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COMMENT

Three Sheets to the Wind: The Renewable Energy Production Tax Credit, Congressional Political Posturing, and an Unsustainable Energy Policy

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INTRODUCTION

A. The Global Backdrop

America, together with the larger global community, is facing an unprecedented energy crisis.¹ The United States (U.S.) is undeniably addicted to inefficient, environmentally deleterious energy sources like coal and petroleum. This slavish addiction is characterized not only by a self-destructive relationship with the natural environment but by its palpable threat to national security and economic vitality. While the U.S. comprises only a small percentage of the world's population (4.6%), the country

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1. International Energy Agency, *Energy Technology Perspectives 2008*, Tokyo Launch (June 6, 2008), *available at* http://www.iea.org/Textbase/techno/etp/ETP_2008.pdf (requiring \$45 trillion dollars in investments). Mohamed ElBaradei, Dir. Gen., Int'l Atomic Energy Agency, Address at the Commonwealth Finance Ministers Meeting 2008: Addressing the Global Energy Crisis (Oct. 6-8 2008), <http://www.iaea.org/NewsCenter/Transcripts/2008/cfm061008.pdf>. *See also* James Kanter, *International Agency Urges the Start of an 'Energy Revolution'*, N.Y. TIMES, June 7, 2008; Vivienne Walt, *Why the Energy Crisis Will Outlast the Credit Crisis*, TIME, Nov. 15, 2008, <http://www.time.com/time/business/article/0,8599,1859236,00.html>.

consumes more than one quarter of all global petroleum products.² To satiate this considerable appetite, the U.S. must import over 60% of its oil from international sources, over and above whatever is produced domestically.³ The result is a country left unsettlingly vulnerable to political posturing, price volatility, and technological instability.⁴ Further, these imports contribute substantially to America's ballooning trade deficit, devaluing the dollar in a frighteningly stagnant economy.⁵ Multinational fossil fuel companies with clearly vested interests—working together with broken domestic automakers (firms that until recently have had no motivation to develop scalable, fuel-efficient vehicles)—are blatantly compromising the country's energy future. In addition, coal—responsible for almost half of the power generated in the U.S.⁶—is one of the more inefficient and polluting fuel sources, from its destructive extraction to its large-scale burning.⁷

2. See The World Factbook, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2174rank.html> (last visited Aug. 15, 2010); Energy Information Administration, U.S. Petroleum Supply, Consumption, and Inventories (Aug. 2010), available at <http://www.eia.doe.gov/emeu/steo/pub/4atab.pdf>; Energy Information Administration, World Petroleum Consumption (Aug. 2010), available at <http://www.eia.doe.gov/emeu/steo/pub/3dtab.pdf>. Safe, Strong and Secure: Reducing America's Oil Dependence, <http://www.nrdc.org/air/transportation/aoilpolicy2.asp> (last visited Aug. 15, 2010).

3. The Select Committee on Energy Independence and Global Warming, <http://globalwarming.house.gov/issues/energyindependence?id=0002> (last visited Aug. 15, 2010) [hereinafter The Select Committee].

4. Safe, Strong and Secure: Reducing America's Oil Dependence, <http://www.nrdc.org/air/transportation/aoilpolicy2.asp> (last visited Aug. 15, 2010); The Select Committee, *supra* note 3. See also IND. TASK FORCE #58, COUNCIL ON FOREIGN RELATIONS, NATIONAL CONSEQUENCES OF U.S. OIL DEPENDENCY (2006), available at <http://www.cfr.org/content/publications/attachments/EnergyTFR.pdf> (also notes that "often, [oil] revenues accrue to a small minority that is unaccountable to any representative political authority, which not only undermines governance, but also risks the political stability that is essential to reliable production of oil and gas."); REPORT OF THE NATIONAL SECURITY TASK FORCE ON ENERGY, ENERGY SECURITY IN THE 21ST CENTURY: A NEW NATIONAL STRATEGY (2006), available at http://www.americanprogress.org/kf/energy_security_report.pdf.

5. See The Select Committee, *supra* note 3.

6. *Electric Power Monthly*, EIA.DOE.GOV, http://www.eia.doe.gov/cneaf/electricity/epm/epm_sum.html (last visited Oct. 1, 2010).

7. NYSERDA, ENERGY ANALYSIS PROGRAM, COAL RESOURCE ASSESSMENT 2006, available at <http://www.nyserda.org/sep/sepsection3-7.pdf>.

Besides the obvious strategic disadvantages associated with enslavement to fossil fuels, the costs to human health and the environment are enormous. Air pollution—greenhouse gases, particulates, smog, and toxins—is intrinsic to this process and represents a discernible threat to populations located not only within the expansive vicinities of these generating plants, but across the planet.⁸ Water pollution, in the form of widespread contamination of drinking water supplies, directly affects millions across the nation.⁹ Mercury, arsenic, and other highly toxic chemicals natural to coal tailings threaten sensitive waters at every stage of power processing.¹⁰

Many policymakers are cogently beginning to acknowledge the overwhelming contribution to global climate change by the burning of fossil fuels.¹¹ Scientific, nonpartisan studies continue to indicate, in an ever more forceful way, that climatological changes causing droughts, famines, and altered weather patterns are closely linked to anthropogenic activity.¹² Potent greenhouse gases—the result of unsustainable methods of power production, agriculture, development, and transportation—are building up within the atmosphere at unprecedented rates and pressure-cooking the earth by trapping the sun’s rays and radiation.¹³ These atmospheric greenhouse gas (GHG) concentrations have finally exceeded the Earth’s absorptive capacity, resulting in an average increase in the surface temperature of the Earth and its

8. NYSEDA, *supra* note 7; UNITED NATIONS ENVIRONMENT PROGRAMME, ATMOSPHERIC BROWN CLOUDS: REGIONAL ASSESSMENT REPORT WITH FOCUS ON ASIA (2008), <http://www.unep.org/pdf/ABCSummaryFinal.pdf>.

9. *See, e.g.*, Water Quality Issues of Electricity Production: Pollution of Water Bodies, http://www.powerscorecard.org/issue_detail.cfm?issue_id=6 (last visited Aug. 20, 2010).

10. *See, e.g.*, Environmental Impacts of Coal Power: Air Pollution, http://www.ucsusa.com/clean_energy/coalvswind/c02c.html (last visited Aug 14, 2010) (noting that “[I]n an average year, a typical coal plant generates . . . 225 pounds of arsenic, which will cause cancer in one out of 100 people who drink water containing 50 parts per billion”); ScienceDaily, *Higher Levels of Pollutants Found in Fish Caught Near a Coal-fired Power Plant*, SCIENCE DAILY, Nov. 8, 2007, <http://www.sciencedaily.com/releases/2007/11/071107083907.htm>; LARRY THOMAS, COAL GEOLOGY 292-93 (2002).

11. IPCC, SUMMARY FOR POLICYMAKERS, IN CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 2-3, 13 (2007).

12. *See id.*

13. *Id.*

oceans over a protracted period of time.¹⁴ As the temperature rises, “changes in precipitation patterns, storm severity, and sea level”—in addition to widespread ocean acidification and land desertification—will only continue to worsen, pushing once diverse ecosystems to the brink of collapse and fundamentally altering the human community.¹⁵

Add to this ecological quandary a crumbling national infrastructure, a severely recessed economy, and a constantly burgeoning population marked by a ravenous consumer culture. As such, the need to develop alternative and renewable sources of energy has never been more pressing or explicit. Technological capabilities are hardly the limiting factor in this equation. Indeed, solar panels, wind turbines, geothermal piping, and fuel cells are all viable, clean sources of potential fuel that can form a large part of a comprehensive, sustainable energy solution.¹⁶ Rather, the biggest obstacle facing realization of this massive potential¹⁷ concerns the initial capital costs of implementing these technologies on a large-scale basis—on the levels sufficient to produce enough clean electricity to offset and eventually replace that which is produced by conventional internal combustion at

14. ENERGY INFORMATION ADMINISTRATION, GREENHOUSE GASES, CLIMATE CHANGE, AND ENERGY 1 (2008), *available at* <http://www.eia.doe.gov/oiaf/1605/ggcebro/chapter1.html>.

15. *Id.*

16. *See, e.g.*, U.S. DOE, Energy Efficiency and Renewable Energy, *20% Wind Energy by 2030: Increasing Wind Energy's Contribution to U.S. Electric Supply*, July 2008. *See also Mesa Power Places World's Largest Single-Site Wind Turbine Purchase Order*, ENERGY & ECOLOGY, May 26, 2008 (T. Boone Pickens, expressing his hope that Congress will enact a long-term extension of the Production Tax Credit, noted that with there is no decline curve with renewables, as opposed to traditional fossil fuel sources, where once the well or mine is exhausted, another site is needed).

17. *Clean Energy: From the Margins to the Mainstream: Hearings of the S. Finance Comm.*, 109th Cong. (2007) (statement of Ryan Wiser, Scientist, Lawrence Berkeley National Laboratory) (opining that while European countries with “aggressive, longer-term policy commitments” are generating anywhere from 10-20% of their electricity from wind, the U.S., “despite having a much more robust resource, currently meets less than 1 percent of its electricity needs with wind.”). *See also U.S. Senator Pete V. Domenici (R-NM) Holds a Hearing on the Implementation of the Energy Policy Act of 2005*, FDCH POLITICAL TRANSCRIPTS, July 11, 2006 (PTC will enable the “full development of the 5,600-megawatt capacity that is considered available in the western United States over the next decade.”).

power plants.¹⁸ These costs can range into the hundreds of millions of dollars, and have generally been inaccessible to all but the largest corporate entities with disposable capital.¹⁹ Achieving scalability continues to be *the* intransigent problem that impedes investment and widespread implementation. This lack of investment is in turn preventing scalability, thus perpetuating a stalling cycle within the industry. Renewables are unable to gain a foothold within the national infrastructure, as investors are hesitant to invest resources in projects that they are not certain will produce any viable returns over the 10-15 year short-term future.²⁰ Moreover, the volatility of world oil prices undercuts the ability of more efficient alternatives to gain a foothold in the marketplace.²¹ As long as oil prices are low, at least as compared to investments in new technologies, there is no incentive to make power companies realize these clean opportunities for redevelopment. And with no incentive, there is no action.

B. Shifting the Balance Through Incentives

For the better part of a quarter century, policymakers and developers have been working on various incentivizing measures and mechanisms that will remove the institutional and financial impediments to clean energy investment.²² The merits or disadvantages of these technologies will not be addressed here; rather, this comment will focus on one of the more productive mechanisms for stimulating and encouraging investment, the Federal Renewable Energy Production Tax Credit. First

18. See, e.g., Dave Newman, *Empowering the Wind: Overcoming Obstacles to Wind Energy Development in the United States*, 3 SUSTAINABLE DEV. L. & POL'Y 5 (2003).

19. Denis Hayes, *Solar and Wind Power Held Hostage—Again*, YALE ENV'T 360, <http://e360.yale.edu/content/feature.msp?id=2060>.

20. *Id.*

21. Clifford Krauss, *Alternative Energy Suddenly Faces Headwinds*, N.Y. TIMES, Oct. 20, 2008 at B1 (noting the disincentives for renewables investment associated with falling oil prices, the author recalls a similar situation in the 1980s, “when a decade of advances for alternative energy collapsed amid falling prices for conventional fuels.”).

22. See James W. Moeller, *Of Credits and Quotas: Federal Tax Incentives for Renewable Resources, State Renewable Portfolio Standards, and the Evolution of Proposals for a Federal Renewable Portfolio Standard*, 15 FORDHAM ENVTL. L. REV. 69 (2004).

instituted in the 1992 Energy Policy Act,²³ this Production Tax Credit (PTC) was introduced to help foster the transition to renewable energy production by offsetting the much higher costs of such energy. Theoretically, these tax credits would help to both subsidize a nascent industry dependent upon government sponsorship, narrowing the cost gap between renewables and traditional power generation and working to defray the costs of initial capital investment by subsidizing the utilities' levelized costs.²⁴ For a taxpayer with positive tax liability, the PTC serves as the functional equivalent of a government subsidy by reducing the taxpayer's liabilities for several years through marginal cost reduction.²⁵ In this way, investors were more willing to commit on a long-term basis to sustainable wind-farms, solar panels, and other forms of renewable energy as revenue streams would remain consistently competitive with traditional fuel sources.²⁶

However, the Production Tax Credit, practically from the moment of its implementation, has provoked a veritable hornet's nest of intense and protracted political controversy. Its long-term viability has been held hostage by the fickle partisan squabbling that has plagued Congress since its own inception. Caught between powerful industries and political disputes, the PTC is consistently unable to achieve its maximum potential in terms of spurring growth rates for renewable development. The legislative

23. Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (codified in scattered sections of 11, 15, 16, 25, 26, 30 & 42 U.S.C.).

24. BRANDON OWENS, NATIONAL RENEWABLE ENERGY LABORATORY, NREL/TP-620-31969, AN ECONOMIC VALUATION OF A GEOTHERMAL PRODUCTION TAX CREDIT 2 (2002). *See also* JOEL DARMSTATDER, RESOURCE FOR THE FUTURE, THE ECONOMIC AND OF RENEWABLE ENERGY 4-5 (2003).

At its core, the decision of how to expand electricity-generating capacity rests on the comparative marginal costs of renewable versus conventional systems . . . [E]ven apart from future trends in fuel costs, it stands to reason that technological improvements in power production will apply not just to renewables but to their nonrenewable competitors as well, thus hampering renewables' success in gaining market share.

Id. "Levelized cost" is the marginal cost of electricity production over the life of the facility, including all capital expenditures, equity and fuel costs, and operating costs.

25. JOINT COMMITTEE ON TAXATION, PRESENT LAW AND BACKGROUND RELATING TO TAX CREDITS FOR ELECTRICITY PRODUCTION FROM RENEWABLE SOURCES 8-12 (2005).

26. *See, e.g., id.* at iii.

failure to extend the PTC has come at a terrible price—failure to initiate strong wind and solar development has lead to continued environmental degradation and a sagging economic and national infrastructure, one that is dependent upon an outdated and ultimately unreliable form of power generation. Moreover, the uncertainty of the provision from year to year has created a “boom-and-bust” cycle of investment.²⁷ Until the PTC—or a useful equivalent—can be formally extended for more than a limited period, it will continue to fall short of incentivizing renewable development at an environmentally and economically acceptable rate. With an administration seemingly dedicated to energy infrastructure redevelopment, clean energy alternatives, and a strong understanding of the fundamentals of economic stimulation, there is hope yet that the PTC will come to achieve its stated goal.²⁸

C. Overview

This comment purports to examine the troubled history of the Production Tax Credit, in the hopes of isolating some of the more contentious reasons for its stunted progress and suggesting ways by which Congress might arrive at a more lasting compromise. Moreover, there are distinct policy options available to the current presidential administration—through a combination of carbon cap legislation, an Infrastructure Bank, and the repeal of fossil fuel subsidies—that can deliver upon the unrealized promise of renewable energy. This analysis will segue into a broad review of the Energy Security and Independence Act of 2007, which marked an unsuccessful bid to extend the PTC for several more years. This review will serve as an illuminating microcosm of the larger partisan battle at the center of which lies

27. See, e.g., RYAN WISER, MARK BOLINGER & GALEN BARBOSE, USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND POWER IN THE UNITED STATES (2007); Mona Hymel, *The United States' Experience with Energy-Based Tax Incentives: The Evidence Supporting Tax Incentives for Renewable Energy*, 38 LOY. U. CHI. L.J. 43 (2006); VICKI ARROYO, GLOBAL WARMING: CLIMATE CHANGE AND THE LAW (2007).

28. Kate Galbraith, *Obama Vows Support for Renewables—and a Carbon Cap*, Green A Blog About Energy & the Environment, N.Y. TIMES, <http://green.blogs.nytimes.com/2009/02/25/obama-vows-support-for-renewables-and-a-carbon-cap/> (Feb. 25, 2009, 6:57 AM)

the politically threatening PTC. Finally, this paper will survey more recent legislation—specifically with regard to the financial bailout and stimulus packages—to see exactly where the PTC’s future prospects are hidden. The paper will culminate with policy recommendations that might serve as a rudimentary framework for future negotiations between the relevant parties. Ultimately, the fight over the PTC is but a fringe skirmish in a much larger war over the systemic viability of our government and our natural world. The unsustainable path that we have beaten since the Industrial Revolution offers only a bleak, strained future bereft of biodiversity. It is the hope of this author that by drawing attention to this critical legislation and its implications, that future may be altered.

I. HISTORY OF THE PRODUCTION TAX CREDIT

A. Inception: The Energy Policy Act of 1992

In an effort to spur consistent renewable energy infrastructure development and generation, Congress created the Renewable Energy Production Tax Credit within the Energy Policy Act of 1992.²⁹ The Act provided for an inflation-adjusted 1.5 cent per kilowatt hour (kWh) tax credit for electricity produced from wind and closed-loop biomass resources and sold to an unrelated third party during the taxable year in question.³⁰ Qualifying energy developments were eligible to receive the tax credit for 10 years following startup. Almost immediately, this tax credit had a profound impact on stimulating economic growth and heavy investment in renewable energy technology and installation.³¹ The credit has since been expanded to include municipal solid waste, qualified hydropower, biomass, and

29. Energy Policy Act of 1992 § 1914(a), 106 Stat. 2776, 3020 (codified at 26 U.S.C. § 45(c) (1992)).

30. *Id.*

31. See *Green Job Growth and Global Warming: Hearing Before the S. Comm. on Env’t and Pub. Works*, 110th Cong. (2007) (statement of Bill Unger, Partner Emeritus, Mayfield Fund); Emily Kennedy, *Federal Regulations, Incentives, and Funding of Renewable Energy in 2006*, 1 ENV’T & ENERGY L. & POL’Y J. 403 (2007); Newman, *supra* note 18, at 5 ; Moeller, *supra* note 22, at 69.

geothermal facilities, among others.³² The PTC was codified in Section 45 of the Internal Revenue Code.³³

The PTC has been extended at various points in subsequent years; however, inconsistent extension has led to a staggered investment pattern that has impaired the ability of the renewable energy industry to effectively entrench itself within the larger national energy infrastructure.³⁴ One of the more recent iterations of the PTC has been the Energy Policy Act of 2005 (EP Act), which codified an extension through the year 2008.³⁵ This congressional decision met with strong opposition mainly from interest-backed Republican congressmen who took issue almost exclusively with the proposed form of offsetting funds for the credits themselves, i.e. the proposed repeal of oil and natural gas subsidies.³⁶

B. Transition: Energy Policy Act of 2005 and Other Federal Considerations

While the 2005 EP Act did extend the PTC, it also provided for a handout of billions of dollars in subsidies for the fully matured and exorbitantly wealthy oil and natural gas industries.³⁷ This was presumably to equalize the government treatment of the fossil fuel-based and renewable energy industries. However, these subsidies, whatever their superficial justification, are effectively sweetheart deals meant to pacify a recalcitrant industry sector bent on frustrating widespread renewable and alternative energy institutionalization. The reasons are obvious—renewable energy generation, which is clean, consistent, and idealistically cost-effective, is a direct threat to the oil and natural gas industries' future viability. In

32. American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, 111th Cong. (2009). The credit, as of the date of this article, currently stands at about 2.1 cents per kilowatt hour generated.

33. I.R.C. § 45 (2006); *see* Form 8835, Renewable Electricity, Refined Coal, and Indian Coal Production Credit, 2008.

34. Ticket to Work and Work Incentives Improvement Act of 1999 § 507, Pub. L. 106-170 (2006); Job Creation and Worker Assistance Act § 603, Pub. L. 107-147 (2006); The Working Families Tax Relief Act § 313, Pub. L. 108-311 (2006).

35. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005).

36. *See, e.g.*, 151 CONG. REC. 80, at 6676-77.

37. Energy Policy Act of 2005, §§ 342-43.

effect, every kilowatt of clean energy generated by a renewable project and subsidized by the federal government is construed as an affront to fossil fuels in general. To counteract this perceived favoritism, congressional leaders felt it was better to assuage the oil and natural gas sectors with billion-dollar handouts than to work with the industries to create an equitable policy standard—one that would protect their present interests while not sacrificing future stability of human health and the environment. At any rate, these subsidies have continued to upset the balance of progress in favor of renewable investment by handcuffing future Congresses and weakening their ability to extend the PTC, and have led to further environmental ruin.³⁸ The PTC was again extended in the Tax Relief and Health Care Act of 2006.³⁹

Congress has also frequently contemplated other mechanisms or policies that would work in conjunction with the Production Tax Credit to incentivize renewable energy generation. One of the most direct ways in which to do this would be to enact a Federal Renewable Portfolio Standard (RPS).⁴⁰ An RPS would effectuate a federal mandate to energy utilities to purchase a specified amount of their electricity from renewable generators.⁴¹ Combined with a PTC that defrays not only operating but initial capital costs, the federal RPS would create and guarantee a vibrant market for renewable energy.⁴²

38. See, e.g., Roberta Mann, *Symposium: The Business of Climate Change: Challenges and Opportunities for Multinational Business Enterprises: Another Day Older and Deeper in Debt: How Tax Incentives Encourage Burning Coal and the Consequences for Global Warming*, 20 PAC. MCGEORGE GLOBAL BUS. & DEV. L. J. 111 (2007).

39. Tax Relief and Health Care Act of 2006, § 201, Pub. L. 109-432

40. Barry Rabe, *In this Issue: Sustainable Energy: Race to the Top: The Expanding Role of U.S. State Renewable Portfolio Standards*, 7 SUSTAINABLE DEV. L. & POL'Y 10 (2007); Joel B. Eisen, *The Environmental Responsibility of the Regionalizing Electric Utility Industry*, 15 DUKE ENVTL. L. & POL'Y F. 295 (2005); Mary Ann Ralls, *Congress Got It Right: There's No Need to Mandate Renewable Portfolio Standards*, 27 ENERGY L. J. 451 (2006).

41. Sen. Bingaman: *Encouraging Renewable Energy Investment*, U.S. FED. NEWS, May 5, 2004 ("[a]ccording to an EIA analysis of a 10 percent RPS, it would quadruple the amount of electricity produced from wind energy").

42. See generally KAREN PALMER & DALLAS BURTRAW, RESOURCES FOR THE FUTURE, ELECTRICITY, RENEWABLES, AND CLIMATE CHANGE: SEARCHING FOR A COST-EFFECTIVE POLICY (2004).

Together, investment is made much more attractive, as market demand begins to outweigh costs associated with the enterprise.⁴³

C. Stimulation: Effect of the Production Tax Credit

To date, the Production Tax Credit has stimulated renewable energy investment to unforeseen levels.⁴⁴ Particularly indicative of this industry activity is the wind sector, which has posted 36% (2003), 43% (2005), and 27% (2006) increases in MW capacity installed in each of the years in which the PTC has been firmly in place.⁴⁵ Even in spite of its difficulties, its impact on the renewable energy industry has been truly encouraging and has helped to lay the groundwork for a stronger renewable energy infrastructure.⁴⁶ Due in part to the effects of the PTC, the U.S. “led the world in newly installed wind power capacity” for the years 2005 and 2006, investing nearly \$4 billion since 1994.⁴⁷

Making renewable energy cost competitive is the quintessential function of the PTC, and thus far it has not failed in its endeavor. After factoring in inflation-adjusted credits, wind-generated electricity can cost as little as 6 cents per kilowatt hour, as compared to the 3 to 5 cents for coal-fired electricity.⁴⁸ That price gap is far more palatable when the PTC is in play. In one study, a ten year enactment of the PTC, at 1.8 cent per kWh (inflation-adjusted), was estimated to reduce the levelized cost of electricity for geothermal facilities by 25%,

43. Robert J. Michaels, *National Renewable Portfolio Standard: Smart Policy or Misguided Gesture?*, 29 ENERGY L. J. 79 (2008); WOOD MACKENZIE, AMERICAN WIND ENERGY ASSOCIATION, THE IMPACT OF A FEDERAL RENEWABLE PORTFOLIO STANDARD (2007).

44. See, e.g., John Herrick, *Federal Project Financing Incentives for Green Industries: Renewable Energy and Beyond*, 43 NAT. RESOURCES J. 77, 109 (2003).

45. Union of Concerned Scientists, Production Tax Credit for Renewable Energy, http://www.ucsusa.org/clean_energy/solutions/big_picture_solutions/production-tax-credit-for.html (last visited Aug. 15, 2010).

46. Brad Sherman, *A Time to Act Anew: A Historical Perspective on the Energy Policy Act of 2005 and the Changing Electrical Energy Market*, 13 WM. & MARY ENVTL. L. & POL’Y REV. 211 (2006).

47. RYAN WISER, MARK BOLINGER & GALEN BARBOSE, LAWRENCE BERKELEY NATIONAL LABORATORY, USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND POWER IN THE UNITED STATES 3 (2007).

48. *Power Source*, CFO MAGAZINE, July 2006.

enough to bring it within the range of competition with conventional fossil fuel-based power generation.⁴⁹ In another study of only wind and closed-loop biomass development, an extension of the PTC until 2020 results in renewables accounting for 11.5% of total electricity generation in the U.S.⁵⁰ Future forecasts for wind development vary significantly according to the source.⁵¹

“Unfortunately in this instance, two plus one plus one does not necessarily equal five predictable years . . . Business thrives on the known and fails on the unknown. The unpredictable nature of the credit has prevented the needed investment in U.S.—based facilities that will drive the economies of scale and efficiencies.”⁵² Perhaps the most illuminating indicator of its importance comes when the credit has actually been unavailable due to expiration.⁵³ The unpredictability and uncertainty of an extension before any expiration year has had a profoundly detrimental effect on widespread investment.⁵⁴ When investors cannot be sure of the quality of their investment—in the form of expected return (which includes savings from tax credits)—healthy investment will be chilled. This has precisely been the case, as renewables investment has fallen off precipitously for each year in which the PTC has expired and has significantly cooled for those years where its fate was undecided and

49. BRANDON OWENS, NATIONAL RENEWABLE ENERGY LABORATORY, AN ECONOMIC VALUATION OF A GEOTHERMAL PRODUCTION TAX CREDIT at iii (2002). *See also Alternative-energy tax credits still up in air*, THE NEWS JOURNAL (WILMINGTON, DELAWARE), June 1, 2008 (discussing how a “tax credit brings down a developer’s costs by roughly 30 percent”).

50. PALMER & BURTRAW, *supra* note 42, at 38.

51. *See IEA World Energy Outlook*; RUDOLF RECHSTEINER, ENERGYWATCHGROUP, WIND POWER IN CONTEXT: A CLEAN REVOLUTION IN THE ENERGY SECTOR (2008), available at http://www.energywatchgroup.org/fileadmin/global/pdf/2009-01_Wind_Power_Report.pdf.

52. *Clean Energy: From the Margins to the Mainstream: Hearings of the S. Finance Comm.*, 109th Cong. (2007) (statement of Dean Gosselin, V.P. of Bus. Dev. for Wind Power, FPL Energy).

53. *See Utilities Plan on Renewables, Even Without Mandate*, INSIDE ENERGY WITH FEDERAL LANDS, Aug. 15, 2005 (describing the critical importance of planning horizons for utilities in recouping costs).

54. AARON SEVERN, ET AL., AMERICAN WIND ENERGY ASSOCIATION, WIND ENERGY PRODUCTION TAX CREDIT (PTC) (2008).

uncertain.⁵⁵ For example, in the years the PTC has been allowed to lapse, investment in wind-based infrastructure has fallen 73-93% in the following years.⁵⁶ This clear trend validates the sense of urgency surrounding the future of the PTC and the renewable energy industry itself.

There are numerous other negative consequences associated with a lapse of the PTC. First, institutional interest in financing large capital projects begins to dissipate several months before the lapse, which compounds the already-tenuous state of most renewable projects.⁵⁷ Increased generating capacity is the key to developing successful market penetration.⁵⁸ Without the PTC investors are not willing to commit resources to such a risky project, especially in the present economic climate, when venture capital is all too elusive.⁵⁹ The next issue relates to the delayed extension of the tax credit. According to the American Wind Energy Association, a “rush to complete projects before the deadline creates a herd effect. Developers and sponsors dash to stick pylons in the ground, spiking turbine prices.”⁶⁰ This “herd effect” counterproductively works against the intended effect of the PTC, as it unnecessarily drives up already-high prices. As a result, investors lose the incentive to devote capital to projects if they have to pay above-market rates. This messy situation does not in any way facilitate the PTC’s potential to leverage private

55. *See id.*

56. AWEA.com, AWEA Legislative Priorities, <http://www.awea.org/legislative/> (last visited Aug. 15, 2010).

57. *See Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs*, GAO REPORTS, Dec. 20, 2006.

58. *Renewable Energy and Clean Air Compliance; Green Convergence*, EPA CLEAN AIR INTERSTATE RULES MANAGEMENT QUARTERLY, June 22, 2005 (“over time, learning rates and experience will improve the economics of [renewables, as] the costs of generation decline with increasing cumulative capacity in the market”).

59. *Clean Energy: From the Margins to the Mainstream: Hearings of the S. Finance Comm.*, 109th Cong. (2007) (statement of Todd Raba, Pres., MidAmerican Energy Company) (speaking about the effect of the PTC lapse on his wind development, “we couldn’t risk final acquisition and installation of the turbines without the PTC being restored, as the project would not have met the cost requirements of the Iowa Utilities Board.” Energy law, as it relates to utility regulation, often affects decisions closely linked to the PTC).

60. *Renewables: Challenges Ahead for the U.S. Wind Industry*, MODERN POWER SYSTEM, Sept. 13, 2005.

cost funding. Furthermore, allowing the credit to lapse threatens the economic stability of the ambient investment zones.⁶¹ The credit is closely linked to the economic fortunes of those communities most in need of stimulation.

D. Costs of the Production Tax Credit

Since the program's inception in 1992, the cost of PTC claims for the federal government have been estimated at more than \$2.7 billion.⁶² While this figure seems large in an absolute sense, comparatively it is quite paltry—consider that in 2006 alone, the government offered fiscal subsidies to the fossil fuel, nuclear, and ethanol industries at a cost of over \$64 billion.⁶³ Any proposals for its extension inevitably, and appropriately, consider the costs of such an endeavor. Studies have also shown that “from the perspective of the U.S. Treasury, it is likely that the net cost of the PTC would be insignificant or perhaps even negative.”⁶⁴ This conclusion is a result of the higher tax liabilities often associated with renewable energy projects, as compared to an average fossil fuel-based power plant.⁶⁵ Furthermore, it is foreseeable that there will be less and less of a need for the PTC once the renewable energy industry has successfully established its foothold in the market. This has been the result of most other

61. See, e.g., *Rep. Pomeroy Calls on Administration to Support Wind Energy Investments*, U.S. FED. NEWS, Feb. 13, 2008 (noting that the “last time the credit expired at the end of 2003 over 2,000 jobs were lost and 1,500 megawatts of new wind energy production and nearly \$2 billion in economic activity were put on hold” just in North Dakota alone); Mary O'Discoll, *Wind Power: Congress Sends Tax Cut Bill with Renewable Provision to President*, GREENWIRE, Sept. 24, 2008 (2,000 MW of suspended new windpower development “translates into \$2 billion in economic activity” and over 2,000 jobs).

62. RYAN WISER, MARK BOLINGER & GALEN BARBOSE, *USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND POWER IN THE UNITED STATES* 13 (2007).

63. *Id.*

64. See generally BRANDON OWENS, NATIONAL RENEWABLE ENERGY LABORATORY, *AN ECONOMIC VALUATION OF A GEOTHERMAL PRODUCTION TAX CREDIT* (2002).

65. *Id.* (“In fact, a recent analysis of geothermal federal royalties and income taxes found that federal taxation on geothermal power is about three to four times that of electricity produced from a new natural-gas combined-cycle power plant.”) (*citations omitted*).

government subsidies, where cost curves shift downwards as technologies achieve economies of scale.⁶⁶ Contrastingly, some studies have indicated that the PTC essentially pays for itself, if not producing a net positive for the Treasury.⁶⁷

II. ENERGY INDEPENDENCE AND SECURITY ACT OF 2007, THE ECONOMIC RECESSION, AND RECENT LEGISLATION

More than ten years after its creation, the Production Tax Credit had certainly accomplished its main objective of stimulating new renewable energy development throughout the country. But its future is precarious at best, especially in light of recent economic stagnation.

A. 2007: Continuing the Dialogue

The legislative history of the Energy Independence and Security Act of 2007, contained within the span of a year, is typically complex and contentious.⁶⁸ The fact that a workable, environmentally beneficial piece of legislation was produced is nothing short of miraculous. However, the noticeable absence of both a Production Tax Credit extension and a federal Renewable Portfolio Standard was at once unsurprising and terribly disheartening to the prospects of continued renewable energy investment and development.

The House of Representatives proposed the far-reaching CLEAN Energy Act of 2007, one that included generous

66. *Renewable Energy and Clean Air Compliance: Green Convergence*, EPA CLEAN AIR INTERSTATE RULES MANAGEMENT QUARTERLY, June 22, 2005 (finding that “[t]he Global Energy Decisions study projects that with each new megawatt of installed wind powered capacity, efficiencies improve and costs decline”).

67. Nathaniel Gronewold, *Renewable Energy: Industry Execs Urge Congress to Act on “Overdue” Tax-Credit Extension*, E&E NEWS PM, June 18, 2008 (“Although there is an initial cost, the windfall that eventually comes from taxed income on new jobs, vendor profits and the projects themselves pumped a net \$250 million into the Treasury last year”).

68. Energy Independence and Security Act of 2007, Pub. L. No. 110-140, 121 Stat. 1492 (to be codified in scattered sections of 42 U.S.C. and 49 U.S.C.) (2007).

provisions for both a federal RPS and renewable PTC.⁶⁹ The Senate's own proposal, Senate Amendment 1704,⁷⁰ would have extended the PTC, but was ultimately blocked by congressional Republicans and never made it past the Senate floor.⁷¹ Once again, the billions of dollars in subsidies to oil and natural gas companies were at the root of the problem. To pay for the PTC, the bill's sponsors proposed rolling back or repealing these grossly excessive subsidies to such well-established industries, and to share this wealth with much more nascent (and arguably more critical to the nation's energy future) industries. Republican Congressmen—especially those traditionally favorable towards oil and gas industries—were in complete and unmitigated opposition to this proposal.⁷² The majority of those legislators recast this common sense suggestion as a unilateral attack on the oil and gas industries, with some arguing that the subsidy repeal constituted an unjustified penalty or punishment levied unfairly against the most patriotic of American businesses.⁷³ Understandably, contentious debate ensued and signaled the early doom of the PTC.

The Senate then introduced its Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007, which generated similar debate after its decision to keep the PTC provisions intact.⁷⁴ The House responded to the aforementioned legislation with two additional bills, the New Direction for Energy Independence, National Security, and Consumer Protection Act,⁷⁵

69. H.R. 6, 110th Cong. (2007). See FRED SSSINE, THE STRATEGIC ENERGY EFFICIENCY AND RENEWABLE RESERVE IN THE CLEAN ENERGY ACT OF 2007 (CRS Report for Congress) (2007) [hereinafter SSSINE, CLEAN ENERGY ACT]; 153 CONG. REC. S7680 (daily ed. June 14, 2007) (statements of Rep. Craig, Rep. Bingaman, & Rep. Domenici); 153 CONG. REC. E151 (daily ed. Jan. 19, 2007) (statement of Rep. Tiahrt).

70. S.Amdt. 1704 (Energy Tax Provisions) (2007).

71. See FRED SSSINE, OMNIBUS ENERGY EFFICIENCY AND RENEWABLE ENERGY LEGISLATION: A SIDE-BY-SIDE COMPARISON OF MAJOR PROVISIONS IN HOUSE-PASSED H.R. 3221 WITH SENATE-PASSED H.R. 6 (CRS Report for Congress) (2007).

72. See, e.g., 153 CONG. REC. E151 (statement of Rep. Tiahrt); *Small Business Energy Priorities: Hearing on H.R. 3221 Before the H. Comm. On Small Bus.*, 110th Cong. (2007) (statement of Lee Fuller, Vice President, Independent Petroleum Association of America).

73. See, e.g., 153 CONG. REC. E151.

74. S. 1419, 110th Cong. (2007).

75. H.R. 3221, 110th Cong. §§ 10001-03 (2007).

and the Renewable Energy and Energy Conservation Tax Act of 2007.⁷⁶ The latter bill called for a less effective, one year-extension of the PTC (expiring in 2008).⁷⁷ Further debate produced the revised Clean Energy Act, which initiated more congressional bickering and faced predictably strong opposition from the White House.⁷⁸ President Bush's Administration threatened to veto any legislation sent to his office that resembled the revised Clean Energy Act, mostly because of the proposed repeal of oil and natural gas subsidies; this threat offered support to those congressmen advocating the same position.⁷⁹ The final product, the Energy Independence and Security Act of 2007, was left completely devoid of a federal RPS, and more importantly, lacked an extension of the PTC.⁸⁰

B. Bittersweet Victory

The legislative travails of the 110th Congress came to fruition in the Energy Independence and Security Act, but at a heavy cost to the Production Tax Credit. Despite the best efforts of dedicated, mostly Democratic Congressmen, the PTC was left in legislative purgatory once again, with only a few short weeks until its pending expiration.

76. H.R. 2776, 110th Cong. (2007).

77. HOUSE WAYS AND MEANS COMMITTEE, H.R. 2776 RENEWABLE ENERGY AND ENERGY CONSERVATION TAX ACT OF 2007 (2007), <http://waysandmeans.house.gov/media/pdf/110/2776/Markup%20Summary.pdf>. See also Summary of H.R. 2776: Renewable Energy and Energy Conservation Tax Act of 2007, <http://waysandmeans.house.gov/02776%20Summary%20revised.pdf> (last visited Aug. 15, 2010); Statement of Administration Policy, H.R. 2776 & H.R. 3221 (Aug. 3, 2007).

78. See generally 153 CONG. REC. S15385 (daily ed. Dec. 13, 2007); 153 CONG. REC. E2552 (daily ed. Dec. 12, 2007) (statement of Rep. McCollum); 153 CONG. REC. E2550 (daily ed. Dec. 12, 2007) (statement of Rep. Buyer); 153 CONG. REC. S15004 (daily ed. Dec. 7, 2007) (statement of Rep. Domenici, Rep. McConnell, Sen. Reid); Statement of Administration Policy, H.R. 6 (Dec. 6, 2007).

79. See 153 CONG. REC. E2582-01 (daily ed. Dec. 13, 2007) (statement of Rep. Tiahrt); 153 CONG. REC. H14260-01 (daily ed. Dec. 6, 2007) (statement of Rep. Peterson); 153 CONG. REC. E1818 (daily ed. Sept. 6, 2007) (statement of Rep. Manzullo).

80. See FRED SISSINE, ENERGY INDEPENDENCE AND SECURITY ACT OF 2007: A SUMMARY OF MAJOR PROVISIONS (CRS Report for Congress) (2007).

Legislators, though, were thrilled over the consensus reached by Congress in effectuating this landmark piece of legislation.⁸¹ The final product was an admirable attempt at revising America's energy policy and working to reconstruct the nation's energy infrastructure. Legislators, by all accounts, expressed their satisfaction over the resulting Act, but many remained upset over the failure to include PTC provisions in addition to the RPS.⁸² Recognizing this failure as the result of pure political posturing and special interest-petitioning, these lawmakers were regretful of another missed opportunity to support an unquestionably beneficial industry struggling to gain a foothold on the national energy stage; at the same time, many expressed optimism over the possibility of pushing the PTC extension through in subsequent legislation.⁸³ Most frustrating for advocates of the PTC was Congress' almost universal support for the PTC and generally widespread recognition of its positive impact on renewable energy development on a national, and ultimately international, scale.⁸⁴ Arguably, they understood that a compromise could, and must, be reached and planned accordingly.

When the smoke had cleared, 2007's EISA accomplished nothing in terms of the PTC or RPS. While budgetary concerns and funding issues were legitimate, they were not insurmountable hurdles. Political motivations and special interest profits signaled the death knell of the PTC in 2007. Luckily, an altered political landscape combined with an intensified awareness of both environmental and global climate change problems has rewritten the future of PTC legislation in 2008. Notwithstanding these encouraging developments, the future of the PTC remains uncertain, an uncertainty that works to temper the effectiveness of the provision itself.

81. *See, e.g.*, 153 CONG. REG. S15647 (daily ed. Dec. 14, 2007) (statement of Rep. Feingold).

82. *Id.*

83. *See generally* 153 CONG. REC. S15421 (daily ed. Dec. 13, 2007).

84. *Id.*

C. Recent Legislation

2008 heralded a spate of energy-related bills which included provisions for the Production Tax Credit extension.⁸⁵ None of these early attempts resulted in a passable bill, and the PTC was once again—for a short time at least—held hostage by uncompromising partisan politics. For several months, questions about the tax credit, federal energy subsidies, and revenue offset provisions plagued the congressional floors. This political tennis match rendered the outlook for a quick resolution to the pending PTC expiration very much in doubt. The first attempt was the Clean Energy Tax Stimulus Act of 2008.⁸⁶ This bill was moribund from its introduction onto the Senate floor, as the House refused to even recognize the tax title provisions contained therein.

The next congressional attempt was the stillborn Renewable Energy and Energy Conservation Tax Act.⁸⁷ Congressional leaders, frustrated by months of futile negotiations, did not relent in their efforts to extend the PTC. Nonetheless, the most intractable issues remained the same in this bill as in all of its predecessors. A large portion of the funds for the PTC extension were slated to come from the closing of some “tax loopholes that have been lining Big Oil’s already gold-filled pockets.”⁸⁸ The bill was prepared to eliminate Section 199 from the Internal Revenue Tax Code,⁸⁹ a federal handout for the “domestic production activities” of several large integrated oil companies. House Republicans offered a broad panoply of specious arguments in defense of those subsidies, claiming irreparable and unwarranted harm to domestic employment industries and a rapid increase in

85. *See generally* FRED SISSINE, ET AL., ENERGY EFFICIENCY AND RENEWABLE ENERGY LEGISLATION IN THE 110TH CONGRESS (CRS Report for Congress) (2008). *See also* Statement of Administration Policy, S. 3044 (June 10, 2008).

86. Clean Energy Tax Stimulus Act of 2008, S. 2821, 110th Cong. (2008).

87. H.R. 5351, 110th Cong. (2008). *See* 154 CONG. REC. H1091-01 (daily ed. Feb. 27, 2008) (statement of Rep. Ryan); *see also* Statement of Administration Policy, H.R. 5351 (Feb. 26, 2008).

88. DANIEL WEISS & ALEXANDRA KOUGENTAKIS, CENTER FOR AMERICAN PROGRESS, INVESTMENTS FOR RENEWABLE ENERGY, NOT LOOPHOLES FOR BIG OIL (2008), *available at* http://www.americanprogress.org/issues/2008/02/investments_energy.html.

89. I.R.C. § 199 (2006).

fuel prices across the board.⁹⁰ The Bush Administration expressed similar disdain for the offset provisions, and threatened a presidential veto.⁹¹ Another proposed rescission would work to limit claims on the foreign tax credits by oil and gas companies.⁹² The PTC, which was for two cents per kilowatt-hour through the end of 2011, was not meant to be; H.R. 5351 was never sent to the Senate.⁹³

Following this failed effort, the Senate reintroduced its Clean Energy Tax Stimulus Act of 2008, now under the guise of H.R. 3221,⁹⁴ as a less-expensive and more streamlined version of H.R. 5351.⁹⁵ Even now, without any oil and gas revenue offsets, the bill failed to win bipartisan support, and the House dropped all energy tax provisions in its own response, the Housing Rescue and Foreclosure Prevention Act.⁹⁶ The Senate then accepted this bill without the one-year tax credit extension.⁹⁷

With renewed determination not a month subsequent, the House passed the Energy Tax and Extenders Act,⁹⁸ which again hoped to effectuate a one-year extension of the PTC. The bill approached the controversial problem of offsets slightly differently. Rather than focusing on the contentious repeals of oil and natural gas subsidies in the tax code, H.R. 6049 targeted two potential revenue streams: (1) the bill “would tax individuals on a current basis if such individuals receive deferred compensation from a tax indifferent [foreign] party” (estimated to generate \$24.289 billion over 10 years); and (2) a delay of the “implementation of worldwide allocation of interest”, estimated to raise \$29.962 billion over 10 years.⁹⁹ When compared to the

90. See 154 CONG. REC. H1091-1128 (daily ed. Feb. 27, 2008).

91. Statement of Administration Policy, H.R. 5351 (Feb. 26, 2008).

92. See SISSINE, ET AL., *supra* note 85, at 7.

93. See *id.* at 6.

94. Clean Energy Tax Stimulus Act of 2008, S. 2821, 110th Cong. (2008).

95. See SISSINE, CLEAN ENERGY ACT, *supra* note 69, at 11.

96. Housing Rescue and Foreclosure Prevention Act of 2008, H.R. 3221, 110th Cong. (2008).

97. S. 2821 § 101.

98. Energy Tax and Extenders Act of 2008, H.R. 6049, 110th Cong. (2008).

99. Committee on Ways and Means, H.R. 6049 Energy and Tax Extenders Act of 2008 (Summary). May 16, 2008, 11-12, *available at* <http://waysandmeans.house.gov/media/pdf/110/bill.pdf>. Both of these proposals looked to close

proposed cost of \$7 billion for the renewable energy PTC, one would expect both sides to be relatively satisfied, considering the oil and gas subsidies were preserved. Still, the Senate refused to vote on H.R. 6049,¹⁰⁰ and even failed to pass their own version of the bill, the Energy Independence and Tax Relief Act of 2008.¹⁰¹

The legislative gridlock dragged on well beyond the summer months.¹⁰² Finally the Senate passed its version of H.R. 6049, perfected by Amendment 5635.¹⁰³ The bill was substantially similar to the Energy Tax and Extenders Act, but notably did not fully offset the estimated costs of the proposed tax provisions. Yet even with only a partial offset of oil and gas subsidy repeals, the Office of the President again threatened a veto, reaffirming a pattern of the administration.¹⁰⁴ In contrast, the House bill was unwavering in its demand to allocate revenues for every proposed tax credit, as opposed to simply letting some credits go unfunded (at least initially).¹⁰⁵ The final attempt to extend the PTC came by way of the House's Renewable Energy and Job Creation Tax Act.¹⁰⁶ The bill proposed an extension of the credit, broadened the potential applicant pool to new renewable sources like tidal power, and would also cap the aggregate amount of tax credits to 35% of present value of the project's costs.¹⁰⁷ As expected, the

loopholes in the tax policy, most effectively exploited by well-compensated executives working for foreign commercial enterprises.

100. *See* Sissine, CLEAN ENERGY ACT, *supra* note 69, at 13.

101. The Energy Independence and Tax Relief Act of 2008, H.R. 6049, S. 3125, 110th Cong. (2008).

102. The Senate failed to pass the Jobs, Energy, Families, and Disaster Relief Act of 2008, S. 3335, 110th Cong. (2008), while the House passed a parallel but ultimately non-functioning Comprehensive American Energy Security and Consumer Protection Act of 2008, H.R. 6899, 110th Cong. (2008). Both bills were fundamentally similar to H.R. 6049, 110th Cong. (2008).

103. Energy Improvement and Extension Act of 2008, S.Amdt. 5635, 110th Cong. (2008).

104. EXECUTIVE OFFICE OF THE PRESIDENT, STATEMENT OF ADMINISTRATION POLICY ON S.AMDT. TO H.R. 6049—ENERGY IMPROVEMENT AND EXTENSION ACT OF 2008 AND TAX EXTENDERS AND ALTERNATIVE MINIMUM TAX RELIEF TAX ACT OF 2008 (2008), *available at* <http://www.whitehouse.gov/omb/legislative/sap/110-2/saphr6049-s.pdf>.

105. *See* H.R. 6049, 110th Cong. (2008).

106. Renewable Energy and Job Creation Tax Act of 2008, H.R. 7060, 110th Cong. (2008).

107. Committee on Ways and Means, H.R. 7060 Renewable Energy and Job Creation Tax Act of 2008 (Summary). Sept. 25, 2008, 1-2, *available at*

Executive Branch warned of an impending veto.¹⁰⁸ Despite the general similarities concerning the PTC provisions between the House and Senate version, proponents still expected the typical impasse, with Congress potentially tabling the legislation until the beginning of its next term. Fortunately for the PTC (and almost no one else), the collapse of the international financial system inadvertently produced a valuable opportunity.

D. Fallout from the Global Economic Recession

Rather than waiting to restructure the divergent bills into a more palatable compromise, Congress injected several of the provisions (now in the form of pork) into the federal bailout packages. Congress' first version of the bailout bill did include PTC provisions, but did little else to address the true capital liquidity trap spurred by the credit crisis.¹⁰⁹ As the nation slipped further into economic recession, this Economic Stimulus Act of 2008 was ill-equipped to handle the severity of capital shortages throughout global financial institutions.¹¹⁰ Congress' second attempt, the Emergency Economic Stabilization Act, was unanimously and expeditiously approved by both chambers of Congress.¹¹¹ While ultimately designed to relieve sinking corporations of their "troubled assets," the Act also included the Energy Improvement and Extension Act of 2008, which prominently featured a one-year extension of the PTC.¹¹²

<http://waysandmeans.house.gov/media/pdf/110/7060sum.pdf> (the bill also suggested a number of different revenue provisions, including a freezing of the § 199 oil and gas subsidy at 6%; *see id.* at 10-12).

108. EXECUTIVE OFFICE OF THE PRESIDENT, STATEMENT OF ADMINISTRATION POLICY ON H.R. 7060 (2008), *available at* <http://www.whitehouse.gov/omb/legislative/sap/110-2/saphr7060-h.pdf>.

109. Economic Stimulus Act of 2008, Pub. L. 110-185, 122 Stat. 613 (2008). *See also* Mark Sunshine, *Will Paulson's Two Plans Unplug the 'Liquidity Trap'?*, *Economix Blog*, N.Y. TIMES, Oct. 4, 2008; David Sanger, *Spending More than \$800 Billion Is the Easy Part*, N.Y. TIMES, Feb. 8, 2009, at A11.

110. Edmund L. Andrews, *Recession Began Last December, Economists Say*, N.Y. TIMES, Dec. 2, 2008, at A1.

111. Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, 122 Stat. 3765 (2008).

112. H.R. 6049, 110th Cong. (2008); CLEAN TECH ADVISORY, GOODWIN PROCTOR, CONGRESS EXTENDS AND APPROVES NEW ALTERNATIVE ENERGY TAX CREDITS (2008). *See also* Summary of The Energy Improvement and Extension Act of

Predictably, the Act broadened the scope of the PTC to include non-renewables, a ploy to entice the House Republicans to vote for the bailout despite the inclusion of renewable tax credits.¹¹³ But the law did mercifully repeal more than \$17 billion in tax subsidies to the oil and natural gas industries to pay for the tax incentive provisions.¹¹⁴

The renewable energy industry and lawmakers alike rejoiced at the news of this extension, even as the national economic infrastructure collapsed around it.¹¹⁵ Yet despite its one-year extension, once again Congress strove for the minimum and incidentally retarded further renewable investment. However, with the subsequent passage of the American Recovery and Reinvestment Act (ARRA)—the federal stimulus bill meant to invigorate the flailing American economy in February 2009—the 2.1 cent per kilowatt hour PTC was extended for another three years, until 2012.¹¹⁶ The total cost of the renewables tax credit program is estimated to run at \$13.143 billion over 10 years.¹¹⁷ Understandably, the bill was met with enthusiasm from numerous renewable energy groups and investors.¹¹⁸

2008, available at <http://www.finance.senate.gov/20and%20Extension%20Act.pdf>.

113. Energy Improvement and Extension Act of 2008, §§ 101-05 (2008).

114. FRED SISSINE, CRS REPORT, RENEWABLE ENERGY: BACKGROUND AND ISSUES FOR THE 110TH CONGRESS 24 (2008).

115. *Cf. Economic Stimulus Bill Disappoints Congressional*, DOCUMENTS AND PUBLICATIONS, Feb. 9, 2009 (Sen. Grassley, frustrated with Congress' initial refusal to include PTC provisions in the stimulus plan, remarked that the outcome was "disappointing and shortsighted because my amendment was about fostering the kind of entrepreneurial activity that sustains and creates both jobs and taxpayers, while also strengthening an environmentally friendly energy source for the future." Grassley is widely recognized as "the father of the wind energy tax credit.").

116. American Recovery and Reinvestment Act, Pub. L. 111-5, H.R. 1, 111th Cong. (2009) (Div. B, §§ 1101-1102). The IRS also publishes updated inflation factors, adjusted figures, and reference prices for the tax credit each year. For a description of these figures, see BARNES & THORNBURG, LLP, IRS ISSUES ANNUAL INFLATION FACTOR AND REFERENCE PRICES FOR SECTION 45 PRODUCTION TAX CREDITS (2010), available at http://www.btlaw.com/files/ALERT%20-%20Renewable%20Energy_IRS%20Annual%20Inflation%20Factor%20and%20Reference%20Prices.pdf. This figure has been adjusted for 2010 to 2.2 cents per kWh.

117. *Congressman Sestak Votes for Urgently Needed Stimulus Plan to Rebuild Economic Security*, STATE NEWS SERVICE, Feb. 14, 2009.

118. See, e.g., Press release from Vestas.

Clearly the Great Recession has been a mixed blessing for the renewables industry. Many national governments stocked their stimulus programs with generous subsidies and incentives for the renewables industry.¹¹⁹ In addition to extending the PTC, ARRA lengthened qualification deadlines and expanded the pool of potential renewable applicants.¹²⁰ Moreover, the Act provides an attractive alternative to the PTC, in that eligible taxpayers can elect to receive a 30% grant from the U.S. Department of the Treasury instead of the PTC, to cover the costs of capital investments.¹²¹ This provision was aimed at bolstering the renewable power industry, which suffered from both the loss of investor financing and the reduced demand for tax credits in general. Indeed, the oversubscribed program “may have helped directly motivate more than 20% of the 10,000 MW of wind capacity additions in 2009.”¹²²

This cash grant program underscores the danger facing the U.S. renewables industry as a result of the recession. Precisely because of the high upfront capital costs of renewable expansion, developers are dependent upon the availability of inexpensive debt leveraging that can be capitalized over the useful operational life of their facilities. As liquid resources become scarcer and banks refuse to lend, renewables are caught in the

119. See, e.g., *Good Policy, and Bad*, THE ECONOMIST, Dec. 3, 2009, available at http://www.economist.com/specialreports/displaystory.cfm?story_id=E1_TQJ_JQRTR (noting that “[g]reen stimulus money globally adds up to around \$163 billion . . . of which more than \$100 billion is being spent in America and China”).

120. DSIREUSA.org, Renewable Electricity Production Tax Credit (PTC), http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=US13F (last visited Aug. 20, 2010).

121. See *id.*; Pub. L. 111-5 § 1603. Per usual, developers can also choose to receive the Investment Tax Credit, but may now also convert that credit into the 30% cash grant, for facilities placed in service in both 2009 and 2010.

122. *Berkeley Lab's Preliminary Evaluation of Recovery Act Grant Program Finds Positive Effects on Renewable Energy Capacity and Jobs*, STATES NEWS SERVICE, May 11, 2010.

crossfire.¹²³ Moreover, even though interest rates have been hovering at all-time lows, lenders are levying far higher risk premiums that negate the potential of cheap debt financing.¹²⁴ As a result, global investment has plummeted, falling by 53% to \$13.3 billion in the first quarter of 2009 alone.¹²⁵ While investments are slowly recovering, the Obama administration should not hesitate to continue to explore new creative options for stimulating development while working to cast off the burden of many of its most inefficient and counterproductive subsidies.

III. POLICY RECOMMENDATIONS

The pervasive fragility of the economy, which has severely reduced capital investments, compounds this uncertainty.¹²⁶ The fate of renewable investments is inextricably tied to the financial crisis, ironic in light of the fact that the PTC's recent extension was precipitated by the desperate federal bailout. At a time when credit lines are frozen and capital has dried up, enticing renewable developers and operators to invest heavily in capital-intensive projects is an unattractive proposition.¹²⁷ And at risk is

123. See also *The Green Slump*, THE ECONOMIST, Dec. 3, 2009, available at http://www.economist.com/specialreports/displaystory.cfm?story_id=E1_TQJJQRDN (Robert Clover, director of alternative-energy equity research at HSBC, notes that "some of the banks that suffered worst during the crisis—RBS, Lehman Brothers, Washington Mutual and Fortis—were also among the biggest in clean-energy finance.").

124. NEW ENERGY FINANCE, GLOBAL TRENDS IN SUSTAINABLE ENERGY 2009 11 (2009).

125. *Id.* at 10 (as compared to the same period in 2008).

126. See Jenny Mandel, *Renewable Energy: Hit Hard by Financial Crisis, Industry Seeks Help Again from Congress*, GREENWIRE, Nov. 13, 2008 (PTC "requires developers of unprofitable projects to team with large, money-making businesses that can trade cash for credits to reduce their own tax liabilities. But in the last six months, linchpins of the tax-equity market have fallen, leaving renewable developers unable to claim the incentives").

127. Keith Johnson, *Financial Fallout: Why Renewable Energy Has the Blues*, Environmental Capital Blog, WALL STREET J., <http://blogs.wsj.com/environmentalcapital/2008/10/21/financial-fallout-why-renewable-energy-has-the-blues/> (Oct. 21, 2008, 11:03 AM), . Johnson describes the vulnerability of renewable energy to credit crunches, as a majority of the cost of renewable development is in the form of initial capital investment; "[w]hen capital costs are huge, the cost of capital becomes doubly important." Cf. Bill Chameides, *Renewable Energy: A*

the progress achieved over the last few decades, and the investments already made in large-scale projects. Regardless of the volatility of oil prices, the fossil fuel-based industries long ago achieved economies of scale and remain the more cost-effective option for any number of projects, whether it is electricity generation or processed fuels. To that end, it is more important than ever for the PTC to stimulate economic growth by generating job creation within the renewable industry (e.g. through wind turbine or solar panel manufacturing and installation).

Guaranteeing the future of the PTC and, consequently, renewable energy investment, rests on developing a revenue stream that will not exacerbate longstanding political issues or agitate partisan special interests. Nonetheless, compromise is critical. The easiest way to pay for PTCs is to repeal the subsidies that have already been granted to pre-existing and well-established industries, namely petroleum, natural gas, coal, and nuclear.¹²⁸ However, there are numerous other options that can help to ease the transition to a more stable PTC.

A. Subsidy Repeal

Many of the conventional energy industries have had the decades-long endorsement and financial backing of the federal government, and have achieved great economies of scale through years of trial and error.¹²⁹ Those mistakes are much more easily

Growth Industry in a Contracting Economy?, THE GREEN GROK, Oct. 22, 2008, [http://www.nicholas.duke.edu/nicholas/insider/thegreengrok/renewable investment](http://www.nicholas.duke.edu/nicholas/insider/thegreengrok/renewableinvestment).

128. See, e.g., Energy Policy Act of 2005 §§ 342-43. See also Press Release, Energy Info. Admin., Federal Energy Subsidies (Dec. 11, 1995).

129. See Window on State Government, Susan Combs, Texas Comptroller of Public Accounts, Chapter 28, Government Financial Subsidies, <http://www.window.state.tx.us/specialrpt/energy/subsidies/> (last visited Aug. 14, 2010) (noting that in 2006, oil, gas, and coal, the predominant fossil fuels exploited on a large scale by the U.S., received a total of 49.9% of federal taxpayer subsidies, whereas conventional renewables, not including nuclear or ethanol, received a paltry 9.9% by comparison); REPORT TO CONGRESSIONAL REQUESTERS, UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE, FEDERAL ELECTRICITY SUBSIDIES: INFORMATION ON RESEARCH FUNDING, TAX EXPENDITURES, AND OTHER ACTIVITIES THAT SUPPORT ELECTRICITY PRODUCTION 2-5 (2007), available at <http://www.gao.gov/new.items/d08102.pdf> (besides having an overwhelming edge

absorbed when there is ample federal subsidization of costs, a reprieve that the renewable industry sorely lacks but desperately needs. Furthermore, the technologies associated with these enterprises have been perfected to the point of scalability, in contrast to the unyielding, prohibitive costs of renewable developments.¹³⁰ With these considerations in mind, there is no escaping the fact that to adequately fund the PTC, Congress must repeal part or all of those subsidies currently available that qualify, in effect, as handouts to matured industries (i.e. coal, oil, and nuclear).¹³¹

In particular, there are two tax provisions for fossil fuels that should be the subject of extensive review. The first is the federal depletion allowance offered to “mines, oil and gas wells, other natural deposits, and timber.”¹³² Recognized since 1913, “it is based on the theory that the extraction of minerals gradually exhausts the capital investment in the mineral deposit.”¹³³ As a result, Congress has offered these fossil fuel producers a tax deduction based on that rate of mineral depletion. There is further tax advantage in the fact that producers are able to presently deduct their depletion allowances, rather than capitalize them over time. The second is the aforementioned domestic production activities subsidy.¹³⁴ Both of these subsidies

in research and development funding, fossil fuel-based electricity generation received the largest proportion of tax expenditures, totaling almost \$13.7 billion over a five-year span, compared to the \$2.8 billion spent on renewable tax expenditures); Bryan Walsh, *Is Nuclear Power Viable?*, TIME MAGAZINE, June 06, 2008, available at <http://www.time.com/time/health/article/0,8599,1812540,00.html> (noting that “the U.S. nuclear industry has received \$100 billion in government subsidies over the past half-century”).

130. See, e.g., R. MARGOLIS & J. ZUBOY, NAT’L RENEWABLE ENERGY LAB., Nontechnical Barriers to Solar Energy Use: Review of Recent Literature (2006), available at <http://www.nrel.gov/docs/fy07osti/40116.pdf> (listing high initial up-front costs as one of the most powerful barriers to renewable energy investment, along with inability to secure financing and insufficient government endorsement).

131. *Wind Power Needs Federal Production Tax Credit Extension*, THE OREGONIAN, Nov. 10, 2003 (discussing how “[c]oal, natural gas, and other fossil fuels for years have enjoyed significant tax advantages . . . [which are] memorialized in the tax code, with no expiration date”).

132. 26 U.S.C. § 611(a) (2006).

133. *Comm’r v. Sw. Exploration Co.*, 350 U.S. 308, 353 (1956).

134. I.R.C. § 199 (2006).

should henceforth be discontinued. While this approach has obviously proved problematic during congressional hearings, the substantial expenditures avoided by the government may be used to offset the comparatively moderate cost of the PTC. Further, it is a misguided policy of inefficient economics to continue extending the PTC to the nuclear and coal industries.¹³⁵

Moreover, Congress would do well to reduce subsidization of environmentally harmful enterprises, most notably timber and ore mining.¹³⁶ While resource mining on federal lands has historically been a cause of great consternation,¹³⁷ U.S. Forest Service policies have stirred up far more controversy over the last thirty years. By selling timber on protected federal lands at below-market prices to maintain their federal budgets, the USFS program costs U.S. taxpayers billions of dollars over several years.¹³⁸ This multi-billion dollar subsidy could instead be directed towards renewable energy investment under the general auspices of a public infrastructure program. This would simultaneously help pave the way for a cleaner energy future, and would work to soften or mitigate the deleterious environmental effects of logging and mining.

135. See Ben Geman, *Wind Power: Industry Reports Sharp Growth, Renews Plea for Tax Certainty*, GREENWIRE, Jan. 23, 2007 (currently the PTC is offered for up to 6,000 MW of new nuclear generating capacity). Under 26 U.S.C. § 45, refined coal producers may claim a PTC of \$4.375 per ton.

136. See TAXPAYERS FOR COMMON SENSE, TONGASS LOGGING SUBSIDIES—COST TO TAXPAYERS, <http://65.110.78.8/Library/Documents/upload/Factsheet-TongassSubsidies-TCS.pdf>.

137. See, e.g., MARC HUMPHRIES & CAROL H. VINCENT, CRS ISSUE BRIEF FOR CONGRESS, MINING ON FEDERAL LANDS (2001).

138. Native Forest Council, *The Problem: Timber Sales on Public Lands*, <http://www.forestcouncil.org/learn/features/zerocut/problem.html> (last visited Aug. 14, 2010) (discussing how “[t]he result is a public lands logging program that operates at a net loss of nearly \$1 billion each year.” See also R. NEIL SAMPSON AND LESTER A. DECOSTER, IDAHO FOREST PRODUCTS COMMISSION, *FOREST HEALTH IN THE UNITED STATES* (1998) (on the deleterious 1995 Salvage Rider provision which legitimized the USFS’s wasteful timber policies); Forest Advocate, *Economic Case Against Logging National Forests* <http://tremont.wikispaces.com/logging> (last visited Aug. 14, 2010) (criticizing how “[t]he Forest Service has been unable to provide data on the cost of its timber sale program since 1998. At that time, the agency reported a \$126 million loss. An independent analysis found losses to be three times that amount.”).

Wasteful agricultural subsidies exceeding \$15 billion in 2009 alone are prime candidates for reconsideration;¹³⁹ indeed, of this, \$147.3 million went to Brazilian cotton farmers.¹⁴⁰ From 1995-2009, the U.S. Department of Agriculture distributed over \$245 billion to American farmers,¹⁴¹ with the top 10 percent of these (corporate) recipients receiving 74% of all farm subsidies.¹⁴² These subsidies are clearly distributed to a miniscule subset of farmers, are indifferent to environmentally damaging processes, and severely distort agricultural markets in a plainly ludicrous fashion. The entire scheme for agricultural subsidization is outdated and self-defeating, and should be wholly restructured to allow for the funding of the PTC—a mechanism that, notwithstanding criticism, lays the foundation for a sustainable energy infrastructure well into the future.

B. Infrastructure Bank

Another potential source of revenue could be explored within the confines of the proposed Infrastructure Bank.¹⁴³ President Barack H. Obama, while on the campaign trail, endorsed the idea of chartering a National Infrastructure Bank. The concept was first proposed over a year before by Senators Christopher Dodd, (D-CT), and Chuck Hagel, (R-Neb), in their sponsored bill, the National Infrastructure Bank Act of 2007, and has been widely

139. Environmental Working Group, *Farm Subsidy Database*, <http://farm.ewg.org/region.php?fips=00000&progcode=total&yr=2009> (last visited Aug. 20, 2010). *See also Good Policy, and Bad*, *supra* note 119 (noting that America's support for corn ethanol is equally misguided and wasteful, producing little in the way of substantive results while raising global food prices and lending a negative connotation to all carbon mitigation measures).

140. Michael Grunwald, *Why the U.S. Is Also Giving Brazilians Farm Subsidies*, TIME MAGAZINE, Apr. 9, 2010, available at <http://www.time.com/time/nation/article/0,8599,1978963,00.html> (in order to avoid potential trade distortions and the associated World Trade Organization violations, the US government must subsidize Brazilian cotton growers in order to continue subsidizing its own farmers).

141. Karen Auge, *Spoiled system: Eating healthier comes at a price for families*, DENVER POST, Sept. 5, 2010, http://www.denverpost.com/ci_15996357#ixzz0yrIsQ17R.

142. *See Farming: Farm Subsidies*, EWG.ORG, <http://www.ewg.org/farmsubsidies> (last visited Oct. 1, 2010).

143. Bob Herbert, *Not a Moment Too Soon*, N.Y. TIMES, Nov. 24, 2008, at A31.

supported by governors, congressional leaders, and private financial institutions.¹⁴⁴ Such a national bank, featuring a bipartisan board of directors, would establish “a new method through which the Federal government can finance infrastructure projects of substantial regional or national significance.”¹⁴⁵ The bank would foreseeably issue taxable, tax-credit bonds (with a ceiling of up to \$60 billion) to help finance these infrastructure projects, some of which might very easily be large-scale regional renewable energy developments.¹⁴⁶

The Infrastructure Bank would conceivably be used to fund national infrastructure projects in a controlled, calculated way.¹⁴⁷ To that end, the bank could spur renewable development by offering low-interest loans to private developer partners so as to fund projects at a lower rate than a conventional bank might offer. Further, the interest from those large-scale loans might then be used to subsidize the PTC available to those very same projects. An environmental impact statement will be required under the Infrastructure Bank’s charter, and the clear benefits from clean energy production might weigh heavily against any environmental costs to be incurred (with high value placed on associated security, reliability, and efficiency).¹⁴⁸ The Infrastructure Bank would be following its mandate to stimulate infrastructure projects and national development, while at the same time establishing a clean energy framework, stimulating private investment, and strengthening the fundamentals of the flaccid economy.¹⁴⁹

144. National Infrastructure Bank Act of 2007, S. 1926, 110th Cong. (2007); Humberto Sanchez, *Governors Suggest Creation of National Infrastructure Bank*, NATIONAL JOURNAL’S CONGRESSDAILY, Dec. 2, 2008; *Deutsche Bank Calls for U.S. ‘Green’ Infrastructure Bank*, CARBON CONTROL NEWS, Nov. 24, 2008.

145. See SENATOR CHRISTOPHER J. DODD & SENATOR CHUCK HAGEL, NATIONAL INFRASTRUCTURE BANK ACT OF 2007, available at http://dodd.senate.gov/multi-media/2007/080107_InfrastructurePacket.pdf.

146. Audrey Dutton & Peter Schroeder, *Infrastructure: National Reinvestment Bank Plan Losing Traction, Rendell Warns*, THE BOND BUYER, Jan. 13, 2009.

147. See generally FELIX ROHATYN, BOLD ENDEAVORS 224-27 (2009).

148. *Id.*

149. See *Current Energy Security Challenges: Hearing Before the S. Energy and Natural Res. Comm.*, 111th Cong. (2009) (statement of Eric Schwartz, Member, Energy Security Leadership Council).

President Obama has mentioned numerous times the country's desperate need for an upgrade of its existing electricity transmission and distribution lines, and has been a vocal supporter of the conversion to a national "smart grid."¹⁵⁰ The latest economic stimulus plan proposed by Congress encouragingly includes not only more than \$20 billion, part of which will go towards extension of the renewable energy PTC, but also \$32 billion to fund a "smart electricity grid" to reduce energy waste and make long-distance transfer much more feasible on a national scale.¹⁵¹ In conjunction with a generous, permanent PTC, the Infrastructure Bank-funding of smart grid technology would exponentially benefit the renewable energy industry and the larger national community by expanding and upgrading energy markets. The benefits of these programs—combined with a federal Renewable Portfolio Standard energy quota—would produce a synergistic effect and invite both public and private investments with the lure of steady profits and consistent return on initial capital outlay.

C. Other Funding Mechanisms

The easiest and most obvious source of cost offsetting for the tax expenditure would be repealing the oil, coal, and natural gas subsidies mentioned above.¹⁵² Besides that, there are a number of opportunities for defraying the costs of the program through other taxes and revenue-generating actions. The federal government might use a portion of the proceeds generated from carbon auctions under a greenhouse gas cap and trade program (e.g. one similar to the Regional Greenhouse Gas Initiative, or

150. See, e.g., Kate Galbraith, *Obama Speech Pushes Clean Energy*, Green A Blog About Energy & the Environment, N.Y. TIMES <http://greeninc.blogs.nytimes.com/2009/01/08/obama-speech-pushes-clean-energy/?scp=1&sq=smart%20grid%20obama&st=cse> (Jan. 8, 2009, 2:41 PM) (indicating that President-elect Obama, in appraising economic prospects, favored the transition to a smart grid to "make the country less vulnerable to blackouts or even attacks," in addition to the easily realizable cost-effectiveness of the switch). See also Kate Galbraith, *On the Road to a Smart Grid*, Green A Blog About Energy & the Environment, N.Y. TIMES <http://greeninc.blogs.nytimes.com/2008/12/08/on-the-road-to-a-smart-grid/> (Dec. 8, 2008, 1:06 PM)

151. *Stimulus plan highlights*, CHICAGO DAILY HERALD, Jan. 16, 2009 at 2.

152. Section III.A, *supra*.

RGGI) to help defray the costs of a PTC program.¹⁵³ Putting a predictable, fixed price on carbon is a key part of stimulating significant renewable development, especially during a time of economic recession.¹⁵⁴ The PTC, by itself, is simply ineffective over the long term to spur true development of renewable capacity, given the ability of companies to largely externalize the true costs of burning fossil fuel sources.¹⁵⁵ Pricing carbon sends a signal to the marketplace that investment in clean renewable fuels is a wise business decision and highly cost-effective over the life of the development. Whether this cap and trade system is nationally—or regionally—based, the effect of the price signal should be recognizable.

To that end, the federal government might explore the possibility of delegating the PTC provision to the states or regional entities themselves; as is, the states are often better-situated to decide exactly which industries might derive the most benefit from the PTC.¹⁵⁶ Regional agreements such as RGGI are proving themselves to be highly valuable in subsidizing energy efficiency projects, as industry polluters are forced to account for their negative externalities while simultaneously funding the next generation of renewable and energy efficiency technologies.¹⁵⁷ There is no reason that these proceeds cannot be

153. New York State, Department of Environmental Conservation, Regional Greenhouse Gas Initiative (RGGI): Carbon Dioxide Cap and Trade Program, <http://www.dec.ny.gov/energy/rggi.html> (last visited Aug. 19, 2010).

154. See also Sean Casten, *Prices vs. contracts: Why good CO2 policy needs complex financial markets*, GRIST, May 25, 2010, available at <http://www.grist.org/article/prices-v-contracts-why-good-co2-policy-needs-complex-financial-markets/> (asserting that in addition to carbon prices, long-dated contracts for CO₂ reduction and a sophisticated financial market of derivatives, futures, and other instruments are necessary for achieving substantive renewables investment).

155. See *Good Policy, and Bad*, *supra* note 119 (noting that without subsidies, onshore wind energy “needs a carbon price of \$38” to make investment in renewable capacity worthwhile, while that figure rises to \$196 for solar cells).

156. Currently, companies are not excluded from claiming the federal PTC even if they have also collected on similar state or local tax credits. See IRS, Rev. Rule 2006-9: Certain State Incentives Do Not Trigger a Reduction in PTCs, available at http://www.novoco.com/energy/resource_files/irs_guidance/rulings/rr-06-09.pdf (§ 45 credit is not reduced under § 45(b)(3)).

157. ClimateChangeCorp Climate News for Business, Markets, RGGI: So far, so good, <http://www.climatechangeCorp.com/content.asp?ContentID=5757> (last visited Aug. 15, 2010) (discussing how “all of the 12.6 million vintage 2009

used to fund the PTC provision above any other similar projects. The Northeast states are ideally suited to implement the proposed setup, as electricity generated across vast swaths of rural areas (wind farms) and geothermal installed capacity can provide electricity reliably to concentrated hubs across counties without disrupting pre-existing infrastructure.¹⁵⁸

A carbon tax could work independently or complementarily to level the competitive playing field for more equalized renewable market penetration.¹⁵⁹ “Society is best served by market transactions that reflect both the private and the external costs of producing goods and services.”¹⁶⁰ A carbon tax would force greenhouse gas emitting sources to internalize their previously unregulated externalities, thus finally incorporating environmental quality degradation into the real price of power generation. In coordination with a number of other efforts, many of which are described below, the leveled costs of coal-based electricity generation will more accurately reflect reality.¹⁶¹

allowances offered by participating states . . . were sold at \$3.07 each, well above the minimum of \$1.86 set by the initiative.”). As proceeds are used for “consumer benefit or strategic energy purposes,” these high revenue returns are very good news for renewable energy and energy efficiency programs set to be instituted throughout the region.

158. Fred Pearce, *As Europe Fiddles, U.S. May Take Lead on Climate Change*, YALE ENV'T 360, Jan. 12, 2009, available at <http://e360.yale.edu/content/feature.msp?id=2108>. Another area of energy potential, for the entire West Coast and beyond, is solar thermal panels—“the United States could get 90 per cent of its energy from covering just 10 per cent of the Nevada desert with mirrors.”

159. See generally, CRAIG HANSON & JAMES HENDRICKS, JR., TAXING CARBON TO FINANCE TAX REFORM-, (2006); *Energy Tax Policy*, ISSUES IN SCIENCE & TECH., Jan. 1, 2008 (“Alternative energy subsidies that are currently in place play political favorites and would be unnecessary if the types of energy that policymakers view as undesirable were taxed at an efficient rate. With undesirable forms of energy more costly, the market, rather than government officials, would determine which alternatives are best.”).

160. JOEL DARMSTATDER, RESOURCE FOR THE FUTURE, THE ECONOMIC AND POLICY SETTING OF RENEWABLE ENERGY 7 (2003).

161. HOWARD GRUENSPECHT, RESOURCES FOR THE FUTURE, THE ROLE OF TAX INCENTIVES IN ENERGY POLICY 6 (2001) (finding that “more than 90% of the differential reflected the imputed value of the impact of increased global warming from fossil fuel use, estimated at roughly \$18 per ton of carbon emitted to the atmosphere”).

Academics, economists, and politicians all disagree as to the optimal suite of policies and incentives necessary to mitigate GHG emissions and foster development of renewables in the most efficient way possible, without unfairly distorting the free market.¹⁶² Ideally, a hybrid system would be enacted, with a carbon tax applicable to some economic sectors and a cap and trade system at some level covering the rest, with a range of specific, targeted subsidies and incentives playing a supporting role. Arguably, price distortions as a result of the PTC itself do tend to favor one form of power production at the expense of traditional fossil fuels.¹⁶³ One commentator appropriately noted that what is “done, however misguided, is done; a sunk cost is a sunk cost. To favor windpower or biomass now would merely compound a historic misjudgment by adding a questionable new one.”¹⁶⁴ Fears of gross market distortions are often overblown but certainly not without merit.¹⁶⁵ Still others more crudely extol the virtues of an unimpeded free market.¹⁶⁶ Essentially, the choices boil down to individual policy judgments, but it would be easy to rationalize the case for offering a putative advantage to renewables, of retroactively leveraging past mistakes to serve the promise of America’s future.¹⁶⁷

162. See, e.g., CAROLYN FISCHER & RICHARD NEWELL, ENVIRONMENTAL AND TECHNOLOGY POLICIES FOR CLIMATE CHANGE AND RENEWABLE ENERGY (2004) (arguing that a direct price for carbon, rather than subsidies or an RPS, provides the most efficient incentive for development of renewable technologies).

163. See JOEL DARMSTATDER, RESOURCE FOR THE FUTURE, THE ECONOMIC AND POLICY SETTING OF RENEWABLE ENERGY 7 (2003).

164. *Id.* at 8.

165. For instance, the government of Spain enacted a feed-in tariff program that paid developers 44 euro cents per kWh of electricity generated by solar sources. After developers exploited loopholes and abused the system, the government scaled back their payments. Once the deadline passed, the global solar industry collapsed precipitously, with prices falling 30-40%. See *Good policy, and bad, supra* note 119; Angel Gonzalez & Keith Johnson, *Spain’s Solar-Power Collapse Dims Subsidy Model*, WALL STREET J., Sept. 8, 2009, at A4.

166. This approach is usually dictated by political motivations, as many of the same individuals and organizations that denounce the inequitable result of a PTC are ardent proponents of continued subsidization for conventional beneficiaries like fossil fuels and agriculture. See, e.g., Paul Krugman, *Building a Green Economy*, N.Y. TIMES, Apr. 5, 2010, at MM34.

167. See GRUENSPECHT, RESOURCES FOR THE FUTURE, THE ROLE OF TAX INCENTIVES IN ENERGY POLICY 4 (2001) (“The presence of important externalities [e.g. greenhouse gas and conventional pollutant emissions] creates an exception

D. Restructuring

As far as the PTC itself, it should be extended to residential and commercial sectors for on-site distributive generation to harness the maximum benefits available. Adopting a dual approach—by simultaneously restricting inclusion of non-renewables like natural gas (proposed by some congressional Republicans) while broadening its scope to include non-conventional and newly-invented renewables—would stimulate cutting-edge technology propagation and continue to drive innovation within the clean energy industry. Once the PTC is broadened, additional federal policies can supplement its efficacy, thereby effectively enhancing its economic value to the developer. A federal RPS has already been suggested, and would do wonders to stimulate spirited investment, as the market will be guaranteed for the subsidized product (i.e. clean energy). Furthermore, the federal Tax Code might be amended to allow for immediate capital equipment deductions (i.e. depreciation deductions) for renewable capacity; by allowing this “loss” to be deducted initially rather than capitalized and deducted incrementally over time, the return gain on the investment will be realized at a far quicker pace.¹⁶⁸ Capital investors are much more likely to take the risk when the potential payoff may be realized in only a few years.

Unfortunately, there is currently no existing statutory legislation that would allow the IRS or EPA to simply promulgate regulations and thereby administratively extend the PTC pursuant to Congressional directive. With that in mind, and with the understanding that the new Congressional session has become markedly more liberal in addition to much more sensitive to issues of energy independence, climate change, and renewable energy investment, the easiest way to ensure the future of the PTC at this point would be through new federal legislation that

to the usual presumption favoring neutral tax treatment of competing technologies”). Presumably, the more competing fossil fuel technologies are forced to realize externalities, the less need there is for the PTC. The two strategies are complementary, and one will naturally precipitate the obsolescence of the other.

168. *C.f.* I.R.C. §§ 167, 263 (2006); 26 U.S.C. § 26 (2006) (difference between depreciation deductions and capital expenditure deductions).

would codify its extension over no less than a 10 year period. This piece of super-legislation would send a message of hope and dedication to environmentalists around the world, and would signal a truly inspired change in American foreign and domestic policy, from issues of public infrastructure to national security to true energy independence. Under the auspices of President Obama, this statute will contain provisions for a federal Renewable Portfolio Standard mandating a renewable energy quota, a thirty-year extension of the Renewable Energy Production Tax Credit (with broad definitions to allow for new technologies to penetrate the markets), a cap and trade system, and a final repeal of wasteful, interest-laden fossil fuel subsidies. While certainly a stretch, the future of such legislation is now bright. For the PTC, and the renewable industry at large, it could not come soon enough.

E. Historical Precedent for Government Infrastructure Investment

“Never allow a crisis to go to waste . . . [t]hey are opportunities to do big things,” said White House Chief of Staff Rahm Emanuel.¹⁶⁹ Numerous times throughout its history, the federal government has laid the foundation for a strong, well-integrated national infrastructure. Interestingly, these massive public works projects coincided with periods of disruptive economic turmoil. Yet through strong-willed leadership, the federal government forged a path to a better future. The government has invested heavily and often in every layer of the country’s structural fabric, from transportation to energy to telecommunications.¹⁷⁰ Now, whilst in the throes of a deep international recession, the country is forced to account for years of infrastructure neglect as it is faced with the necessity of investing heavily in smart grid and renewable energy

169. Jeff Zeleny, *Obama Weighs Quick Undoing of Bush Policy*, N.Y. TIMES, Nov. 9, 2008 at A19.

170. *See, e.g.*, Rural Electrification Act of 1936, 7 U.S.C. 31 (2000); The Pacific Railway Acts of 1862, 12 Stat. 489 (2000); The Reconstruction Finance Corporation Act, 47 Stat. 5 (1932).

technologies.¹⁷¹ The ultimate fate of the Production Tax Credit strikes at the heart of a far greater question—will the government once more have the courage and foresight to invest in America’s energy future? The recent British Petroleum oil spill in the Gulf of Mexico further underscores the pressing need—and the unique opportunity—to revamp our energy infrastructure and economic underpinnings through extensive reform and proactive progressive policies.¹⁷² The potential benefits include job growth,¹⁷³ increased domestic production of renewable capital,¹⁷⁴ cost decreases,¹⁷⁵ and increased investment in America’s infrastructure and energy future. This is exactly the sort of stimulation that this recessed economy needs.¹⁷⁶

171. See American Society of Civil Engineers, 2009 Report Card for America’s Infrastructure, <http://www.asce.org/reportcard/2009/> (last visited Aug. 20, 2010).

172. See N.Y. Times, Times Topics, Gulf of Mexico Oil Spill (2010), http://topics.nytimes.com/top/reference/timestopics/subjects/o/oil_spills/gulf_of_mexico_2010/index.html?scp=1-spot&sq=oil%20spill&st=cse (last visited Aug. 20, 2010).

173. Mesa Power Places World’s Largest Single-Site Turbine Purchase Order, ENERGY & ECOLOGY, May 26, 2008 (noting that large wind development projects will raise the personal income throughout the investment areas by increasing lease payments to landowners, providing jobs for local workers, etc.).

174. Ben Geman, *Wind Power: Industry Reports Sharp Growth, Renews Plea for Tax Certainty*, GREENWIRE, Jan. 23, 2007 (U.S. is home to just “one of the top 10 turbine makers, which is GE”). See also Thomas Friedman, *Flush with Energy*, N.Y. TIMES, Aug. 9, 2008 (noting that 35 wind turbine producers have emerged from China in the last 18 months, and none from the U.S.). See also *Clean Energy: From the Margins to the Mainstream: Hearings of the S. Finance Comm.*, 109th Cong. (2007) (statement of Ryan Wiser, Scientist, Lawrence Berkeley National Laboratory) (finding that “with a 10 year PTC extension, you might be able to increase the domestic manufacturing share significantly to roughly 70 percent, bringing with it jobs and local economy development benefits”).

175. See RYAN WISER, MARK BOLINGER & GALEN BARBOSE, USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND POWER IN THE UNITED STATES 6 (2007) (“savings were estimated to come, in part, from delinking U.S. wind turbine prices from the Euro-Dollar exchange rate and reducing transportation costs as local manufacturing becomes more prevalent”);

176. See *New Energy Finance’s Zindler Discusses Prospects for Clean Energy Investment*, E&E NEWS PM, Oct. 21, 2008.

CONCLUSION

The Production Tax Credit has had more than enough time to prove its merit, and the results have been unequivocally positive. Since its inception in 1992 through its various legislative iterations, it has served to stimulate robust financial investment in a desperate sector of the American infrastructure. In weathering relentless partisan political attacks, the Credit has emerged as a vital piece of the energy puzzle moving forward, a trait that legislators on both sides of the aisle have come to recognize (if not internalize).

Some might argue that enacting any of the above recommendations would constitute an unjustifiable federal interference with private enterprise, with no clear return on that investment for the benefit of the taxpayers. Such a view is inherently misguided. Issues of consumer reliability and environmental destruction are frequently subsumed within the larger concerns of national security. Liberating the country from the traditional restraints associated with volatile fuel prices and vulnerability to aggressive supplier nations should be enough of a reason to motivate a permanent and emphatic shift towards cleaner, more reliable sources of energy.

But to continue nurturing the economic development of the fragile renewable energy industry, it is imperative to extend the PTCs for a lengthy period of ten years or more. The transition to a federal RPS will only facilitate this investment and development, but should be used to strengthen the effect of the PTCs. Extending these credits to a variety of different sources, from wind to geothermal, was a step in the right direction and should be built upon moving ahead.

As a template for the future, Congress should expand the scope of the PTC to cover cutting-edge energy generation technology, and should include the residential and commercial sectors for on-site distributed generation. The longer the government can guarantee economic stability in this form, the faster economies of scale will be achieved uniformly across the regions that are best able to exploit renewable resources. The best hope for America's energy future is a combination of incentive measures, with the Production Tax Credit headlining the charge. Let us hope that our leaders can muster the political

2010]

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821

will necessary to break our crippling addiction, to achieve true energy independence in the face of a world strained by our very existence.