix, but always in a small amount, and most predominantly in the form of hydropower.⁶¹ As of 2011, fossil fuels (coal and natural gas) fueled 67 percent of our nation’s electricity demands, while non-hydropower renewables (e.g., wind, solar, geothermal, biomass) accounted for barely 5 percent.⁶²

What explains this paltry representation on our energy grid? The answers are varied. Electricity generated from renewable energy is still costly relative to electricity generated

57. OTTMAR EDENHOFER ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS 18 (2011), available at http://srren.ipcc-wg3.de/report/IPCC_SRREN_SPM (emphasis removed) (“The median values for all RE range from 4 to 46 g CO₂eq/kWh while those for fossil fuels range from 469 to 1,001 g CO₂eq/kWh”).

58. *Clean Energy & Climate Change—Renewable Energy*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/region9/climatechange/renewable.html> (last visited Nov. 15, 2012).

59. *Fuel Competition in Power Generation and Elasticities of Substitution*, U.S. ENERGY INFO. ADMIN. (June 2012), <http://www.eia.gov/analysis/studies/fuelelasticities/> [hereinafter *Fuel Competition*] (noting that “[c]oal has been the predominant fuel used in power generation over the last 60 years”).

60. *Electric Power Annual 2010 Data Tables: Table 2.1A*, U.S. ENERGY INFO. ADMIN. (Nov. 9, 2011), <http://www.eia.gov/electricity/annual/html/table2.1a.cfm> (stating that coal currently supplies 45 percent, or 1,874,290K Mwh out of 4,125,060K Mwh total, of the nation’s electricity).

61. U.S. ENERGY INFO. ADMIN., DOE/EIA-0384(2011), ANNUAL ENERGY REVIEW 2011, at 248 (2012), http://www.eia.gov/totalenergy/data/annual/pdf/sec10_8.pdf.

62. See *Electricity Explained: Electricity in the United States*, U.S. ENERGY INFO. ADMIN. http://www.eia.gov/energyexplained/index.cfm?page=electricity_in_the_united_states (last updated May 2, 2012).

from fossil fuels.⁶³ High fixed capital costs of both renewable energy technologies and the associated transmission lines needed to connect renewable resources in remote areas to the high-density parts of our country in most need of the electricity also play a role.⁶⁴ Additionally, renewable energy's intermittent nature is still a poor substitute for the consistency of coal and nuclear power for baseload energy generation sources⁶⁵ without energy storage⁶⁶ or wide-scale, complementary renewable placement.⁶⁷ The rules that govern the operation of our grid

63. See Matthew L. Wald & Tom Zeller, Jr., *Cost of Green Power Makes Projects Tougher Sell*, N.Y. TIMES, Nov. 7, 2010, http://www.nytimes.com/2010/11/08/science/earth/08fossil.html?_r=0 (reporting that “Electricity generated from wind or sun still generally costs more—and sometimes a lot more—than the power squeezed from coal or natural gas”). Cf. *Advantages and Challenges of Wind Energy*, U.S. DEP’T OF ENERGY, http://www1.eere.energy.gov/wind/wind_ad.html (last updated Nov. 7, 2011) (stating that wind energy can cost 4–6 cents per kilowatt hour). But see Brian Wingfield, *GE Sees Solar Cheaper Than Fossil Power In Five Years*, BLOOMBERG (May 26, 2011, 2:58 AM), <http://www.bloomberg.com/news/2011-05-26/solar-may-be-cheaper-than-fossil-power-in-five-years-ge-says.html>.

64. NAT’L RENEWABLE ENERGY LABS., NREL/TP-6A20-52409, RENEWABLE ELECTRICITY FUTURES STUDY VOLUME 1: EXPLORATION OF HIGH-PENETRATION RENEWABLE ELECTRICITY FUTURES, at xviii (M.M. Hand et al. eds., 2012), <http://www.nrel.gov/docs/fy12osti/52409-1.pdf>.

65. “Baseload’ units . . . are designed to run all or most of the time and often have annual capacity factors in the 70 [percent] to 90 [percent] range. They take longer to start up and bring to full generating capacity and cannot be efficiently ‘ramped’ up and down (i.e., output increased or decreased) to balance changes in demand.” Amended Complaint for Injunctive and Declaratory Relief at ¶ 38, Am. Tradition Inst. v. Colorado, No. 1:11-cv-00859-WJM-KLM (D. Colo. Apr. 22, 2011); Letter from the Fed. Energy Regulatory Comm’n to Lisa Murkowski, Member of Comm. on Energy and Nat. Res., 3 (Aug. 1, 2011), http://assets.nationaljournal.com/pdf/080311_FERCchairman.pdf (“EPA and Commission staff discussed various scenarios concerning replacing retired generation with renewable resources, including that renewable generation may not provide a one-to-one replacement for retiring capacity given the unique characteristics of different generation types and their impact on grid stability.”).

66. See Amy L. Stein, *Reconsidering Regulatory Uncertainty*, FLA. ST. U.L. REV. (forthcoming 2014); PAUL DENHOLM ET AL., NAT’L RENEWABLE ENERGY LAB., NREL/TP-6A2-47187, THE ROLE OF ENERGY STORAGE WITH RENEWABLE ELECTRICITY GENERATION (2010), <http://www.nrel.gov/docs/fy10osti/47187.pdf>.

67. *Clean Energy for the Next Generation: Martin Next Generation Solar Energy Center*, FLA. POWER & LIGHT CO., <http://www.fpl.com/environment/solar/martin.shtml> (last visited Nov. 15, 2012) (demonstrating the first hybrid natural gas/solar plant is operational); Mark Diesendorf, *Renewable Energy Can Provide Baseload Power—Here’s How*, CONVERSATION (July 27, 2011, 7:04 AM), <http://theconversation.edu.au/renewable-energy-can-provide-baseload-power-heres-how-2221> (discussing the feasibility of “increas[ing] the reliability of the total wind output to a level equivalent to a coal-fired power station by adding a few low-cost peak-load gas turbines that are run on renewable biofuels and are operated infrequently, to fill in the gaps when the wind farm production is low”); Emad Hanna, *GE to Build First Natural Gas-Wind-Sun Power Plant*, DISCOVERY

need to be adjusted to account for the unique characteristics associated with renewable energy.⁶⁸ Renewable energy also comes with a variety of environmental trade-offs, including avian impacts from wind turbines,⁶⁹ increased water constraints,⁷⁰ and endangered species impacts from concentrated solar power.⁷¹ The failure to internalize the positive externalities associated with renewable energy also plays a role.

According to our national government, our country is committed to intervene to correct for the undersupply and increase the amount of energy generated from renewable resources.⁷² In 2009, the executive branch raised the level of rhetoric behind renewable energy. For the first time in a presidential inaugural address, President Obama called for the expanded use of renewable energy to meet the challenges of energy security and climate change.⁷³ President Obama also issued a “New Energy For America” plan that called for a federal investment of “\$150 billion over the next decade to catalyze private efforts to build a clean energy future.”⁷⁴ Specifically, the plan calls for renewable energy to supply 10 percent of the nation’s electricity by 2012, and 25 percent by 2025.⁷⁵

Furthermore, the DOE “predicts that by 2030 the United

NEWS (June 10, 2011, 9:34 AM), <http://news.discovery.com/tech/ge-to-build-first-hybrid-natural-gas-wind-sun-power-plant-110610.html> (demonstrating plans to construct the first natural gas/solar/wind plant).

68. Disendorf, *supra* note 67.

69. *See, e.g., Advantages and Challenges of Wind Energy, supra* note 63.

70. *See, e.g., Suzanne Goldenberg, Water Shortages Threaten Renewable Energy Production, Experts Warn, GUARDIAN* (June 27, 2011, 1:38 PM), <http://www.guardian.co.uk/environment/2011/jun/27/water-shortages-threaten-renewable-energy>.

71. *See, e.g., Louis Sahagun, Environmental Concerns Delay Solar Projects in California Desert, L.A. TIMES*, Oct. 19, 2009, <http://articles.latimes.com/2009/oct/19/local/me-solar19>.

72. *Develop and Secure America’s Energy Resources, THE WHITE HOUSE*, <http://www.whitehouse.gov/energy/securing-american-energy> (last visited Nov. 15, 2012).

73. *President Obama Calls for Greater Use of Renewable Energy, U.S. DEPT OF ENERGY* (Jan. 21, 2009) http://www1.eere.energy.gov/femp/news/news_detail.html?news_id=12194 (“[T]he United States will ‘harness the sun and the winds and the soil to fuel our cars and run our factories.’”).

74. *The Obama-Biden Plan, CHANGE.GOV*, http://change.gov/agenda/energy_and_environment_agenda/ (last visited Nov. 15, 2012).

75. *New Energy for America Plan Sets High Goals for U.S. Energy Usage, U.S. DEPT OF ENERGY* (Jan. 27, 2009), http://apps1.eere.energy.gov/news/daily.cfm?hp_news_id=149.

States could get as much as 20 percent of its electricity from wind, if the nation is able to overcome certain challenges that plague wind power progress today.”⁷⁶ Even more staggering is the DOE’s finding that “[r]enewable energy resources, accessed with commercially available generation technologies, could adequately supply 80 percent of total U.S. electricity generation in 2050 while balancing supply and demand at the hourly level.”⁷⁷

President Obama has repeatedly noted that renewable energy is a valuable job creation tool and that developing renewable energy is necessary for the United States to remain a global economic leader.⁷⁸ In his joint address to Congress in 2009, President Obama stated that:

We know the country that harnesses the power of clean, renewable energy will lead the 21st century. . . . Thanks to our recovery plan, we will double this nation’s supply of renewable energy in the next three years. . . . So I ask this Congress to send me legislation that . . . drives the production of more renewable energy in America.⁷⁹

In his 2010 State of the Union address, President Obama said that “we need to encourage American innovation . . . [a]nd no area is more ripe for such innovation than energy.”⁸⁰ He pointed out that “to create more of these clean energy jobs, we need more production, more efficiency, more incentives.”⁸¹ In his 2011 State of the Union Address, President Obama announced the national goal to generate 80 percent of U.S.

76. Erica Schroeder, *Turning Offshore Wind On*, 98 CAL. L. REV. 1631, 1632 (2010) (citing U.S. DEPT OF ENERGY, 20% WIND ENERGY BY 2030: INCREASING WIND ENERGY’S CONTRIBUTION TO U.S. ELECTRICITY SUPPLY 1 (2008), <http://www1.eere.energy.gov/wind/pdfs/41869.pdf>).

77. NAT’L RENEWABLE ENERGY LABS., *supra* note 64, at iii.

78. See THE WHITE HOUSE, PLAYING TO WIN: THE GLOBAL CLEAN ENERGY RACE 1 (n.d.), http://www.whitehouse.gov/sites/default/files/uploads/clean_energy_report_vpoutus.pdf (last visited Mar. 26, 2013) (quoting President Barack Obama, who stated that “the countries that lead the clean energy economy will be the countries that lead the 21st century global economy”).

79. President Barack Obama, Address to Joint Session of Congress (Feb. 24, 2009), available at http://www.whitehouse.gov/the_press_office/Remarks-of-President-Barack-Obama-Address-to-Joint-Session-of-Congress/ [hereinafter Address to Joint Session of Congress].

80. President Barack Obama, 2010 State of the Union Address (Jan. 27, 2010), available at <http://www.whitehouse.gov/the-press-office/remarks-president-state-union-address>.

81. *Id.*

electricity from “clean energy” sources by 2035, expanding the definition of renewable energy to include clean coal, natural gas, and nuclear power.⁸² And in his Second Inaugural Address, he stated that “[t]he path towards sustainable energy sources will be long and sometimes difficult. But America cannot resist this transition, we must lead it.”⁸³ As the Intergovernmental Panel on Climate Change determined, renewable energy “may, if implemented properly, contribute to social and economic development, energy access, a secure energy supply, and reducing negative impacts on the environment and health.”⁸⁴ Despite the negative externalities of other energy sources, the U.S. promoted fossil fuels⁸⁵ and nuclear power⁸⁶ to support its insatiable appetite for electricity,⁸⁷ and it can do the same for renewable energy.

82. Notably, this higher target reflects a diluted definition of renewables that would include nuclear, clean coal, and natural gas, as well as renewables like solar and wind. See Timothy Gardner, *Obama Sets 2035 Clean Electricity Target*, REUTERS, Jan. 25, 2011, available at <http://www.reuters.com/article/2011/01/26/us-obama-speech-energy-idUSTRE70O50V20110126>. In the *Blueprint for a Secure Energy Future*, the White House began to use “clean energy” terminology rather than “renewable” to describe its energy agenda. See THE WHITE HOUSE, BLUEPRINT FOR A SECURE ENERGY FUTURE 6–7, 32 (2011), http://www.whitehouse.gov/sites/default/files/blueprint_secure_energy_future.pdf (stating that “[b]y 2035, [the U.S.] will generate 80 percent of our electricity from a diverse set of *clean energy sources*—including renewable energy sources like wind, solar, biomass, and hydropower; nuclear power; efficient natural gas; and clean coal” as a means of harnessing “America’s [*clean [e]nergy [p]otential*”) (emphasis added).

83. President Barack Obama, Second Inaugural Address, January 21, 2013, <http://www.whitehouse.gov/the-press-office/2013/01/21/inaugural-address-president-barack-obama>.

84. EDENHOFER ET AL., *supra* note 57, at 7.

85. For example, the U.S. coal industry enjoyed subsidies of around \$17 billion between 2002 and 2008, including tax credits for production of “nonconventional” fuels (\$14.1 billion), tax breaks on coal royalties (\$986 million) and exploration, and development breaks (\$342 million). ENVTL. LAW. INST., *supra* note 2, at 7–8.

86. “After the war, the United States government encouraged the development of nuclear energy for peaceful civilian purposes. . . . A major goal of nuclear research in the mid-1950s was to show that nuclear energy could produce electricity for commercial use.” U.S. DEP’T OF ENERGY, DOE/NE-0088, THE HISTORY OF NUCLEAR ENERGY 8, <http://www.ne.doe.gov/pdfFiles/History.pdf> (last visited Mar. 26, 2013).

87. See Table 2.1a *Energy Consumption by Sector 1949–2011*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/totalenergy/data/annual/txt/ptb0201a.html> (last visited Nov. 21, 2012). Electricity usage has increased every year since 1949 with minor exceptions that correspond to poor economic conditions (e.g., 2006, 2008, 2011). *Id.* The U.S. Energy Information Administration predicts that total electricity demand will increase by 22 percent by 2035, an average of 1.0 percent per year for the next twenty-three years. See U.S. ENERGY INFO ADMIN., *supra* note 6 at 86.

In sum, the diffuse societal benefits that accrue from renewable energy cannot be fully captured by the market. This means that potential renewable energy developers and investors perform a cost-benefit calculus that results in an undersupply of renewable energy. Such a market failure has led to intervention by the government to try to correct for this undersupply.

II. CARROTS AND STICKS AFFECTING PRIVATE ACTORS

Given the positive externalities of renewable energy, the government is faced with difficult choices about how to correct for this undersupply. The government has considered a wide range of alternative approaches, which can be categorized loosely according to the literature on “carrots and sticks.”⁸⁸ “Carrots” are generally used to refer to a policy tool that elicits a welcome change against a given baseline through a reward, often through financial incentives, tax credits, and subsidies.⁸⁹ “Sticks” are generally understood to refer to policy tools that prevent an unwelcome change against a baseline through a punishment, often through penalties and fines.⁹⁰

Brian Galle recently explored the distinction between carrots and sticks in detail, arguing that society overproduces carrots at the expense of more efficient sticks.⁹¹ He states, “[L]et me emphasize that defining any particular policy as either carrot or stick is mostly arbitrary.”⁹² Although they are two sides of the same coin, they can be distinguished on certain

88. See, e.g., Saul Levmore, *Waiting for Rescue: An Essay on the Evolution and Incentive Structure of the Law of Affirmative Obligations*, 72 VA. L. REV. 879, 884 (assessing the likely behavioral effects of carrots and sticks that might be offered to rescuers); see also *Frazier v. Fairhaven Sch. Comm.*, 276 F.3d 52, 68 (1st Cir. 2002) (discussing the “carrot-and-stick approach” used by Congress in the Family Educational Rights and Privacy Act, where the carrot is federal funding and the stick is the termination of such funding for inappropriately releasing students’ personal information).

89. See Brian Galle, *The Tragedy of the Carrots: Economics and Politics in the Choice of Price Instruments*, 64 STAN. L. REV. 797, 803–04 (2012); see also Gerrit De Geest & Giuseppe Dari-Mattiacci, *Carrots Versus Sticks*, in WASH. UNIV. IN ST. LOUIS SCH. OF LAW LEGAL STUDIES RESEARCH PAPER SERIES 2 (Aug. 2009), available at <http://ssrn.com/abstract=1470129>.

90. See Galle, *supra* note 89, at 803–04; see also De Geest & Dari-Mattiacci, *supra* note 89, at 8–31 (analyzing the fundamental characteristics of carrots and sticks as incentives and punishments, deriving general rules on their optimal use).

91. Galle, *supra* note 89, at 803.

92. *Id.* at 805.

grounds. For example, in the context of using corporate employee benefits to avoid externalities, another scholar posted that “[c]arrots may seem more appealing than sticks, but the two are largely indistinguishable. For one, there is no practical economic difference between ‘rebates’ and ‘fines’ without first defining a baseline level of cost.”⁹³ The method of choice has been evaluated specifically with respect to positive externalities.⁹⁴ As Galle explains, “[o]verall, the case for carrots is stronger when our goal is the production of positive externalities, but not overwhelmingly so.”⁹⁵

Where the government seeks to prohibit a harmful activity, as it does with pollution in the environmental realm, the major pollution control statutes primarily employ sticks. Dischargers of pollutants must comply with federally-established standards or limits that are implemented by the state, or face serious fines or criminal penalties.⁹⁶

The correct government approach to addressing GHG emissions, on the other hand, has been frequently debated with no ultimate resolution. The federal government has rejected pricing mechanisms that would have required carbon dioxide emitters to pay to pollute (cap-and-trade program),⁹⁷ declined

93. M. Todd Henderson, *The Nanny Corporation*, 76 U. CHI. L. REV. 1517, 1547 (2009). See generally David A. Baldwin, *The Power of Positive Sanctions*, 24 WORLD POLITICS 19 (1971), available at <http://links.jstor.org/sici?sici=0043-8871%28197110%2924%3A1%3C19%3ATPOPS%3E2.0.CO%3B2-X> (explaining how characterizing an activity as a positive or negative sanction depends on the initial baseline).

94. See Galle, *supra* note 88, at 832 (asking whether penalties for failure to produce positive externalities would be as effective as, or better than, a subsidy); see also Giuseppe Dari-Mattiacci, *Negative Liability*, GEORGE MASON UNIV. LAW & ECON. RESEARCH PAPER SERIES 8 (2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=422961 (investigating the feasibility of imposing negative liability on those exhibiting positive externalities (i.e., external beneficiaries should pay a compensatory award to the producer of the good)).

95. Galle, *supra* note 89, at 832 (“[O]nce a subsidy program is in place, the income and output effects of the carrot reinforce its substitution effects. But expected future carrots depress current production of the externality, and carrots are highly wasteful compared to sticks in several other respects.”).

96. See Clean Air Act, 42 U.S.C. § 7401 (2006); Clean Water Act, 33 U.S.C. § 1251 (2006); Solid Waste Disposal Act, 42 U.S.C. §§ 6901–6992K (2006).

97. Various cap-and-trade bills have come before Congress without becoming law, including the Climate Security Act of 2008, the American Clean Energy and Security Act of 2009, and the Clean Energy Jobs and American Power Act of 2010. The Climate Security Act of 2008 was never put to a floor vote. See S. 3036, 110th Cong. § 1201 (2008). The American Clean Energy and Security Act of 2009 passed the House in June 2009 by a vote of 219 to 212 but did not make it through the Senate. See H.R. 2454, 111th Cong. (2009); *Final Vote Results for Roll Vote No. 477*, OFFICE OF THE CLERK OF THE U.S. HOUSE OF REPRESENTATIVES (June 26,

to impose a penalty on those who do emit carbon dioxide (carbon tax),⁹⁸ and has repeatedly rejected a uniform renewable energy mandate (national clean energy standard).⁹⁹ The EPA has recently added a new stick to its GHG arsenal, however, with the proposed new Clean Air Act GHG emission limit that applies to fossil-fuel based generators.¹⁰⁰

Federal and state governments' approaches to renewable energy can be characterized by a number of carrot and stick mechanisms. First, both federal and state governments have influenced the production of renewable energy through carrots that often come in the form of tax credits and subsidy incentives. Second, both federal and state governments have used sticks to try to mandate the use of renewable energy. Many years ago, this federal government stick came in the form of the Public Utility Regulatory Policies Act of 1978 ("PURPA").¹⁰¹ More recently, this state government stick has taken the form of Renewable Portfolio Standards ("RPS").¹⁰² Third, states have exerted a mixture of carrots and sticks to influence the type of renewable generation located within their borders.

Perhaps more important than the method chosen to promote renewable energy is the disproportionate impact these methods have on private actors. The reasons for focusing on private actors as regulatory targets are many. Regulatory targets may be chosen as a result of the political process, including lobbying and special interests at work.¹⁰³

2009), available at <http://clerk.house.gov/evs/2009/roll477.xml>. The Clean Energy Jobs and American Power Act was voted out of the Committee on Environment and Public Works, but not put to a floor vote. See S. 1733, 111th Cong. (2009); S. REP. No. 111-121 (2010).

98. See *Carbon Tax*, CTR. FOR ENERGY & CLIMATE SOLUTIONS, <http://www.c2es.org/federal/policy-solutions/carbon-tax> (last visited Nov. 2, 2012).

99. See Stein, *supra* note 10, at 262.

100. *Id.* at 276 (discussing EPA's new Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 77 Fed. Reg. 22,392 (Apr. 13, 2012) (to be codified at 40 C.F.R. pt. 60)).

101. Public Utility Regulatory Policies Act of 1978, Pub. L. 95-617, 92 Stat. 3117 (1978).

102. *Renewable and Alternative Energy Portfolio Standards*, CTR. FOR ENERGY & CLIMATE SOLUTIONS, <http://www.c2es.org/us-states-regions/policy-maps/renewable-energy-standards> (last updated Oct. 25, 2012) (providing an interactive map of all the states with renewable portfolio standards).

103. Concentrated Animal Feeding Operations remain unregulated under the Clean Air Act, due in part to the extensive agricultural lobbying force. See S. Wilson, *Hogwash! Why Industrial Animal Agriculture is not Beyond the Scope of the Clean Air Act*, 24 PACE ENV. L. REV. 439, 451 (2007) (noting that "agriculture

Additionally, regulatory targets may be chosen because they are the largest contributors to a specific problem, focusing on an equitable result.¹⁰⁴ Finally, regulatory targets may be chosen based on the most efficient method of accomplishing the regulatory goals.¹⁰⁵ As the General Accounting Office noted, federal “agencies’ initiatives supported a range of recipients in both the public and private sectors, with the majority of initiatives supporting private sector recipients.”¹⁰⁶

This section explains government efforts to internalize the externalities associated with renewable energy and explores how these efforts predominantly affect private actors. This section characterizes the most prevalent efforts to promote renewable energy through the carrot and stick lens: (1) financial incentive carrots; (2) sticks for failure to comply with

has historically been a strong political force, and has successfully evaded regulation through extensive congressional lobbying”); *id.* at 451 n.90 (“The Farm Bureau has fought steadfastly, and apparently quite successfully, against any and all proposed environmental regulation of farms.” (quoting J.B. Ruhl, *Farms, Their Environmental Harms, and Environmental Law*, 27 *ECOLOGY L.Q.* 263, 332 (2000))); *Industry Seeks to Define Farm Emission Sources to Limit Enforcement*, INSIDE EPA, CLEAN AIR REPORT, July 14, 2005, at 9, available at <https://environmentalnewsstand.com/Clean-Air-Report/Clean-Air-Report-07/14/2005/menu-id-303.html> (last visited Mar. 26, 2013) (describing how an agricultural industry task force proposed new definitions to limit the ability of environmental laws to regulate agriculture).

104. See Michael P. Vandenbergh, *From Smokestack to SUV: The Individual as Regulated Entity in the New Era of Environmental Law*, 57 *VAND. L. REV.* 515, 525 (2004) (“The premise is that the environmental harms worthy of attention are caused by one or a relatively small group of firms, and the victims are individuals, generally in large numbers.”); *id.* at 524 (“The assumption that industrial facilities are the appropriate targets of environmental regulation has a distinguished lineage stretching back more than forty years.”). EPA’s Tailoring Rule establishes a phased plan for regulating GHG emissions from stationary sources which targets the largest emitters of GHG emissions first. See U.S. ENVTL. PROT. AGENCY, FACT SHEET FOR PROPOSED RULE: PREVENTION OF SIGNIFICANT DETERIORATION AND TITLE V GREENHOUSE GAS TAILORING RULE STEP 3, <http://www.epa.gov/nsr/ghgdocs/Step3FactSheet.pdf> (last visited Mar. 26, 2013).

105. See James Salzman, *Beyond the Smokestack: Environmental Protection in the Service Economy*, 47 *UCLA L. REV.* 411, 448 (1999) (asking “which market actor is positioned to reduce the greatest environmental impact at least social cost?”); see also Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 *YALE L.J.* 677, 704 n.103 (1999) (“[Economists can help] by taking the politically set objectives as given and devising a cost-minimizing approach to reaching them, thereby pursuing the goal of cost-effectiveness rather than optimality” (quoting Howard K. Gruenspecht & Lester B. Lave, *The Economics of Health, Safety, and Environmental Regulation*, in 2 *HANDBOOK OF INDUSTRIAL ORGANIZATION* 1507, 1520–21 (Richard Schmalensee & Robert D. Willig eds., 1989))).

106. U.S. GOV’T ACCOUNTABILITY OFFICE, *supra* note 12, at 11.

renewable mandates; and (3) carrots in the form of siting approval for abiding by state energy resource preferences or sticks in the form of application denials where the applicant fails to do so.

A. Carrots Through Financial Incentives

Both federal and state governments have influenced the production of renewable energy through carrots that often come in the form of tax incentives and subsidies. “To the extent that there are perceived social benefits from shifting to a renewable fuel economy, subsidizing the development of new renewable and energy-efficient technologies is therefore economically justifiable.”¹⁰⁷ After Congress passed the 1978 National Energy Act, federal involvement came primarily in the form of funding for research and development of renewables, followed by tax credits and subsidies.¹⁰⁸ Today, the federal government continues to use its spending power to promote renewable energy.

Since 2006, the federal government has encouraged development in wind power by offering tax incentives. These incentives have allowed for record growth for wind power in the United States.¹⁰⁹ Additionally, the American Recovery and Reinvestment Act of 2009 (“ARRA”) included more than \$80 billion for the generation of renewable energy sources.¹¹⁰ President Obama pledged those dollars to support renewable energy innovation, saying “[the United States] will invest

107. HARRIS & CODUR, *supra* note 7, at 32.

108. See Ivan Gold & Nidhi Thakar, *A Survey of State Renewable Portfolio Standard: Square Pegs for Round Climate Change Holes*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 183, 186 (2010) (citing National Energy Act of 1978, Pub. L. 95-617 to 95-621, 92 Stat. 3117–3411 (1978)). The 1978 National Energy Act included five major laws which contained renewable energy incentives such as funding for research and development, taxes and tax credits, and subsidies throughout: Public Utility Regulatory Policies Act of 1978, Pub. L. 95-617, 92 Stat. 3117 (1978); Energy Tax Act of 1978, Pub. L. 95-618, 92 Stat. 3174 (1978); National Energy Conservation Policy Act, Pub. L. 95-619, 92 Stat. 3206 (1978); Power Plant and Industrial Fuel Use Act, Pub. L. 95-620, 92 Stat. 3289 (1978); and Natural Gas Policy Act, 95 Pub. L. 621, 92 Stat. 3350 (1978).

109. Schroeder, *supra* note 76, at 1635.

110. This figure includes appropriations across all government agencies as well as federal loans and tax incentives. See *Progress Report: The Transformation to a Clean Energy Economy*, THE WHITE HOUSE, <http://www.whitehouse.gov/administration/vice-president-biden/reports/progress-report-transformation-clean-energy-economy#fn1> (last visited Nov. 22, 2012); American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, 123 Stat. 115 (2009).

fifteen billion dollars a year to develop technologies like wind power and solar power; advanced biofuels, clean coal, and more fuel-efficient cars and trucks built right here in America.”¹¹¹ Finally, a recent GAO report found almost seven hundred renewable energy-related federal initiatives for fiscal year 2010.¹¹²

States also offer a variety of financial incentives for renewable energy, including personal, corporate, sales, and property tax write-offs, exemptions, or refunds for eligible renewable energy purchases.¹¹³ Some states also provide rebates, grants, low-interest loans, performance-based incentives,¹¹⁴ and specific support to renewable industries.¹¹⁵ “Financial incentives, grants, and rebates can be integral in increasing renewable energy development (especially small, customer-sited projects), because they effectively reduce the high capital costs often associated with renewable energy installations.”¹¹⁶ California and Minnesota have the greatest number of financial incentives for renewable energy, with sixty-seven and sixty-eight, respectively.¹¹⁷ In contrast,

111. Address to Joint Session of Congress, *supra* note 79.

112. A recent report found that over 80 percent of federal agency renewable energy initiatives spanned across four major areas: conducting and supporting research and development, using energy in agency vehicle fleets and facilities, providing incentives for commercialization and deployment, and issuing regulations and permits and ensuring compliance. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 106, at 25. The report estimated that 29 percent of the agency initiatives were related to research and development. *Id.*

113. See *Financial Incentives*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://www.dsireusa.org/glossary/> (last visited Nov. 22, 2012); see, e.g., *SREC Registration Program*, N.J.'S CLEAN ENERGY PROGRAM, <http://www.njcleanenergy.com/renewable-energy/programs/solar-renewable-energy-certificates-srec/new-jersey-solar-renewable-energy> (last visited July 1, 2011) (noting that New Jersey has become the second largest market for solar panels and attributes the success of its solar market to the financial incentives offered by its Solar Renewable Energy Certificates (SREC) registration program).

114. Performance-based incentives (PBIs), also known as production incentives, provide cash payments based on the number of kilowatt-hours (kWh) or BTUs generated by a renewable energy system. See *Financial Incentives*, *supra* note 113; see also *Financial Incentives for Renewable Energy*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, <http://www.dsireusa.org/summarytables/finre.cfm> (last visited Nov. 22, 2012).

115. See *Financial Incentives*, *supra* note 113.

116. ELIZABETH BROWN & SARAH BUSCHE, NAT'L RENEWABLE ENERGY LAB., NREL/TP-670-43021, STATE OF THE STATES 2008: RENEWABLE ENERGY DEVELOPMENT AND THE ROLE OF POLICY 73 (2008), <http://www.nrel.gov/analysis/pdfs/43021.pdf> (citation omitted).

117. See *Financial Incentives for Renewable Energy*, *supra* note 114 (stating that seventy-five of Minnesota's incentives come in the form of rebates).

Arkansas and West Virginia each have just four financial incentives for renewable energy.¹¹⁸

The authors of *State of the States 2008: Renewable Energy Development and the Role of Policy*, a report from the National Renewable Energy Laboratory, refer to financial incentives as a catalyst of “technology accessibility” whereby states provide energy producers and consumers “access to high first-cost technologies” through “financial incentives that make renewable energy technologies accessible and competitive in the market.”¹¹⁹ However, the study finds that technological accessibility alone will not result in increased generation.¹²⁰ Rather, technological accessibility must work in tandem with barrier-reduction policies if a state wants to successfully increase development of renewable energy.¹²¹ Similarly, although tax incentives alone may not function as “the primary driver in the siting of renewable energy projects . . . when all other factors are comparable, a significant disparity in tax burden will likely discourage the siting of renewable energy projects in areas with higher tax burdens.”¹²²

Notably, the majority of those who benefit from financial incentives are private actors.¹²³ In many states, public actors are not even eligible for more than a small percentage of the total available financial incentives. California appeared to be the most generous towards public eligibility with 25 percent of

118. *Id.*

119. See BROWN & BUSCHE, *supra* note 116, at 51 (“[T]here is a quantifiable connection between renewable energy development and state-level policy development.”).

120. *Id.*

121. *Id.* at 50.

122. ERIC LANTZ & ELIZABETH DORIS, NAT’L RENEWABLE ENERGY LAB., NREL/TP-6A2-46567, STATE CLEAN ENERGY POLICIES ANALYSIS (SCEPA): STATE TAX INCENTIVES 19 (2009), <http://www.nrel.gov/docs/fy10osti/46567.pdf> (“For example, Kansas enacted a state property tax exemption in order to remain competitive with surrounding states with comparable wind resources but lower traditional property tax rates for the electric industry.”).

123. See David B. Spence, *Regulation, “Republican Moments,” and Energy Policy Reform*, 2011 BYU L. REV. 1561, 1583 (2011) (“Rather, because most investment in energy production and distribution is undertaken by the private sector, the U.S. government must rely on law and regulation to steer private investment in favored directions. It must use policy mandates or incentives to influence private sector action.”); *Apply for Renewable Energy Incentive*, DIST. DEPT OF THE ENV’T, <http://ddoe.dc.gov/service/apply-renewable-energy-incentive> (noting the federal government and D.C. agencies are not eligible for renewable energy incentives); WASH. ADMIN. CODE § 458-20-273(1)(a) (2012) (making local governments eligible in the incentive payment program but prohibiting state governmental entities or federal governmental entities from participating).

their ninety-four incentives available to government entities.¹²⁴ Arizona, in contrast, only makes 15 percent of their forty incentives available to government entities.¹²⁵ Similarly, Massachusetts municipalities are unable to take advantage of the tax credits provided for private renewable energy generators, requiring them to enter into a third-party power purchase agreement to try to obtain these benefits.¹²⁶ Financial incentives available to federal entities are even slimmer.¹²⁷ This may make sense for practical and policy reasons. Since federal government entities are not subject to taxes in the same way as private entities, the tax carrots may not be as effective with respect to governmental entities.¹²⁸ It might also be a bit awkward, if not downright inefficient, for the federal government to provide itself with financial incentives.

B. Sticks Through Renewable Mandates

Both federal and state governments have also used sticks to mandate the use of renewable energy. Many years ago, the

124. See *Financial Incentives*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, http://www.dsireusa.org/incentives/index.cfm?EE=0&RE=1&SPV=0&ST=0§or=Federal_Govt&sh=1 (last visited Nov. 23, 2012) (click on “Search” link on left toolbar and filter “Eligible Sector” by federal, state, and local governments).

125. *Id.*

126. See EMILY NEILL & MARC ARONSON, RENEWABLE ENERGY FOR MUNICIPALITIES IN MASSACHUSETTS 6 (2008), available at http://www.mma.org/resources-mainmenu-182/doc_download/107-renewable-energy-for-municipalities-in-massachusetts (noting that “[m]unicipalities are unable to take advantage of tax credits themselves”).

127. See *Financial Incentives*, *supra* note 124 (click on “Search” link on left toolbar and filter “Eligible Sector” and “Implementing Sector” by federal government).

128. See, e.g., *Report: Federal Agencies Behind in Paying Taxes*, POLITICO (Sept. 27, 2012), <http://www.politico.com/news/stories/0912/81748.html> (noting that federal agencies are exempt from income taxes, but not from employment taxes); *Nebraska Property Tax Exemption for Wind Energy Generation Facilities*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NE19F&re=0&ee=0 (last visited Dec. 6, 2012) (listing only one property tax incentive available to federal government) (citing Neb. Rev. Stat. § 77-6203(2)(a)). *Federal Support for State and local Government Through Tax Code*, CONG. BUDGET OFFICE (April 25, 2012), <http://cbo.gov/publication/43047> (testimony of Frank Sammartino, Assistant Director for Tax Analysis, before the Committee on Finance, United States Senate; noting at least a few tax mechanisms that benefit state and local governments, including tax-preferred bonds that allow state and local governments to borrow more cheaply to finance capital intensive projects and the deductibility of state and local taxes).

federal government stick came in the form of PURPA. More recently, state government sticks have come in the form of RPSs. Both policies are discussed below.¹²⁹

1. PURPA

The most substantial congressional efforts to generate additional renewable energy came from the Carter Administration's PURPA, one part of the National Energy Act.¹³⁰ "Although the country has had various conservation laws for over one hundred years, it was not until the Energy Crisis of the 1970s that Congress addressed alternative energy sources."¹³¹ PURPA was enacted to encourage the development of renewable and cogeneration facilities¹³² "in response to the energy crisis of the 1970s . . . [and] to lessen the dependence of electric utilities on fossil fuels."¹³³ Among other goals, PURPA sought to ensure a market for electricity generated from renewable and cogeneration facilities by requiring utilities to buy power from renewable generators and co-generators.¹³⁴ Although many deride the long-term contracts that resulted from artificially high mandated prices for renewable energy,¹³⁵ it is difficult to deny that PURPA functioned to remove critical obstacles to market entry for renewable energy. PURPA has been successful in creating an "independent power production

129. ANDREW SATCHWELL ET AL., ERNEST ORLANDO LAWRENCE BERKELEY NAT'L LAB., CARROTS AND STICKS: A COMPREHENSIVE BUSINESS MODEL FOR THE SUCCESSFUL ACHIEVEMENT OF ENERGY EFFICIENT RESOURCE STANDARDS 1 (2011), <http://eetd.lbl.gov/EA/Ems/reports/lbnl-4399e.pdf>.

130. Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (1978).

131. JOSEPH P. TOMAIN & RICHARD D. CUDAHY, ENERGY LAW IN A NUTSHELL 357 (2004).

132. A "cogeneration facility" is a more efficient way to produce energy, consisting of "a facility which produces (i) electric energy, and (ii) steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes . . ." 16 U.S.C. § 796(18)(A) (2006).

133. Mich. Elec. Transmission Co. v. Midland Cogeneration Venture, Ltd. P'ship, 737 F. Supp. 2d 715, 720–21 (E.D. Mich. 2010) (quoting N. Am. Natural Res., Inc. v. Strand, 252 F.3d 808, 809 (6th Cir. 2001)).

134. See Stanley A. Martin, *Problems with PURPA: The Need for State Legislation to Encourage Cogeneration and Small Power Production*, 11 B.C. ENVTL. AFF. L. REV. 149, 166 (1983) (requiring utilities to purchase this renewable power at the utility's "avoided costs"); 16 U.S.C. § 824A-3(b) (2005) (referring to alternative electric energy as an "incremental cost").

135. See EDISON ELEC. INST., PURPA: MAKING THE SEQUEL BETTER THAN THE ORIGINAL 6, 17–18 (2006), <http://www.eei.org/whatwedo/PublicPolicyAdvocacy/StateRegulation/Documents/purpa.pdf>.

industry”¹³⁶ and in structuring and advancing the current competitive energy market.¹³⁷ Notably, municipalities were exempt from the requirements of PURPA.¹³⁸

2. Renewable Portfolio Standards

State efforts to mandate the purchase of renewable energy are much more recent. A RPS imposes an obligation on utilities to obtain a certain percentage of their electricity from renewable energy. RPSs disproportionately affect private actors because the vast majority of utilities are private, investor-owned utilities.¹³⁹ The first RPS was adopted in 1983 in Iowa,¹⁴⁰ and other states followed suit, resulting in twenty-

136. See Bernard S. Black & Richard J. Pierce, Jr., *The Choice Between Markets and Central Planning in Regulating the U.S. Electricity Industry*, 93 COLUM. L. REV. 1339, 1348 (1993).

137. See Jim Chen, *The Nature of the Public Utility: Infrastructure, the Market, and the Law*, 98 NW. U. L. REV. 1617, 1664 (2004). Even though Congress attempted to provide federal standards for use by utilities related to renewable generation, the standards are merely voluntary and are largely ignored by the states. 16 U.S.C. § 2641 (2012). Congress amended PURPA in 2005 to add five new federal standards to address current conservation and efficiency needs dealing with net metering, smart metering, interconnection, fuel source diversity, and fossil fuel plant efficiency. KENNETH ROSE & KARL MEEUSEN, REFERENCE MANUAL AND PROCEDURES FOR IMPLEMENTATION OF THE “PURPA STANDARDS” IN THE ENERGY POLICY ACT OF 2005, at 10–13 (2006), [http://energy.gov/sites/prod/files/Manual%20for%20Implementation%20of%20PRPA%20Standards%20in%20EPACT%202005%20\(March%202006\).pdf](http://energy.gov/sites/prod/files/Manual%20for%20Implementation%20of%20PRPA%20Standards%20in%20EPACT%202005%20(March%202006).pdf). For purposes of generation siting, PURPA provides that “[e]ach electric utility shall develop a plan to minimize dependence on 1 fuel source and to ensure that the electric energy it sells to consumers is generated using a diverse range of fuels and technologies, including renewable technologies.” IND. UTIL. REGULATORY COMM’N, IURC STAFF WHITE PAPER, ENERGY POLICY ACT OF 2005: SUGGESTED STANDARDS FOR STATE CONSIDERATION 5 (2006), http://www.in.gov/iurc/files/EPAct05_Suggested_Standards_for_State_Consideration_Final2006.pdf. Although states must consider the standards and determine whether the standards are appropriate, nothing prohibits a state commission from determining that it is not appropriate to implement a standard pursuant to its authority under otherwise applicable state law. *Id.* As a result, this requirement ends up being purely procedural, with little substantive force to require states to diversify their electricity portfolios with renewable energy.

138. Laurel Lundstrom, *Engaging Customer-Generators for Clean, Efficient Energy*, 70 PUB. POWER, no. 1, Jan.–Feb. 2012, <http://www.publicpower.org/Media/magazine/ArticleDetail.cfm?ItemNumber=33703>.

139. REGULATORY ASSISTANCE PROJECT, ELECTRICITY REGULATION IN THE U.S.: A GUIDE 9 (2011), available at <http://www.raonline.org/document/download/id/645> (“About 75 [percent] of the U.S. population is served by investor-owned utilities, or ‘IOUs’”); see also Stein, *supra* note 99, at 251 n.175 (stating that thirteen states have not adopted RPS).

140. Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339, 1357 (2010).

nine states with RPS requirements in 2012.¹⁴¹ As more states adopted RPS programs, the rationale behind the programs expanded. Initially, RPS programs were enacted to “subsidize renewable energy resources, reduce utility reliance on fossil fuels, diversify energy supply, promote energy independence, create jobs, [or] protect the environment.”¹⁴² By 2002, however, climate change began to be included among the rationales.¹⁴³

States vary tremendously in their RPS requirements. Twenty-nine states plus the District of Columbia have requirements, eight states have goals, and thirteen states have no requirements.¹⁴⁴ Of those states that do have RPSs, they vary widely in their terms. RPSs vary between 10 percent (Michigan and Wisconsin) and 40 percent (Hawaii) in the percentage of renewables required.¹⁴⁵ RPSs also have varying timeframes for each state to meet these percentages, with the earliest requiring that standards be met by 2015 (Michigan, Montana, New York, Texas, Wisconsin) and the latest requiring that standards be met by 2030 (Hawaii).¹⁴⁶ RPSs also vary in the type of power that qualifies as renewable. While states like California only allow “new” renewables such as wind, solar, and geothermal to qualify toward the percentage, Pennsylvania and Indiana go so far as to allow coalmine methane as a qualifying renewable energy source.¹⁴⁷ Although the amount of renewable energy generation varies widely by state, each state has its own geographic strengths with respect

141. Gold & Thakar, *supra* note 108, at 189.

142. *Id.*

143. *Id.*

144. *Most states have Renewable Portfolio Standards*, U.S. ENERGY INFO. ADMIN. (Feb. 3, 2012), <http://www.eia.gov/todayinenergy/detail.cfm?id=4850>.

145. *See Renewable Portfolio Standard Policies*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (2012), http://www.dsireusa.org/documents/summarymaps/RPS_map.pdf.

146. *See Renewable Portfolio Standards*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY (2010), http://www.dsireusa.org/documents/SummaryMaps/RPS_Map.ppt.

147. *See* 73 PA. STAT. ANN. § 1648.2(11) (West 2007) (“Coal mine methane, which shall mean methane gas emitting from abandoned or working coal mines.”); *Indiana Incentives/Policies for Renewables & Efficiency: Clean Energy Portfolio Goal*, DATABASE OF STATE INCENTIVES FOR RENEWABLES & EFFICIENCY, available at http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IN12R&re=1&ee=1 (listing coalbed methane as an eligible technology) (last modified Aug. 13, 2012). New Jersey has even recently entered into a contract with a company that will be converting 60 thousand tons of sewage into biosolids that can be burned instead of coal. Tom Johnson, *Under NJ Energy Plan, Does Sewage Sludge Qualify as a Renewable Fuel?*, N.J. SPOTLIGHT (Aug. 3, 2011), <http://www.njspotlight.com/stories/11/0802/2106/>.

to renewables and each state has the capability to develop some form of renewable energy.¹⁴⁸

State RPS requirements are similar, however, in that most of them have a penalty stick associated with failure to attain the renewable energy targets.¹⁴⁹ RPSs incorporate noncompliance penalties, either in the form of fines or an alternative compliance payment. An alternative compliance payment requires suppliers to pay a predetermined price, per kilowatt-hour, if they fail to comply with the standard.¹⁵⁰

As with financial incentives, RPS requirements disproportionately target private actors. State RPS mandates apply to sellers of retail electricity, or utilities. The vast proportion of electricity generation in the U.S. is generated from investor-owned utilities,¹⁵¹ meaning these private entities bear the brunt of the RPS mandates. As the EPA notes, “[i]t is unusual for mandatory RPS requirements to extend to municipal utilities and cooperatives, as these entities are predominately self-regulated. However, some states have included provisions for municipal utilities and cooperatives to voluntarily join the RPS program or to “self certify.”¹⁵²

C. Carrots and Sticks Through Siting Requirements

States and localities have also used siting laws to influence the type of electricity generated within their borders. In 1935,

148. See *State Renewable Electricity Profiles*, U.S. ENERGY INFO. ADMIN., (Mar. 8, 2011), http://www.eia.gov/cneaf/solar.renewables/page/state_profiles/r_profiles_sum.html (showing that even Delaware, which comes in last in state ranking for renewable energy capacity, has the capacity for municipal solid waste/landfill gas to provide 0.2 percent of the state’s total energy capacity).

149. K.S. CORY & B.G. SWEZEY, NAT’L RENEWABLE ENERGY LAB., NREL/TP-670-41409, RENEWABLE PORTFOLIO STANDARDS IN THE STATES: BALANCING GOALS AND IMPLEMENTATION STRATEGIES 16 (2007), <http://www.nrel.gov/docs/fy08osti/41409.pdf>; RYAN WISER & GALEN BARBOSE, LAWRENCE BERKELEY NAT’L LAB., RENEWABLES PORTFOLIO STANDARDS IN THE UNITED STATES: A STATUS REPORT WITH DATA THROUGH 2007, at 24 (2008), <http://eetd.lbl.gov/ea/ems/reports/lbnl-154e-revised.pdf> (classifying state penalties by alternative compliance payments, financial penalties, or discretionary penalties).

150. CORY & SWEZEY, *supra* note 149, at 15.

151. See REGULATORY ASSISTANCE PROJECT, *supra* note 139, at 9 (“About 75 [percent] of the U.S. population is served by *investor-owned utilities*, or ‘IOUs’”).

152. Colorado targets “electric cooperatives and municipal utilities 10 [percent] by 2020,” and Minnesota requires “other utilities 25 [percent] by 2025.” *Renewable Portfolio Standards Fact Sheet*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/chp/state-policy/renewable_fs.html (last modified Mar. 15, 2012).

Congress amended the Federal Power Act (“FPA”) to provide the federal government with authority over certain elements of the energy transactions and facilities, but reserved control over the siting of electricity generation, transmission, and distribution with the states.¹⁵³ As a result, states and localities have sole jurisdiction over the siting of new energy generation facilities – a decision that includes an assessment of size, type, need, cost, and environmental impact.¹⁵⁴ This results in states and localities retaining exclusive control over the types of electricity generation sited, whether it be coal, natural gas, renewable, or other.¹⁵⁵

Exercising this exclusive control, some states have enacted siting laws that may be characterized as a mixture of carrots and sticks. Legislative preferences for renewable energy or fossil fuels can function as a type of “carrot” to induce developers to move forward with specific types of generation and reward those who comply with approval of their siting applications. For instance, some states have a direct mandate for a preference of new renewable energy sources. Minnesota has an explicit preference for renewable energy, as a non-renewable energy source may be approved only if it is found that a renewable energy facility would not be in the public interest.¹⁵⁶ In California, the utility and the Public Utility Commission (“PUC”) consult with each other to determine if there are possible transmission line siting alternatives with

153. Federal Power Act, 16 U.S.C. § 791a (1935) (amended 1986).

154. Jeremy Knee, *Rational Electricity Regulation: Environmental Impacts and the “Public Interest”*, 113 W. VA. L. REV. 739, 758 (2011). Some states have delegated their siting authority to local authorities. See Stein, *supra* note 99, at 27 (citing ENVTL. LAW INST., STATE ENABLING LEGISLATION FOR COMMERCIAL-SCALE WIND POWER SITING AND THE LOCAL GOVERNMENT ROLE 5-15 (2011), available at http://www.elistore.org/reports_detail.asp?ID=11410) (categorizing the fifty states into differing degrees of authority over the siting of commercial wind power, including local authority, dual authority, and state authority).

155. See Stein, *supra* note 99, at 247.

156. See MINN. STAT. ANN. § 216B.2422 (West 2012). On February 27, 2012, the Minnesota State Legislature proposed amending this statute to exempt certain generation and transmission cooperative electric associations (those with at least 80 percent of their member distribution cooperatives outside the state and that provide less than 5 percent of the electricity annually sold at retail in Minnesota) from the requirement of filing an integrated resource plan. See S. File No. 2098, 87th Sess., at Subd. 2b (Minn. 2011). North Carolina requires some consideration of the environment in the analysis of whether the new energy facility would be in the public interest by evaluating the “harmony between public utilities, their users and the environment.” Jeremy Knee, *Rational Electricity Regulation: Environmental Impacts and the “Public Interest”*, 113 W. VA. L. REV. 739, 758–59 (2011).

reduced environmental impacts.¹⁵⁷ In stark contrast, a utility applying for a non-coal energy facility in Pennsylvania must prove to the PUC that a coal energy generation facility is not reasonably suited for that site and that there is a strong probability that coal would be more costly.¹⁵⁸

Other subnational governments take an alternative approach, using siting laws to serve as a sort of “stick.” Local governments, in particular, have banned certain forms of renewable energy and can punish those who fail to comply by denying their siting application.¹⁵⁹ A county in Kansas, for example, has imposed a complete ban on commercial-scale wind energy.¹⁶⁰ Similarly, a Pennsylvania township has banned ground-mounted solar systems.¹⁶¹

As with the other governmental efforts to affect the type of electricity produced, these siting laws disproportionately affect private actors. As discussed above, the majority of developers and applicants for siting approval are private entities.¹⁶² In fact, some public actors are exempt from needing state approval for new generation projects.¹⁶³

157. See CAL. PUB. UTILS. COMM’N, ELECTRIC TRANSMISSION SITING AT THE CALIFORNIA PUBLIC UTILITIES COMMISSION 1–2 (2009), http://www.cpuc.ca.gov/NR/rdonlyres/2CC81265-6521-43B0-A510-36B5A42E4BB4/0/Transmission_siting_flow_chart.pdf. Massachusetts requires applications to address the effects of the proposed transmission facility upon the environment, provide evidence that the effects are consistent with state environmental and health policies, and provide evidence that the plant will not exceed a certain ratio of emissions to MW generated. See EDISON ELEC. INST., STATE GENERATION & TRANSMISSION SITING DIRECTORY 53 (2012), http://www.eei.org/ourissues/ElectricityTransmission/Documents/State_Generation_Transmission_Siting_Directory.pdf.

158. 66 PA. CONS. STAT. ANN. § 519 (West 1984); see also Stein, *supra* note 10, at 252 (citing 66 PA. CONS. STAT. ANN. § 519 (West 1984)).

159. See *infra* text accompanying notes 160–61.

160. Brief of *Amicus Curiae* The Wind Coalition at 8, *Zimmerman v. Bd. of Cnty. Comm’rs of Wabaunsee County, Kan.*, No. 98,487 (Kan. Oct. 21, 2011), <http://www.appellate.net/briefs/WindCoalitionFinal.pdf> (challenging Wabaunsee county regulations banning production of wind power energy for supply to the interstate transmission grid).

161. See Mark Zimmaro, *Pemberton Township Bans Ground Solar Panels in Residential Areas*, BURLINGTON CNTY. TIMES, Sept. 24, 2012, http://www.phillyburbs.com/news/local/burlington_county_times_news/pemberton-township-bans-ground-solar-panels-in-residential-areas/article_3112982c-fc05-5947-87e0-d28f87fcd971.html.

162. See *supra* note 98 and accompanying text. The majority of electric generation developers are private. See SEVERIN BORENSTEIN, ENERGY INST. AT HAAS, THE PRIVATE AND PUBLIC ECONOMICS OF RENEWABLE ELECTRICITY GENERATION 3–5 (2011), http://ei.haas.berkeley.edu/pdf/working_papers/WP221.pdf.

163. For example, Tennessee Valley Authority is a federal agency that is exempt from state review in Tennessee. TENN. REGULATORY AUTH., FIRST REPORT

In sum, the prevailing mechanisms that have been used to promote renewable energy, financial incentives, RPSs, and siting regimes disproportionately target private actors.

III. RATIONALE FOR TARGETING FEDERAL AGENCIES

With a frequent focus on targeting private actors, it is easy to forget that “[t]o the extent that federal law was regulatory in character prior to 1970, the primary targets of environmental regulation were federal agencies rather than private industry.”¹⁶⁴ This is rightly so, as “[fe]deral facilities are often the worst polluters.”¹⁶⁵ To this end, Congress often defines the “person” identified as the regulatory target to include federal agencies.¹⁶⁶ In addition to statutes that prohibit conduct, federal agencies were also targeted with unique consultation and consideration obligations, as is evidenced by NEPA,¹⁶⁷ the

ON ELECTRIC DEREGULATION IN TENNESSEE 93 (1999), <http://www.state.tn.us/tra/reports/electric.pdf> (“Since TVA, a federal agency, owns all of the electric generation facilities in Tennessee, there has been no reason for the State to review requests for licenses to operate electric generation plants. Many states vest the oversight powers for all power plant siting with a state agency. The Tennessee legislature may want to consider whether such oversight is appropriate for Tennessee.”).

164. Robert V. Percival, Symposium, *Environmental Federalism: Historical Roots and Contemporary Models*, 54 MD. L. REV. 1141, 1158 (1995).

165. Tracy Knorr, *Requirements? . . . What Sanctions? Enforcement of Federal Pollution Control Legislation & the Lessons Learned from Federal Facility Compliance Problems*, 18 ENVIRONS, no. 1, Dec. 1994, at 10, <http://environs.law.ucdavis.edu/issues/18/1/knorr.pdf>; see also Daniel Horne, *Federal Facility Environmental Compliance After United States Department of Energy v. Ohio*, 65 U. COLO. L. REV. 631, 637–38 (1994) (“The DOD and DOE alone create twenty million tons of hazardous or mixed hazardous and radioactive waste annually.”).

166. See, e.g., Clean Air Act, 42 U.S.C. § 7602(e) (1997) (defining a “person” to include “any agency, department, or instrumentality of the United States and any office, agent or employee thereof”); Clean Water Act, 33 U.S.C. § 1323(a) (1972) (applying to “[e]ach department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government . . .”); Resource Conservation and Recovery Act, 42 U.S.C. § 6001 (1976) (repealed 2000) (indicating that the federal government, its officers, agent, and employees shall comply with its laws); Truth in Lending Act, 15 U.S.C. § 1602(c)–(d) (1968) (defining “person” to mean a natural person or organization and defining “organization” to include a “government or governmental subdivision or agency”); Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601(21) (1980) (defining “person” to include the United States government).

167. NEPA requires federal agencies to consider the significant impacts, adverse environmental effects, and alternatives to all proposed “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(C) (2012). The lead agency for a proposed federal project is charged with

Endangered Species Act (“ESA”),¹⁶⁸ and the National Historic Preservation Act (“NHPA”).¹⁶⁹

The arguments for targeting federal agencies with respect to renewable energy are similarly compelling. With almost one hundred different federal agencies with budgets in the billions, agencies have the potential to be useful tools in promoting renewable energy sources.¹⁷⁰ The DOE budget in 2013 alone is \$27.1 billion while the EPA was given a budget of \$8.3 billion.¹⁷¹ The Department of the Interior (“DOI”) was granted \$86 million for renewable energy projects.¹⁷² Four agencies, the Forest Service, the National Park Service, the Bureau of Land Management, and the Fish and Wildlife Service administer 635 million acres of federal land, mostly in the west and Alaska.¹⁷³

This section argues that in addition to the above-referenced approaches that predominantly affect private entities, the federal government should expand the net of government responses to more fully capture the extensive purchasing power and lands of federal agencies. The reasons for targeting federal agencies are organized into three categories below: (1) more direct control over federal agencies; (2) alignment of renewable resources and federal lands; and (3) powerful purchasing power of the federal government.

deciding whether an impact is “significant” and is tasked with the development of an environmental assessment or a more robust and detailed environmental impact statement. See 40 C.F.R. §§ 1501.4(c)–(e), 1508.9 (2012).

168. Federal agencies must ensure that any action they carry out is not likely to jeopardize the continued existence of a listed species or destroy or modify a designated critical habitat. See Endangered Species Act of 1973 § 7, 16 U.S.C. § 1536(c)(1); 50 C.F.R. § 402.12. The ESA requires all federal agencies to consult with either the National Marine Fisheries Service (“NMFS”) or the United States Fish and Wildlife Service (“FWS”) if they are proposing an action that may affect listed species or their habitats. 16 U.S.C. § 1536(a)(2).

169. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on significant historic properties. 16 U.S.C. § 470f (1966).

170. See *Agencies Listed by Size Categories*, U.S. DEPT OF JUSTICE (May 2001), <http://www.justice.gov/crt/508/report2/agencies.php>; *Bureaus & Offices*, U.S. DEPT OF THE INTERIOR, <http://www.doi.gov/bureaus/index.cfm> (last visited Nov. 2, 2012); *The 2013 Budget Request: Agency by Agency*, FED. TIMES (Feb. 13, 2012), <http://www.federaltimes.com/article/20120213/AGENCY01/202130308/The-2013-budget-request-agency-by-agency> [hereinafter *2013 Budget Request*].

171. *2013 Budget Request*, *supra* note 170.

172. *Id.*

173. ROSS W. GORTE ET AL., CONG. RESEARCH SERV., R42346, FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 8 (2012), <http://www.fas.org/sgp/crs/misc/R42346.pdf>.

A. *Direct Authority Over Federal Agencies*

The first reason to target federal agencies is that the federal government can exert more direct control over its own agencies than it can exert over private parties. Administrative agencies are part of the executive branch and, thus, subject to the directives of Congress and the executive. As opposed to independent agencies, executive agencies like the ones discussed here, serve “at the pleasure of the President” and they are intended to “exercise coercive powers only as authorized by and in conformity with legislative directions.”¹⁷⁴ Although the extent of presidential control over administrative agencies is one of rich academic debate, for purposes of this Article, one need only accept that the federal government may have more direct means available to direct federal agencies than it does to control states or private actors. This direct control also minimizes the importance of choosing the appropriate carrot and stick combination to advance the nation’s renewable energy goals. Instead of focusing on rewards or punishments to elicit certain behaviors, the federal government can exert direct control over its federal agencies through statute or executive order. As discussed below, agency compliance with these directives is driven by a unique set of carrots and sticks.

In comparison, the federal government is more limited in its regulation of the states and private actors. Courts have struck down congressional attempts to require states to act in the world of unfunded mandates.¹⁷⁵ Although Congress can attach conditions to a state’s use of federal funds,¹⁷⁶ the

174. Elena Kagan, *Presidential Administration*, 114 HARV. L. REV. 2245, 2255 (2001).

175. *E.g.*, John C. Eastman, *Re-Entering the Arena: Restoring a Judicial Role for Enforcing Limits on Federal Mandates*, 25 HARV. J.L. & PUB. POLY 931, 949 (2002) (footnotes omitted) (“One kind of intergovernmental mandate compels state and local governments to enforce federal regulatory programs. Such mandates are now largely, if not entirely, barred by the Supreme Court’s decisions in *Printz v. United States* and *New York v. United States*, except to the extent they are enacted as conditions on federal grants.”).

176. *South Dakota v. Dole*, 483 U.S. 203, 206 (1987) (“The Constitution empowers Congress to lay and collect Taxes, Duties, Imposts, and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States. Incident to this power, Congress may attach conditions on the receipt of federal funds, and has repeatedly employed the power to further broad policy objectives by conditioning receipt of federal moneys upon compliance by the recipient with federal statutory and administrative directives.” (internal quotations omitted)) (citations omitted).

Supreme Court has made a point to draw a line between conditional and compulsory uses.¹⁷⁷ As discussed below,¹⁷⁸ the government can condition doing business with the federal government on compliance with federal requirements, but this targets a narrow portion of private actors.

The federal government is similarly limited in its regulation of private individuals. For instance, Professor Michael Vandenbergh developed some of the seminal work on the importance of expanding regulatory targets to include private individuals.¹⁷⁹ In doing so, Professor Vandenbergh acknowledges the difficulties associated with targeting individuals.¹⁸⁰ Other recent work has focused on how to address some of the unique challenges associated with regulating individuals, including the belief that mandates on individual behaviors are “untenable, primarily because their enforcement invades privacy and other civil liberties.”¹⁸¹

Unlike methods used to regulate states and private entities, the federal government can issue directives to federal agencies through more direct measures. Congress can bind agencies through statute and the executive branch can bind agencies through executive order. In the last two hundred years, presidents have issued tens of thousands of such orders to do exactly that.¹⁸² Most notably, instead of being limited to conditions placed on the use of federal funds, the federal government is able to exert a more powerful and direct control over its own agencies.

177. *Id.* at 209 (“[T]he constitutional limitations on Congress when exercising its spending power are less exacting than those on its authority to regulate directly.”). “Our decisions have recognized that in some circumstances the financial inducement offered by Congress might be so coercive as to pass the point at which ‘pressure turns into compulsion.’” *Id.* at 211 (citation omitted).

178. *See infra* note 198 and accompanying text.

179. *See, e.g.,* Vandenbergh, *supra* note 104, at 533–34, 536 (the “focus of the regulatory debate on large industrial sources is problematic if other sources cause a meaningful amount of environmental harm and if those other sources require different regulatory measures.”); *see also* Katrina Fischer Kuh, *When Government Intrudes: Regulating Individual Behaviors that Harm the Environment*, 61 DUKE L.J. 1111, 1116 (2012) (noting a “growing body of legal scholarship recognizes the environmental significance of individual behaviors and lifestyles”).

180. Vandenbergh, *supra* note 104, at 628 (citation omitted).

181. Kuh, *supra* note 179, at 1120.

182. 32 CHARLES A. WRIGHT & CHARLES H. KOCH JR., *FEDERAL PRACTICE & PROCEDURE, JUDICIAL REVIEW OF ADMINISTRATIVE ACTION* § 8278 (1st ed. 2006) (citations omitted).

B. Renewable Resources Closely Align with Federal Lands

A second reason to target federal agencies is that our federal lands so closely align with the areas of our country with high renewable energy potential. The United States has a total land area of approximately 2.26 billion acres.¹⁸³ Of all the land in our country, approximately 635 million acres are federal lands.¹⁸⁴ The majority of these lands is under the jurisdiction of four main government agencies and is divided into five major systems: (1) parks; (2) forests; (3) wildlife refuges; (4) Bureau of Land Management (“BLM”) public lands; and (5) wilderness.¹⁸⁵ About 40 percent of these federal lands is comprised of lands managed by the BLM (248 million acres).¹⁸⁶ The National Forest System makes up about 30 percent of these federal lands (193 million acres).¹⁸⁷ In addition to onshore federal lands, the DOI manages energy development on 1.7 billion acres of the Outer Continental Shelf.¹⁸⁸

These expansive federal lands correlate well to ample renewable resources. For instance, the areas of our country where solar intensity is strongest are closely correlated with the location of our federal lands.¹⁸⁹ Twenty-three million acres of the BLM’s public lands have the potential for solar energy production.¹⁹⁰ Strong and consistent wind resources also correlate with federal lands; 20.6 million acres of federal lands have the potential for wind projects.¹⁹¹ Furthermore, offshore

183. Ezekiel J. Williams & Steven K. Imig, *Energy Development on National Forest System Lands*, 57 ROCKY MTN. MIN. L. INST. 6-1 § 6.01[1] (2011).

184. *Id.*

185. George Cameron Coggins & Robert L. Glicksman, *Evolution of Federal Public Land and Resources Law*, 46B ROCKY MTN. MIN. L. INST. 1, 1 (1997).

186. KRISTINA ALEXANDER & ROSS W. GORTE, CONG. RESEARCH SERV., RL34267, FEDERAL LAND OWNERSHIP: CONSTITUTIONAL AUTHORITY AND THE HISTORY OF ACQUISITION, DISPOSAL, AND RETENTION 8 (2007).

187. Williams & Imig, *supra* note 183, at 6-1.

188. *Id.* at 2.

189. *Federal Lands, Lower 48 States, with Solar Photovoltaic Resource Potential of 5 or Greater*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/cneaf/solar.renewables/page/solarphotv/photovoltaics2.gif> (last visited Nov. 23, 2012).

190. U.S. DEP’T OF THE INTERIOR & U.S. DEP’T OF AGRIC., NEW ENERGY FRONTIER 17 (2011), <http://www.doi.gov/budget/appropriations/2011/highlights/upload/New-Energy-Frontier.pdf> [hereinafter NEW ENERGY FRONTIER].

191. *Id.* at 13–14 (noting total wind potential of 350 thousand MW on federal lands); *Federal Lands, Lower 48 States, with Wind Energy Resource Potential of 4, 5, or 6; Located Within 20 Miles of a 115-230 kv Transmission Line; and Weighted by Land Use Class*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/cneaf/solar.renewables/page/wind/wind.gif> (last visited Nov. 23, 2012).

Atlantic winds that blow over the federally controlled Outer Continental Shelf could by themselves produce an estimated one thousand gigawatts of energy.¹⁹²

In short, the unrealized potential of federal agencies to advance our nation's renewable energy goals is enormous. This renders federal lands prime targets for renewable development.

C. Powerful Purchasing Power

A third reason that targeting public actors may be effective at achieving renewable energy goals is because of the federal government's significant purchasing power.

Once the market for renewable energy sources expands to the point where these industries can achieve significant economies of scale, costs of production will fall substantially and subsidies will no longer be required. Development of highly efficient and renewable energy systems could eventually provide a huge boost to economic investment and create millions of jobs in an expanding industry.¹⁹³

Four variations of this power are discussed below.

1. Market Development

First, procurement of certain goods by the federal government will increase demand for that product. Large government purchases can lower the net cost, allowing developers to take advantage of economies of scale that may even trickle down into the private markets.¹⁹⁴ As the DOD

192. NEW ENERGY FRONTIER, *supra* note 190, at 13.

193. HARRIS & CODUR, *supra* note 7, at 33 (citation omitted).

194. ALISON TEN CATE ET AL., TECHNOLOGY PROCUREMENT AS A MARKET TRANSFORMATION TOOL, <http://www1.eere.energy.gov/femp/pdfs/techproc.pdf> (last visited Mar. 26, 2013) (noting similar significant promise for "technology procurement . . . as a tool to introduce, accelerate, and expand the market for energy-efficient products"); JOEL STRONBERG & VIRINDER SINGH, GOVERNMENT PROCUREMENT TO EXPAND PV MARKETS 2-2, http://www.repp.org/repp_pubs/pdf/pv4.pdf (last visited Mar. 26, 2013) ("Increased production volumes are needed to capture economies of scale in manufacturing the technology, but increased production volumes are precluded by the initially high cost of the technology. The rationale for government purchasing is that large government purchases will lower the net cost of the technology early on; this will lead to increased private market demand, which in turn will encourage the technology's manufacturers to increase production levels and capture new economies of

states with respect to energy efficiency products:

In addition to improving the Federal Government's energy performance, Federal energy-efficient product procurement can also impact the worldwide market. By setting a clear standard for energy performance, Federal procurement requirements can shift the market toward greater production of energy-efficient products. That, in turn, improves availability and reduces cost for all consumers.¹⁹⁵

Although the DOD alone does not have the purchasing power to single-handedly reach the nation's renewable energy goals,¹⁹⁶ it can create or enhance market demand for renewable components. "Federal procurement policies have been changed to encourage the development of markets for products containing recycled materials."¹⁹⁷ The federal government can also impose obligations on those who want to do business with them, extending the reach of its influence into the realm of private actors. For instance, guidelines that targeted public actors and their contractors who received federal funds were successful at expanding the market for recycled goods.¹⁹⁸ In his 2012 State of the Union Address, President Obama explained how a clean energy standard could create "a market for innovation," which could help mitigate climate change.¹⁹⁹ As others have noted, however, increasing government demand in a manner consistent with private demand will be important:

The creation of a government market for renewables that bears no relationship to the private market eliminates the indirect, but potentially enormous economic development and environmental benefits of commercializing renewables

scale.”).

195. *Energy-Efficient Product Procurement*, U.S. DEP'T OF ENERGY, http://www1.eere.energy.gov/femp/technologies/procuring_eeproducts.html (last updated Sept. 6, 2012).

196. *Id.* Although the DOD represents 78 percent of energy consumption by the federal government, it only represents about 0.8 percent of total U.S. energy consumption. JERRY WARNER & P.W. SINGER, FOREIGN POLICY AT BROOKINGS, FUELING THE “BALANCE”: A DEFENSE ENERGY STRATEGY PRIMER 2, http://www.brookings.edu/~media/research/files/papers/2009/8/defense%20strategy%20singer/08_defense_strategy_singer.pdf (last visited Mar. 26, 2013).

197. ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION: LAW, SCIENCE AND POLICY 337 (6th ed. 2011).

198. *Id.*

199. Address to Joint Session of Congress, *supra* note 79.

in the private market. Too often policy efforts to create a *government market* have resulted in submarkets reflective of governments' unique needs and procedures.²⁰⁰

2. Market Stabilization

Second, enhanced purchases by the federal government can stabilize the renewable energy industry. Incidents like the failure of the solar manufacturer Solyndra have shaken portions of the renewable energy market, making investors skittish.²⁰¹ Renewable energy manufacturers also cast a wary eye towards renewable component competitors in places like China, citing an unfair advantage in Chinese government subsidies.²⁰² Similarly, the fate of the wind energy industry rises and falls with the availability of production tax credits.²⁰³ These credits are subject to the renewal whims of Congress.²⁰⁴

200. STRONBERG & SINGH, *supra* note 194, at 2–9.

201. *See, e.g., Clean-Tech Energy Facing Lean Times After Solyndra*, WBUR & NPR (Feb. 2, 2012), <http://www.wbur.org/npr/146280685/clean-tech-industry-facing-lean-times-after-solyndra> (“[T]he Solyndra bankruptcy has made it much more difficult for the federal government to invest in the clean energy sector.”); Mark Jaffe, *Colorado Solar-Panel Maker Abound Prepares Bankruptcy Filing*, DENV. POST, Jun. 29, 2012, http://www.denverpost.com/business/ci_20968001/colorado-solar-panel-maker-abound-prepares-bankruptcy-filing (“Abound Solar, the panel maker . . . will close its doors next week and liquidate The company ran into production, market and financing problems that forced it to the brink of bankruptcy.”); *The U.S. Solar Industry After Solyndra*, ENERGYNOW! (Sep. 24, 2011), <http://www.energynow.com/video/2011/09/24/us-solar-industry-after-solyndra-09252011> (“The bankruptcy of California solar panel manufacturer Solyndra . . . has put a cloud over the U.S. solar industry.”).

202. *See, e.g., China, Inc. Locked in on World Solar, Wind Manufacturing Domination*, CLEANTECHNICA (May 3, 2012), <http://cleantechnica.com/2012/05/03/china-inc-locked-in-on-world-solar-wind-manufacturing-domination/>; Nan Sato, *Red Dragon Gone Green: China's Approach to Renewable Energy Technologies, Its Legal Implications, and Its Impact on U.S. Energy Policy*, 2011 U. ILL. J.L. TECH. & POL'Y 463, 469 (2011); *see also U.S. Imposes Duties on Chinese Wind Tower Makers*, N.Y. TIMES, May 30, 2012, <http://www.nytimes.com/2012/05/31/business/energy-environment/us-imposes-duties-on-chinese-wind-towers.html> (reporting on the Commerce Department's International Trade Commission decision imposing duties on Chinese wind and solar manufacturers for dumping renewable components in U.S. markets below cost).

203. AM. WIND ENERGY ASS'N, THE AMERICAN WIND INDUSTRY URGES CONGRESS TO TAKE IMMEDIATE ACTION TO PASS AN EXTENSION OF THE PTC 2, http://awea.org/issues/federal_policy/upload/PTC-Fact-Sheet.pdf (last visited Mar. 26, 2013).

204. *See, e.g., Nick Juliano, Conservative Groups Urge Congress to Let the Wind Credits Expire*, GREENWIRE, Sept. 6, 2012, at 1 (noting the political jockeying between interest groups opposed and in favor of renewal of the production tax credit for wind energy projects).

Renewable energy projects are large capital investments that fare better with a greater degree of certainty.²⁰⁵ Purchase power agreements from the federal government can help provide some stability to this otherwise unstable nascent renewable energy market. Harnessing portions of the federal budget also includes a guaranteed revenue stream from a strong creditor.

3. Commercial Testing Ground

Third, federally funded investments can be used as a testing ground for new technologies that are not yet commercially applicable. Similar to the DOD-led developments in “nuclear power, the internet, microelectronics, and high-performance computing,” Deputy Defense Secretary William Lynn points to the department’s “proven track record” of leveraging research and development funds and buying power “to seed . . . new industries.”²⁰⁶ One example is Project SolarStrong, an ambitious plan that will install solar panels on 120,000 military residences.²⁰⁷ At an estimated cost of over one billion dollars, this plan represents the largest residential solar project in American history.²⁰⁸ Many believed a project of this substantial size and scope would only be financed if

205. See BLACK & VEATCH NAT'L RENEWABLE ENERGY LAB., COST REPORT: COST AND PERFORMANCE DATA FOR POWER GENERATION TECHNOLOGIES 3, <http://bv.com/docs/reports-studies/nrel-cost-report.pdf> (last visited Mar. 25, 2013) (“Mature technologies generally have a smaller band of uncertainty around their costs because demand/supply is more stable and technology variations are fewer”); BORENSTEIN, *supra* note 162, at fig. 1 (comparing the levelized costs of different energy sources); Larry Eisenstat, *Investing in Offshore Wind Projects and the Role of the US Federal Government*, 6 N. AM. CLEAN ENERGY, no. 5, at 1, http://www.dicksteinshapiro.com/files/News/5651c5ee-81d8-469a-bdf2-d6cc638487ab/Presentation/NewsAttachment/7d43401f-aab4-45d4-aa98-140996090c0e/NACE_Eisenstat_Sept2012.pdf (last visited Mar 26, 2013) (“OSW developers face substantial capital costs with long lead times and, therefore, need even greater long-term certainty to succeed”).

206. Karen Parrish, *Lynn: Defense Department Seeks Energy Revolution*, U.S. DEP'T OF DEF. (Jul. 19, 2011), <http://www.defense.gov/news/newsarticle.aspx?id=64729> (alteration in original).

207. Mark Muro & Devashree Saha, *Energy Strong: How DoD Leads on Clean Energy Innovation and Deployment*, BROOKINGS INST. (Dec. 14, 2011), http://www.brookings.edu/opinions/2011/1214_energy_muro_saha.aspx.

208. Press Release, SolarCity, SolarCity and Bank of America Merrill Lynch Move Forward with Project SolarStrong, Expected to Build More than \$1 Billion in Solar Projects (Nov. 30, 2011), available at [http://www.solarcity.com/pressreleases/104/SolarCity-and-Bank-of-America-Merrill-Lynch-Move-Forward-with-Project-SolarStrong--Expected-to-Build-More-than-\\$1-Billion-in-Solar-Projects.aspx](http://www.solarcity.com/pressreleases/104/SolarCity-and-Bank-of-America-Merrill-Lynch-Move-Forward-with-Project-SolarStrong--Expected-to-Build-More-than-$1-Billion-in-Solar-Projects.aspx).

SolarStrong, the company leading the project, received a loan guarantee from the DOE, and concerns arose after it failed to do so. But the DOD's commitment to the project—in essence a promised market—provided enough assurance to Bank of America Merrill Lynch to agree to finance it despite the absence of the loan guarantee.²⁰⁹ Similarly, DOE's advanced research arm will sponsor thirty million dollars in projects aimed at improving the safety of energy storage devices, including hybrid energy and storage modules being developed by the DOD for military applications, another nascent industry.²¹⁰ Despite the negative publicity surrounding federal loan guarantees for renewable energy companies like Solyndra, its failure has become the repeated poster child because there are so few other examples.²¹¹ In fact, out of the twenty-six projects backed by ARRA federal loans, 94 percent of them have succeeded.²¹²

4. Modeling Behavior

A final way that targeting public actors may be an effective way to achieve renewable energy objectives is through the ability of public targets to serve as models for the rest of the nation. The federal government can provide leadership and guidance for both subnational governments and private parties in many contexts. With respect to disability hiring, a director at the U.S. Department of Labor stated, “[T]he federal government is a model for the rest of the country. They set the tone for the rest of the country, bringing along private corporations who do most of the hiring.”²¹³ With respect to water quality, federal wildlife agencies formed a joint policy “to help ensure that Federal land and resource management

209. *Id.*

210. Herman Wang, *White House Announces New Military Renewable Energy Goals*, PLATTS (Apr. 11, 2012, 4:05 PM), <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/ElectricPower/6168116>.

211. Eugene Kiely, *Romney's Clean Energy Whoppers*, FACTCHECK.ORG (Oct. 8, 2012), <http://www.factcheck.org/2012/10/romneys-clean-energy-whoppers/>.

212. *Id.*

213. Penny Reeder, *Number of Federal Employees with Disabilities Low and Shrinking, National Council on Disability Says*, GETTINGHIRED.COM, <http://community.gettinghired.com/blogs/articles/archive/2009/04/01/number-of-federal-employees-with-disabilities-low-and-shrinking-national-council-on-disability-says.aspx> (last visited Nov. 23, 2012) (quoting a statement from the director of policy development at the U.S. Department of Labor's Office of Disability Employment Policy).

activities meet these goals and that the Federal government serves as a model for water quality stewardship.”²¹⁴

Similarly, the federal government can serve as a model on renewable energy. Federal agencies have a national platform with which to express their position on renewable energies and greenhouse gases. For example, section 526 of the Energy Independence and Security Act of 2007 prohibits federal agencies from purchasing fuels that emit more GHGs than conventional fuels.²¹⁵ When House Republicans proposed an exemption that would bar the use of federal funds for implementing section 526,²¹⁶ the DOD spoke out in favor of the procurement requirement:

This exemption could further increase America’s reliance on non-renewable fuels. Our dependence on those types of fuels degrades our national security, negatively impacts our economy, and harms our planet. This exemption would also send a negative signal to America’s advanced biofuel industry and could result in adverse impacts to U.S. job creation, rural development efforts, and the export of world leading technology.²¹⁷

Expressly highlighting environmental and national security efforts in support of its position, the DOD sent a strong

214. Unified Federal Policy for a Watershed Approach to Federal Land and Resource Management, 65 Fed. Reg. 62,566 (Oct. 18, 2000).

215. 42 U.S.C. § 17142 (2007) (“No Federal agency shall enter into a contract for procurement of an alternative or synthetic fuel, including a fuel produced from nonconventional petroleum sources, for any mobility-related use, other than for research or testing, unless the contract specifies that the lifecycle [GHG] emissions associated with the production and combustion of the fuel supplied under the contract must, on an ongoing basis, be less than or equal to such emissions from the equivalent conventional fuel produced from conventional petroleum sources.”).

216. COMM. ON ARMED SERVICES, NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2012, H.R. REP. NO. 112-78, at 175–76 (1st Sess. 2012), available at <http://www.gpo.gov/fdsys/pkg/CRPT-112hrpt78/pdf/CRPT-112hrpt78.pdf> (“This section would amend section 526 of the Energy Independence and Security Act (42 U.S.C. 17142) to exempt the [DOD] from the requirements related to contracts for alternative or synthetic fuel in that section.”).

217. Liz Barratt-Brown, *DOD Backs a Federal Ban on Procurement of Dirty Fuels*, SWITCHBOARD: NATURAL RES. DEF. COUNCIL STAFF BLOG (July 12, 2011), http://switchboard.nrdc.org/blogs/lizbb/dod_backs_a_federal_bar_on_pro.html. The House nevertheless approved the amendment. Ben Geman, *Defense Dept. Memo Bashes Push to Lift High-Carbon Fuels Ban*, THE HILL (July 8, 2011, 11:43 AM), <http://thehill.com/blogs/e2-wire/e2-wire/170415-defense-dept-memo-bashes-push-to-lift-high-carbon-fuels-ban>.

signal to industries, Congress, and the public at large as to its position on renewable energy. The federal government's signaling "that it supports the development of lower carbon fuels helps nascent biofuels companies gain a foothold in the fuels market. For the military, these alternatives are critical as moving fuel in war situations is difficult, costly and deadly."²¹⁸ A number of municipalities have also relied on renewable energy, serving as a model for the rest of the country.²¹⁹

In sum, this section demonstrates how the resulting focus on private actors is too narrow given the strong rationales for also targeting federal actors. The federal government has more direct control over its own agents. Federal agencies have enormous purchasing power that can be channeled toward using electricity and fuels derived from renewable energy, and federal agencies manage millions of acres of lands that can be used for renewable energy projects. The regulatory regime should be expanded to include both private and public actors who can work in parallel to achieve the ultimate collective goal.

IV. TAPPING INTO THE RENEWABLE ENERGY POTENTIAL OF FEDERAL AGENCIES

For the reasons articulated above, it makes sense for the federal government to enlist federal agencies to advance its renewable energy goals. This Part illustrates how federal agencies are already being used to advance renewable energy goals, focusing on government efforts to harness the powerful purchasing power of federal agencies and efforts to harness the public lands managed by federal agencies.

A. *Harnessing Federal Consumption and Production Requirements*

The primary way for the federal government to target its own agencies is through the purchasing power of the federal government. Congress and the executive have used their power

218. Barratt-Brown, *supra* note 217.

219. Erin Waldner, *BANNING: Solar Energy Project in the Works*, THE PRESS-ENTERPRISE (May 6, 2012), <http://www.pe.com/local-news/riverside-county/the-pass/the-pass-headlinesindex/20120506-banning-solar-energy-project-in-the-works.ece> (noting the city's efforts to place solar panels on police stations to "serve as an example of the city's efforts to go green" and the installation of solar panels on the San Geronio Pass Water Agency and the Banning Unified School District).

to impose a number of renewable consumption and production requirements on federal agencies.²²⁰ The federal government encourages renewable energy development by requiring that federal agencies use “renewable energy”²²¹ under the National Energy Conservation Policy Act (“NECPA”) of 1978²²² as amended in 1992 and 2005, and as clarified in various executive orders.²²³ The Energy Policy Act of 2005 (“EPAct 2005”)²²⁴ amended NECPA and the Energy Policy Act of 1992, requiring, to the extent economically feasible and technologically practicable, that at least 3 percent of the federal government’s energy come from renewable sources between 2007 and 2009, 5 percent between 2010 and 2012, and 7.5 percent after 2012.²²⁵ The EPAct of 2005 also directs some federal agencies to incorporate energy efficient technologies in related public buildings and to use energy efficient vehicles in public lands.²²⁶

On January 24, 2007, President Bush issued Executive Order 13,423, *Strengthening Federal Environmental, Energy, and Transportation Management*. Executive Order 13,423 set higher goals than the EPAct 2005, focusing on the development

220. See *infra* text accompanying notes 222–38.

221. The definition of renewable energy changes over time. See, e.g., National Energy Conservation Policy Act, Pub. L. No. 95–619, 92 Stat. 3206 (1978) (codified as amended at 42 U.S.C. §§ 8259(8) (2010)) (providing that “renewable energy sources’ includes, but is not limited to, sources such as agriculture and urban waste, geothermal energy, solar energy, and wind energy”). EPAct 2005 defines “renewable energy” as “electric energy generated from solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.” 42 U.S.C. § 15852(b)(2) (2005).

222. National Energy Conservation Policy Act, Pub. L. No. 95–619, 92 Stat. 3206 (1978) (codified as amended at 42 U.S.C. §§ 8201–8287 (2010)).

223. See, e.g., Exec. Order No. 13,514, 74 Fed. Reg. 52,117 (2009) (establishing a strategy for federal agencies to promote sustainability and reduce greenhouse gases); Exec. Order No. 13,423, 72 Fed. Reg. 3,919 (2007) (setting reduction goals for federal agencies in environmental, energy, and transportation management).

224. Pub. L. 109-58, § 211, 119 Stat. 594, 660 (2005) (codified as amended at 42 U.S.C. § 15926 (2006)).

225. See *Energy Policy Act of 2005*, U.S. DEPT OF ENERGY, <http://www1.eere.energy.gov/femp/regulations/epact2005.html#rer> (last updated May 4, 2010).

226. 42 U.S.C. § 15813(b) (2005) (“To the extent practicable, the Secretary of the Interior, the Secretary of Commerce, and the Secretary of Agriculture shall seek to incorporate energy efficient technologies in public and administrative buildings associated with management of the National Park System, National Wildlife Refuge System, National Forest System, National Marine Sanctuaries System, and other public lands and resources managed by the Secretaries.”).

of “new” renewable energy sources.²²⁷ Specifically, the order requires that “the head of each [federal] agency shall . . . ensure that . . . at least half of the statutorily required renewable energy consumed by the agency in a fiscal year comes from new renewable sources [sources built 1999 or later].”²²⁸

The Energy Independence and Security Act of 2007 (“EISA 2007”) makes similar consumption requirements, including a requirement that 30 percent of the hot water demand in new federal buildings (and major renovations) be met with solar hot-water equipment, provided it is life-cycle cost-effective.²²⁹ The EISA 2007 also includes a requirement that new buildings and major renovations of federal buildings reduce fossil fuel consumption, and the legislation makes it easier for federal agencies to finance renewable energy projects through energy savings performance contracts.²³⁰ As referenced above, in response to national concern about greenhouse gases, Congress amended the EISA 2007 in a way that prohibits the DOD from entering into contracts for the purchase of fuel that contributes to greenhouse gases in amounts higher than conventional fuels.²³¹

On October 5, 2009, President Obama issued Executive Order 13,514, *Federal Leadership in Environmental, Energy, and Economic Performance*, expanding upon President Bush’s requirements in Executive Order 13,423.²³² Executive Order 13,514 required that agencies establish GHG emissions targets and consider increasing renewable energy and on-site renewable energy projects in setting targets.²³³ Federal agencies must also align federal policies to “increase the effectiveness of local planning for energy choices such as

227. Exec. Order No. 13,423, 72 Fed. Reg. 3,919 (2007).

228. *Id.*

229. *Energy Independence & Security Act: Performance and Standards for New Building and Major Renovations*, U.S. DEPT OF ENERGY, <http://www1.eere.energy.gov/femp/regulations/eisa.html> (last updated Sept. 24, 2010).

230. *Id.*

231. *See supra* text accompanying note 215; *see also* 42 U.S.C. § 17142 (2007).

232. Exec. Order No. 13,514, 74 Fed. Reg. 52,117 (Oct. 8, 2009); *see also EO 13514*, FEDCENTER, <http://www.fedcenter.gov/programs/eo13514/> (last updated July 3, 2011).

233. Exec. Order No. 13,514, *supra* note 232 (declaring that it is the policy of the United States that federal agencies increase energy efficiency, report on and reduce GHG emissions, conserve water, eliminate waste, and other related activities and requiring concrete steps be taken, such as establishing GHG reduction targets).

locally-generated renewable energy.”²³⁴

On January 29, 2010, President Obama announced that the federal government will reduce its GHG pollution by 28 percent by 2020.²³⁵ President Obama emphasized the importance of “ensur[ing] that the Federal Government leads by example in building the clean energy economy.”²³⁶ The President highlighted his goals: to “spur clean energy investments that create new private-sector jobs, drive long-term savings, build local market capacity, and foster innovation and entrepreneurship in clean energy industries.”²³⁷

The DOD can readily illustrate the impacts of such consumption and procurement requirements because it “is the largest single consumer of energy in the United States.”²³⁸ The DOD owns over two hundred thousand buildings, and leases nearly ten thousand more.²³⁹ It operates close to two hundred thousand non-tactical vehicles.²⁴⁰ The power required to run these assets represents 25 percent of the military’s total energy demand.²⁴¹ The DOD also manages over five hundred installations in the United States and overseas.²⁴² Its annual energy bill is approximately \$4 billion.²⁴³ Consequently, the DOD is responsible for over half of all federal government GHG emissions.²⁴⁴ As the federal government’s single largest consumer of petroleum and electricity, the DOD’s initiatives on their own are capable of having a significant effect on reducing

234. *Id.*

235. *President Obama Sets Greenhouse Gas Emissions Reduction Target for Federal Operations*, THE WHITE HOUSE (Jan. 29, 2010), <http://www.whitehouse.gov/the-press-office/president-obama-sets-greenhouse-gas-emissions-reduction-target-federal-operations>.

236. *Id.*

237. *Id.*

238. DEF. SCI. BD., REPORT OF THE DEFENSE SCIENCE BOARD TASK FORCE ON DOD ENERGY STRATEGY: “MORE FIGHT—LESS FUEL” 11 (2008), <http://www.acq.osd.mil/dsb/reports/ADA477619.pdf>.

239. U.S. DEP’T OF DEF., STRATEGIC SUSTAINABILITY PERFORMANCE PLAN, at I-9 (2011), http://www.denix.osd.mil/sustainability/upload/dod-sspp-fy11-final_oct11.pdf.

240. *Id.*

241. THE PEW PROJECT ON NAT’L SEC., ENERGY AND CLIMATE, REENERGIZING AMERICA’S DEFENSE: HOW THE ARMED FORCES ARE STEPPING FORWARD TO COMBAT CLIMATE CHANGE AND IMPROVE THE U.S. ENERGY POSTURE 9 (2010).

242. OFFICE OF THE DEPUTY UNDER SEC’Y OF DEF. (INSTALLATIONS AND ENV’T), ANNUAL ENERGY MANAGEMENT REPORT: FISCAL YEAR 2011, at 4 (2012), <http://www.acq.osd.mil/ie/energy/library/FY.2011.AEMR.PDF>.

243. *Id.*

244. U.S. DEP’T OF DEF., *supra* note 239, at I-16.

GHG emissions.²⁴⁵

The DOD's GHG goals are even more ambitious than President Obama's GHG target. Instead of stopping at a 28 percent target,²⁴⁶ the DOD set a target of a 34 percent reduction in GHG emissions by 2020²⁴⁷ for emissions of sources under its control.²⁴⁸ The DOD plans to surpass this 2020 target in three primary ways: (1) a 37.5 percent increase in energy efficiency;²⁴⁹ (2) a 30 percent reduction in the use of petroleum by non-tactical vehicles;²⁵⁰ and (3) a requirement that at least 20 percent of all of the DOD's facility electricity comes from renewable energy sources.²⁵¹ Similar procurement requirements exist for federal agencies with respect to energy efficiency.²⁵² It does not hurt that "[t]he Federal Government is the largest volume buyer of energy-consuming products in the world."²⁵³

The above demonstrates that procurement requirements can have a significant impact on the amount of electricity and

245. DEF. SCI. BD., *supra* note 238, at 11.

246. *President Obama Sets Greenhouse Gas Emissions Reduction Target for Federal Operations*, *supra* note 235.

247. U.S. DEP'T OF DEF., *supra* note 239, at I-17. Though directed by Executive Order 13,514 to all federal agencies, DOD's targets were higher than the government-wide goal of 28 percent. *Id.*

248. Federal policy differentiates between GHG emissions from sources under agency control and those from sources not under agency control and requires separate targets for each. Exec. Order No. 13,514, 74 Fed. Reg. 52,117, 52,126 (Oct. 8, 2009).

249. U.S. DEP'T OF DEF., *supra* note 239, at II-10 (comparing to a 2005 baseline). Specifically, their goal includes a 30 percent reduction in the use of the energy intensity of its facilities (from a 2003 baseline) by 2015 and by 37.5 percent by 2020. *Id.*

250. *Id.* (comparing to a 2005 baseline).

251. *Id.* Executive Order 13,514 exempts tactical emissions from GHG reduction targets. Exec. Order No. 13,514, 74 Fed. Reg. at 52,126. However, DOD is still committed to increasing the use of alternative fuels in its operational capacity (e.g., "transit, travel, training, and conferencing"), which will also lead to reduced GHG emissions. *Id.* DOD also plans to have ten biogas plants operational by 2020. U.S. DEP'T OF DEF., *supra* note 239, at II-4.

252. *See, e.g.*, Energy Independence and Security Act (EISA) of 2007, 42 U.S.C. § 17001 (2007) (requiring each federal agency to ensure that major replacements of installed equipment (such as heating and cooling systems) or renovation or expansion of existing space employ the most energy-efficient designs, systems, equipment, and controls that are life-cycle cost effective); Exec. Order No. 13,423, 72 Fed. Reg. 17 (2007); Exec. Order No. 13,221, 66 Fed. Reg. 149 (2001); Federal Procurement of Energy Efficient Products, 74 Fed. Reg. 48 (Mar. 13, 2009) (to be codified at 10 C.F.R. pt. 436).

253. *Energy Efficient Product Procurement*, U.S. DEP'T. OF ENERGY, http://www1.eere.energy.gov/femp/technologies/procuring_eeproducts.html (last updated Sept. 6, 2012).

fuel generated from renewable energy. Although there are barriers to increasing federal procurement of renewable energy,²⁵⁴ there is also enormous potential.

B. *Harnessing Federal Lands*

A second way the federal government is targeting public actors is through development of new renewable energy generation on federal lands. This is occurring in significant respects on BLM and military lands. As described above, the siting of renewable energy is governed by the FPA, which provides sole authority over the siting of electricity generation and transmission facilities with state and local authorities.²⁵⁵ This leaves the federal government with no siting authority over electricity generation on private lands. With its hands tied by the FPA, the federal government is moving to promote renewable energy directly in the only place it can—its own land.²⁵⁶

Congress has directed the agencies to take a number of steps with respect to renewable energy. The EPAct 2005 encourages agencies to site renewable energy projects on federal lands and sets a goal for the Secretary of the Interior to approve ten thousand megawatts of non-hydropower renewable energy on federal lands by 2015.²⁵⁷ Additionally, EPAct 2005 requires the installation of twenty thousand solar energy systems in federal buildings by 2010.²⁵⁸

The executive branch exercised similar directives. Two years later, President George W. Bush issued Executive Order 13,423, which requires the head of each agency to ensure that “to the extent feasible, the agency implements renewable

254. See STRONBERG & SINGH, *supra* note 194 for a detailed discussion of barriers to federal procurement of solar photovoltaic (PV) and solutions.

255. See 16 U.S.C. §§ 791a–823d (2006).

256. See *infra* text accompanying notes 270–74, 321–23.

257. See Energy Policy Act of 2005, Pub. L. 109-58, § 211, 119 Stat. 594, 660 (2005) (codified as amended at 42 U.S.C. § 15926 (2006)) (“It is the sense of the Congress that the Secretary of the Interior should, before the end of the 10-year period beginning on the date of enactment of this Act, seek to have approved non-hydro-power renewable energy projects located on the public lands with a generation capacity of at least ten thousand megawatts of electricity.”); *Energy Policy Act of 2005*, *supra* note 225 (requiring that the federal government source increasing amounts of its electricity use from renewables but granting a “double credit bonus for Federal agencies if renewable electricity is produced on-site at a Federal facility, on Federal lands, or on Native American lands”).

258. Energy Policy Act of 2005, § 204, 119 Stat. at 660.

energy generation projects on agency property for agency use.”²⁵⁹ The directives continued into the next administration. In President Obama’s 2012 State of the Union Address, the President noted how Congress has been unable, or unwilling, to pass a comprehensive plan. Speaking to both chambers, President Obama addressed this failure and showed how it could be overcome: “So far, you haven’t acted. Well tonight, I will. I’m directing my Administration to allow the development of clean energy on enough public land to power three million homes.”²⁶⁰

These orders were particularly important for a number of federal agencies responsible for significant federal lands, including the BLM—the agency that manages 248 million acres of federal land in the United States, the bulk of which rests in twelve western states.²⁶¹ These orders also resonated with another agency within the DOI, the Bureau of Ocean Energy Management (“BOEM”).²⁶² This agency has an important role in the siting of renewable energy in the Outer Continental Shelf, an area of federal land rich in offshore renewable energy potential. These directives were also taken seriously by the DOD, which has moved forward to implement these congressional and executive directives. Lastly, multiple agencies are working together to facilitate the siting of transmission lines on federal lands. This section addresses

259. Exec. Order No. 13,423, 72 Fed. Reg. 17, 3919 (Jan. 24, 2007); *Executive Order 13423*, U.S. DEP’T OF ENERGY, <http://www1.eere.energy.gov/femp/regulations/eo13423.html> (last updated Feb. 27, 2012); *Renewable Energy*, U.S. DEPT. OF RENEWABLE ENERGY, https://www1.eere.energy.gov/femp/technologies/renewable_energy.html (last updated Nov. 20, 2012) (“By using renewable energy, Federal agencies increase national security, conserve natural resources, and meet regulatory requirements and goals.”).

260. President Barack Obama, *48—Address Before a Joint Session of Congress on the State of the Union*, THE AM. PRESIDENCY PROJECT (Jan. 24, 2012), <http://www.presidency.ucsb.edu/ws/index.php?pid=99000>.

261. See ROSS W. GORTE ET AL., CONG. RESEARCH SERV., R42346, FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 1, 3 (2012), <http://www.fas.org/sgp/crs/misc/R42346.pdf>. The bulk of BLM lands fall within twelve states: Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Wyoming, and Utah. See *id.* at 6–7.

262. NEW ENERGY FRONTIER, *supra* note 190, at 36. BOEM is the result of recent reorganizations within the Department of Interior. Combined with the Bureau of Safety and Environmental Enforcement (BSEE), these two bureaus were formerly known as the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), and the Minerals Management Service (MMS). *Reorganization of the Bureau of Ocean Energy Management, Regulation and Enforcement*, BUREAU OF OCEAN ENERGY MGMT., REGULATION & ENFORCEMENT, <http://www.boemre.gov/> (last visited Nov. 24, 2012).

federal agency efforts to address (1) BLM onshore; (2) BLM offshore; (3) military lands; and (4) transmission.

1. BLM Onshore

The BLM encourages the use of federal lands for renewable energy projects, including solar, wind, geothermal, and biomass projects, as well as for transmission facilities to transport energy to consumers.²⁶³ Despite the enormous renewable energy potential on federal lands,²⁶⁴ only a small fraction of federal lands' renewable energy potential is being developed. A significant number of projects that the BLM has approved are not yet operating, and many applications are still pending for solar, wind, and geothermal projects.²⁶⁵ For instance, although the DOI has approved seventeen utility-scale solar projects, no large-scale solar energy projects currently operate on federal lands.²⁶⁶

On March 11, 2009, DOI Secretary Ken Salazar issued Secretarial Order 3285, prioritizing the development of renewable energy projects on public lands.²⁶⁷ Order 3285

263. See Press Release, U.S. Dep't of Interior, Salazar Green-Lights First-Ever Solar Energy Projects on Public Lands (Oct. 5, 2010), *available at* <http://www.doi.gov/news/pressreleases/Salazar-Green-Lights-First-Ever-Solar-Energy-Projects-on-Public-Lands.cfm> ("In April of 2009, Interior's Bureau of Land Management (BLM) committed to helping the nation reach its clean energy future by guaranteeing coordinated processing, full environmental analysis and public review for specific renewable energy projects where the companies involved demonstrated they were ready to advance to the formal environmental review and public participation process."); *New Energy for America*, BUREAU OF LAND MGMT., http://www.blm.gov/wo/st/en/prog/energy/renewable_energy.html (last updated Nov. 7, 2012).

264. See *supra* notes 189–93 and accompanying text.

265. As of 2011, BLM has approved rights-of-way that will lead to generation of another 700 megawatts of energy. *New Energy for America*, *supra* note 263; see also *Bureau of Land Management—Renewable Energy Authorization*, DEP'T OF THE INTERIOR RECOVERY INVESTMENTS, <http://recovery.doi.gov/press/bureaus/bureau-of-land-management/bureau-of-land-management-renewable-energy-authorization/> (last updated Feb. 2, 2012) ("The BLM currently has 241 applications for wind projects and 199 applications for solar projects in various stages of processing.").

266. Press Release, U.S. Dep't of Interior, Interior and Defense Departments Join Forces to Promote Renewable Energy on Federal Lands (Aug. 6, 2012), *available at* <http://www.doi.gov/news/pressreleases/Interior-and-Defense-Departments-Join-Forces-to-Promote-Renewable-Energy-on-Federal-Lands.cfm>; see also *Renewable Energy Projects*, BUREAU OF LAND MGMT., <http://www.blm.gov/ca/st/en/prog/energy/fasttrack.html> (last updated Oct. 31, 2012) (noting the pre-construction progress of solar projects as of 2012).

267. Renewable Energy Development by the Department of the Interior, Sec'y

manifests the DOI's commitment to renewable energy and outlines strategies for streamlining and improving agency communication and regulatory oversight for the siting of renewable energy on public lands administered by the DOI.²⁶⁸

Due in part to expiring financial incentives discussed below, government agencies acted to expedite the siting of renewable energy. As a result, 2010 became a boom year for solar energy projects on BLM lands.²⁶⁹ In October 2010, Salazar approved the first two solar plants to be located on federal lands in California.²⁷⁰ By the end of 2010, "the BLM approved nine solar projects, with a total capacity of 3,682 [megawatts]."²⁷¹ According to the DOI's May 2011 New Energy Frontier report, "[a]s of late 2010, the BLM had more than [one hundred] applications pending for utility-scale solar energy projects in Arizona, California, Nevada, and New Mexico that . . . have an applicant-estimated capacity of sixty-one thousand [megawatts]."²⁷²

Wind energy on federal lands is close behind. To date, the BLM has completed twenty-five wind power projects on public lands, with a combined capacity of 437 megawatts, and has approved four additional projects that will bring the total capacity to 580 megawatts.²⁷³ The BLM "[h]as 207 rights-of-way applications pending for the use of public lands for wind energy site testing."²⁷⁴ According to the New Energy Frontier report, "[f]orty-seven new wind development project applications are currently being processed."²⁷⁵ In addition, the federal government estimates that National Forest System lands hold the potential for 139,000 megawatts of wind energy.²⁷⁶ The federal government is entertaining inquiries and proposals from companies for siting meteorological towers (used "to obtain viable wind data") and wind projects.²⁷⁷ It has

of Interior Order No. 3285 (Dep't of Interior Mar. 11, 2009), http://www.blm.gov/or/energy/opportunity/files/order_3285.pdf.

268. *Id.*

269. *See infra* text accompanying notes 270–72.

270. Juliet Eilperin & Steven Mufson, *Interior Dept. Approves First Solar Projects on Federal Lands*, WASH. POST, Oct. 6, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/10/05/AR2010100505984.html>.

271. NEW ENERGY FRONTIER, *supra* note 190, at 17.

272. *Id.*

273. *Id.* at 14.

274. *Id.*

275. *Id.* at 13.

276. *Id.* at 15.

277. *Id.* at 103.

received twenty inquiries or proposals in various national forests at the release of the New Energy Frontier report.²⁷⁸

To continue the development of renewable energy in 2012, the BLM has prioritized nineteen renewable projects that “fit” with the executive’s goals for diversifying America’s “energy portfolio in an environmentally responsible manner.”²⁷⁹ The priority list²⁸⁰ includes nine solar projects, six wind projects, and two geothermal projects mainly throughout California and Nevada.²⁸¹

The BLM also manages over seven hundred geothermal leases, 120 of which cover 134 thousand acres in the National Forest System.²⁸² Of these leases, the BLM managed fifty-eight geothermal leases “in a producing status” at the end of 2010.²⁸³ “During 2009, about 4.4 billion kilowatt-hours of electricity was generated from geothermal leases on BLM-managed land, and the electricity supplied [thirty-five] power plants.”²⁸⁴ Additionally, in 2011, the National Forest system produced “2.8 million tons of woody biomass” for use in energy generation.²⁸⁵ The biomass potential from federal lands is enormous, with DOI managing 437 million acres and the Forest Service managing 193 million acres of forest and grasslands.²⁸⁶

The federal government is also proactively removing obstacles posed by opponents to its renewable energy projects. One example involves the intentional holdup of renewable

278. *Id.* at 103–04.

279. News Release, Bureau of Land Mgmt., BLM Announces 2011 Priority Renewable Energy Projects (Mar. 8, 2011), *available at* http://www.blm.gov/wo/st/en/info/newsroom/2011/march/NR_03_08_2011.html.

280. *See 2012 Renewable Energy Priority Projects*, BUREAU OF LAND MGMT., http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/2012_priority_project_s.html (last updated Nov. 13, 2012).

281. *Id.*

282. NEW ENERGY FRONTIER, *supra* note 190, at 21, 23.

283. *Id.* at 23.

284. *Id.* at 21.

285. Tom Tidwell, Chief, U.S. Dep’t of Agric. Forest Serv., Speech at the Annual Meeting of the Society of Annual Foresters: Meeting Forestry Challenges Through Restoration (Nov. 3, 2011) (transcript available at <http://www.fs.fed.us/news/2011/speeches/11/restoration.shtml>).

286. NEW ENERGY FRONTIER, *supra* note 190, at 26; *see also Federal lands, lower 48 States, with biomass resource potential of five thousand or greater*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/cneaf/solar.renewables/page/biomass/biomass.gif> (last visited Dec. 7, 2012); MARCILYNN BURKE, U.S. DEP’T. OF THE INTERIOR, A NEW ENERGY FRONTIER: BUREAU OF LAND MANAGEMENT INITIATIVES (2010), <http://di.dk/SiteCollectionDocuments/Markedsudvikling/Marcilynn%20Burke.pdf>.

energy projects through the use of mining claims.²⁸⁷ Relying on an 1872 law that allows mining rights to “supersede surface land uses” until a right of way is granted, hundreds of unknown parties have staked mining claims on BLM public land slated for wind and solar projects.²⁸⁸ To prevent these claims from blocking renewable energy development, in April 2011, “the BLM announced . . . that it will put potential renewable energy development areas off-limits to mining claims for up to two years—just enough time to complete an environmental review and grant a right of way.”²⁸⁹ The BLM announced that “officials hope that temporary withdrawal while the agency processes renewable energy applications will help further the EPAct 2005’s goal of generating ten thousand megawatts of renewable energy on public lands by 2015.”²⁹⁰ The DOI has approved seventeen utility-scale solar energy projects, six onshore wind projects, and eight geothermal projects. Together these will provide over 7,200 megawatts of power (enough to supply over two million homes).²⁹¹ In short, the BLM has taken extensive steps to harness the power of its federal lands to site renewable energy.

2. BLM Offshore

Far beyond the federal government’s efforts to site renewable energy on BLM lands, the federal government is also exerting its jurisdictional muscle to develop power in offshore waters. Although the states control from the baseline of their shores out three nautical miles into the ocean, the federal government controls the Outer Continental Shelf (“OCS”) beyond that for another 197 miles.²⁹²

Although research is underway to harness the hydrokinetic energy potential of the OCS through waves, tides, and currents,²⁹³ the more immediate renewable energy source

287. See *infra* note 288 and accompanying text.

288. Emilene Ostlind, *BLM Shields Renewable Projects From Mining Speculation*, HIGH COUNTRY NEWS (May 30, 2011), <http://www.hcn.org/issues/43.9/blm-shields-renewable-projects-from-mining-speculation>.

289. *Id.*

290. *Id.*; Energy Policy Act of 2005, Pub. L. 109-58, § 211, 119 Stat. 594 (2005) (codified as amended at 42 U.S.C. § 15926 (2006)).

291. Press Release, U.S. Dep’t of Interior, *supra* note 266.

292. 43 U.S.C. § 1333(a)(1) (1953).

293. *New Energy Frontier*, U.S. DEP’T OF THE INTERIOR, <http://www.doi.gov/whatwedo/energy/index.cfm> (last visited July 8, 2011).

coming out of the OCS will be offshore wind farms. The Bureau of Ocean Energy Management, Regulation and Enforcement (“BOEMRE”), formerly the Minerals Management Service (“MMS”), granted the first-ever exploratory leases for wind-energy production on the [Outer Continental Shelf] and has established a framework for offshore renewable energy development.²⁹⁴ “Section 388 of the [EPA 2005] grants the DOI primary authority over offshore wind farm approval and permitting.”²⁹⁵ The DOI then vested its authority in BOEMRE to grant leases, easements, or rights-of-way for activities on the OCS.²⁹⁶ Under the EPA 2005, BOEMRE “has submerged-lands leasing authority over renewable energy projects, such as wave, wind, and solar energy and other projects that make alternative use of existing oil and natural gas platforms in federal waters.”²⁹⁷

Beyond DOI and BOEMRE, many other federal agencies are involved in the siting process for projects within federal waters, including the DOE, the Federal Energy Regulatory Commission (“FERC”), the United States Army Corps of Engineers, the Fish and Wildlife Service, the EPA, the DOD, the Federal Aviation Administration, and the National Telecommunications and Information Administration.²⁹⁸ So many agencies can result in delays, gaps in accountability, and turf wars regarding overlapping authorities. For example, the DOI and the FERC clashed over their respective authority in siting alternative energy projects on the OCS. Both the DOI and the FERC claimed jurisdiction, resulting in years of uncertainty for permit applicants. After four years, the agencies finally entered into a Memorandum of Understanding (“MOU”) in 2009, with FERC taking jurisdiction over hydrokinetic projects and leaving wind development on the OCS to MMS.²⁹⁹ To alleviate the complexity of dealing with

294. NEW ENERGY FRONTIER, *supra* note 190, at DH4, DH6.

295. Schroeder, *supra* note 76, at 1643.

296. See Energy Policy Act of 2005, Pub. L. 109-58, § 388, 119 Stat. 594 (2005) (codified as amended at 42 U.S.C. § 15926 (2006)); Katherine A. Roek, *Offshore Wind Energy in the United States: A Legal and Policy Patchwork*, 25 NAT. RESOURCES & ENV'T 24, 24 (2011).

297. Roek, *supra* note 296, at 24 (citation omitted).

298. Patricia E. Salkin & Ashira Pelman Ostrow, *Cooperative Federalism and Wind: A New Framework for Achieving Sustainability*, 37 HOFSTRA L. REV. 1049, 1076–77 (2009).

299. Memorandum of Understanding Between the U.S. Dep't of the Interior and Fed. Energy Regulatory Comm'n 1 (Apr. 9, 2009), <http://www.ferc.gov/legal/maj-ord-reg/mou/mou-doi.pdf>; see also Noelle Straub, *Interior, FERC*

this myriad of agencies, the DOI issued federal guidelines to aid agencies in future offshore wind farm development.³⁰⁰ While “these guidelines may make the highly-complex process more organized, the process is still convoluted.”³⁰¹

Perhaps it is no surprise, then, that the jurisdictional quagmire, combined with avian concerns, aesthetic complaints, and the need for accompanying transmission lines and interconnections has contributed to the dearth of active renewable projects offshore.³⁰² The closest project is Cape Wind, an offshore wind project in Nantucket that has been plagued with obstacles over its eleven-year history.³⁰³ After almost a decade, Cape Wind has finally completed its collection of federal permits, receiving approval from the DOI, the Corps, and the EPA,³⁰⁴ Construction surveys are taking place with hopes to begin offshore construction in early 2013.³⁰⁵ The February 2011 version of the Construction and Operations Plan does not set an expected start date for the operation of the energy project.³⁰⁶

Beyond Cape Wind, there are at least twenty other wind projects in various stages of permit approval, and almost all of them have applied for siting beyond the three-mile

End Feud on Offshore Renewable Projects, N.Y. TIMES, Mar. 17, 2009, <http://www.nytimes.com/gwire/2009/03/17/17greenwire-agencies-end-feud-on-offshore-projects-10153.html>.

300. Gregory J. Rigano, Note, *The Solution to the United States' Energy Troubles Is Blowing in the Wind*, 39 HOFSTRA L. REV. 201, 225 (2011) (citing Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf, 74 Fed. Reg. 19,638 (Apr. 29, 2009) (to be codified at 30 C.F.R. pts. 250, 285, 290)), <http://www.boemre.gov/offshore/RenewableEnergy/PDF/FinalRenewableEnergyRule.pdf>).

301. Rigano, *supra* note 300, at 224.

302. See Adeshina Emmanuel, *A Tragicomic Take on Cape Wind*, N.Y. TIMES GREEN BLOG (June 25, 2012, 9:56 AM), <http://green.blogs.nytimes.com/2012/06/25/a-tragicomic-take-on-cape-wind/>; see also *supra* note 300 and accompanying text.

303. Beth Daley, *Interior Secretary Approves Cape Wind, Nation's First Offshore Wind Farm*, THE GREEN BLOG (Apr. 28, 2010, 3:20 PM), http://www.boston.com/lifestyle/green/greenblog/2010/04/cape_wind_decision_expected_to.html.

304. News Release, Cape Wind, Cape Wind Completes Permitting Process (Jan. 7, 2011), available at <http://www.capewind.org/news1174.htm>.

305. Rich Eldred, *Cape Wind Starts Construction Survey in Nantucket Sound*, THE CAPE CODDER (July 16, 2012), <http://www.wickedlocal.com/brewster/news/x1990297929/Cape-Wind-starts-construction-survey-in-Nantucket-Sound>.

306. CAPE WIND ASSOCIATES, LLC, CAPE WIND ENERGY PROJECT: CONSTRUCTION AND OPERATIONS PLAN 12, 56 (2011), http://www.boem.gov/uploadedFiles/BOEM/Renewable_Energy_Program/Studies/Final_Redacted_COP.pdf (noting “[t]he anticipated construction schedule is presented in Figure 2.3-1” which has been redacted).

jurisdictional divide.³⁰⁷ Even though some states are extremely supportive of offshore wind projects,³⁰⁸ most developers are still strategically placing their offshore projects in federal waters.³⁰⁹

It is important to note that even though the federal government governs the actual siting of these projects, the projects are still subject to state approval.³¹⁰ To get the electricity to consumers on land, offshore wind projects must necessarily include land support facilities and/or transmission lines from the turbines, through state waters and onto land.³¹¹ “State governments control the siting and permitting of these transmission lines.”³¹² Depending on the location and nature of the offshore wind project, developers would have to be concerned with a state’s coastal zone management plan under the Coastal Zone Management Act (“CZMA”),³¹³ as well as

307. F.B. VAN CLEVE & A.E. COPPING, PAC. NW. NAT’L LAB., PNNL-20024, OFFSHORE WIND ENERGY PERMITTING: A SURVEY OF U.S. PROJECT DEVELOPERS, at app. A (2010), http://www.pnl.gov/main/publications/external/technical_reports/pnnl-20024.pdf (all proposed leases are three or more miles away from shore).

308. News Release, Dep’t of Env’tl. Prot., Eleven Wind Developers Submit Project Proposals as Part of Federal Offshore Leasing Process (June 10, 2011), available at http://www.nj.gov/dep/newsrel/2011/11_0075.htm (“Development of clean wind power and solar energy is a top priority for Governor Chris Christie and is a key component of the state’s energy future,” said Department of Environmental Protection Commissioner Bob Martin.”).

309. Some windfarms have been proposed in state waters off of Rhode Island, New Jersey, and Massachusetts. See *Block Island Wind Farm*, DEEPWATER WIND, <http://dwwind.com/block-island/block-island-project-overview> (last visited Nov. 24, 2012) (stating “[t]he wind farm is located entirely in Rhode Island state waters”); *Final Massachusetts Ocean Management Plan: Appendix 3—Wind Energy Screening*, MASS.GOV 3-1 (2009), <http://www.env.state.ma.us/eea/mop/final-v1/v1-app3.pdf> (noting two proposed wind energy areas off the coast of Massachusetts); Tom Johnson, *State Issues First Permits for Offshore Windfarm*, N.J. SPOTLIGHT, (Apr. 7, 2011), <http://www.njspotlight.com/stories/11/0407/0049/> (stating “Fishermen’s Energy yesterday said it has obtained three key permits from the Department of Environmental Protection (DEP) to build its demonstration-scale six-turbine wind farm in state waters”).

310. See, e.g., NEW ENERGY FRONTIER, *supra* note 190, at 36–38; Tom Johnson, *State Puts the Brakes on Offshore Wind Farm Initiative—Again*, N.J. SPOTLIGHT (Aug. 30, 2012), <http://www.njspotlight.com/stories/12/0829/2254/>.

311. See, e.g., NEW ENERGY FRONTIER, *supra* note 190, at 42–49; U.S. DEP’T. OF ENERGY, A NATIONAL OFFSHORE WIND STRATEGY: CREATING AN OFFSHORE WIND ENERGY INDUSTRY IN THE UNITED STATES 10 (2011), http://www1.eere.energy.gov/wind/pdfs/national_offshore_wind_strategy.pdf (“[W]ith current technology, cost-effective installation of offshore wind turbines requires specialized vessels, purpose built portside infrastructure, robust undersea electricity transmission lines, and grid interconnections.”).

312. Schroeder, *supra* note 76, at 1642–43.

313. The CZMA grants states a “unique” review of federal siting decisions, empowering them “to exert significant influence over federal agency actions

address a host of state licensing fees or permits, including wetlands permits, building permits, zoning ordinances, subaqueous permits, state National Pollutant Discharge Elimination System (“NPDES”) permits for designated states under the CWA, and any other applicable state regulations.³¹⁴ “Moving forward, the DOI is committed to issuing permits for ten thousand megawatts of renewable power on our public lands and in our offshore waters by the end of 2012, enough to power 3 million homes.”³¹⁵

3. Military Lands

A third example of a federal agency harnessing its control over federal lands lies with the military. As part of its response to congressional targets and the executive orders regarding greenhouse gas emissions, the DOD has committed to obtaining 25 percent of its electricity from renewable energy and is using its own lands to help achieve that goal.³¹⁶ In the U.S., the military owns about 28 million acres of land.³¹⁷ Much of this land is located in the western United States, a region where significant renewable energy development is already taking place on private land.³¹⁸ These lands are high in wind, solar, and geothermal resources.³¹⁹ In addition, the DOD and the DOI agree that “offshore wind is an abundant renewable energy resource available to [many] DOD coastal installations on the Atlantic coast, on the Pacific Coast, in the Gulf of

related to offshore wind power generation facilities as they affect states’ coastal zones.” Hanna Conger, Comment, *A Lesson from Cape Wind: Implementation of Offshore Wind Energy in the Great Lakes Should Occur Through Multi-State Cooperation*, 42 LOY. U. CHI. L.J. 741, 773 (2011). Although the “CZMA authorizes states to exercise what amounts to a veto against projects impacting their coastal zones, . . . the ability of the Secretary to overrule state objections means the federal government ultimately controls the fate of the project.” Rigano, *supra* note 300, at 221.

314. Jeremy Firestone *et al.*, *Regulating Offshore Wind Power and Aquaculture: Messages from Land and Sea*, 14 CORNELL J.L. & PUB. POL’Y 71, 86–87 (2004).

315. *Securing American Energy*, THE WHITE HOUSE, <http://www.whitehouse.gov/energy/securing-american-energy> (last visited Nov. 24, 2012) (click on “Renewable Energy on Public Lands” on bottom left).

316. 10 U.S.C. § 2911(e) (2011).

317. Press Release, U.S. Dep’t of Interior, *supra* note 266.

318. Uclia Wang, *U.S. Military’s Big Plan for Renewable Energy Projects*, FORBES (Aug. 6, 2012), <http://www.forbes.com/sites/uciliawang/2012/08/06/u-s-military-opens-up-16m-acres-for-renewable-energy-projects/>.

319. Press Release, U.S. Dep’t of Interior, *supra* note 266.

Mexico, and in Hawaii.”³²⁰

The military has already begun to generate electricity from renewable resources onsite. As of today, the DOD has generated about 5,300 billion British thermal units per year of renewable energy on military lands, supplying 60 percent of the renewable energy produced or procured.³²¹ “The Air Force alone has 131 wind, solar, geothermal and landfill gas projects underway at fifty-six different facilities, with another fifty well along in the pipeline and twenty-one more in the planning stages,” and it is working to develop more.³²² The military is seeking to deploy three gigawatts of renewable energy by 2025.³²³ In July of 2012, the DOD signed a MOU with the DOI regarding plans for a partnership to facilitate future renewable energy development.³²⁴ Under this agreement, the DOD plans to open sixteen million acres of its land in order to pursue projects in solar, wind, and geothermal energy.³²⁵ The DOD and DOI will develop a pilot process for authorizing solar energy projects on several military installations in Arizona and California. In addition, the DOD will identify areas for offshore wind development.³²⁶

4. Transmission Lines

A final way that federal agencies are harnessing the power over their own lands involves the siting of transmission lines. Transmission lines convey electricity at high voltages from the

320. Memorandum of Understanding Between the Dep’t of Def. and the Dep’t of the Interior on Renewable Energy and a Renewable Energy Partnership Plan 1 (July 20, 2012) (available at <http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&pageid=312415>) [hereinafter Memorandum of Understanding].

321. OFFICE OF THE DEPUTY UNDER SEC’Y OF DEF., *supra* note 242, at 32.

322. Tina Casey, *ALEC on a Collision Course with Air Force on Renewable Energy*, CLEAN TECHNICA, <http://cleantechnica.com/2012/04/27/alec-on-a-collision-course-with-air-force-on-renewable-energy/> (last visited Nov. 24, 2012).

323. *White House Announces New Military Renewable Energy Goals*, PLATTS (Apr. 11, 2012, 4:05 PM), <http://www.platts.com/RSSFeedDetailedNews/RSSFeed/ElectricPower/6168116> (stating that the Navy, Air Force, and Army would each develop 1 GW of renewable energy (Air Force by 2016, Navy by 2020, and Army by 2025)).

324. See Memorandum of Understanding, *supra* note 320.

325. Press Release, U.S. Dep’t of Interior, Interior and Defense Department Join Forces to Promote Renewable Energy on Federal Lands (Aug. 6, 2012), available at <http://www.doi.gov/news/pressreleases/Interior-and-Defense-Departments-Join-Forces-to-Promote-Renewable-Energy-on-Federal-Lands.cfm> (discussing the 16 million acres of “withdrawn lands” discussed in the MOU).

326. *Id.*

source of electricity generation to the substation that connects to distribution lines near the end user.³²⁷ Many scholars point to more transmission lines as the key to enhancing the use of renewable energy, pointing to remote locations with strong renewable energy potential.³²⁸ A new source of solar-generated electricity in the southwest desert provides little impact if there are not transmission lines to connect that supply to the rest of the electricity grid.³²⁹ This is a particularly acute problem if these areas are far from the load demand provided by heavily concentrated population centers. In addition to remotely located renewable generation, the argument for more transmission lines is strengthened by increasing congestion on existing lines.³³⁰ Since renewable energy is intermittent and unable to be stored, it is important that the electricity generated is transmitted when it is available.³³¹ Congestion on existing transmission lines results in some renewable energy, like wind power, being denied access to the grid.³³²

327. See *Electricity Is Delivered to Consumers Through a Complex Network*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/energyexplained/index.cfm?page=electricity_delivery (last visited Nov. 24, 2012).

328. Uma Outka, *Renewable Energy Footprint*, 30 STAN. ENVTL. L.J. 241, 244 n.13 (2011) (citing CHI-JEN YANG, CLIMATE CHANGE POLICY PARTNERSHIP, ELECTRICAL TRANSMISSION: BARRIERS AND POLICY SOLUTIONS 5 (2009)); *21st Century Infrastructure: Opportunities and Hurdles for Renewable Energy Development*, 10 SUSTAINABLE DEV. L. & POLY 69, 70 (2009) (stating that “[t]ransmission is the largest current constraint on the use of renewable energy sources”); Michael Nesteroff, *No Easy Path for Renewable Energy*, LAW 360, Apr. 3, 2009 (“[T]he present lack of transmission lines, and the barriers to developing new ones, constitute the Achilles’ heel in the drive to increase renewable energy generation.”).

329. *Contextual Factors Affecting State Renewable Energy Development*, NAT’L RENEWABLE ENERGY LABS., http://www.nrel.gov/tech_deployment/state_local_activities/sos_factors.html (last updated Nov. 7, 2012).

330. Transmission lines have limited capacity to transmit electricity, resulting in congestion on the lines if additional electricity is unable to be added to the grid. See *Electricity Terms and Definitions*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/cneaf/electricity/page/glossary.html#cd> (last visited Nov. 24, 2012) (defining congestion as “[a] condition that occurs when insufficient transfer capacity is available to implement all of the preferred schedules for electricity transmission simultaneously”).

331. Stein, *supra* note 66.

332. See, e.g., TXU Portfolio Mgmt. Co., L.P. v. FPL Energy, LLC, 328 S.W.3d 580, 591 (Tex. Ct. App. 2010) (holding wind energy producer liable for breach of contract where transmission line congestion prevented delivery of contracted wind power); BONNEVILLE POWER ADMIN., BPA’S INTERIM ENVIRONMENTAL REDISPATCH AND NEGATIVE PRICING POLICIES: ADMINISTRATOR’S FINAL RECORD OF DECISION 11 (2011), <http://www.bpa.gov/news/pubs/RecordsofDecision/rod-20110513-Interim-Environmental-Redispatch-and-Negative-Pricing-Policies.pdf> (curtailing wind generators to maintain grid balance and comply with the Clean

Recognizing that building infrastructure to support new power generation facilities is a lengthy endeavor, the federal government has imposed multiple obligations on itself in regard to supporting the efficient siting of transmission lines on federal lands. In 2001, President Bush issued Executive Order 13,212, which called on executive departments and agencies to “take appropriate actions . . . to expedite projects that will increase the production, transmission or conservation of energy.”³³³ In 2005, Congress imposed an obligation on five federal agencies to collaborate and designate corridors for energy transport on federal land in eleven contiguous western states.³³⁴ The EPAct of 2005 imposes no substantive obligations to approve specific projects or applications for rights of way, but it does require the agencies to perform “any environmental reviews that may be required and to expedite the siting application process in these corridors.”³³⁵ The EPAct 2005 also encouraged four agencies to enter into a MOU to expedite the siting and construction of qualified electric transmission infrastructure in the U.S., with a primary focus on designating a single point of contact for coordinating all federal authorizations required to site transmission lines on federal lands.³³⁶

In sum, regulatory initiatives through which the federal government imposes renewable energy requirements on its own federal agencies are making a significant dent in the renewable energy portfolio of our country. Since neither private nor public actors can accomplish the nation’s ambitious renewable energy goals on their own, more attention should be paid to the options available to shape federal agency decisions. Federal agencies’ current actions with respect to renewable energy demonstrate

Water Act, ESA, and reliability standards).

333. Actions to Expedite Energy-Related Projects, 66 Fed. Reg. 28,357, 28,357 (May 22, 2001).

334. Energy Policy Act of 2005, Pub. L. 109-58, § 211, 119 Stat. 594, 727 (2005) (codified as amended at 42 U.S.C. § 15926 (2006)); see also Fred Wager & Peter J. Schaumberg, *Power to the People: Electric Transmission Siting on Public Lands*, in ENERGY DEVELOPMENT: ACCESS, SITING, PERMITTING, AND DELIVERY ON PUBLIC LANDS 11, 11-7 to 11-8 (Rocky Mtn. Min. Law Found., Min. Law Series No. 3, 2009) (“The Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior, in consultation with FERC, states, tribal or local government and affected utility industries, were instructed to collaborate . . .”).

335. Wager & Schaumberg, *supra* note 334, at 11-8 (stating that BLM and USFS prepared a Programmatic EIS under NEPA for more than six thousand miles of Section 368 corridors).

336. Energy Policy Act of 2005 § 1221.

that the federal government has the potential to harness public actors and public resources in a way that it cannot when trying to harness private actors and private resources.

V. IMPLICATIONS OF DIRECTING FEDERAL AGENCIES

Directing federal agencies to promote renewable energy is not without its own limitations. A continuing focus that targets federal agencies and federal lands with respect to renewable energy raises a number of issues that are not as pronounced where solely private actors are targeted. This part raises a few of the key issues that should be considered. First, depending on who has directed the agency to act, and what mechanism has been used, renewable energy directives against federal actors are unlikely to be enforceable in the same way as against private actors. The use of carrots can be further complicated by the fact that federal agencies may be motivated by factors other than traditional wealth-maximizing carrots and sticks. Second, directing federal agencies to act may raise concerns about the source of money to implement these directives, particularly when a premium is to be paid for a good or service.

Lastly, there may be some question about the appropriateness of using federal lands for renewable energy purposes. Federal agencies are tasked with managing multiple uses of the federal lands, and even construction of clean energy generators can have significant impacts on the environment. Involving federal agencies may also increase the level of bureaucracy associated with renewable energy projects, as is illustrated by NEPA.³³⁷ Establishing a nexus of federal agency action triggers a substantial obligation to consider the environmental impacts of the proposed action, an obligation that is not present where an activity is purely private. Although this may add a layer of bureaucracy to actions that involve federal agencies, it may be tempered in part by increased coordination and cooperation amongst not only multiple federal agencies, but between federal and state agencies. This Part addresses complications of enforcement, fiscal implications, and proper use of federal lands.

337. See 42 U.S.C. § 4332(2)(C) (2006) (requiring all major federal agency actions to undergo an environmental review not required of private actors without sufficient federal nexus).

A. *Enforcement*

One possible limitation associated with relying on federal agencies to further renewable energy policies is the questionable enforcement mechanisms employed, should the agency not comply. The answer may turn on whether the agency is acting at the behest of Congress, the executive, or on its own accord.³³⁸

1. Congressional Directive

In a traditional “stick” regulatory regime that prohibits behavior, noncompliance can result in administrative, civil, or even criminal penalties.³³⁹ These sticks provide the regulatory agency with leverage against the regulated entity. But where agencies have to enforce laws against other agencies, there have been disputes about the ability of one agency to obtain penalties against another.³⁴⁰ These disputes center around three related obstacles: sovereign immunity, Article III jurisdiction, and separation of powers.³⁴¹

First, sovereign immunity prevents a claim for damages against the President or federal agencies without their consent.³⁴² When the EPA, or states acting under their authority from the EPA, attempted to obtain damages against another federal agency under the pollution control statutes, the agencies objected to these attempts on sovereign immunity

338. Brian Galle & Joseph Leahy, *Laboratories of Democracy? Policy Innovation in Decentralized Governments*, 58 EMORY L.J. 1333, 1375 (2009) (“[B]oth the legislature and the chief executive can expand or constrict an agency’s budget or policy authority. That can be an effective lever for moving bureaucrats, who may be motivated largely by a desire to carry out their perceived governmental mission, to be sensitive to the officials’ own reluctance to undertake risky policy.”).

339. *See, e.g.*, Clean Water Act § 309, 33 U.S.C. § 1319 (2006) (providing for administrative, civil, and criminal penalties).

340. Interagency conflict can arise in nonenforcement contexts as well. *See* Keith Bradley, *The Design of Agency Interactions*, 111 COLUM. L. REV. 745, 757 (2011) (noting Congress’ creation of regulatory regimes that allow one agency to provide regulations binding another agency, including CEQ’s regulations that target DOD and FWS regulations that target other agencies).

341. *See infra* notes 392–99 and accompanying text.

342. *United States v. Sherwood*, 312 U.S. 584, 586 (1941) (“The United States, as a sovereign, is immune from suit save as it consents to be sued and the terms of its consent to be sued in any court define that court’s jurisdiction to entertain the suit.”) (citations omitted).

grounds.³⁴³ The general argument advanced by regulated agencies was that Congress did not expressly consent to be sued in the specific manner at issue in the relevant statutes, and that without express consent, these suits could not be maintained against the agencies.³⁴⁴ Similar arguments were advanced by agencies subject to EPA's authority under the Resource Conservation and Recovery Act ("RCRA") and the Clean Water Act.³⁴⁵ The DOD attempted to argue that it was exempt from EPA enforcement under the Clean Air Act in 1997—efforts that were rejected by the EPA.³⁴⁶

Congress similarly rejected these arguments with passage of the Federal Facility Compliance Act of 1992 ("FFCA"), expressly waiving the federal government's sovereign immunity from civil penalties for violations of the nation's hazardous waste law, RCRA, but failing to act with respect to the Clean Water Act.³⁴⁷ The FFCA waives sovereign immunity

343. See, e.g., *State of Fla. Dep't. of Env'tl. Regulation v. Silvex Corp.*, 606 F. Supp. 159, 161 (M.D. Fla. 1985) ("The Navy moves to dismiss the action against it on grounds that there has been no waiver of sovereign immunity authorizing the Court to entertain this suit by a state agency against a federal entity.").

344. See, e.g., *Meyer v. U.S. Coast Guard*, 644 F. Supp. 221, 223 (E.D.N.C. 1986). In analyzing the Coast Guard's position that the RCRA civil penalties section did not waive sovereign immunity, the federal district court for the Eastern District of North Carolina stated:

The legislative history of RCRA indicates that Congress did not intend for federal facilities to be subject to civil penalties. In fact, Congress rejected a House of Representatives bill which specifically authorized the granting of civil penalties and instead chose to adopt the Senate bill which made no mention of waiving sovereign immunities for civil penalties.

Id.

345. See, e.g., *McClellan Ecological Seepage Situation v. Weinberger*, 707 F. Supp. 1182, 1197–98 (E.D. Ca. 1988) (holding that the Clean Water Act excluded federal agencies from the definition of "person" in the civil penalties section of the law and thus agencies cannot be subjected to civil fines and penalties), *vacated sub nom. McClellan Ecological Seepage Situation v. Perry* 47 F.3d 325 (9th Cir. 1995); see also *Meyer*, 644 F. Supp. at 222–23 (holding that the section of RCRA subjecting federal facilities to RCRA's requirements failed to waive Coast Guard sovereign immunity to fines).

346. Memorandum from Dawn E. Johnson, Acting Assistant Att'y Gen., Office of Legal Counsel, to Jonathan Z. Cannon, Gen. Counsel, Env'tl. Prot. Agency, and Judith A. Miller, Gen. Counsel, Dep't of Def. on Administrative Assessment of Civil Penalties Against Federal Agencies Under the Clean Air Act (July 16, 1997), <http://www.epa.gov/compliance/resources/policies/civil/federal/cleanairop.pdf> [hereinafter Memorandum from Dawn E. Johnson].

347. PERCIVAL ET AL., *supra* note 197, at 1113 (citing Federal Facility Compliance Act of 1992, Pub. L. No.102-386, 106 Stat. 1505 (codified as amended at 42 U.S.C. § 6901 (2006))); see also Melinda R. Kassen, *The Inadequacies of Congressional Attempts to Legislate Federal Facility Compliance with Environmental Requirements*, 54 MD. L. REV. 1475, 1494 (1995) (arguing for more

for RCRA violations, “allowing state civil fines against federal agencies.”³⁴⁸ Additionally, it authorizes the EPA to impose administrative penalties on non-compliant federal agencies.³⁴⁹ The legislative intent of this statute was indeed to “ensure ‘that federal agencies are treated like every other citizen.’”³⁵⁰ Although the FFCA provided clarity with respect to RCRA civil fines, it left the scope of limited sovereign immunity waivers in the other environmental statutes subject to much debate.³⁵¹

A second obstacle to federal agencies suing other agencies is the Article III case or controversy requirement.³⁵² The case or controversy requirement necessitates that parties “be adverse in fact.”³⁵³ However, “[w]hen one executive branch department or agency sues another . . . the United States is actually suing itself.”³⁵⁴ Since Article III of the Constitution requires an actual “case or controversy,” courts have held that an agency may not bring suit against itself (another agency).³⁵⁵ The Department of Justice has even issued a memo stating that judicial involvement in intra-branch disputes is inappropriate because of the case or controversy

meaningful penalties for federal noncompliance with RCRA and CERCLA); Margaret K. Minister, *Federal Facilities and the Deterrence Failure of Environmental Laws: The Case for Criminal Prosecution of Federal Employees*, 18 HARV. ENVTL. L. REV. 161–62 (1994) (analyzing inter-agency compliance issues, particularly with respect to the intersection of sovereign immunity and criminal sanctions applied to federal facilities under the environmental statutes).

348. Andrea Gross, *A Critique of the Federal Facilities Compliance Act of 1992*, 12 VA. ENVTL. L.J. 691, 700 (1992–1993).

349. *Id.* at 699–700.

350. *Id.* at 702 (quoting *Federal Facilities Compliance Act Of 1991: Hearing on S.596 Before the Subcomm. on Environmental Protection of the Comm. on Environmental Protection of the Comm. on Environmental and Public Works*, 102d Cong., 1st Sess. 3 (1991) (statement of Sen. George J. Mitchell)).

351. See generally Kenneth M. Murchinson, *Waivers of Immunity in Federal Environmental Statutes of the Twenty-First Century: Correcting a Confusing Mess*, 32 WM. & MARY ENVTL. L. & POL’Y REV. 359 (2008) (exploring the confusion with respect to different interpretations of limited sovereign immunity in RCRA, the Clean Water Act, the Clean Air Act, and the Safe Drinking Water Act); see also U.S. ENVTL. PROT. AGENCY, EPA 315-B-98-011, THE YELLOW BOOK: GUIDE TO ENVIRONMENTAL ENFORCEMENT AND COMPLIANCE AT FEDERAL FACILITIES (1999), <http://www.epa.gov/compliance/resources/publications/civil/federal/yellowbk.pdf>. Several environmental statutes, such as the Clean Air Act and Clean Water Act, have limited sovereign immunity waivers. Gross, *supra* note 348, at 694–95.

352. Michael W. Steinberg, *Can EPA Sue Other Federal Agencies?*, 17 ECOLOGY L.Q. 317, 324 (1990).

353. *Id.* at 324.

354. *Id.*

355. See *FDIC v. United States*, 342 F.3d 1313, 1318 (Fed. Cir. 2003) (holding that the FDIC lacked standing to sue the United States for breach of contract because the “case or controversy” requirement was not satisfied).

requirement.³⁵⁶ Rather, agency disputes should be resolved through the Office of Management and Budget or the Attorney General.³⁵⁷

Third, authorizing one agency to take enforcement against another raises separation of powers issues. For instance, the DOJ had long taken the position that allowing EPA administrative enforcement actions “would violate constitutional principles of separation of powers.”³⁵⁸ DOJ eventually changed course and abandoned the use of the unitary executive theory as a shield from enforcement against federal agencies, observing that it is constitutional “for an executive agency to impose a penalty on another executive agency pursuant to its statutory authority so long as the President is not deprived of his opportunity to review the matter.”³⁵⁹ The DOJ reasoned that litigation is not inevitable, pointing to conflict resolution procedures that exist between agencies.³⁶⁰

Despite all of these concerns, scholars like Michael Herz have rightly cataloged the many ways that different parts of government often end up on opposing sides of the same lawsuit.³⁶¹ Furthermore, many of the directives issued toward federal agencies would not trigger enforcement dilemmas. Instead, Congress’ approach to targeting federal agencies often involves a discretionary duty not susceptible to legal

356. Steinberg, *supra* note 352, at 325.

357. *Id.* at 329; *see also* Exec. Order No. 12,088, Federal Compliance with Pollution Control Standards, 43 Fed. Reg. 47,707, at 1-602 (Oct. 13, 1978) (“The Administrator shall make every effort to resolve conflicts regarding such violation between executive agencies and, on request of any party, such conflicts between an executive agency and a State, interstate, or a local agency.”); Exec. Order No. 12,146, Management of Federal Legal Resources, 44 Fed. Reg. 42,657, at 1-401 (Jul. 18, 1979) (“Whenever two or more Executive agencies are unable to resolve a legal dispute between them, including the question of which has jurisdiction to administer a particular program or to regulate a particular activity, each agency is encouraged to submit the dispute to the Attorney General.”).

358. PERCIVAL ET AL., *supra* note 197, at 1114; *see also Report: Federal Agencies Behind in Paying Taxes*, *supra* note 128 (noting that “IRS policies that do not allow enforcement actions against federal agencies and restrictions against penalizing or imposing interest on agencies that are behind in making their payments”).

359. Memorandum from Dawn E. Johnson, *supra* note 346, at pt. II(A) (quoting Constitutionality of Nuclear Regulatory Commission’s Imposition of Civil Penalties on the Air Force, 13 Op. O.L.C. 131, 136–37 (1989)).

360. Memorandum from Dawn E. Johnson, *supra* note 346, at pt. III(B).

361. Michael Hertz, *United States v. United States: When Can the Federal Government Sue Itself?*, 32 WM. & MARY L. REV. 893, 895–96 (1991).

challenge.³⁶² For instance, language in the EAct 2005 has been couched as suggestive as opposed to mandatory language.³⁶³ The statute and executive orders even provide qualifiers such as “to the extent economically feasible and technically practicable,” further suggesting the non-mandatory nature of these directives.³⁶⁴ This type of language should provide federal agencies with sufficient wiggle room in the event of a failure to comply with the aspirational goals.

2. Executive Directive

When the executive has directed an agency to act through executive order, the enforcement mechanisms are more limited. Executive orders are presidential directives issued to federal government agencies or officials that bind the agencies. The executive branch has tools at its disposal to keep the agencies in line, including: (1) review of regulatory agendas by the Office of Management and Budget; (2) presidential lobbying; and (3) control over appointments and dismissals.³⁶⁵ But enforcement of executive orders is notoriously lax,³⁶⁶ and many of these control mechanisms are less direct than means employed against private actors.

Notably, executive orders have also been challenged by private plaintiffs, as evidenced by a recent challenge to the adequacy of an agency’s consideration of comments regarding a stem cell research executive order.³⁶⁷ In upholding the agency regulations, the D.C. Circuit held that an agency “may not

362. Where Congress has committed an agency to a nondiscretionary duty, private plaintiffs can challenge the agency’s failure to act. Section 551(13) of the Administrative Procedure Act includes “failure to act” in its definition of agency action. 5 U.S.C. § 551(13) (2006); *see also, e.g.*, *Norton v. S. Utah Wilderness Alliance*, 542 U.S. 55, 64 (2004) (holding that “a claim under § 706(1) can proceed only where a plaintiff asserts that an agency failed to take a *discrete* agency action that it is *required to take*”).

363. Congress uses words like “shall seek to ensure that.” Energy Policy Act of 2005, Pub. L. 109-58, § 211, 119 Stat. 594, 652 (2005) (codified as amended at 42 U.S.C. § 15926 (2006)).

364. *Id.*

365. Bradley, *supra* note 340, at 747.

366. *See, e.g.*, Reeder, *supra* note 213 (“[The National Council on Disability] found that, despite an executive order in 2000, which announced the Bush Administration’s goals of employing one hundred thousand people with disabilities in federal jobs, federal employment of people with disabilities actually dropped 14.42 percent between 1998 and 2007.”).

367. *See* *Sherley v. Sebelius*, 689 F.3d 776 (D.C. Cir. 2012), *petition for cert. filed* (U.S. Oct. 10, 2012).

simply disregard an executive order. To the contrary, as an agency under the direction of the executive branch, it must implement the President's policy directives to the extent permitted by law."³⁶⁸ Notably, the language highlighted as the source of continuing APA obligations in the stem cell Executive Order 13,505 is nearly identical to the language of the renewable energy Executive Order 13,514.³⁶⁹

3. Agency Directive

If history is any indicator, agencies will most often act to promote renewable energy because they are acting under a congressional or executive directive. But there is the potential that related actions could be self-initiated where an agency acts under other, preexisting authorities.³⁷⁰ Professor Magill has noted that "certain [types] of self-regulation may be a superior choice for [an] agency because they will be especially effective at achieving" objectives.³⁷¹ Her particular focus was on agency action that limits its own discretion when no source of authority requires the agency to act, and she urged closer scholarly attention to these activities.³⁷² Although there are sources of congressional and executive authority with respect to renewable energy, some federal agencies may be limiting their discretion beyond that which is required by statute.

The DOD and the National Forest Service ("NFS") provide

368. See *id.* at 784 (citing *Bldg. & Constr. Trades Dep't. v. Allbaugh*, 295 F.3d 28, 32–33 (D.C. Cir. 2002)).

369. Exec. Order No. 13,505, *Removing Barriers to Responsible Scientific Research Involving Human Stem Cells*, 74 Fed. Reg. 10,667, 10,667 (Mar. 11, 2009) ("(a) This order shall be implemented consistent with applicable law and subject to the availability of appropriations."); Exec. Order No. 13,514, *Federal Leadership in Environmental, Energy, and Economic Performance*, 74 Fed. Reg. 52,117, 52,127 (Oct. 8, 2000) ("(a) This order shall be implemented in a manner consistent with applicable law and subject to the availability of appropriations.").

370. This may raise concerns with those who challenge the headless fourth branch, a nonelected, nonaccountable administrative state. See, e.g., Gerald E. Frug, *The Ideology of Bureaucracy in American Law*, 97 HARV. L. REV. 1276, 1277 (1984) ("The concentration of political and economic power in bureaucratic organizations has long threatened to permit uncontrollable managerial discretion and to frustrate authentic self-expression in work and politics."); Gary Lawson, *The Rise and Rise of the Administrative State*, 107 HARV. L. REV. 1231, 1231 (1994) ("The post-New Deal administrative state is unconstitutional, and its validation by the legal system amounts to nothing less than a bloodless constitutional revolution.").

371. Elizabeth Magill, *Agency Self-Regulation*, 77 GEO. WASH. L. REV. 859, 894 (2009) (alteration in original).

372. See generally *id.*

contrasting examples. Even though an executive order directs agencies to curb greenhouse gas emissions by 28 percent,³⁷³ the DOD has gone further to restrict its own emissions by 34 percent. The DOD indicates that it is going beyond the targets in order to improve the energy security of its installations as well as to reduce its large annual utility bill.³⁷⁴ Such behavior can be contrasted with an agency like the NFS. Just like the BLM, the NFS controls large areas of federal land. And just like the BLM, it is subject to all the same Congressional and executive directives. Yet the NFS has taken relatively few steps to implement congressional or executive directives,³⁷⁵ suggesting it may be free riding on the efforts of other agencies. “The dearth of renewable projects on the NFS appears to be more one of priorities than available renewable resources.”³⁷⁶ An Audit Report prepared by the U.S. Department of Agriculture concluded, “[T]he Forest Service ‘has not established adequate goals and objectives for maximizing the use of five types of renewable energy resources on its land.’”³⁷⁷ But it might also be motivated by other reasons, including the lack of any real enforcement threat.³⁷⁸

373. See *President Obama Sets Greenhouse Gas Emissions Reduction Target for Federal Operations*, *supra* note 235 and accompanying text.

374. Press Release, U.S. Dep’t of Interior, *supra* note 266 (stating that the Department of Defense hopes that renewable energy projects will provide reliable local sources of power for military installations, especially if the commercial power grid gets disrupted).

375. Williams & Imig, *supra* note 183, at § 6.01[2] (noting little renewable energy development has occurred on NFS lands, but that “the agency was administering approximately one dozen special use authorizations for the collection of wind energy site and feasibility data” and that one wind energy proposal was in its sixth year of “ongoing” review).

376. *Id.* at 6-30.

377. *Id.* at 6-31 (citing U.S. DEP’T OF AGRIC, No.08601-52-SF, AUDIT REPORT: FOREST SERVICE’S RENEWABLE ENERGY PROGRAM 3 (2008), <http://www.usda.gov/oig/webdocs/08601-52-SF.pdf>).

378. U.S. ENVTL. PROT. AGENCY, EPA 300-R-96-001, FEDERAL FACILITIES MULTI-MEDIA ENFORCEMENT/COMPLIANCE INITIATIVE, FINAL NATIONAL REPORT, at ES-4 (1995), <http://www.epa.gov/oecaerth/resources/policies/federalfacilities/enforcement/civil/ffmm-national-rpt.pdf> (finding approximately 75 percent of the inspected facilities received enforcement actions for violations under nine separate environmental statutes, many of which violated more than one statute); D. Horne, *Federal Facility Environmental Compliance After United States Department of Energy v. Ohio*, 65 U. COLO. L. REV. 631, 638 (1994) (citing reports finding government agencies were twice as likely as private entities to violate pollution control statutes); Knorr, *supra* note 165, at 10 (federal facilities are often the worst polluters, in part “because priorities of federal facilities are skewed when they do not have to consider the cost of noncompliance”). Federal contractors also rank high on the list of the nation’s worst polluters. See ROBERT

The lack of enforcement mechanisms may be tempered, however, by the fact that agencies may be motivated in ways distinct from private entities. A large body of public administration literature seeks to understand the motivations of agency actors, of which just a few examples are illustrated here. Some scholars argue that agencies are rational wealth-maximizers much in the same way as private actors. The distinction is merely in the definition of wealth. For instance, Professor Magill has summarized various theories of bureaucratic motivation, noting that agencies “seek to maximize one or some of the following: their budget, neutral expertise, discretion, bureaucratic autonomy, or leisure.”³⁷⁹ Galle and Leahy acknowledge that:

Although this story is rather more difficult to tell for unelected bureaucrats, the unelected official is still subject to many carrots and sticks offered by the elected officials who directly benefit from outside contributions. Moreover, outsiders can offer agency officials allies in their efforts to obtain more resources and policy authority from their political superiors.³⁸⁰

Others challenge the application of rational-choice theories to agencies, arguing that agencies may be driven more by

ESWORTHY, CONG. RESEARCH SERV., RL34384, FEDERAL POLLUTION CONTROL LAWS: HOW ARE THEY ENFORCED? 17 (2012), <http://www.fas.org/sgp/crs/misc/RL34384.pdf> (reporting fifty-seven federal EPA enforcement actions against federal agencies for alleged violations of federal pollution control laws during 2011); Neil Gordon, *Several Federal Top Contractors Are Also Top Polluters*, BEFORE IT'S NEWS (Aug. 17, 2012, 11:10 AM), <http://beforeitsnews.com/alternative/2012/08/several-top-federal-contractors-are-also-top-polluters-2453564.html>.

379. Magill, *supra* note 371, at 900 (citations omitted); *see also* Michael A. Livermore, *Reviving Environmental Protection: Preference-Directed Regulation and Regulatory Ossification*, 25 VA. ENVTL. L.J. 311, 350 (2007) (rejecting empire-building theory) (“There are many possible alternative motivations other than self-aggrandizement, such as maximization of leisure time or non-pecuniary benefits like travel or intellectually challenging work. The empire-building theory has not proved to be particularly useful at explaining agency behavior.”).

380. Galle & Leahy, *supra* note 338, at 1379–80; *see also* Daryl J. Levinson, *Empire-Building Government in Constitutional Law*, 118 HARV. L. REV. 915, 932 (2005) (“Niskanen’s well-known model of bureaucratic behavior, which assumes that high-level policymaking officials will seek to maximize the size of their agency’s budget. The size of the budget, the theory goes, might correlate with a number of things that self-interested bureaucrats value: compensation and perquisites, future employment prospects, and the ability of the agency to accomplish policy goals to which the bureaucrat is ideologically committed.”).

ideology. “Challenging the rational choice view of the self-interested bureaucrat, a whole line of public administration studies have suggested that many of those going into the public service do so because they are motivated to participate in the making of policy and in achieving policy goals, creating a better world.”³⁸¹ Agencies also “make decisions in part according to ideological commitments, political principles and platforms, conceptions of the common good, and complicated combinations of the above.”³⁸² Based on these complicated motivations, “it seems implausible that administrative regulators are motivated entirely by worries about legislative rewards and sanctions for their decisions or by efforts to secure private sector employment in the future.”³⁸³ Importantly, unlike the carrot and stick measures that can help motivate private actors, federal agencies may not be influenced by the same type of wealth-maximizing notions that drive private parties. Some suggest that:

The simple lesson of all of these models, however, is that whatever other interests bureaucrats might have, they will be highly responsive to the political pressures brought to bear by their elected principals and others. The absence of direct electoral accountability notwithstanding, bureaucratic behavior is buffeted by political forces and bounded by democratic constraints.³⁸⁴

In sum, this myriad of factors suggests that ensuring compliance with renewable energy directives is complicated, to say the least. Enforcement of sticks against federal agencies may prove problematic on constitutional grounds. Renewable energy directives that use carrots are unlikely to be enforceable in the same way as statutes that use a stick. The effectiveness of these carrots may be tempered by agencies that are motivated by a number of non-traditional incentives.

381. Dorit Rubinstein Reiss, *Account Me In: Agencies in Quest of Accountability*, 19 J.L. & POL’Y 611, 640 (2011).

382. Steven P. Croley, *Public Interested Regulation*, 28 FLA. ST. U. L. REV. 7, 31 (2000) (examining the strength of interest group theories on legislative dominance) (“[A]vailable empirical evidence on the subject suggests that budget controls—often emphasized by the legislative dominance school—are not sufficient for the task.”).

383. *Id.*

384. Levinson, *supra* note 380, at 934.

B. *Fiscal Implications*

A second complicating factor involves the fiscal impacts of requiring federal agencies to use federal tax dollars. Directing federal agencies to act may raise concerns about the source of the money to implement directives. Congress and the executive may feel free to impose additional obligations on federal agencies without providing for additional appropriations for them to implement the directives. Much as unfunded mandates for the states have been decried as unconstitutional,³⁸⁵ unfunded mandates for federal agencies may similarly be decried as ineffective. This may even play into the public-choice theory of “fiscal illusion,” the “claimed tendency of government decision makers to ignore all costs that do not find expression in the government budget.”³⁸⁶ Renewable energy carrots and sticks may impose costs on private actors that are not considered in the policy process.

These directives become even more problematic where they involve a federal agency paying a premium for a good or service. By imposing a mandate on agencies to rely on renewable energy, the costs of the activity may be obscured by the federal budget. This is particularly true of the procurement targets, since purchasing cleaner energy generally leads to higher prices.³⁸⁷ Free market advocates may point to the coercive effects of such a program and the market distortions

385. See, e.g., *Sch. Dist. of City of Pontiac v. Sec’y of U.S. Dept. of Educ.*, 584 F.3d 253, 256–57 (6th Cir. 2009) (dismissing school districts’ and education associations’ action against the Secretary of the United States Department of Education seeking a declaratory judgment that they were not required to comply with the No Child Left Behind Act’s requirements where doing so would result in increased costs of compliance not covered by federal funds in violation of the Spending Clause).

386. Abraham Bell & Gideon Parchomovsky, *The Hidden Function of Takings Compensation*, 96 VA. L. REV. 1673, 1681 (2010) (citations omitted).

387. STRONBERG & SINGH, *supra* note 194, at 2-5 (“[R]enewable energy technologies use little or no fuel and have lower operating and maintenance costs than fossil or nuclear fuels, but often they are initially more costly than conventional fossil fuel technologies. The higher initial cost of many renewable energy technologies is due in part to the fact that renewable technologies are still in an early stage of development and in part to the fact that subsidies are often provided to conventional energy sources”); see also Diane Cardwell, *Military Spending on Biofuels Draw Fire*, N.Y. TIMES, Aug. 27, 2012, http://www.nytimes.com/2012/08/28/business/military-spending-on-biofuels-draws-fire.html?pagewanted=all&_r=0 (comparing the \$27 per gallon the military is spending on biofuel to the \$3.50 per gallon for conventional fossil fuels).

that result.³⁸⁸ These higher electricity prices are passed on to the taxpayer, and it is difficult to fully quantify the societal benefits associated with the use of the cleaner energy to a degree that conclusively justifies the regulatory intervention. Federal procurement officers following the Federal Acquisition Regulations also need to overcome cultural tendencies to favor the “lowest up-front cost” option as opposed to the best long-term value.³⁸⁹

C. *Proper Use of Federal Lands*

A last complicating factor of targeting federal agencies questions the proper use of federal lands. Federal agencies are tasked with managing multiple uses of the federal lands, and even construction of clean energy generation can have significant impacts on the environment. These concerns may have been tempered by the additional environmental review obligations imposed on major federal agency actions under NEPA, except for the federal government’s efforts to streamline review for renewable projects and expedite the generation of renewable energy on federal lands.

One objection to the involvement of federal lands to implement renewable energy questions the appropriate use of lands held in the public trust. For instance, the BLM’s multiple-use mandate requires it to manage public lands and resources to best reflect their “combination of balanced and diverse uses,” taking into account “the long-term needs of future generations for renewable and nonrenewable resources.”³⁹⁰ The BLM approves major solar and wind projects by issuing a right-of-way grant for use of the land pursuant to the Federal Land Management and Policy Act.³⁹¹ The BLM’s issuance of this right-of-way constitutes a major federal agency action that triggers NEPA review.³⁹²

388. *But see* STRONBERG & SINGH, *supra* note 194, at 2-2 (“If support of renewable energy R&D is an appropriate use of public funds, then why is purchasing the fruits of this research considered by many to be inappropriate?”).

389. *Id.* at 2-5 (“[F]or many government procurement officers, the ‘lowest up-front cost standard’ is also a matter of regulation, culture, and practice.”).

390. 43 U.S.C. §§ 1701(a)(7), 1702(c) (2006). BLM is also the primary federal agency administering oil and gas leases and mineral development claims on public lands. ADAM VANN, CONG. RESEARCH SERV., ENERGY PROJECTS ON FEDERAL LANDS: LEASING AND AUTHORIZATION 2 (2012), <http://www.fas.org/sgp/crs/misc/R40806.pdf>.

391. Federal Land Policy and Management Act, 43 U.S.C. § 1761(a) (2006).

392. Steve Black & Neal Kemkar, The U.S. Department of the Interior’s

As discussed above, NEPA imposes additional layers of environmental review that are not necessarily found when an action is purely private.³⁹³ NEPA subjects all major federal agency actions significantly affecting the quality of the human environment to procedural requirements.³⁹⁴ NEPA requires consideration of environmental effects and alternatives, and it requires public participation.³⁹⁵ While facilitating informed decision-making, the NEPA review process is time-consuming and burdensome.

In contrast, actions that are purely private may be able to avoid lengthy NEPA review. They may, however, be subject to any state-specific mini-NEPA that applies to major state action affecting the environment.³⁹⁶ Any time saved may be offset, however, by the complications involved in private entities obtaining site control of the land needed to develop the project. Site control on public land may involve fewer owners than site control on private land, where there may be many smaller parcels owned by many individuals. Increased transaction costs, increased likelihood of holdouts, and the sheer additional complications of negotiating with multiple private individuals for site control of private land necessarily results in delays.³⁹⁷

Historic Action in Developing Renewable Energy: Lessons from the Fast Track, ALI-ABA Course of Study: Environmental Law (Feb. 2–4, 2011) (unpublished handout) (on file with author).

393. See *supra* text accompanying note 167. Private activities may still be subject to NEPA review if there is sufficient nexus to federal agency action through funding. Council on Environmental Quality (“CEQ”) regulations define “major federal action” to include nonfederal actions “which are potentially subject to Federal control and responsibility.” 40 C.F.R. § 1508.18 (2012); see also, e.g., *Save Barton Creek Ass’n v. Fed. Highway Admin.*, 950 F.2d 1129, 1134 (5th Cir. 1992) (“We recognize that ‘major Federal action’ can exist when the primary actors are not federal agencies.”).

394. See *supra* text accompanying note 167.

395. National Environmental Policy Act of 1970, 42 U.S.C. § 4332 (2006).

396. See M. Dworkin et al., *Revisiting the Environmental Duties for Public Utility Commissions* (2006), 7 VT. J. ENVTL. L. 1, 4 (2006) (noting the twenty state mini-NEPA statutes that commit state agencies to environmental reviews).

397. Phil Taylor, *Conservation Concerns, Landowner Opposition Stifle Mont. Transmission Project*, N.Y. TIMES, Aug. 15, 2011, <http://www.nytimes.com/gwire/2011/08/15/15greenwire-conservation-concerns-landowner-opposition-sti-24147.html?pagewanted=all> (highlighting conflicts arising over the use of eminent domain to overcome hold-out landowners objecting to siting of pipeline).

One of the critical obstacles preventing renewable energy development on private lands involves the difficulties in obtaining site control on private land rife with the transaction costs of negotiating with multiple owners to obtain a large enough parcel and the complexities in trying to assess dominant mineral estates. See Kathleen O’Connor, *Challenges to Development of Utility-Scale Renewable Energy Projects: Hurdles to Development and Pathways to Resolution*, Abstract

Consequently, there needs to be an assessment of whether the delays associated with obtaining site control on private land offset the delays associated with NEPA on public land.

In addition to the procedural trade-offs of NEPA application, agencies tasked with balancing multiple, perhaps competing, obligations provides another complicating factor. For instance, in 2009, ARRA funds became available for renewable energy development, but Congress set expiration dates on the use of the funds.³⁹⁸ Realizing ARRA funds may be in jeopardy if an agency followed traditional NEPA and permitting procedures, the DOI developed a “fast track” process for completing environmental reviews and permitting requirements on federal lands for priority projects.³⁹⁹ These fast-track procedures became the target of repeated criticism, as scholars and environmentalists accused the federal government of moving too swiftly in renewable energy development at the expense of protection of endangered species and the environment.⁴⁰⁰

Layering requirements for additional goals on top of an agency that already is charged with a federal obligation can result in tensions that are not as pronounced when a private entity is involved. In this situation, for instance, Congress has already charged all of our federal agencies with the obligation to fully consider any adverse environmental effects through NEPA.⁴⁰¹ When an agency finds itself in tension with this obligation, it may find it challenging to act in a manner that is

at the ABA Section of Environment, Energy, and Resources Law Summit: 18th Section Fall Meeting (Sept. 29–Oct. 2, 2010).

398. DAVID P. SOFGE, HOLLAND & KNIGHT, THE DEPARTMENT OF ENERGY ROLLS OUT THE FIPP MODEL 1 (2010), http://www.hklaw.com/files/Publication/835e71b7-b315-4fdc-8157-6b4f03bae57f/Presentation/PublicationAttachment/6888cf24-66ca-4520-863f-309492119fbe/54861_DSofge.PDF.

399. Robert L. Glicksman, *Solar Energy Development on the Federal Public Lands: Environmental Trade-Offs on the Road to a Lower-Carbon Future*, 3 SAN DIEGO J. CLIMATE & ENERGY L. 107, 130 (2011). BLM prioritized projects that qualified for economic stimulus funding. *Id.*; see also Colin Miner, *B.L.M. Expedites Review of Energy Projects*, N.Y. TIMES GREEN BLOG (Jan. 5, 2010, 1:31 PM), <http://green.blogs.nytimes.com/2010/01/05/blm-expedites-review-of-energy-projects/>; *2012 Renewable Energy Priority Projects*, BUREAU OF LAND MGMT., http://www.blm.gov/wolst/en/prog/energy/renewable_energy/fast-track_renewable.html (last updated Nov. 13, 2012) (listing fast track renewable energy projects for 2012).

400. Glicksman, *supra* note 399, at 136–39 (arguing that BLM’s streamlined procedures accelerate decision-making on projects with potentially significant adverse environmental effects, risking shortcutting NEPA and ESA processes).

401. See *supra* note 167 and accompanying text.

fully consistent with its multiple goals.

This is not to say that the competing goals will always be mutually exclusive, but that more attention needs to be paid to tread lightly on both paths. For instance, in response to criticisms of its fast-track procedures, the BLM issued a draft solar Programmatic Environmental Impact Statement (“PEIS”) which proposes to replace the fast-track process with a Solar Energy Program that would minimize potential negative environmental and social impacts while still facilitating rapid utility-scale solar energy development in six solar-rich states.⁴⁰² Under the final solar PEIS, the BLM and the DOE conducted an analysis of twenty-four solar energy study areas, with the goal of designating them “as Solar Energy zones to be managed *with a preference for solar energy generation* on sites suited for solar development.”⁴⁰³ The DOI continues to improve upon its process, considering “measures to ensure early and ongoing input from stakeholders, improve the quality and consistency of environmental reviews, and standardize and clarify mitigation procedures and scientific monitoring requirements.”⁴⁰⁴ In addition to the solar PEIS, the BLM has also prepared a PEIS for wind projects and a joint PEIS with the Forest Service for geothermal projects.⁴⁰⁵ These PEISs are

402. BUREAU OF LAND MGMT., DOE/EIS-0403, FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (PEIS) FOR SOLAR ENERGY DEVELOPMENT IN SIX SOUTHWESTERN STATES, at 1-8 (2012), http://solareis.anl.gov/documents/fpeis/Solar_FPEIS_Volume_1.pdf. BLM’s six-state priority area includes Arizona, California, Colorado, Nevada, New Mexico, and Utah. *Id.* at 1-4. The PEIS evaluates two alternatives to implement the Program: BLM’s preferred solar energy development program alternative, which would broadly facilitate solar projects on as many as 19 million BLM-administered acres, prioritizing approximately 285 thousand acres in SEZs, and the Solar Energy Zone Program Alternative, which more narrowly confines BLM’s scope of approval to *only* the 285 thousand acres within SEZs. *What’s in the Solar PEIS*, SOLAR ENERGY DEV. PROGRAMMATIC EIS INFO. CTR., <http://solareis.anl.gov/eis/what/index.cfm> (last visited Nov. 24, 2012).

403. NEW ENERGY FRONTIER, *supra* note 190, at 17–18 (emphasis added); *see also What’s in the Solar PEIS*, *supra* note 402 (noting how land use plans “help ensure that the public lands are managed in accordance with applicable laws and regulations under the principles of multiple use and sustained yield, recognizing the Nation’s need for domestic sources of minerals, food, timber, and fiber while protecting the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water, and archaeological value”).

404. Black & Kemkar, *supra* note 392, at *6.

405. *See* BUREAU OF LAND MGMT., FES 05-11, FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT ON WIND ENERGY DEVELOPMENT ON BLM-ADMINISTERED LANDS IN THE WESTERN UNITED STATES 1 (2005), *available at* <http://windeis.anl.gov/documents/fpeis/index.cfm>; BUREAU OF LAND MGMT., FES 08-44, FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR

intended to eliminate the need to conduct completely individualized reviews for each renewable energy project while ensuring an assessment of environmental impacts.⁴⁰⁶

It is also important to note that the federal lands at issue are not pristine wilderness areas. The BLM, for instance, has expressly excluded 222 million acres from solar development, targeting only twenty-two million for potential solar development.⁴⁰⁷ The Center for American Progress used multiple data sets to estimate the amount of electricity generated from fossil fuel and renewable resources on federal lands.⁴⁰⁸ Its analysis concludes that almost 66 percent of the electricity generated from public lands comes from coal, while only 1 percent is derived from solar, wind, and geothermal projects combined.⁴⁰⁹ Similarly, “over five million acres of NFS lands are currently leased for oil, gas, coal, and phosphate mining.”⁴¹⁰ In developing ways to use federal lands responsibly for renewable energy projects, Professor Leshy has argued that the government should consider using competitive auctions, a use-it-or-lose-it approach to permitted sites, and permit periods of different lengths.⁴¹¹

In sum, there are a number of dynamics that may be altered by shifting attention from private actors to public actors. The ability to enforce these directives, the source of

GEOTHERMAL LEASING IN THE WESTERN UNITED STATES (2008), *available at* http://www.blm.gov/wo/st/en/prog/energy/geothermal/geothermal_nationwide/Documents/Final_PEIS.htm; BUREAU OF LAND MGMT., FES 12-24, FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR SOLAR ENERGY DEVELOPMENT IN SIX SOUTHWESTERN STATES (2012), *available at* <http://solareis.anl.gov/documents/fpeis/index.cfm> [hereinafter FES 12-24].

406. BUREAU OF LAND MGMT., *supra* note 402, at ES-4 (noting that the “primary purpose of this more rigorous SEZ [prioritized solar energy zones]-specific analysis is to provide documentation from which the BLM can tier future project authorizations, thereby limiting the required scope and effort of project-specific NEPA analyses”). BLM would continue its case-by-case review and processing of individual right-of-way applications within the given target area, but it would be able to tier project-specific NEPA analyses to the relevant PEIS. *But see* Eric S. Spengler, *A Shift in the Wind: Siting of Wind Power Projects on Public Lands in the Obama Era*, 86 IND. L.J. 1185, 1199 (2011) (criticizing the Wind PEIS as ineffective).

407. *See* FES 12-24, *supra* note 405.

408. JESSICA GOAD ET AL., USING PUBLIC LANDS FOR THE PUBLIC GOOD: REBALANCING COAL AND RENEWABLE ELECTRICITY WITH A CLEAN RESOURCES STANDARD, CTR. FOR AM. PROGRESS 2 (2012), http://www.americanprogress.org/wp-content/uploads/issues/2012/06/pdf/public_land.pdf.

409. *Id.*

410. Williams & Imig, *supra* note 183, at 6-4.

411. John D. Leshy, *Federal Lands in the Twenty-First Century*, 50 NAT. RESOURCES J. 111, 121 (2010).

funds to pay for these directives, and the competing demands on our federal lands implicated by targeting federal agencies should be assessed and explored in relation to any such endeavor.

CONCLUSION

Our nation has ambitious renewable energy goals. Past regulatory approaches that have targeted primarily private actors have made great strides towards increasing the amount of renewable energy generated in our nation—but there is much more to do. Although there may be a temptation to continue to primarily regulate private actors, expanding the regulatory target to include public actors can enhance the effectiveness of our nation's renewable energy goals. The unrealized potential of federal agencies to advance these goals is enormous. The implications of enlisting federal agencies are manageable.

The amount of renewable energy generated in the United States is dependent on a multitude of other factors besides the regulatory target. These factors include the financial incentives for developers, the demand for additional electric power, the geographic strengths of each state to generate steady winds or sunshine, the ability of grid operators to adjust to the intermittent supplies, and the barriers to transmitting the power from remote areas to the grid.⁴¹² Utilities' power portfolios are built by performing "a delicate balancing act among environmental, social, political, and economic concerns."⁴¹³ Although continuing to expand the regulatory targets of renewable energy goals to include public actors does not guarantee that the United States will generate more renewable energy, the more actors working to achieve our nation's goals, the more likely we are to achieve them.

412. *Fuel Competition*, *supra* note 62 (noting that "many factors other than fuel prices play important roles in determining which power plants are run to meet electricity demand . . . [and] include generators' nonfuel variable operating costs, startup/shut down costs, emission rates and allowance costs, electricity grid flow constraints, and reliability constraints"); *Renewable Energy*, U.S. ENVT. PROT. AGENCY, <http://www.epa.gov/statelocalclimate/state/topics/renewable.html#a02> (last updated Sept. 14, 2012) (noting price, interconnection standards, permitting, and limited transmission availability as barriers to renewable energy).

413. IND. UTIL. REGULATORY COMM'N, *supra* note 32, at 5.