

Renewable Energy Financial Incentives: Focusing on Federal Tax Credits and the Section 1603 Cash Grant: Barriers to Development

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Renewable energy sources are the wave of the future. Based on worldwide oil consumption rates, some experts estimate that oil may be exhausted within the next fifty to one hundred years. To remedy the situation, many countries are pressing for increased use in renewable energy sources. To foster renewable energy development, the United States offers financial incentives such as the Investment Tax Credit, Production Tax Credit, and the section 1603 Cash Grant. Unfortunately, these financial incentives are not as effective as they should be because of barriers to development and there are lapses in the renewal of the incentives. This Article explores the effectiveness of the financial incentives, how barriers to development affect renewable energy growth, and offers recommendations to foster renewable energy development and a more effective incentive-based system in the United States.

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I. INTRODUCTION

The United States relies heavily on coal, oil, and natural gas for energy

consumption.¹ This is particularly alarming because as the world's largest petroleum consumer, the United States imported about 49% of the petroleum it consumed during 2010.² On the positive side, the United States has increasingly imported less oil since 2005.³ Increased efficiency, changes in consumer behavior, and new renewable energy sources have caused this shift in oil consumption.⁴

Renewable energy sources are extremely beneficial because they never run out.⁵ Examples of such resources are the sun and wind. Renewable energy sources now comprise approximately 9% of total energy consumption.⁶ The major renewable energy sources are: wind, biomass, geothermal, hydroelectric and solar.⁷ Wind energy contributes to 13% of the total energy output from renewable energy sources.⁸ This Article discusses renewable energy, focusing on wind renewable energy development at times, and analyzes the financial incentives to increase renewable energy production and consumption.

Numerous barriers to renewable energy development exist, such as high initial investment, local opposition, and the fluctuation of fossil fuel prices.⁹ In response to development barriers, Congress passed a number of federal financial incentives to stimulate the production of renewable energy. The Internal Revenue Service (IRS) offers a Production Tax Credit (PTC), Investment Tax Credit (ITC), and used to offer a section 1603 cash grant.¹⁰

The problem with tax credits/grants is that Congress may not renew them, allowing the credit/grant to lapse.¹¹ This creates uncertainty for investors to

¹ See Gary C. Bryner, *Challenges In Developing A Diverse Domestic Energy Portfolio: Integrating Energy And Climate Policy In The Western United States*, 15 N.Y.U. ENVTL. L.J. 73, 73-74, 83 (2007) (discussing that "increasing reliance on imported energy, particularly oil, to meet our growing demand for energy generates tremendous pressure to increase our domestic production of energy").

² *How Dependent Are We On Foreign Oil?*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm (last updated July 13, 2012).

³ *Id.*

⁴ *Id.*

⁵ *Types of Renewable Energy*, RENEWABLEENERGYWORLD.COM, <http://www.renewableenergyworld.com/rea/tech/home> (last visited Mar. 3, 2013).

⁶ See *Total Energy: Annual Energy Review*, U.S. ENERGY INFO. ADMIN., <http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb0103> (last updated Sept. 2012).

⁷ *Renewable Energy Explained*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/energyexplained/index.cfm?page=renewable_home (last visited Mar. 3, 2013).

⁸ *Id.*

⁹ See Erin Dewey, Note, *Sundown and You Better Take Care: Why Sunset Provisions Harm the Renewable Energy Industry and Violate Tax Principles*, 52 B.C. L. REV. 1105, 1112-13 (2011) (discussing the barriers to renewable energy development).

¹⁰ 26 U.S.C. § 45 (2012); 26 U.S.C. § 48 (2012); MARK BOLINGER, ERNEST ORLANDO LAWRENCE BERKELEY NAT'L LAB., REVEALING THE HIDDEN VALUE THAT THE FEDERAL INVESTMENT TAX CREDIT AND TREASURY CASH GRANT PROVIDE TO COMMUNITY WIND PROJECTS 2 (2010), available at <http://eetd.lbl.gov/EA/EMP/reports/lbnl-2909e.pdf>.

¹¹ *Energy Tax Policy and Tax Reform: Hearing Before H. Comm. on Ways and Means*, 112th

invest in renewable energy projects because if the financial incentives lapse before the renewable energy project is placed into service the investors cannot take advantage of the financial incentives.¹²

II. HISTORY

In the early 1900s, privately owned generators generated electric power.¹³ By 1930, sixteen companies owned 75% of the generators in the United States.¹⁴ Following the concentration of ownership over power generators, Congress enacted the Public Utility Holding Company Act to regulate these companies.¹⁵ Congress also created the Federal Power Commission in 1935.¹⁶ This later became the Federal Energy Regulatory Commission (FERC).¹⁷

Over the years power generation has evolved. Although the United States still heavily relies on traditional sources such as gas and oil, there has been a push towards renewable energy generation.¹⁸ Petroleum resources are drying up and the United States is importing a major percentage of its energy resources. To promote self-sufficiency and sustainability, the United States must begin to heavily rely on renewable energy. This Article focuses on illustrating the benefits of renewable energy, both environmentally and economically, and on how the United States is promoting the growth of renewable energy development.

A. Why Use Renewable Energy?

Environmentally, it is important for the United States to focus on the usage of renewable energy sources. Unlike fossil fuels, renewable energy use likely reduces pollutants and climate change because renewable energy sources do not emit toxins or carbon dioxide.¹⁹ In 2011, renewable energy represented about 9% of all energy consumed and 13% of all electricity consumed.²⁰

Economically, it also makes sense for the United States to rely more on

Cong. 14 (2011) (statement of Neil Z. Auerbach, Managing Partner of Hudson Clean Energy Partners), available at <http://waysandmeans.house.gov/uploadedfiles/auerbachtestimony922.pdf>.

¹² *Id.*

¹³ Kristin Bluvas, Comment, *Distributed Generation: A Step Forward in United States Energy Policy*, 70 ALB. L. REV. 1589, 1591 (2007) (noting that “during the early 1900s many of the small generation resources were purchased by largely privately-owned holding companies, and by 1930 about sixteen companies owned seventy-five percent of the generators in the United States”).

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ See Bryner, *supra* note 1, at 73.

¹⁹ Dewey, *supra* note 9, at 1110.

²⁰ *Renewable Basics: What is Renewable Energy?*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/kids/energy.cfm?page=renewable_home-basics (last visited Mar. 3, 2013).

renewable energy sources. Historically, the United States has increasingly used coal, gas and petroleum sources for energy needs.²¹ Currently, 83% of electricity consumed in the United States derives from fossil fuels.²² This is a problem because the United States is a major importer of energy sources.²³ Converting to renewable energy is a reasonable alternative, because as a dependent on foreign energy imports, the United States subjects consumers to price volatility and uncertainty.²⁴

Recently, however, energy consumption deriving from coal, gas, and petroleum sources has declined and steadied.²⁵ Increased investment and financial incentives into the renewable energy market should increase renewable energy development and shift dependence from foreign markets. Wind energy comprises a large portion of this renewable energy growth.

B. Wind Energy

A government study noted that “[w]ind energy is expanding rapidly in the United States: Over the last 4 years, wind power has contributed approximately 35% of all new electric power capacity.”²⁶ In 2009, wind power capacity in the United States increased more than 40%.²⁷ Wind energy also represented 2.3% of United States electricity supply in 2010.²⁸ Wind power is the fastest growing renewable source energy, and in 2009 wind power generation increased 33.4% from 2008.²⁹ For 2009, wind power represented 1.6% of total power generation.³⁰ Wind power generation has increased so much in the past decade that in 2009 the United States led the world in 35,155 Megawatts of cumulative capacity.³¹ The United States must maintain this growth to steer away from foreign energy resources and achieve a heavier reliance on renewable energy. For this to occur, wind power development must increase through

²¹ U.S. ENERGY INFO. ADMIN., STATE ENERGY CONSUMPTION ESTIMATES: 1960 THROUGH 2009, at 21 (2011), available at http://www.eia.gov/state/seds/sep_use/notes/use_print2009.pdf.

²² Dewey, *supra* note 9, at 1110.

²³ See *How Dependent Are We On Foreign Oil?*, *supra* note 2.

²⁴ See Dewey, *supra* note 9, at 1110.

²⁵ U.S. ENERGY INFO. ADMIN., *supra* note 21, at 21.

²⁶ Jason P. Brown et al., *Economic Impacts of Wind Turbine Development in U.S. Counties*, U.S. DEP'T OF AGRIC. (July 24-26, 2011), <http://eetd.lbl.gov/EA/EMP/reports/wind-turbine-dev.pdf>.

²⁷ RYAN WISER & MARK BOLINGER, U.S. DEP'T OF ENERGY, 2009 WIND TECHNOLOGIES MARKET REPORT 6 (2010), available at <http://eetd.lbl.gov/EA/EMP/reports/lbnl-3716e-ppt.pdf>

²⁸ U.S. ENERGY INFORMATION ORG EXAMINES FEDERAL ENERGY INTERVENTIONS AND SUBSIDIES 2011 TNT 151-24 (a report discussing subsidies that are provided by the federal government and using data to analyze if the subsidies have had an effect on electricity production in the United States); Brown et al., *supra* note 26.

²⁹ *Wind*, U.S. ENERGY INFO. ADMIN. (Jan. 2011), <http://www.eia.gov/cneaf/solar.renewables/page/wind/wind.html>.

³⁰ See *id.*

³¹ WISER & BOLINGER, *supra* note 27, at 8.

manufacturing wind towers, turbines, and blades.³² To stimulate this growth and increased reliance, the IRS offers financial incentives for renewable energy development.

C. Renewable Energy Incentives

In 1978 Congress enacted the Energy Tax Act.³³ This Act provided the first available tax incentive to promote renewable energy growth.³⁴ The Energy Tax Act of 1978 offered a ten percent investment tax credit for material investments in renewable energy facilities.³⁵ In 1985, Congress and President Reagan allowed the investment tax credit to lapse.³⁶ This resulted in the expiration of the investment tax credit and brought the growth of the wind industry to a standstill.³⁷

1. Production Tax Credit

The Energy Policy Act of 1992 first established the PTC.³⁸ The Act offered 1.5 cent/kilowatt hour production-based-credit for the first ten years of renewable energy project operation.³⁹ The credit initially only applied for wind plants placed in service between 1994 and mid-1999 or biomass plants placed in service between 1993 and mid-1994.⁴⁰ Congress has since allowed the PTC to lapse and renew typically for one-to-two year periods.⁴¹ As discussed later in Part II, these lapsing periods pose a real problem for renewable energy developers and investors that depend on the credit.

To qualify for the PTC, the renewable energy must be: (1) produced by the taxpayer from qualified energy resources and at a qualified facility during the ten year period beginning on the date the facility was originally placed in

³² Jeffrey S. Hinman, *The Green Economic Recovery: Wind Energy Tax Policy After Financial Crisis and the American Recovery and Reinvestment Tax Act of 2009*, 24 J. ENVTL. L. & LITIG. 35, 42 (2009) (discussing the revenue generated and the employability through renewable energy development, growth and sustainability).

³³ Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (1978).

³⁴ Eric S. Spengler, *A Shift in the Wind: The Siting of Wind Power Projects on Public Lands in the Obama Era*, 86 IND. L.J. 1185, 1204 (2011) (noting the general provisions of the investment tax credit and also the history of the production tax credit and the effect that the lapses have had on renewable energy development).

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ RYAN WISER ET AL., ERNEST ORLANDO LAWRENCE BERKELEY NAT'L LAB., USING THE FEDERAL PRODUCTION TAX CREDIT TO BUILD A DURABLE MARKET FOR WIND POWER IN THE UNITED STATES 1-2 (2007), available at <http://eetd.lbl.gov/ea/emp/reports/63583.pdf>.

³⁹ *Id.* at 2.

⁴⁰ *Id.*

⁴¹ *Id.*

service; and (2) sold by the taxpayer to an unrelated third party during the taxable year.⁴² The term “qualified energy resources” includes wind energy, solar energy, and geothermal energy.⁴³ A wind facility is “a facility using wind to produce electricity”⁴⁴ A “qualified facility” “means any facility owned by the taxpayer which is originally placed in service after December 31, 1993, and the construction of which begins before January 1, 2014.”⁴⁵

But the PTC is a complex financial incentive and typically only “tax equity investors” (large institutions such as banks and insurance companies) can take advantage of the credit.⁴⁶ Tax equity is a form of financing where the investor receives a return on the investment based on the tax credits.⁴⁷ Essentially, developers partner with investors, investors claim ownership of the project while receiving investment returns, and once the returns are realized, ownership of the project reverts back to the developer.⁴⁸

2. The Energy Policy Act of 2005

In 2005, Congress enacted the Energy Policy Act of 2005 (EPACT).⁴⁹ The Act goes so far as to direct the Secretary of the Interior to approve renewable energy projects.⁵⁰ Title II of the Act that prioritized the development of renewable energy is particularly important.⁵¹ The Act adjusted “federal target percentages for renewable energy to 3% for 2007-2009, 5% for 2010-2012, and 7.5% for 2013.”⁵² The Act also extended the PTC for another two years.⁵³ As discussed below, PTC extensions tend to be a problematic scheme for energy manufacturers. The Act demonstrates the recent trend towards a push for greater reliance on renewable energy over more traditional energy sources such as coal.

⁴² 26 U.S.C. § 45 (2006).

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ See Auerbach, *supra* note 11, at 15.

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005) (codified in scattered sections of 42 U.S.C.).

⁵⁰ See *W. Watersheds Project v. BLM*, 774 F. Supp. 2d 1089, 1103 (D. Nev. 2011) (discussing that expediting renewable energy projects will help facilitate renewable energy goals).

⁵¹ See Energy Policy Act, 119 Stat. at 594; *Backcountry Against Dumps v. Abbott*, No. 10-cv-1222 BEN (BGS), 2011 U.S. Dist. LEXIS 90163, at *19-20 (S.D. Cal. Aug. 12, 2011); Bluvás, *supra* note 13, at 1596.

⁵² Bluvás, *supra* note 13, at 1596 (noting the goals for increasing renewable energy development and production in the aforementioned years).

⁵³ Energy Policy Act, 119 Stat. at 594.

3. American Recovery and Reinvestment Act of 2009

In 2009, Congress established the American Recovery and Reinvestment Act of 2009 (ARRA).⁵⁴ The Act provides for three major renewable energy developments. First, the Act extended the validity of the PTC for three years, lasting until December 31, 2012.⁵⁵ The incentive provides for a 1.2 cent/kilowatt hour electricity PTC.⁵⁶ Second, the Act provided renewable wind energy developers to take advantage of another tax credit, called the Investment Tax Credit (ITC).⁵⁷ Lastly, ARRA provided a separate credit named section 1603 (“section 1603 cash grant”).⁵⁸

4. The Investment Tax Credit

The ITC is available for the same renewable energy developments that qualify under the PTC.⁵⁹ This includes wind energy developments. By electing the ITC, developers receive a one-time 30% credit for the renewable energy project’s cost the year the facility begins commercial operations.⁶⁰ Developers can only choose one credit, so if developers choose the ITC, they forego the ten-year PTC.⁶¹ Similar to the PTC, the investors that can take advantage of the credit are limited and are typically restricted to tax equity investors.⁶² Investors may carry the credit back one year and forward twenty years.⁶³

⁵⁴ See American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009); Ernest E. Smith & Becky H. Diffen, *Winds of Change: The Creation of Wind Law*, 5 TEX. J. OIL GAS & ENERGY L. 165, 168-70 (2010) (discussing the general provisions of the American Recovery and Reinvestment Act of 2009).

⁵⁵ American Recovery and Reinvestment Act, 123 Stat. 115, 319; Smith & Diffen, *supra* note 54, at 168-69.

⁵⁶ See U.S. ENERGY INFORMATION ORG EXAMINES FEDERAL ENERGY INTERVENTIONS AND SUBSIDIES, *supra* note 28.

⁵⁷ American Recovery and Reinvestment Act, 123 Stat. 115, at 319-20; Smith & Diffen, *supra* note 54, at 169; see also U.S. ENERGY INFORMATION ORG EXAMINES FEDERAL ENERGY INTERVENTIONS AND SUBSIDIES, *supra* note 28.

⁵⁸ See American Recovery and Reinvestment Act, 123 Stat. 115, at 364-66; see also Margaret Caffey-Moquin et al., *Committee Reports: Report of the Renewable Energy Committee*, 32 ENERGY L.J. 405, 406-07 (2011) (discussing the background of the American Recovery and Reinvestment Act of 2009, specifically the provisions relating to the § 1603 cash grant).

⁵⁹ Caffey-Moquin et al., *supra* note 58, at 406.

⁶⁰ Smith & Diffen, *supra* note 54, at 169.

⁶¹ *Id.*

⁶² See Auerbach, *supra* note 11, at 15.

⁶³ ED FEO & STEPHEN TRACY, COMMERCIAL FINANCE: THE DARK ARTS OF LEVERAGE, TAX EQUITY, LEASES AND MORE 21 (2009), available at http://www.novoco.com/energy/resource_files/reports/sbt_finalpreso_102609.pdf (discussing financing structures, federal tax law, and sources of financial incentives).

5. Section 1603 Cash Grant

Section 1603 provides for a 30% cash grant of the qualified eligible cost-basis in the property,⁶⁴ as defined in Internal Revenue Code section 1012.⁶⁵ Section 1603 operates by allowing renewable energy developers to convert the PTC to an ITC and then receive a grant equal to the amount allowed by the ITC.⁶⁶ The federal government provides these funds to energy developers.⁶⁷ By December 6, 2010, section 1603 cash grants had been awarded to 1,495 entities with grants totaling approximately \$5.6 billion.⁶⁸ The section 1603 cash grant was extended for one year as part of the Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010 to developers that began development prior to the end of 2011.⁶⁹

Since 2010, Congress has not renewed the section 1603 cash grant.⁷⁰ The President's 2012 budget and the President's 2012 tax reform plan contain extension provisions.⁷¹ Without a further extension, renewable energy developers will have to rely on the inconsistent legislation of tax credits.

The section 1603 cash grant was available for renewable energy projects "originally placed in service in 2009, 2010, and 2011."⁷² For renewable energy projects placed in service after 2011, the section 1603 cash grant is only available if construction of the renewable energy project "began in 2009, 2010, or 2011," the renewable energy project is "placed in service before 2013 (in the

⁶⁴ American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5 § 1603, 123 Stat. 364 (2009); see Caffey-Moquin et al., *supra* note 58, at 424.

⁶⁵ See 26 U.S.C. § 1012 (2012). The basis of property shall be the cost of such property, except as otherwise provided in the subchapter. *Id.* § 1012 (a).

⁶⁶ Auerbach, *supra* note 11, at 11-12.

⁶⁷ See Smith & Diffen, *supra* note 54, at 169.

⁶⁸ See Philip Brown & Molly F. Sherlock, *CRS Examines Options on Grants in Lieu of Renewable Energy Tax Credits* 2011 TNT 86-22 (discussing the beneficial impact the § 1603 cash grant has had on renewable energy development and also the financial burden the provision placed upon the United States).

⁶⁹ See Tax Relief, Unemployment Reauthorization, and Job Creation Act of 2010, Pub. L. 111-312, § 707, 124 Stat. 3296, 3312 (2010); Auerbach, *supra* note 11, at 17; Caffey-Moquin et al., *supra* note 58, at 407.

⁷⁰ See North American Windpower, *Latest Legislation Fails to Extend Section 1603 Cash Grant Program*, NAT'L WIND WATCH (Dec. 27, 2011), <http://www.wind-watch.org/news/2011/12/29/latest-legislation-fails-to-extend-section-1603-cash-grant-program/>.

⁷¹ See THE WHITE HOUSE AND THE DEP'T OF THE TREASURY, THE PRESIDENTS FRAMEWORK FOR BUSINESS TAX REFORM: A JOINT REPORT BY THE WHITE HOUSE AND THE DEPARTMENT OF THE TREASURY 12 (2012), available at <http://www.treasury.gov/resource-center/tax-policy/Documents/The-Presidents-Framework-for-Business-Tax-Reform-02-22-2012.pdf>; see also OFFICE OF MGMT. & BUDGET, FISCAL YEAR 2013 BUDGET OF THE U.S. GOVERNMENT, OFFICE OF MANAGEMENT AND BUDGET 53, 57, 102, 132 (2012), available at <http://www.whitehouse.gov/sites/default/files/omb/budget/fy2013/assets/budget.pdf>.

⁷² DEP'T OF THE TREASURY, GENERAL EXPLANATIONS OF THE ADMINISTRATION'S FISCAL YEAR 2013 REVENUE PROPOSALS 35 (Feb. 2012), available at http://www.novoco.com/hottopics/resource_files/fy2013_greenbook.pdf.

case of wind facility property),” before 2014 for renewable energy projects “that could, but for the receipt of the grant, qualify for the renewable electricity production tax credit,” or before 2017 for any other renewable energy property.⁷³

Even with such financial incentives, barriers to entry remain, preventing developers from commencing renewable energy projects and investors from investing in such projects. These barriers to entry include federal compliance to the National Environmental Policy Act (NEPA) and state compliance. These regulations may force developers to undergo a lengthy and expensive process, which may prevent the renewable energy project from being placed in service on time. If the renewable energy project is not placed in service on time, the financial incentives cannot be taken advantage of.

D. National Environmental Policy Act and Other Barriers to Development

Renewable energy developers must comply with NEPA. NEPA requires that federal agencies “prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment.”⁷⁴ These statements are referred to as environmental impact statements (EISs).⁷⁵ Under NEPA, if an agency has a major federal action, then it must decide whether the project will significantly affect the environment.⁷⁶

If the agency is unsure of the environmental impact, then the agency should prepare an environment assessment (EA).⁷⁷ At this point, two avenues exist. First, if the agency determines that the project will not have a significant environmental impact; it may issue a formal finding of no significant impact (FONSI) and may continue the project.⁷⁸ Second, if the project may have a significant environmental impact, the agency must prepare an EIS before deciding to proceed with the project.⁷⁹ If an EIS must be prepared, the agency must draft the EIS, undergo a comment period, and submit a final EIS in response to the comments.⁸⁰ Subsequently, a decision is made regarding whether

⁷³ *Id.*

⁷⁴ *National Environmental Policy Act (NEPA)*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/compliance/basics/nepa.html> (last visited Mar. 4, 2013); *see* 42 U.S.C.A. § 4332 (2012).

⁷⁵ *See* *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 757 (2004); U.S. ENVTL. PROT. AGENCY, *supra* note 74.

⁷⁶ *See* 42 U.S.C.A. § 4332 (2012); U.S. ENVTL. PROT. AGENCY, *supra* note 74..

⁷⁷ *See* 40 C.F.R. § 1508.9 (2013); U.S. ENVTL. PROT. AGENCY, *supra* note 74.

⁷⁸ *See* 40 C.F.R. § 1501.4(e) (2013); U.S. ENVTL. PROT. AGENCY, *supra* note 74.

⁷⁹ *See* *O’Reilly v. U.S. Army Corps of Eng’rs*, 477 F.3d 225, 239 (5th Cir. 2007) (citing *Louisiana v. Lee*, 758 F.2d 1081, 1085 (1985) (“If the court finds that the project may have a significant impact, the court should order the agency to prepare an EIS.”); U.S. ENVTL. PROT. AGENCY, *supra* note 74.

⁸⁰ U.S. ENVTL. PROT. AGENCY, *supra* note 74; *see* 40 C.F.R. §§ 1503.1-1503.4 (2013).

the project proceeds or not.⁸¹ This process is the same if the agency determined from the outset that the project would have a significant impact on the environment.⁸²

No matter the outcome of the EIS, renewable energy developers incur the cost of NEPA compliance.⁸³ For example, an EIS for a wind energy project can exceed \$1 million.⁸⁴ A 2008 study determined that, on average, it takes federal agencies a little over three years to prepare an EIS statement.⁸⁵

E. Massachusetts Environmental Policy Act

The Massachusetts Environmental Policy Act (MEPA) requires that a state agency “study the environmental consequences of their actions, including permitting and financial assistance.”⁸⁶ MEPA also requires that state agencies take measures to “avoid, minimize, and mitigate damage to the environment.”⁸⁷ MEPA only applies when a project is either proposed by a state agency or by municipal, nonprofit, or private parties that require a permit, financial assistance, or a land transfer from a state agency.⁸⁸ MEPA does not perform the permitting of the project itself; MEPA only facilitates the permitting agencies knowledge of environmental consequences.⁸⁹

If a project is subject to MEPA, and it meets or exceeds at least one review threshold or the Secretary requires a fail-safe review, then the agency “must prepar[e] and fil[e] an Environmental Notification Form (ENF) with the Secretary.”⁹⁰ Within thirty days of publication, the Secretary, agencies, and other persons review and comment on the ENF.⁹¹ The Secretary then decides if the agency must file an Environmental Impact Report (EIR), and if not, the agency can take immediate action on the project (notwithstanding other

⁸¹ See U.S. ENVTL. PROT. AGENCY, *supra* note 74.

⁸² *Id.*

⁸³ Spengler, *supra* note 34, at 1195.

⁸⁴ *Id.*

⁸⁵ Piet deWitt & Carole A. deWitt, *How Long Does It Take to Prepare an Environmental Impact Statement?*, 10 ENVTL. PRAC. 164, 170-71 (2008).

⁸⁶ *MEPA Environmental Notification Form (ENF) Project Sites*, MASS. EXEC. OFFICE FOR ADMIN. & FIN. (July 2008), <http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/mepa.html> (giving a general background regarding the MEPA environmental notification form); see MASS. GEN. LAWS ANN. ch. 30, § 61 (West 2012).

⁸⁷ MASS. GEN. LAWS ANN. ch. 30, § 61 (West 2013); MASS. EXEC. OFFICE FOR ADMIN. & FIN., *supra* note 86.

⁸⁸ MASS. EXEC. OFFICE FOR ADMIN. & FIN., *supra* note 86; see MASS. GEN. LAWS ANN. ch. 30, § 61 (West 2012); *Ten Persons of the Commonwealth v. Fellsway Dev. LLC*, 951 N.E.2d 648, 652 (Mass. Sup. Jud. Ct. 2011).

⁸⁹ MASS. EXEC. OFFICE FOR ADMIN. & FIN., *supra* note 86.

⁹⁰ *Id.*

⁹¹ *Id.*

limitations).⁹²

An EIR is filed with the Secretary.⁹³ Unless the Secretary has indicated otherwise, the description and analysis in the EIR should reflect the status and design of the project.⁹⁴ This information includes the type and size of the project, action requirements by any agency, and reasonable alternatives and measures to mitigate environmental impact.⁹⁵ If an EIR is required, it can take between six months to a year to complete before a renewable energy project may be placed in service (notwithstanding NEPA requirements).⁹⁶

If a project meets all of the compliance requirements and has the necessary investment, there are still guidelines that the renewable energy development must adhere to. If these guidelines remain unmet, the federal tax credit/grant may not be available for the developer/investor to use.

F. Tax Credits/Grant Guidelines

Certain guidelines regarding federal tax credits/grants exist. These guidelines restrict developers from receiving the tax credit/grant in the first place, and continue through the renewable energy project's placement in service. These limitations include: property used as a public utility property, property already receiving a credit or grant, and property used outside the United States or for lodging purposes.⁹⁷ Generally, credits can only apply against passive income.⁹⁸ This passive income limitation applies to individuals and closely held corporations,⁹⁹ although such corporations may offset net active income with a tax credit.¹⁰⁰ Some costs that are ineligible for offset include: permanent loan fees, organization costs, costs allocated to the building, and transmission lines to the grid.¹⁰¹

Regarding a sale/leaseback, a lessee can place the renewable energy project in service and the lessor can still take advantage of the credit if the sale/leaseback occurs within ninety days of the project's placement in service.¹⁰² Also, a credit will not be awarded if the property is leased to the following individuals/organizations:

⁹² See *id.*

⁹³ 301 MASS. CODE REGS. § 11.07 (2013).

⁹⁴ *Id.*

⁹⁵ *Id.*

⁹⁶ See Department of Planning, Building, and Code Enforcement, *Typical EIR Processing Timeline*, available at <http://www.sanjoseca.gov/documentcenter/view/1633> (last visited April 14, 2013).

⁹⁷ FEO & TRACY, *supra* note 63, at 21.

⁹⁸ *Id.* at 22.

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at 29

¹⁰² *Id.* at 32

(1) “tax-exempt organizations (unless used in an unrelated trade or business whose income is taxable to the tax-exempt);” (2) “the US, any State or political subdivision, any US possession or any agency or instrumentality of the foregoing;” or (3) “foreign persons (unless more than 50% of the income is subject to US tax either directly or under the controlled foreign corporation regime).”¹⁰³

III. ANALYSIS

This section provides a discussion regarding whether tax credits spur energy development growth, the problems that arise in enacting and trying to take advantage of tax credits, and to whom the tax credits are available. This section also addresses whether state and federal requirements prohibit the development of energy projects. Lastly, this section discusses economic factors that may contribute to energy growth, predictions for future energy growth and tax credit analysis in consideration with federal and state level requirements.

A. *Federal and State Level Requirements and Other Barriers to Entry*

1. Federal

For a renewable energy developer/tax equity investor to take advantage of the PTC, ITC, or section 1603 cash grant, the project must satisfy NEPA requirements, which include an EIS statement. Much scrutiny revolves around whether NEPA requirements apply or not. To determine whether renewable energy projects must comply with NEPA requirements, each part of the phrase “major federal action significantly affecting the environment” must apply.¹⁰⁴ Renewable energy developers argue that each part of the phrase does not apply to avoid the lengthy and expensive process of the EIS statement.

a. “Major Federal Action”

When deciding whether a renewable energy project constitutes a “major federal action,” multiple factors are considered. Some factors in making this determination are: the amount of federal funds expended by the action, the number of people affected, the length of time consumed, and the extent of the government planning involved.¹⁰⁵ A considerable factor in determining whether a project is a “major federal action” is the nature and extent of federal

¹⁰³ *Id.* at 39.

¹⁰⁴ See U.S. ENVTL. PROT. AGENCY, *supra* note 74.

¹⁰⁵ See Randy J. Sutton, *Jurisdiction of Federal Court in Action Under National Environmental Policy Act (NEPA)*, 42 U.S.C.A. §§ 4321 to 4347, as Determined by Whether Federal Defendants Have Undertaken “Major Federal Action”, 53 A.L.R. FED. 2D 489, § 2 (discussing NEPA requirements, specifically whether an EIS must be filed or not according to the terms of the statute).

funding.¹⁰⁶ Many courts agree that the funding must be significant.¹⁰⁷ The federal funding amount may be analyzed by comparing federal funding to the overall cost of the renewable energy project.¹⁰⁸

b. “Federal”

Something that is federal “encompasses not only actions by the federal government, but also actions by nonfederal actors ‘with effects that may be major and which are potentially subject to Federal control and responsibility.’”¹⁰⁹ Further, “the distinguishing feature of ‘federal’ involvement is the ability to influence or control the outcome in material respects.”¹¹⁰

Renewable energy developments that take federal tax credits/grants appear to qualify as “federal” projects. Without the federal tax credit/grant, renewable energy projects would not be financially attractive for investors. This would lead to a lack of sufficient funding for renewable energy construction. Therefore, the federal government affects the outcome of renewable energy development through the availability of tax credits/grants. Hence, when the federal government provides a tax credit/grant for a renewable energy project, the project qualifies as a “federal” project.

If a tax credit/grant is not used, however, then the only way a renewable energy development can be deemed “federal” is if it is subject to federal responsibility or control. Most of the federal regulations for renewable energy relate to renewable energy consumption. These regulations do not apply. For example, the Energy Policy Act of 2005 mandates renewable energy consumption requirements for federal buildings.¹¹¹

Usually, federal permits are needed to construct a renewable energy project.¹¹² These federal permits are almost always required for large-scale

¹⁰⁶ *Ka Makani ‘O Kohala Ohana Inc. v. Water Supply*, 295 F.3d 955, 960 (9th Cir. 2002) (citing *Sierra Club v. Penfold*, 857 F.2d 1307, 1314 (9th Cir. 1988) (stating courts consider “‘the nature of the federal funds used and the extent of federal involvement’” to determine whether a project is a major federal action); see Sutton, *supra* note 105, at § 2.

¹⁰⁷ See *Rattlesnake Coal. v. U.S. Envtl. Prot. Agency*, 509 F.3d 1095, 1101 (9th Cir. 2007); *Ka Makani ‘O Kohala Ohana Inc.*, 295 F.3d at 960; Sutton, *supra* note 105, § 7.

¹⁰⁸ See sources cited, *supra* note 107.

¹⁰⁹ *Save Barton Creek Ass’n v. Fed. Highway Admin.*, 950 F.2d 1129, 1134 (5th Cir. 1992) (discussing what constitutes a “major federal action”).

¹¹⁰ *Id.*

¹¹¹ Energy Policy Act of 2005, Pub. L. No. 109-58, §§ 102, 104, 119 Stat. 594 (2005); see *Federal Renewable Production and Consumption Requirements*, U.S. DEP’T OF ENERGY, http://www1.eere.energy.gov/femp/technologies/m/renewable_requirements.html (last visited Mar. 4, 2013).

¹¹² See Neal McAliley, *Federal Environmental Permitting of Renewable Energy Projects*, ENVIRONMENTALLEADER.COM (Aug. 2, 2011), <http://www.environmentalleader.com/2011/08/02/federal-environmental-permitting-of-renewable-energy-projects/>.

renewable energy projects.¹¹³ Pursuant to the Federal Land Policy and Management Act of 1976, Title I, public lands are subject to federal control.¹¹⁴ Under Title II of the same Act, the Secretary can “issue regulations necessary to implement the provisions of this Act with respect to the management, use, and protection of the public lands.”¹¹⁵ Thus, renewable projects on federal land are “federal.”

If a renewable energy project is not on land subject to federal control, not subject to federal permits, and not using a federal tax credit/grant, then the project arguably is not “federal.” Without a federal classification, the project need not comply with NEPA.

c. “Action”

A renewable energy project is deemed a federal “action” when it is “major” and “significantly affects the quality of the human environment.”¹¹⁶ Our analysis, therefore, turns on whether renewable energy projects are “major” and “significant.” Federal “actions” also typically involve “(1) adoption of an official policy; (2) adoption of formal plans; (3) adoption of programs; or (4) approval of specific projects.”¹¹⁷ Federal “actions” also include “projects and programs entirely or partially financed, assisted, conducted, regulated, or approved by federal agencies.”¹¹⁸

It is reasonable to conclude that when a renewable energy project is considered to be “federal,” then the project will also be determined to be a federal “action.” When a project is partially regulated by the federal government, the project is also deemed to be a federal “action.” Whether the project is “major” and “significant” influences this analysis. Notwithstanding the latter two aspects of the analysis, with partial federal regulation or financial assistance (federal tax credit/grant), the renewable energy project will be classified as a federal “action.”

d. “Major”

In order for a renewable energy project to be “major,” “federal agency involvement must be more than minimal, incidental, or marginal.”¹¹⁹ No clear-cut test exists for this determination. Rather, courts look to the amount and

¹¹³ *See id.*

¹¹⁴ *See* 43 U.S.C. § 1701(a)(1) (2012), available at <http://www.blm.gov/flpma/FLPMA.pdf>.

¹¹⁵ 43 U.S.C. § 1733(a) (2012).

¹¹⁶ *South Dakota v. Andrus*, 614 F.2d 1190, 1193 (8th Cir. 1980) (noting what constitutes a “major federal action”).

¹¹⁷ 40 C.F.R. § 1508.18(b) (2013); Sutton, *supra* note 105, § 2.

¹¹⁸ 40 C.F.R. § 1508.18(a); Sutton, *supra* note 105, § 2.

¹¹⁹ *Touret v. Nat’l Aeronautics & Space Admin.*, 485 F. Supp. 2d 38, 42 (D.R.I. 2007).

nature of the federal funds used and the extent of federal involvement.¹²⁰ Courts agree that minor federal action will not render a local or state action federal.¹²¹ In *Touret v. NASA*, the Court stated that federal funding making up 18% of the project's overall cost is not a "major" federal action "where the funding agency 'could not exercise discretion and control over the design, location or choices of alternatives for the nonfederally funded portions.'"¹²²

It is unclear at what stage a renewable energy project will be considered "major," although there is some evidence that is helpful in making such a determination. On their own, federal tax credits/grants may not suffice for finding that a renewable energy project constitutes a "major" project. But the tax credit/grant in combination with required federal permits may suffice for a determination of "major." If federal permits are not required, then a determination of "major" may still occur if the federal tax credit/grant influences the outcome of the project.¹²³

There is also interplay between "major" and "significant." Some courts hold that "major" and "significant" use the same analysis, so no independent consideration is required for NEPA purposes.¹²⁴ Other courts, however, hold that each requires separate determination. No matter the test, some renewable energy projects are not deemed to have a significant effect on the human environment, and therefore no EIS statement is required. Our analysis turns to this inquiry.

e. "Significant Impact on the Human Environment"

An EIS is required when a proposed project may "significantly impact" the human environment.¹²⁵ The Code of Federal Regulations states that "[h]uman environment' shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment."¹²⁶ The Code also lays out considerations for both context and intensity when determining whether a project is "significant."¹²⁷ An agency must also consider if the project, when related to other individual insignificant projects, cumulatively provides for a "significant impact."¹²⁸

¹²⁰ See *Rattlesnake Coal. v. U.S. E.P.A.*, 509 F.3d 1095, 1101 (9th Cir. 2007); see also Sutton, *supra* note 105, at § 2.

¹²¹ *Rattlesnake Coal.*, 509 F.3d at 1101; see also Sutton, *supra* note 105, § 27.

¹²² *Touret v. NASA*, 485 F. Supp. 2d 38, 43 (D. R.I. 2007); see also Sutton, *supra* note 105, § 7.

¹²³ See *Sw. Williamson Cnty. Cmty Ass'n, Inc. v. Slater*, 243 F.3d 270, 281 (6th Cir. 2001) (holding a determination of "major" may be made when there is federal control or responsibility that affects the outcome of the project).

¹²⁴ See 40 C.F.R. § 1508.9 (2013); Sutton, *supra* note 105, § 2.

¹²⁵ See 42 U.S.C. § 4332(2)(C) (2012).

¹²⁶ 40 C.F.R. § 1508.14 (2012).

¹²⁷ See *id.* § 1508.27 (2012).

¹²⁸ *Id.* § 1508.27(b)(7).

To determine whether an EIS is required, an agency may prepare an EA.¹²⁹ If the EA results in a FONSI and the agency does not file an EIS, then the agency “must supply a ‘convincing statement of reasons’ to explain why a project’s impacts are insignificant.”¹³⁰ To support a FONSI, an agency may promote mitigation measures in combination with analytical data stating the environmental impact is low.¹³¹ If there may be a significant effect on the human environment, an EIS must be filed.¹³²

In *Western Watersheds Project v. BLM*, the Bureau of Land Management (BLM) approved a project to begin March 28, 2011.¹³³ BLM prepared an EA with a finding of no significant impact and did not file an EIS.¹³⁴ BLM received sixty-seven comment letters, including those from environmental groups such as Western Watersheds Group.¹³⁵ The comment letters expressed concerns regarding sage-grouse leks in Spring Valley and the local bat population.¹³⁶ BLM addressed these comments in a final EA and again found no significant impact.¹³⁷ No EIS was filed. Environmental groups appealed, arguing that an EIS was required in light of the potential “significant impact” on the human environment.¹³⁸ The case then turned to the Administrative Procedures Act (APA).

The APA governs a court’s review of an agency’s action under NEPA.¹³⁹ The court determines whether the agency’s action was “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,” or “without observance of procedure required by law.”¹⁴⁰ This Act ensures that courts require that agencies take a “hard look” at environmental impact and detail why the environmental impact is insignificant.¹⁴¹

The court found that:

“BLM considered all the relevant factors, including important mitigation measures, took a “hard look” at the environmental impacts, and, therefore, did not act arbitrarily, capriciously, or abuse its discretion when it decided that the

¹²⁹ See *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998).

¹³⁰ See *id.*

¹³¹ See *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1151 (9th Cir. 1998), *overruled on other grounds by* *Lands Council v. McNair*, 537 F.3d 981 (9th Cir. 2008).

¹³² *W. Watersheds Project v. BLM*, 774 F. Supp. 2d 1089, 1094 (D. Nev. 2011).

¹³³ See *id.* at 1091.

¹³⁴ *Id.* at 1092.

¹³⁵ *Id.* at 1092.

¹³⁶ *Id.* at 1101.

¹³⁷ *Id.* at 1092.

¹³⁸ See *id.* at 1093-94.

¹³⁹ See 5 U.S.C. § 706 (2006).

¹⁴⁰ *Id.*

¹⁴¹ See *Nat’l Parks & Conservation Ass’n v. Babbitt*, 241 F.3d 722, 730 (9th Cir. 2001), *abrogated on other grounds by* *Monsanto Co. v. Geertson Seed Farms*, 130 S. Ct. 2743 (2010).

project's impacts on the environment would be insignificant and an EIS was not required."¹⁴²

The Court found that the sage grouse was not affected by the wind project because existing roads and facilities already damaged the area.¹⁴³ Also, Spring Valley Wind mitigated damage by providing \$500,000 for sagebrush enhancement in higher-quality habitats.¹⁴⁴ The Court also found that the project did not significantly impact a local bat population because they were only in the area for four days, a majority of the bats did not enter the site's valley location, and BLM developed a process to address the impacts on the bats.¹⁴⁵

This case illustrates that although a project may be determined a "major federal action," an EIS statement will not be required if the project does not significantly affect the human environment. For many renewable wind energy projects, courts determine that the project does not significantly affect the human environment. There are, however, growing concerns that may begin to shift the analysis regarding renewable wind energy projects.

Although many of the concerns regarding the significant effect on the human environment consist of nature or other wildlife, many parties also claim that wind turbines should be placed in isolated areas.¹⁴⁶ Some parties argue that turbines create a shadow/light "flicker" on residences, resulting in headaches, depression, and anxiety.¹⁴⁷ Other concerns cite that the construction of wind turbines causes interruptions in communication infrastructures.¹⁴⁸ It remains to be seen whether such concerns will shift the "significantly affecting the human environment" analysis. For now, it does not.

This analysis is important because an EIS statement is not required if a project does not significantly affect the human environment. Without needing to comply with the expensive and lengthy EIS process, a renewable energy project is more likely to be placed in service before the tax credit/grant lapses. For wind energy projects at least, this encourages investors to invest in developments.

Based on the foregoing analysis, it is unclear if a renewable energy development must comply with NEPA requirements and submit an EIS statement before the PTC, ITC, or section 1603 cash grant is awarded. It is clear, however, that without needing to comply with the EIS, more investors have incentive to invest into a renewable energy project, which may turn into more renewable energy development and output.

¹⁴² *W. Watersheds Project*, at 1101.

¹⁴³ *Id.* at 1096.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.* at 1096-98.

¹⁴⁶ See Bluvás, *supra* note 13, at 1610.

¹⁴⁷ Sean F. Nolon, *Negotiating the Wind: A Framework to Engage Citizens in Siting Wind Turbines*, 12 CARDOZO J. CONFLICT RESOL. 327, 338 (2011) (discussing noise, light, and visual impacts of renewable energy projects, such as the "shadow flicker" that the wind turbines produce).

¹⁴⁸ *Id.* at 337.

f. Concluding NEPA

NEPA and EIS requirements do not take into account the time-sensitive nature of renewable energy projects and Congress' legislative inconsistency. Current tax credit and grant extensions are usually only for one to three years. An EIS statement, however, takes on average three years to complete. This means that a project cannot be placed into service until the final EIS statement is submitted and a decision that the project may commence is made. The time period for EIS statements makes investors uneasy because the credit/grant may lapse by the time the project is placed in service.

This distinction is important because if the project is placed into service after the credit/grant has lapsed, the investor cannot take advantage of the credit/grant, even if the credit/grant was available at the beginning of the project. This makes developers and investors reluctant to invest and stunts renewable energy development. One way to provide developers and investors more certainty is to extend the credit/grant for a period of at least five years to account for the NEPA requirements.

There are also state level requirements that may need to be met before a renewable energy project is placed into service. If such requirements exist, this may further deter investors from taking risks in renewable energy projects. This all depends on how complex and how much time the state level requirements take. Our analysis turns here.

2. State Level Requirements

Although filing an EIR in Massachusetts is not as time intensive as an EIS, it can still take between six months to a year to complete. With the unpredictable nature of the tax credits/grants lapsing, that extra time could affect whether a renewable energy project goes into operation before the financial incentive lapses. If EIRs are required for certain renewable energy projects, this may be a disincentive for certain investors from making the investment because there would be a greater likelihood the project would not be placed in service on time. This analysis depends on whether an EIR is required, and if so, what triggers the EIR requirement. If the EIR does not need to be filed, the ENF is sufficient and the project may commence.

The table below lists some Massachusetts wind projects and their respective mitigation factors, major issues discussed, and whether an EIR was required or not.

Project Name:	EIR - yes/no?	Mitigation Factors:	Major Issues:
Hoosac Wind Project	No EIR Required	Replication of wetlands, protection of local vegetation and other wildlife	How land will be altered, impact on local plant population, impact on avian population
Cape Wind	EIR Required	Mitigation of all major issues	Alternative locations, impact on avian and fishery population, visual concerns, noise, land alteration, archeological impacts, water quality, wetlands protection,
Minuteman Savoy	No EIR Required	Re-vegetation and restoration of disturbed land, including wetlands, protection of avian population,	How land will be altered, impact on local plant population, impact on avian population, visual concerns, noise
Berkshire Wind Project	No EIR Required	Wetland impact, land alteration, avian population	Wetland impact, land alteration, avian population

In the aforementioned ENF reports, none of the projects were kicked out for environmental impacts. In fact, most often the Secretary was satisfied with mitigation of environmental impact. The Secretary did, however, require that an EIR be filed for the Cape Wind project. This project involved substantial concerns compared to the other projects. As discussed below, there are typical environmental impacts that, if mitigated, do not require an EIR, whereas other environmental impacts require further investigation and an EIR, as demonstrated by the Cape Wind project ENF.

a. Non-EIR Required Projects

The renewable energy projects that do not require an EIR exhibit typical environmental impacts and commonalities. For the aforementioned projects that

did not require an EIR, the environmental impacts were not significant enough to require filing an EIR. Instead, the Secretary found a certain extent of environmental impact acceptable to further renewable energy generation goals so long as the environmental impacts were mitigated.

Regarding land alteration by acreage, the amounts vary and are inconclusive on their own to determine whether an EIR is required. The Hoosac Wind Project resulted in approximately 72.7 acres of land alteration, the Minuteman Savoy Wind Project resulted in approximately 25.86 acres of land alteration, and the Berkshire Wind Project resulted in approximately 45 acres of land alteration.¹⁴⁹ Although these projects later requested additional land for the renewable project in amounts as great as 24 acres, the project developers were upfront with the amount of land required to successfully complete the project as the project ensued. These wind projects were also placed in more remote areas. Adding additional acreage in remote areas, although unsettling for the vegetation and wildlife, is not considered a significant impact on the environment when appropriate mitigation factors are taken.

Other concerns include how land is altered; impact on local plant population, wetlands and other wildlife; impact on the avian population; visual concerns; and noise.¹⁵⁰ Land alteration alone is not a significant enough impact on the environment to require an EIR, especially with the mitigation procedures that the developers have instituted. For example, in the Hoosac Wind Project, “most of the altered area will be allowed to re-vegetate,” and the disturbed area would be substantially reduced once construction ceased.¹⁵¹ For roads and other land that needed alteration to provide an efficient area to perform construction, the Secretary found that with “improvements and modifications” to these areas, “all off-site impacts to be temporary and relatively minor.”¹⁵² Where land alteration is minor, the Secretary will find insignificant environmental impact and not require an EIR, notwithstanding other factors.

¹⁴⁹ MASS. EXEC. OFFICE OF ENERGY AND ENVTL. AFFAIRS, HOOSAC WIND PROJECT NOTICE OF PROJECT CHANGE 6 (2010), *available at* <http://www.env.state.ma.us/mepa/mepacerts/2010/sc/npc/13143npc.pdf> [hereinafter HOOSAC WIND PROJECT]; MASS. EXEC. OFFICE OF ENERGY AND ENVTL. AFFAIRS, MINUTEMAN SAVOY WIND PROJECT NOTICE OF PROJECT CHANGE 4 (2010), *available at* <http://www.env.state.ma.us/mepa/mepadocs/2010/042110em/sc/enf/14513enf.pdf> [hereinafter MINUTEMAN SAVOY WIND PROJECT]; MASS. EXEC. OFFICE OF ENERGY AND ENVTL. AFFAIRS, BERKSHIRE WIND POWER PROJECT NOTICE OF PROJECT CHANGE 2 (2009), *available at* <http://www.env.state.ma.us/mepa/mepadocs/2009/102609em/sc/npc/12532npc.pdf> [hereinafter BERKSHIRE WIND POWER PROJECT].

¹⁵⁰ *See* HOOSAC WIND PROJECT, *supra* note 149, at 6, 8, 9, 11; MINUTEMAN SAVOY WIND PROJECT, *supra* note 149, at 4, 7-9; BERKSHIRE WIND POWER PROJECT, *supra* note 149, at 2, 5; *see also* MASS. EXEC. OFFICE OF ENERGY AND ENVTL. AFFAIRS, CAPE WIND PROJECT 7-10 (2002), *available at* <http://www.capewind.org/downloads/MEPA12643cert.pdf> [hereinafter CAPE WIND PROJECT].

¹⁵¹ HOOSAC WIND PROJECT, *supra* note 149, at 6.

¹⁵² *See* MINUTEMAN SAVOY WIND PROJECT, *supra* note 149, at 4-5.

Regarding impact on wetlands, the Secretary places importance where the “impacts were subsequently identified and addressed during the local wetlands permitting process.”¹⁵³ This information is important because it allows the Secretary to make an educated mitigation proposal. In the Minuteman Savoy Wind Project, the Secretary found that construction of “on-site wetlands mitigation” would be performed at a “ratio of 1:1.”¹⁵⁴ The Secretary required an “on-site replication at a 2:1 ratio for impacts to Bordering Vegetated Wetlands and enhancement to Riverfront Area” in the Hoosac Wind Project.¹⁵⁵ With identification of wetlands area that will be damaged and proper mitigation, it appears that the Secretary will find the initial damage to wetlands insignificant and hence not require an EIR.

If, however, the damage to the wetlands is unascertained, it is likely that the Secretary will require further investigation so proper mitigation methods can be determined. An EIR requirement may delay the project for up to a year. As stated above, this affects whether the project will be placed in service in time for investors to take advantage of the federal tax credits/grants. In turn, this affects investment decisions and will likely result in less investment. To avoid this problem, developers should provide as detailed wetland impact information as possible to the Secretary in the ENF. The information does not need to be exact and can allow for modifications, but the information needs to be detailed enough for the Secretary to make a legitimate mitigation proposal.

Concerning avian populations, the Secretary finds it sufficient for developers to provide for “post-construction monitoring of bird and bat impacts (in addition to the pre-construction studies already conducted) and public availability of monitoring data,”¹⁵⁶ notwithstanding major known dangers to avian populations. With such mitigation, the Secretary will find that the environmental impact to the avian population is insignificant.

Regarding visual concerns and noise, the Secretary places importance on implementing “the least intrusive lighting allowable by the FAA.”¹⁵⁷ The developer, however, has to “install flashing red synchronized safety lighting” on top of each turbine.¹⁵⁸ The safety lighting must not be used during the daytime.¹⁵⁹ The shadow flicker that the turbines create during the daytime is also a cause for concern. The level of discussion on this matter, however, seems to vary by the amount of residences affected. In the Minuteman Savoy Wind Project, the turbines were expected to create shadow flicker to only nine

¹⁵³ HOOSAC WIND PROJECT, *supra* note 149, at 11.

¹⁵⁴ MINUTEMAN SAVOY WIND PROJECT, *supra* note 149, at 5.

¹⁵⁵ *Id.* at 12

¹⁵⁶ *Id.*

¹⁵⁷ MINUTEMAN SAVOY WIND PROJECT, *supra* note 149, at 8.

¹⁵⁸ *Id.* at 8.

¹⁵⁹ *Id.*

residential properties.¹⁶⁰ The Secretary made it clear that the developer needed to discuss the impact the turbines may have with the property owners and identify opportunities to mitigate the shadow flicker.¹⁶¹

Other than these two loose requirements, the Secretary did not require anything else for this matter. It seems reasonable that the level of investigation depends on the amount of residences affected. Had the turbines affected hundreds of houses in an affluent area, the Secretary's decision may have required more information through filing an EIR. We will see this in the Cape Wind Project below.

b. Concluding Non-EIR Projects

In short, where the developer performs enough investigation to allow the Secretary to make informed mitigation proposals and such mitigation procedures result in minor environmental impacts, the Secretary will deem such impacts not significant enough to require further investigation through filing an EIR. This is extremely beneficial to renewable energy developers because there will be a greater likelihood that the project is placed in service in time for investors to take advantage of the federal tax credits/grants (notwithstanding possible NEPA requirements).

Developers should provide detailed information on major issues to make certain that an EIR is not required; otherwise, the Secretary will not be able to make an informed mitigation proposal, resulting in an EIR requirement that will delay the project and endanger the availability of financial incentives. All of these determinations are still subject to a local permitting process. Hence, even though the project may not require an EIR or EIS, the local permitting process could still be a major bump in the road in terms of project completion.

c. EIR Required Projects

Some projects require an EIR because there is not enough information for the Secretary to determine whether the project may continue and which mitigation proposals would be adequate. The Cape Wind Project is an example of this circumstance. The Secretary required an EIR because more investigation was needed for information regarding environmental impact.¹⁶²

The Cape Wind Project did not have a legitimate approximation for land alteration in the ENF.¹⁶³ All that was known was that the project would be one of the largest offshore renewable energy projects in the world.¹⁶⁴ When looking

¹⁶⁰ *Id.* at 9.

¹⁶¹ *Id.*

¹⁶² *See* CAPE WIND PROJECT, *supra* note 150, at 1.

¹⁶³ *See id.* at 9.

¹⁶⁴ *Id.* at 2.

at the renewable energy projects that did not require an EIR, those projects had an accurate estimation of land alteration.¹⁶⁵ Although some of those projects modified the construction plan by expanding the land altered,¹⁶⁶ the estimations sufficed to give the Secretary an idea of necessary mitigation proposals.¹⁶⁷ For the Cape Wind Project, however, this information was not provided.¹⁶⁸ The larger the project, the more the land alteration occurs, and the more wetlands, local plant population, avian population and other wildlife are affected. The Secretary required an EIR to be filed so that these issues would be investigated further.¹⁶⁹

The avian population was of a greater concern in the Cape Wind Project than other renewable energy projects. The Secretary found that there are “few operational offshore [wind turbine generator] arrays in the world,” and that none were “nearly the size of the proposed project.”¹⁷⁰ This caused the Secretary concern because there was a “considerable amount of uncertainty in gauging potential impacts on birds.”¹⁷¹ The Secretary required an EIR to determine the impact on birds and a method to reduce bird mortality rates and a monitoring program.¹⁷²

Compared to the other listed projects, the Cape Wind Project had the most uncertainty regarding avian population impact. Due to this uncertainty, the Secretary essentially determined that this could “significantly” impact the environment. In the other projects, impact on the avian population was fairly low, so mitigation sufficed. The Cape Wind Project ENF, however, only assumed that the impact on the avian population would be low.¹⁷³ Such an assumption was insufficient for the Secretary and partly explains the EIR requirement. For the same reasons, the Secretary required further investigation to “focus on potential impacts to fisheries habitat.”¹⁷⁴

Regarding visual impacts, the Secretary also found this issue to be “significant,” so further investigation was required and results were published through an EIR. The visual impacts were of high concern as “[t]he visual impacts of the project have been mentioned more than any other issue among comments received in opposition.”¹⁷⁵ The size of the project must also be considered within the area of placement. As a result of its size, the project faced

¹⁶⁵ See *supra* note 149 and sources therein.

¹⁶⁶ See *supra* note 149 and sources therein.

¹⁶⁷ See *supra* note 149 and sources therein.

¹⁶⁸ See CAPE WIND PROJECT, *supra* note 150.

¹⁶⁹ See *id.* at 1.

¹⁷⁰ *Id.* at 7.

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.* at 3.

¹⁷⁴ *Id.* at 8.

¹⁷⁵ *Id.*

pushback from nearby wealthy communities such as Cape Cod, Martha's Vineyard, and Nantucket.¹⁷⁶ The Secretary required an EIR containing "a visual assessment" from a list of locations the Secretary provided.¹⁷⁷ As compared to the other projects, which impacted very few residences, the Cape Wind Project had the possibility of impairing many residences and historical or archeological sites.¹⁷⁸ This was significant enough for the Secretary to require an EIR to determine the environmental impact.

d. Concluding EIR Required Projects

In short, where the developer has not performed enough investigation to allow the Secretary to make a decision on the project's continuance and appropriate mitigation proposals, the Secretary will determine such environmental impacts significant. In finding a significant impact or potential significant impact to the environment, the Secretary will require an EIR. In the end, this may hurt renewable energy developers and their investors because there is a chance the project will not be placed in service on time for the investors to take advantage of the federal tax/grants. If the project must also comply with NEPA requirements by filing an EIS, the project may be delayed even further.

3. Are EIR Determinations Contestable?

If the Secretary determines that an EIR must be filed, that determination is contestable in Massachusetts (see state specific environmental regulations for each state's policy).¹⁷⁹ A Secretary's decision requiring an EIR can be contested by providing "notice of intent to commence an action or proceeding within 60 Days of the publication of notice of the Secretary's decision . . ."¹⁸⁰ Having the option to contest the EIR determination is extremely beneficial because if the determination is reversed, the project does not need to undergo this expensive and lengthy process. If the contest is unsuccessful, then the EIR must be filed.

The last barrier discussed is grid interconnection. This is how the renewable energy development is connected so that the electricity produced can be utilized. This barrier contains an added cost to the project and may impact investment and development of the project.

4. Grid Interconnection

Other than the time barriers that NEPA and state requirements can create, grid

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ *Id.* at 11.

¹⁷⁹ See 301 MASS. CODE REGS. § 11.14 (2008), available at <http://www.env.state.ma.us/mepa/regs/11-14.aspx>.

¹⁸⁰ *Id.*

interconnection is considered the most significant barrier to the installation of renewable energy generation.¹⁸¹ Utilities place restrictions on the interconnected systems and standards for interconnection.¹⁸² Utilities place overly conservative restrictions on interconnected systems because interconnection involves a large number of generators that are owned and operated by non-utilities.¹⁸³ These restrictions have added costs that can make renewable energy installation economically infeasible.¹⁸⁴

Current efforts seek to lower interconnection barriers. State, national, and international standards are being established for grid interconnection.¹⁸⁵ At the national level, standards relating to the “performance, operation, testing, safety considerations, and maintenance of the grid interconnection” have been established.¹⁸⁶

These restrictions also play into investors’ considerations in investing in renewable energy projects. As it stands, there are too many uncertainties for investments in renewable projects. Projects must satisfy NEPA and state requirements and then be placed into service (which includes interconnection to the grid) before the tax credit/grant lapses. If Congress seamlessly extends tax credits/grants, the timetable for development becomes less of a problem. But currently, yearlong gaps before extensions occur create timetable problems for new developments.

Therefore, investors will invest based on the assumption that the credits/grants will not be extended and the project may not be placed in service in time. This severely limits the amount of investment into renewable energy projects.

The next part of the analysis discusses the PTC, ITC, and section 1603 cash grant. This section compares the tax credits and cash grant and whether a correlation exists between tax credits/grants and renewable energy growth. This section also discusses the efficiency of the credits and how Congress should proceed regarding the tax credits and section 1603 cash grant.

B. Tax Credits/Cash Grant

No direct evidence links renewable energy growth to the tax credits/grant. However, circumstantial evidence shows that tax credits/grants promote wind energy development. Some posit that because wind energy development is high

¹⁸¹ *Learning About Renewable Energy: Grid Interconnection*, NAT’L RENEWABLE ENERGY LAB., http://www.nrel.gov/learning/eds_grid_interconnection.html (last updated Mar. 6, 2012).

¹⁸² *See id.*

¹⁸³ *Id.*

¹⁸⁴ *Id.*

¹⁸⁵ *Id.*

¹⁸⁶ *Id.* The Institute of Electrical and Electronics Engineers (IEEE) developed a series of standards that address interconnection. The base standard is named IEEE 1547.

risk, profitability is negatively affected, which reduces the incentive for investors to invest.¹⁸⁷ To reduce this risk, government intervention through the offering of a tax credit/grant is needed.¹⁸⁸

1. Is There a Relationship Between Wind Energy Growth and Tax Credits/Grants?

When the PTC expires, wind project installations drop by a substantial percentage.¹⁸⁹ When the PTC expired in 1999, wind project installations dropped by 93% the following year, and similarly fell 73% and 77% from 2001-2002 and 2003-2004 respectively.¹⁹⁰ In Texas, an attractive market for wind development, wind project installations did not exist in any of the years following a lapse in the PTC.¹⁹¹ The PTC is an attractive option for wind project developers because without the tax credit it appears that wind projects become financially infeasible for investors. Studies indicate that if the PTC were to expire, \$19 billion of investment would be lost along with 116,000 jobs.¹⁹² Without considering other economic factors, it is estimated that the PTC results in 50% more wind energy generation.¹⁹³ Moreover, studies indicate that 500 megawatts of wind energy would have been created instead of the actual 6,500 megawatts created had the PTC lapsed in 2009.¹⁹⁴ But the ITC and section 1603 cash grant make it challenging to determine whether the PTC is the best financial incentive.

Recently, the section 1603 cash grant has received more attention than the PTC and ITC combined. In 2010, more than 70% of wind energy developments elected to use the section 1603 cash grant.¹⁹⁵ This is both a positive and negative statistic for the United States federal government. Although the section 1603 cash grant may have spurred energy development, it is unclear whether the same amount of new development would have occurred if only the PTC or ITC were available. With the section 1603 cash grant in place, however, the United States takes a heavy financial burden. In 2010, the government awarded section 1603 cash grants to 1,495 entities with grants totaling approximately \$5.6 billion (\$1.6

¹⁸⁷ *E.g.*, Dewey, *supra* note 9, at 1111-12.

¹⁸⁸ *Id.* at 1114.

¹⁸⁹ Spengler, *supra* note 34, at 1204.

¹⁹⁰ *Id.*

¹⁹¹ *Id.* at 1204-05.

¹⁹² Dewey, *supra* note 9, at 1128.

¹⁹³ ENERGY INFO. ADMIN., ANALYSIS OF FIVE SELECTED TAX PROVISIONS OF THE CONFERENCE ENERGY BILL OF 2003, at 4 (2004), available at [http://tonto.eia.doe.gov/oiaf/servicerpt/ceb/pdf/sroiaf\(2004\)01.pdf](http://tonto.eia.doe.gov/oiaf/servicerpt/ceb/pdf/sroiaf(2004)01.pdf) (noting the economic benefits of the PTC); Dewey, *supra* note 9, at 1128.

¹⁹⁴ Dewey, *supra* note 9, at 1128.

¹⁹⁵ WISER & BOLINGER, *supra* note 27, at 53.

billion awarded in 2009 and \$4.2 billion awarded in 2010).¹⁹⁶ The government spent much more than predicted at the adoption of the cash grant, and it is expected that the federal government will outlay \$15.4 billion through 2015 if the cash grant is extended.¹⁹⁷ Whether the section 1603 cash grant facilitates more energy development than the PTC or ITC is unclear. What is clear is that the cash grant is highly effective in attracting much needed investment to new wind energy development.

Since investors predominantly use the PTC and section 1603 cash grant, it is unclear if the ITC has had a profound effect on promoting energy development. It should be noted that the ITC is beneficial to those investors and businesses that want to take advantage of a larger tax credit in the first year of operation as opposed to production-based-credits extended over the course of ten years. If Congress chooses not to extend or re-instate the section 1603 cash grant, the ITC may be an investor's best option depending on financial circumstances. The cash grant may never be re-instated because of financial burden: in 2010, section 1603 cash grants cost the federal government \$4.2 billion and the PTC \$1.4 billion, but the ITC cost less than \$50 million.¹⁹⁸ That being said, the amount of ITC elections were less than both the section 1603 and PTC elections.

Tax credits/grants seem effective in stimulating wind energy development. Without these financial incentives, it may not be economically feasible for an investment into such a high-risk project. Although Congress has not yet decided on the long-term extension of the tax credits and grant, allowing these financial incentives to lapse would be a great disservice to the United States energy goal for 2020. Moreover, Congress' indecision in extending these incentives for longer periods of time, as discussed later in this Article, prevents many investments into the energy development market.

C. Problems with the Tax Credits/Grant Available?

First, it is important to understand that the tax credits and section 1603 cash grant are only available when the wind energy project is placed into service.¹⁹⁹ This means that the wind energy project must be in operation before the tax credit or grant lapses. If the project is underway but not put in service and the tax credits/grant lapse, then investors cannot take advantage of the tax credit/grant. This is a major drawback in attracting investors for wind energy development projects.

¹⁹⁶ Brown & Sherlock, *supra* note 68.

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*

¹⁹⁹ See Caffey-Moquinet et al., *supra* note 58, at 406.

1. Uncertainty

Renewable energy financial incentive legislation has been volatile. Congress typically extends tax credits or section 1603 cash grants for a period between one to three years (the section 1603 cash grant has not been extended, but is still available for a certain period of time).²⁰⁰ This causes a number of problems for investors, because if the project is not operational before the lapse, the credit/grant will not be awarded. This creates risk in the investment and diminishes investment.²⁰¹ As stated above, the years following lapses approximately have an 80% drop rate in wind installations.²⁰²

Congress has failed to provide a steady, long-term financial incentive.²⁰³ This inconsistency discourages long-term planning for wind energy project investments.²⁰⁴ Congress' unsteady legislation has also pushed manufactures to offshore markets with more certain financial incentives.²⁰⁵ To avoid constrained growth in the renewable energy market, Congress should make the tax credits/grant available for longer periods of time. As explained above, many variables delay renewable energy projects. The delays make the one to three year timeframe of the credit/grant availability a risky investment. Were Congress to implement a long-term tax policy for renewable energy financial incentives, the renewable energy market would grow at a much quicker rate. To attain the United States renewable energy consumption goals, this is a necessary action for Congress to take.

a. Production Tax Credit Uncertainty

The PTC itself is also uncertain in nature. The credit is spread across ten years based on production levels. If production levels are low, which is a risk that investors must face, the tax incentives greatly diminish. This uncertainty has pushed some investors towards the ITC or section 1603 cash grant, which are certain if the project is placed into service before the credit or grant lapses.²⁰⁶

2. Limited Investor Pool for Tax Credits

Renewable energy developers typically cannot afford to finance a renewable energy project on their own. Therefore, to incentivize renewable energy growth, the IRS offers the ITC and PTC to investors. The amount of investors that can take advantage of the PTC or ITC, however, is mostly limited to large,

²⁰⁰ See Auerbach, *supra* note 11, at 14.

²⁰¹ See *id.*

²⁰² *Id.*

²⁰³ See *id.*

²⁰⁴ *Id.*

²⁰⁵ *Id.*

²⁰⁶ See Brown & Sherlock, *supra* note 68.

sophisticated financial organizations — banks, financial companies, investment banks, and insurance companies.²⁰⁷ These investors are called “tax equity investors.”²⁰⁸ This creates a barrier of entry for investors that do not have an extraordinary amount of funds to invest (these are passive investors, distinguished from passive income — the income to which tax credits mostly apply).²⁰⁹ Therefore, the limited amount of investors that can take advantage of the PTC and ITC further stifles renewable energy growth. With limited investment, renewable energy development is limited as well.

Further, in a depressed economy, major institutional organizations are less likely to invest in high-risk projects, even with tax incentives.²¹⁰ For example, the number of tax equity investors declined from approximately twenty in 2007 to thirteen in 2008 to eleven in 2009.²¹¹ Similarly, the tax equity investment amount declined from \$6.1 billion in 2007 to \$3.4 billion in 2008 to \$1.2 billion in 2009.²¹² Due to the limited numbers of investors, who are less likely to invest during hard economic times, the potential for renewable energy development is not realized.

Financial incentives are primarily limited to “tax equity investors” because the incentives are very complex and difficult to utilize.²¹³ Passive investors can invest in renewable energy projects and take advantage of the PTC or ITC; however, the credits can only apply against passive income (and most individuals do not have enough passive income to offset either tax credit to make the investment worthwhile).²¹⁴ The investor pool should be broadened so that more individuals and organizations can take advantage of the PTC or ITC, spurring more investment and in turn more renewable energy development.

a. Broaden the Investor Equity Pool and Lengthen the Availability of the Tax Credits

Although tax credits have spurred renewable energy development, they are not nearly as effective as they could be. First, the investor equity pool should be broadened through expanding the eligibility of individuals and organizations that can claim the tax credits against income.²¹⁵ As the tax credits currently stand, too few entities can take advantage of the tax credits, limiting the potential for investment and renewable growth. “A broader investment pool will

²⁰⁷ *See id.*

²⁰⁸ Auerbach, *supra* note 11, at 15.

²⁰⁹ *See id.*

²¹⁰ *See id.*

²¹¹ *Id.*

²¹² *Id.*

²¹³ *Id.*

²¹⁴ BOLINGER, *supra* note 10, at 15.

²¹⁵ Auerbach, *supra* note 11, at 19.

create a more liquid market, lower financing costs, and attract more investment.”²¹⁶ Moreover, “[n]ew or reemerging tax equity investors will be necessary for continued renewable energy project development,” and this is especially true if the cash grant expires.²¹⁷

Increased investment is anticipated to come from both traditional and untraditional sources.²¹⁸ One such new source may be profitable companies that do not need third parties to take advantage of the tax credit, such as oil and gas, high technology, and industrial companies.²¹⁹ Further, if the eligibility were expanded, high net-worth individuals would be able to take advantage of the tax credit.²²⁰ Considering how many high net-worth individuals there are in the United States and all over the world, this is an untapped resource that could provide the necessary investment for renewable energy growth. Unfortunately, the barriers that currently prevent the latter from investing have not yet been addressed.²²¹

Another potential source of investment is from the utilities themselves.²²² Utilities qualify for the PTC and ITC for wind and other renewables, so it may make sense for the utilities to invest.²²³ Moreover, if returns are high enough, investment may be seen from non-utility companies such as “Microsoft, Google, Nike, Northern Trust, etc.”²²⁴

Second, the tax credits should be available for longer periods of time. As described above, there are many issues that can cause a renewable energy project to extend beyond the anticipated operation date. A two-year extension for tax credits does not provide enough certainty to investors because there is no assurance that the tax credits will be renewed and the project placed in service on time. With uncertain extension of the tax credits, unforeseeable delays may occur, and in a suffering economy investment remains limited.

To provide greater certainty to investors and spark investment into renewable energy projects, the PTC and ITC should be extended for periods between five and ten years.²²⁵ If the availability of the tax credits/grants is extended, investors

²¹⁶ *Id.*

²¹⁷ PAUL SCHWABE ET AL., NAT’L RENEWABLE ENERGY LAB., RENEWABLE ENERGY PROJECT FINANCING: IMPACTS OF THE FINANCIAL CRISIS AND FEDERAL LEGISLATION 10 (2009), available at <http://www.nrel.gov/docs/fy09osti/44930.pdf>.

²¹⁸ *See id.*

²¹⁹ *Id.*

²²⁰ *See* Chadbourne & Parke LLP, PROJECT FINANCE: NEWSWIRE 3 (2009), available at <http://www.chadbourne.com/files/Publication/810dde60-3c78-4a9a-9c5d-a5fae8014b4f/Presentation/PublicationAttachment/51fc06c5-1407-48ac-9dff-a605de0f58e1/pfn0109.pdf>.

²²¹ *See* SCHWABE ET AL., *supra* note 217, at 10.

²²² *Id.*

²²³ *See* K. CORY ET AL., INNOVATIONS IN WIND AND SOLAR PV FINANCING 6-7 (2008), available at <http://www.nrel.gov/docs/fy08osti/42919.pdf>; SCHWABE, at 10.

²²⁴ SCHWABE ET AL., *supra* note 217, at 10-11.

²²⁵ *See* Auerbach, *supra* note 11, at 19.

are provided with more certainty that the project will be placed into service before the credit/grant lapses. This should promote investment into new renewable energy developments, and therefore, renewable energy growth across the country. But in the current economy, the financial feasibility of granting tax credit extensions for longer periods of time remains unknown. The goal of the United States legislature is to have 20% of renewable energy consumption by year 2030.²²⁶ The United States is already ahead of its goal.²²⁷

Long-term predictability gives manufacturers, investors, and developers an opportunity to plan for long-term investments.²²⁸ Given more certainty that the project will be placed in service before the credit lapses, this would “stimulate investment” for renewable energy development and “accelerate the addition” of renewable energy capacity.²²⁹ Developers and investors have also shown interest in accepting smaller financial incentives for a more certain tax policy.²³⁰ Smaller but more certain financial incentives should help alleviate part of the financial burden concern of the legislature.

D. PTC/ITC or Section 1603 Cash Grant

There is insufficient data to fully support that one financial incentive is more efficient than another. Unless each is tried independently for the same amount of time under the same circumstances, the best we can do is make an educated estimate. Importantly, researchers and analysts must understand that all methods are subject to several factors that affect renewable energy growth. First, as general economic conditions suffer, this negatively affects consumer electricity demand, which in turn decreases renewable growth (or the inverse if positive economic conditions).²³¹ Second, with low natural gas prices, the push for renewable growth steadies as well.²³² Lastly, the inconsistency of renewable tax policy has created a rift between investment and renewable growth.²³³ Notwithstanding these factors, arguably the section 1603 cash grant provides for the most effective method to further renewable energy development. Unfortunately, Congress has decided to allow the section 1603 cash grant to lapse. The next section discusses opposition and benefits to the section 1603 cash grant and offers recommendations for what Congress should do regarding the section 1603 cash grant.

²²⁶ See Hinman, *supra* note 32, at 40.

²²⁷ See *id.*

²²⁸ Auerbach, *supra* note 11, at 19, 20.

²²⁹ See *id.*

²³⁰ *Id.*

²³¹ See Brown & Sherlock, *supra* note 68.

²³² See *id.*

²³³ See *id.*

1. Section 1603 Cash Grant

a. Opponents

Opponents of the section 1603 cash grant argue that the program is economically inefficient because the government needs to find the funding from someplace to finance the grant.²³⁴ Usually, this means that programs are cut or taxes are raised.²³⁵ The section 1603 cash grant is an incredibly expensive program, and the cost of the program has already exceeded expectations.²³⁶ Some stress that the grant is awarded only to those who would have developed the renewable project with or without the cash grant.²³⁷ These individuals are called inframarginal beneficiaries.²³⁸ The benefits of the program, however, outweigh the costs.

b. Benefits

The section 1603 cash grant is more valuable than tax credits. Unlike tax credits, which require personnel time and professional fees, the section 1603 cash grant only requires an application be filed with the United States Department of the Treasury.²³⁹ Another benefit of this filing is that payments are typically received sixty days after the application is filed and deemed effective.²⁴⁰ By comparison, the ITC credit is claimed when tax returns are filed and the PTC is monetized over ten years.²⁴¹ Moreover, in order to receive the full benefit of the tax credits, the investor must have enough income to realize the tax incentives.²⁴² The section 1603 cash grant avoids this problem.

Overall, the section 1603 cash grant has more potential to increase renewable development than the PTC or ITC. For example, the section 1603 grant and ITC benefits are only reduced by additional untaxed government grants.²⁴³ In contrast, PTC benefits are reduced by government grants applied to capital costs, taxable or not.²⁴⁴ Further, the section 1603 grant and ITC allow full leasing of the project, whereas the PTC requires that the owner also operate the

²³⁴ *See id.*

²³⁵ *See id.*

²³⁶ *See id.* On December 6, 2010, it was recorded that § 1603 cash grants were awarded to 1,495 entities with grants totaling approximately \$5.6 billion. *Id.*

²³⁷ *Id.*

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ *Id.*

²⁴¹ *Id.*

²⁴² *See id.*

²⁴³ BOLINGER, *supra* note 10, at 9.

²⁴⁴ 26 U.S.C.A. § 45(b)(3) (2013); BOLINGER, *supra* note 10, at 9.

project.²⁴⁵ Thus, the PTC has some financial restrictions that the section 1603 cash grant does not.

Also, under the PTC, underperformance of the project reduces both cash revenue and the benefits from the PTC since the PTC is performance based.²⁴⁶ Underperformance under the section 1603 cash grant and ITC, however, only reduces cash revenue (which some argue is a fallback because the ITC and section 1603 do not promote production efficiency).²⁴⁷ In order for the PTC to be utilized, the generated power must be sold to an unrelated person.²⁴⁸ The section 1603 cash grant does not have this restriction, and this is a benefit to behind-the-meter projects.²⁴⁹

The section 1603 cash grant is also available to more investors because tax equity investors are not the only individuals/entities that can take advantage of the financial incentive.²⁵⁰ This is a major benefit because the grant may increase the number of investors in any given project, providing certainty for developers and growth in the industry.²⁵¹ Similarly, the section 1603 cash grant is not subject to passive income limitations.²⁵²

c. What Should Congress Do?

The section 1603 grant was initially enacted to address the weakness in the tax equity market due to the limited available investors and depressed economy.²⁵³ As the economy turns back, however, Congress should reinstate and extend the cash grant.

There are currently too many benefits of the program and too many people depending on it to let it lapse. For example, had the government failed to extend the section 1603 grant for one year through 2011, 15,000 wind industry jobs would have been placed in jeopardy.²⁵⁴ These same jobs are now in jeopardy because the cash grant was not extended. Also, re-instating and extending the program allows investors to choose between the ITC, PTC, and section 1603

²⁴⁵ BOLINGER, *supra* note 10, at 9.

²⁴⁶ *Id.*

²⁴⁷ *Id.*

²⁴⁸ *Id.*

²⁴⁹ *Id.*

²⁵⁰ *Id.* at 8.

²⁵¹ *See id.* at 2.

²⁵² *Id.* Individuals who are passive investors can only apply the PTC, ITC and losses against passive income, whereas the § 1603 cash grant is not subject to passive income limitations. *Id.* *See also* Auerbach, *supra* note 11, at 15 (“passive financing of an asset or project . . . [is] where an investor receives a return on investment based not only on cash flow from the asset or project but also on federal income tax deductions (through the utilization of tax credits)”).

²⁵³ *See* Brown & Sherlock, *supra* note 68.

²⁵⁴ *Id.*; *see also* U.S. *Pref Says Tax Credit Investment May Fall if Grants Program Not Renewed* 2010 TNT 180-44 (job creation affected as three out of five renewable energy participants are expected to drop when the § 1603 grant expires).

cash grant depending on the investor's needs and financial circumstances.²⁵⁵ Moreover, without the grant re-instated and extended, tax equity capital is expected to decline by more than fifty percent.²⁵⁶ The investors for renewable energy development will also be limited to tax equity investors again, unless the PTC is loosened (and as described above, investment by tax equity investors is limited in tough economic times).²⁵⁷

The section 1603 cash grant seems the most effective method for renewable energy development financial incentives, and should be re-instated and extended. If, however, the section 1603 cash grant is not re-instated and extended, the next best alternative that Congress can provide developers and investors is a refundable tax credit.

E. Are Tax Credits Refundable?

Currently, the PTC and ITC are not tax refundable.²⁵⁸ The financial incentives would improve if a refundable tax credit were offered.²⁵⁹ The President's 2013 Budget Plan proposes replacing the Section 1603 Treasury Grant with a tax credit administered by the Internal Revenue Service for property placed in service after 2012.²⁶⁰ The refundable tax credit would also be available for property "on which construction begins in 2009, 2010, 2011, 2012, or 2013."²⁶¹ Wind projects that start construction in these years and placed in service no earlier than 2013 may take advantage of the refundable tax credit.²⁶² The requirements to qualify for refundable credits would be the same as the "qualification requirements currently applicable under the Treasury grant program."²⁶³

1. Are the Refundable Tax Credits Efficient?

Without the section 1603 cash grant, tax credits could be improved by providing refundable tax credits (thus substituting the cash grant with a refundable tax credit). The refundable tax credit is beneficial for two reasons: 1) if the tax credit extinguishes all tax liability, the remaining credit will be given to the investor as a grant; and 2) the government will not be outlaying as much. As described earlier, the federal government has paid out much more than

²⁵⁵ See Brown & Sherlock, *supra* note 68.

²⁵⁶ See U.S. Pref Says Tax Credit Investment May Fall if Grants Program Not Renewed, *supra* note 254.

²⁵⁷ *Id.*

²⁵⁸ See DEP'T OF THE TREASURY, *supra* note 72, at 35.

²⁵⁹ See *id.* at 35-36.

²⁶⁰ *Id.* at 35.

²⁶¹ *Id.*

²⁶² *Id.* at 35-36.

²⁶³ *Id.* at 36.

expected with regard to the section 1603 cash grant. The abundance of takers makes it clear that the developers and investors prefer receiving the cash up front, as opposed to taking a credit that may need to be carried forward.

The refundable credit gives benefits to both the federal government and renewable energy project developers/investors. The government lessens its outlay (meaning the government does not need to raise as much revenue to provide necessary funding), and developers/investors reduce their tax liability and receive a grant for the remainder. But the refundable tax credit still experiences the problem of a small investor pool: tax equity investors are needed to invest because they are the ones who can take advantage of the tax credits in the first place. The section 1603 cash grant expanded the horizon in regard to the amount of individuals that could take advantage of the financial incentive. Unfortunately, there is no concrete evidence as to whether the cash grant encouraged more individuals to actually construct a renewable energy project because some individuals that did not need the grant took advantage of it anyway. But one thing is certain: if the section 1603 cash grant is not renewed, the refundable credit is a developer/investors next best option.

The issue of expanding the types of investors remains. Once the pool has broadened, the tax credits with a refundable credit option should be enough to incentivize an array of developers and investors to commence a renewable energy project. Hopefully, the refundable tax credit will provide enough of an incentive to induce more developers and investors into renewable energy projects, helping the United States realize its renewable energy goal. If developments remain stagnant or even decline, then that may be an indication of the efficiency of the section 1603 cash grant.

If the refundable credits do not encourage enough developers and investors to commence renewable energy projects, legislators should seriously consider renewing the section 1603 cash grant. Although it is true that some renewable energy developments would have been constructed without the section 1603 cash grant, a large proportion of projects used the cash grant. For now, the refundable credit is the legislators' best option if the section 1603 cash grant is not re-instated. Only time will tell whether the refundable tax credits are as efficient as the section 1603 cash grant in motivating developers and investors to commence renewable energy projects.

IV. CONCLUSION

The United States is currently at a stage where its reliance on foreign energy sources may inhibit the economic progress that the nation needs to remain as a world super-power. Renewable energy sources are a viable option to reduce the United States' consumption of foreign energy sources and to stimulate economic growth through renewable energy job production. To promote renewable energy development, Congress provided three financial incentives for developers and

investors: the PTC, ITC, and section 1603 cash grant. The section 1603 cash grant has not been renewed, so only the PTC and ITC remain. It remains to be seen how this will affect renewable energy development in the United States. To encourage developers and investors, however, refundable tax credits might substitute for the section 1603 cash grant.

There are problems with relying solely on tax credits. First, there are the barriers to entry. These include the federal and state requirements before a project can be placed into service. The federal NEPA requirements consist of filing an EIS when needed. In determining whether an EIS must be filed, NEPA requires that federal agencies prepare detailed statements that assess the environmental impact and alternatives to major federal actions significantly affecting the human environment. If the project is a major federal action that significantly affects the human environment, an EIS statement must be filed. This delays the project's placement into service. This possible delay may preclude some developers and investors from going ahead with the renewable energy project because the project may not be placed in service as predicted. This is important because a project must be placed in service before a PTC or ITC lapses in order to take advantage of the PTC or ITC. Due to the legislative inconsistency of these tax credits, it is hard to determine whether there will be fluidity of the tax credits or whether they will lapse a few years before being renewed, replaced, or extinguished altogether. Hopefully legislators have learned the lesson in years past when renewable energy developments decreased exponentially without a tax credit incentive. It is yet to be seen how legislators will act once the credits are close to lapsing.

State requirements also exist. Each state has its own environmental regulations. In Massachusetts, if a project is subject to MEPA and it meets or exceeds at least one review threshold or the Secretary requires a fail-safe review, then the agency must prepare and file an ENF with the Secretary. The Secretary then determines whether an EIR must be filed. Similar to an EIS needing to be filed, the possibility of an EIR may preclude developers and investors from commencing a renewable energy project due to the time constraints.

Lastly, because the section 1603 cash grant is no longer available, the majority of investors will likely be tax equity investors because they are the only ones who can take advantage of the tax credits. This may cause a drop in renewable energy developments, especially with the economy still in a depressed state. For this reason, it is important that legislators provide legislative consistency to both the ITC and PTC by extending them for periods of five to ten years. This produces some stability for investors because there will be a greater likelihood that projects are placed in service in time to take advantage of the tax credit. Both the PTC and ITC should also be offered to provide investment diversity for investors.

The credits should also become refundable. This refundable credit provision

will help replace the section 1603 cash grant. With legislative consistency and a refundable tax credit, there is a strong chance that renewable energy will continue to grow. Unfortunately, it cannot be determined if the section 1603 cash grant was actually more efficient than the tax credits. If renewable energy development decreases sharply, legislators should seriously consider renewing the section 1603 cash grant provision to promote renewable energy development. With a refundable tax credit in place, however, hopefully legislators will not be faced with such a decision.