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## EXPANDING THE RENEWABLE ENERGY INDUSTRY THROUGH TAX SUBSIDIES USING THE STRUCTURE AND RATIONALE OF TRADITIONAL ENERGY TAX SUBSIDIES

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Blake Harrison\*

Just as the government invested in oil and gas, it must now invest in new energy sources. In a sense, Americans need history to repeat itself.<sup>1</sup>

*This Note suggests that Congress should amend the United States Tax Code to further subsidize the renewable energy industry. Congress should use subsidies historically available to the oil and gas industries as a model in its amendments. These subsidies serve as a model for promoting the renewable energy industry because such subsidies were fundamental in facilitating the oil and gas industries' dominance today. Ultimately, Congress must further subsidize the renewable energy industry to avoid the environmental and economic consequences of an economy based on traditional sources of energy. This Note recommends that renewable energy dominance is possible by amending the tax code to subsidize the renewable energy industry using the same subsidization rationales applied to the oil and gas industries.*

### INTRODUCTION

Since the inception of the tax code, the United States has given oil and gas industries significant tax subsidies to aid domestic oil and gas production. These subsidies began rather innocuously, as a way to prop up a fledgling domestic energy industry in the face of domestic challenges. However, throughout the 20th century, these subsidies substantially reduced oil and gas industries' tax burdens through deductions and tax credits for operating costs and costs associated with risky projects, and grew in scope and number, permitting oil and gas producers to become the dominant energy industries in the United States.

Now, Congress must increase renewable energy industry subsidies to avoid significant environmental and economic consequences. Although current investment and production tax credit subsidies assist the renewable energy industry's growth, this Note argues that existing subsidies are inadequate to expand the

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1. Mona L. Hymel, *Environmental Tax Policy in the United States: A "Bit" of History*, 3 ARIZ. J. ENVTL. L. & POL'Y 157, 159 (2013).

renewable energy industry, and address environmental concerns and economic concerns. Consequently, this Note suggests amending several tax subsidies that historically facilitated oil and gas industry growth to include renewable energy counterparts.

Part I of this Note compares oil and gas development with renewable energy development and details the tax subsidies' backgrounds, text, values, and rationales. Part II explains why renewable energy industry subsidies have not led to sufficient growth by looking at the subsidies' start-stop history and the investment issues arising from the subsidies' tax credit structure. Part III compares the renewable energy industry's tax subsidies' scope with that of the oil and gas industries' subsidies. Part III concludes by suggesting amendments to several oil and gas subsidies that include renewable energy industry counterparts so that the renewable industry may grow, avoiding the environmental and economic consequences of inaction.

## I. AMERICAN ENERGY DEVELOPMENT AND TAX POLICY

### A. *Background and Comparison of the Energy Sources and Their Development*

Prior to delving into the tax subsidies themselves, a brief review of oil, natural gas, wind, and solar energy production is helpful to frame the tax subsidy discussion. First, a review of the energy production process from investment to consumer use will place the subsidy discussion in context. Second, this review will assist in understanding why oil and gas industry<sup>2</sup> tax subsidies are superior to renewable energy industry subsidies. Lastly, this review will bolster the argument for reform by explaining the unique nature of renewable energy investment and production.

Traditional and renewable energy investment, transportation, production, and storage are similar, but distinct. Oil and gas developers expend significant labor and capital to locate, extract, and transport oil and natural gas. Initially, developers must invest in the labor and capital necessary to drill and pump out the resource (oil and natural gas). The resource's location and quality, however, cause the extraction cost to vary.<sup>3</sup> After the resource is extracted,

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2. This Note uses "oil and gas" interchangeably with "traditional energy" and "fossil fuel energy."

3. For instance, a developer may drill for oil offshore and the costs necessary to construct an oil rig there are much higher than, say, constructing an oil rig on land. *Compare* Chua Baizhen, *Maersk Drilling to Spend Much as \$6 Billion on Oil Rigs*, BLOOMBERG NEWS (Mar.

developers must then transport the resource through pipelines, trucks, or barges so that the oil or natural gas may be refined for consumption.<sup>4</sup> Then, without losing energy potential, natural gas and oil can be stored and eventually turned into energy through combustion.

Wind and solar energy production also requires intense capital investment costs that can vary depending on the resource's location. The energy potential, labor, storage, and transmission requirements for renewable energy, on the other hand, are distinct. Similar to oil and natural gas production, renewable energy developers must find a location that maximizes energy production while minimizing production costs.<sup>5</sup> Additionally, both the oil and gas and renewable energy industries face costs that vary with the location and quality of the resource. Whereas oil and gas extraction costs vary with the resources' location and quality, wind and solar generating costs vary geographically and seasonally. As a result, different geographical areas have a greater potential for capturing wind or solar energy than others.<sup>6</sup>

For both wind and solar electricity generation, after a developer determines a location with high energy-generation potential, they must use available technology to convert the energy into electricity. Wind developers construct groups of wind turbines—wind farms—

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18, 2012), <http://www.bloomberg.com/news/2012-03-18/maersk-drilling-to-spend-much-as-6-billion-on-oil-rigs.html> (discussing that the current cost for offshore oil platforms is over six hundred million dollars), with Mark J. Kaiser & Yunke Yu, *HAYNESVILLE UPDATE—2: North Louisiana Drilling Costs Vary Slightly 2007-12*, OIL & GAS J. (Jan. 16, 2014) available at <http://www.oilandgas.com/articles/print/volume-112/issue-1/exploration-development/north-louisiana-drilling-costs-vary-slightly-2007-12.html> (discussing that the current cost for onshore oil wells is around ten million dollars). In addition, natural gas located in shale fields is more costly to extract because of the need to separate the gas from other substances through a process known as hydraulic fracturing, or more colloquially known as “fracking.” Karol Mazur, *Economics of Shale Gas*, ENERGY CENTRAL (Oct. 3, 2012) <http://www.energycentral.com/articles/article/2574> (“[C]osts associated with development of shale formations are ranging between [two to three million dollars] and may be significantly higher than these of conventional reservoirs—it is mostly due to extensive use of horizontal drilling and hydraulic fracturing.”).

4. Hymel, *supra* note 1.

5. For wind, see generally U.S. ENERGY INFO. ADMIN., *Wind Explained: Where Wind Power Is Harnessed* (Mar. 16, 2012), [http://www.eia.gov/energyexplained/wind/where\\_wind\\_power\\_is\\_harnessed.cfm](http://www.eia.gov/energyexplained/wind/where_wind_power_is_harnessed.cfm) (Wind). For solar, see generally U.S. ENERGY INFO. ADMIN., *Solar Explained: Where Solar Is Found* (Dec. 20, 2012), [http://www.eia.gov/energyexplained/solar/where\\_solar\\_is\\_found.cfm](http://www.eia.gov/energyexplained/solar/where_solar_is_found.cfm) (Solar). See also Clint Ouma, *Assessing Locations for Wind Power Generation*, EXPLORINGGREENTECHNOLOGY.COM, <http://exploringgreentechnology.com/wind-energy/assessing-locations-for-wind-power-generation/> (last visited Nov. 16, 2014) (“Wind power plants cannot be setup everywhere, there are certain conditions that make some locations favourable for wind power projects of several megawatts and other sites unfit for any installations.”).

6. For an explanation of wind, see generally U.S. ENERGY INFO. ADMIN., *Wind Explained: Wind* (Sept. 18, 2014), <http://www.eia.gov/energyexplained/wind/index.cfm> (Wind). For an explanation of solar, see generally *Solar Explained*, *supra* note 5.

that use the wind to spin blades that are connected to a turbine, thereby generating electricity.<sup>7</sup> Solar developers typically use a grouping of photovoltaic cells—solar panels<sup>8</sup>—or reflective surfaces directed at a heat sink—solar thermal energy—to collect the sun’s energy.<sup>9</sup> Like a drill for extracting oil and gas, renewable energy generation technology requires significant capital investments.

Additionally, unlike oil and gas, however, wind and solar energy cannot be effectively stored,<sup>10</sup> and generally must be converted to electricity and connected to a transmission grid before the energy can be used for electricity. This transmission issue is further complicated by the fact that the places with the greatest wind and solar energy potential are located far away from places with high electricity demand, such as densely populated cities.<sup>11</sup> This results in significant additional project costs because transmission lines must be constructed to bring high-potential renewable energy to high-demand areas.

These transmission costs are similar to oil and gas transportation infrastructure costs. As discussed above, however, the inability to effectively store energy generated from renewable technologies<sup>12</sup> makes transmission as important as energy generation. Without a viable transmission line or storage medium, the renewable resource would be, for all practical purposes, worthless.

The capital costs and difficulties for oil and gas production are generally similar to those for renewable energy production; however, each faces different challenges. But, even where the

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7. Wind Explained, *supra* note 6.

8. “Photovoltaics is the direct conversion of light into electricity at the atomic level. Some materials exhibit a property known as the photoelectric effect that causes them to absorb photons of light and release electrons. When these free electrons are captured, an electric current results that can be used as electricity.” Gil Knier, *How Do Photovoltaics Work?*, NAT’L AERONAUTICS AND SPACE ADMIN. (Apr. 6, 2011), <http://science.nasa.gov/science-news/science-at-nasa/2002/solarcells/>.

9. U.S. ENERGY INFO. ADMIN., *Solar Explained: Solar Thermal Power Plants* (May 30, 2013), [http://www.eia.gov/EnergyExplained/index.cfm?page=solar\\_thermal\\_power\\_plants](http://www.eia.gov/EnergyExplained/index.cfm?page=solar_thermal_power_plants).

10. See *Electric Energy Storage*, CENTER FOR CLIMATE AND ENERGY SOLUTIONS <http://www.c2es.org/technology/factsheet/ElectricEnergyStorage> (last visited Nov. 16, 2014) (“The current use of EES [electric energy storage] technologies is limited compared to the rates of storage in other energy markets such as the natural gas or petroleum markets. EES capacity, most of which is pumped hydro, is only 2.3 percent of U.S. electric power capacity.”).

11. See NAT’L RENEWABLE ENERGY LAB., *Wind Maps* (Sept. 10, 2014) <http://www.nrel.gov/gis/wind.html> (showing several maps illustrating significant wind energy potential in North Dakota); Solar, *supra* note 5.

12. See *Electric Energy Storage*, *supra* note 10.

challenges faced by the industries are distinct,<sup>13</sup> the underlying rationales for oil and gas industry subsidies equally apply to the renewable energy industry. To provide a background for the following subsidy discussion, the next Section will discuss taxable income generally.

### *B. Introduction to Taxable Income*

To understand why a change from the tax subsidy status quo is necessary, it is important to review how the Internal Revenue Code (IRC) works. A threshold issue is who qualifies to pay taxes. At the most basic level, if an individual or corporation earns an income and the IRC denotes that income as taxable, then that party must pay taxes on that income.<sup>14</sup> Consequently, if a party does not earn any income, such as a new business whose revenue does not cover all of its expenses, they will not pay income taxes.

The IRC determines how much a party owes in taxes by taking into account the taxable income a party earns in a given taxable year.<sup>15</sup> A party's taxable income represents a congressional determination of what income constitutes gross income and what costs or conduct qualify as deductions.<sup>16</sup> The formula for identifying taxable income for corporations can be expressed as follows:

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13. For example, oil and gas can be depleted and wind and solar energy needs to be stored or transmitted. Compare Erin McLamb, *Fossil Fuels vs. Renewable Energy Resources*, ECOLOGY GLOBAL NETWORK (Sept. 6, 2011) (“[F]ossil fuels are non-renewable. They are limited in supply and will one day be depleted . . . . Fossil fuels formed from plants and animals that lived hundreds of millions of years ago and became buried way underneath the Earth’s surface where their remains collectively transformed into the combustible materials we use for fuel.”), with *Electric Energy Storage*, *supra* note 10 (explaining how electric energy storage for renewable energy is necessary due to renewable energy’s intermittent energy-producing capacity).

14. For instance, the IRC states that, for corporations in general, “[a] tax is hereby imposed for each taxable year on the taxable income of every corporation.” I.R.C. § 11(a) (2012). Partnerships, a taxable entity that will be discussed, *infra*, are another type of taxable entity that receives unique treatment under the IRC. However, a type of partnership that specifically targets oil and gas companies is best understood as a subsidy and will be treated in the following section about subsidies. See U.S. SEN. CHRIS COONS, THE MASTER LIMITED PARTNERSHIP ACT 1 (Apr. 24, 2013), available at <http://coons.senate.gov/download/mlp-white-paper/> (explaining that Master Limited Partnerships are traded on the market like a corporate organization but only taxed at the lower level of a partnership).

15. See, e.g., I.R.C. §§ 1 (individuals), 11 (corporations).

16. In determining what constitutes taxable income, the IRC’s congressional underpinnings play a large part in what amounts to a series of political, accounting, economic, and social considerations. See BORIS I. BITTKER & LAWRENCE LOKKEN, FEDERAL TAXATION OF INCOME, ESTATES AND GIFTS § 2.1 (2012) (“The statutory base is ‘taxable income,’ a term whose content not only reflects accounting principles and economic concepts but also embodies numerous legislative judgments about fairness, administrative convenience, and the desirability of encouraging or not impeding a host of social, personal, and business activities.”).

Gross Income – Deductions = Taxable Income.<sup>17</sup>

With regard to what constitutes gross income, the IRC details an open-ended list including “gross income derived from business . . . interest; dividends.”<sup>18</sup> Deductions—also known as subsidies—vary widely and can be found throughout the IRC. The following Section discusses these deductions.

### C. Subsidies—Generally

A tax *subsidy* is a tax credit or deduction that lowers the amount a taxpayer owes on their income taxes. A tax *credit* is a dollar-for-dollar credit reduction in a taxpayer’s income tax liability. Tax deductions, on the other hand, reduce taxable income and lower tax liability proportionally.<sup>19</sup> The IRC’s language distinguishes between tax credits and deductions, detailing how taxpayers may use tax subsidies to reduce their gross income and achieve a lower taxable income.<sup>20</sup> This is desirable because the lower a party’s taxable income, the fewer taxes the party must pay.<sup>21</sup>

Tax subsidies can take various forms<sup>22</sup> and are aimed at taxpayers who fit into certain categories or who exhibit certain behavior. In the energy field, for example, the IRC contains tax subsidies that permit U.S.-based oil and gas companies to deduct drilling operation costs.<sup>23</sup> The IRC also allows U.S.-based renewable energy companies a tax credit proportional to a company’s renewable energy electricity generation.<sup>24</sup>

However, not all subsidies are created equal. Where a specific income falls under a deduction that is broader or has been in place longer than other deductions, the selective deductions will likely have a negative effect on competitors and on the economy as a whole. Where businesses or industries in a particular field are not equally subsidized, it “is not only unfair to competitors who aren’t subsidized, but it also stifles the incentive of the subsidized business

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17. *Id.*

18. *See* I.R.C. § 61 (2012).

19. Erin Dewey, *Sundown and You Better Take Care: Why Sunset Provisions Harm the Renewable Energy Industry and Violate Tax Principles*, 52 B.C. L. REV. 1105, 1114 (2011).

20. *See* BITTKER & LOKKEN, *supra* note 16.

21. *Id.*

22. For example, a common tax subsidy allows business owners to deduct business expenses. *See* I.R.C. § 162 (2012).

23. *See* I.R.C. § 617 (2012).

24. *See* I.R.C. § 45 (2012).

to innovate and develop new products (which might not be eligible for subsidies), ultimately making them less competitive.”<sup>25</sup>

As will be shown in the following sections, specific subsidies benefit companies that invest in or produce oil, gas, and renewable energy in distinct ways. Although renewable energy does not compete directly with oil as with natural gas,<sup>26</sup> it is worthwhile to look at renewable energy tax subsidies in light of *both* oil and gas subsidies. The subsidies given demonstrate how extensive subsidization can lead to great economic success and serve as a point of reference for the differences inherent in the subsidies for energy producers. These differences include the subsidy’s applicability, amount of benefit, expiration date (or lack thereof), and historical presence in the IRC. The combination of these differences creates an unequal playing field for those companies whose subsidies are not nearly as beneficial.

#### *D. Oil and Gas Tax Subsidies*

##### 1. History

The Internal Revenue Code (IRC) has been intimately linked to tax subsidies for investment, development, and production of American energy sources for much of this nation’s history. The same year that Congress adopted the federal income tax in 1913, it also passed legislation permitting oil companies to receive a subsidy for depleting an oil-based resource.<sup>27</sup> In particular, the development of the automobile as the primary mode of transportation in the United States signaled the rise of significant oil and gas tax subsidization.<sup>28</sup> As a result, from the early part of the twentieth century until the late 1970s, the government heavily subsidized what was once a fledgling energy sector.<sup>29</sup> Since the late 1970s, however, the scope of many oil and gas industry subsidies has been reduced, and

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25. MARK ZEPEZAUER, *TAKE THE RICH OFF WELFARE* 3 (2nd ed. 2004).

26. See U.S. ENERGY INFO. ADMIN., *Renewable Energy Explained* (Sept. 27, 2013), [http://www.eia.gov/energyexplained/index.cfm?page=renewable\\_home](http://www.eia.gov/energyexplained/index.cfm?page=renewable_home) (explaining that half of the energy used by renewables goes to producing electricity); U.S. ENERGY INFO. ADMIN., *Natural Gas Explained: Use of Natural Gas* (Apr. 26, 2013), [http://www.eia.gov/EnergyExplained/index.cfm?page=natural\\_gas\\_home](http://www.eia.gov/EnergyExplained/index.cfm?page=natural_gas_home) (explaining that thirty-six percent of natural gas is used for producing electricity); U.S. ENERGY INFO. ADMIN., *Oil: Crude and Petroleum Products Explained: Use of Oil* (June 19, 2014), [http://www.eia.gov/EnergyExplained/index.cfm?page=oil\\_use](http://www.eia.gov/EnergyExplained/index.cfm?page=oil_use) (explaining that less than one percent of oil is used for electricity).

27. Hymel, *supra* note 1, at 159 n.3, 165–66.

28. *Id.* at 162–64.

29. *Id.* at 164–67.



today these subsidies function to keep prices low to account for the United States' dependence on oil and gas.<sup>30</sup> Even without access to the most beneficial tax subsidies, however, domestic oil and gas companies continue to enjoy favored status in the Code and receive tax incentives, adjusted for inflation, in the amount of at least \$41 billion per year.<sup>31</sup>

Generally speaking, the IRC permits deductions for almost every aspect of the oil and gas production process.<sup>32</sup> As will be shown below, oil and gas producers receive subsidies for setting up and maintaining the machinery required to extract the resource, pursuing oil and gas in areas where it would otherwise not be profitable to do so, and structuring an oil and gas company in a specific way to avoid the double taxation normally applicable to corporations.

## 2. Intangible Drilling Cost Deductions

Intangible Drilling Cost Deductions (IDC) permit taxpayers to deduct from their income tax many expenses associated with domestic oil and gas drilling.<sup>33</sup> The IDC deduction first arose in 1917 when the Treasury Department, through an administrative rule, began to permit the deduction of costs associated with the incidental expenses of drilling wells for various energy sources, including oil and gas.<sup>34</sup> Owing its existence to administrative decisions and regulations, the subsidy was unique among other oil and gas tax

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30. *Id.* at 162.

31. Mark Clayton, *Budget Hawks: Does U.S. Need to Give Gas and Oil Companies \$41 Billion a Year?* CHRISTIAN SCI. MONITOR (Mar. 9, 2011), <http://www.csmonitor.com/USA/Politics/2011/0309/Budget-hawks-Does-US-need-to-give-gas-and-oil-companies-41-billion-a-year>.

32. Another important subsidy for oil and gas industries that will not be addressed in detail because of its dissimilar purpose is the depletion allowance. The depletion allowance, I.R.C. § 611(a), permits taxpayers who own certain extinguishable assets to claim deductions from their taxes commensurate with the depletion of those resources. *Id.* Although all natural resources are technically exhaustible, “exhaustion for tax purposes is judged . . . by the life span of mortals.” BITTKER & LOKKEN, *supra* note 16, § 24.1. The rules strictly limit the energy sources of renewable energies, claiming that “the air, or similar inexhaustible sources” are ineligible for depletion. Although those rules could be amended as well, permitting a wind or solar energy developer to claim the subsidy would run counter to the rationale behind the depletion allowance for two reasons. First, it would permit a party to claim that property in which he does not have an ownership interest, namely the wind and solar resource, is being depleted. Second, it would permit a party to claim that he has lost value through depletion of a resource that is relatively incapable of depletion. Thus, if a developer were permitted to claim such depletion, he would be able to recover for a depletion that never occurred for property that he does not own. For these reasons, the percentage depletion allowance is not an ideal model upon which to base a renewable energy analogue.

33. I.R.C. § 263(c) (2012).

34. Hymel, *supra* note 1, at 169.

subsidies until Congress formally codified it in 1954.<sup>35</sup> Congress began to enact limitations on the expensing of IDCs from the 1970s onward.<sup>36</sup>

Apart from its distinctive history, the IDC is also unique in its language and effect. The statute reads as follows: “[R]egulations shall be prescribed [granting] the option to deduct as expenses intangible drilling and development costs in the case of oil and gas wells”<sup>37</sup> within the United States.<sup>38</sup> A unique aspect of the IDC subsidy is that it allows for the deduction of capital expenditures.<sup>39</sup> Typically, a taxpayer cannot deduct items that increase the value of their investment because they would otherwise be able to recover those costs through the sale of their property. To allow otherwise would enable them to recover the investment in their property twice. The IDC, however, permits a taxpayer to deduct “operator’s expenditures for wages, fuel, repairs, hauling, supplies, and other costs but only to the extent they are incident to and necessary for the drilling of wells and preparation of wells for the production of oil or gas.”<sup>40</sup> Costs associated with drilling a well that turns out to be dry can also be deducted under the IDC.<sup>41</sup> The Tax Court reasoned that the IDC is necessary to encourage entrepreneurs to bear the risks associated with drilling for oil and gas in more high-risk wells.<sup>42</sup> The value of the IDC between 1968 and 2000 was between forty-three and fifty-five billion dollars in lost revenue.<sup>43</sup>

The IDC produces the following benefits: (1) it allows a party to deduct the cost of capital expenditures and (2) it allows for faster depreciation of those costs. With regard to the latter benefit, the IDC permits companies to incur the costs and deduct those over sixty months<sup>44</sup> instead of the standard 120 months.<sup>45</sup> This means

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35. *Id.* at 169–70.

36. *See generally id.* at 170.

37. I.R.C. § 263(c) (2012).

38. I.R.C. § 263(i) (2012).

39. Generally speaking, a capital expenditure “is a cost that will yield benefits in future years for the taxpayer’s business or income-producing activities. Obvious examples are the costs of buildings and equipment.” BITTKER & LOKKEN, *supra* note 16, § 105A.1.

40. *Id.* § 26.1. Also, these costs typically increase the value of the operation and would normally be understood as capital expenditures but for the IDC exception.

41. *Id.*

42. *Gates Rubber Co. v Comm’r*, 74 T.C. 1456, 1477 (1980); *see also* BITTKER & LOKKEN, *supra* note 16, § 26.1.

43. U.S. GOV’T ACCOUNTABILITY OFFICE, TAX INCENTIVES FOR PETROLEUM AND ETHANOL FUELS 7–9 (2000), available at <http://www.gao.gov/new.items/rc00301r.pdf>.

44. I.R.C. § 59(e) (2012).

45. *Id.*

that a taxpayer can take on more cost and receive a quicker financial return through the IDC than through a standard depreciation allowance.

### 3. Enhanced Oil Recovery Credit and Credit for Producing Fuel from a Nonconventional Source

The IRC also provides a subsidy for oil and gas called the Enhanced Oil Recovery Credit (EORC).<sup>46</sup> This subsidy covers expenses related to oil and gas in hard-to-drill areas and nearly dry wells in addition to oil and gas wells that are particularly difficult to drill. As a result, the EORC “encourages oil companies to go after reserves that are more expensive to extract, like those that have been nearly depleted or that contain especially thick crude oil.”<sup>47</sup>

The EORC awards taxpayers a credit for any taxable year in an amount equal to fifteen percent of the taxpayer’s qualified enhanced oil recovery costs for such taxable year.<sup>48</sup> Qualified costs include the IDC costs detailed above, expenses exceeding those costs that are integral parts of the project incurred in an attempt to extract more oil (tertiary injectant expenses), and depreciation of tangible property.<sup>49</sup> Certain restrictions and limitations apply to the EORC as well,<sup>50</sup> and the EORC is only available to parties who have an operating mineral interest in the property.<sup>51</sup>

Another similar credit is the Credit for Producing Fuel from a Nonconventional Source (NSC).<sup>52</sup> In general, the NSC provides an incentive for taxpayers to produce oil and gas domestically from sources that typically require more investment to extract oil and gas. The difficult-to-drill sources include “oil from shale and tar sands, gas from geopressured brine, Devonian shale, coal seams, [and] tight formations.”<sup>53</sup> The NSC gives a three dollar-per-barrel credit, which is adjusted for inflation and may be reduced if the market cost of oil per barrel increases above a predetermined price.

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46. I.R.C. § 43 (2012).

47. ZEPEZAUER, *supra* note 25, at 119.

48. I.R.C. § 43(a) (2012).

49. Hymel, *supra* note 1, at 171; I.R.C. § 43(c) (2012).

50. I.R.C. § 43(b) (2012) (detailing a pro-rated credit if the price of the oil is above a certain price per barrel); I.R.C. §§ 43(c)(2)(A) (2012) (detailing that a party must domestically produce a significant increase in amount of crude oil recovery), 43(d) (detailing that a taxpayer must also reduce the otherwise deductible or capitalizable costs).

51. Enhanced Oil Recovery Credit, 57 Fed. Reg. 54,919, 54,920 (Nov. 23, 1992) (codified at 26 CFR pt. 1, 601).

52. I.R.C. § 45K (2012).

53. BITTKER & LOKKEN, *supra* note 16, § 27.6.

The USGAO estimated that the government lost about one billion dollars between 1990 and 2000 from the EOR credit and up to eleven billion dollars in revenue from the NSC credit between 1980 and 2000.<sup>54</sup>

## 5. Master Limited Partnerships

Taxpayers who produce a qualifying amount of oil and gas also qualify for a lesser known, but equally potent, tax subsidy by organizing their enterprise as a Master Limited Partnership (MLP).<sup>55</sup> To understand why this structure is advantageous, some background on business organization as it relates to oil and gas production is necessary.

Generally speaking, parties seeking to profit from oil and gas production require substantial investment and preparation before they may actually proceed to the profitable production stage. Therefore, many parties that desire to produce oil and gas structure their businesses as corporations.<sup>56</sup> Although incorporation offers many advantages, a significant downside is that a corporation's income is taxed twice, first in the form of an income tax on the corporation's income and second, in the form of a tax on the dividends awarded to the investors.<sup>57</sup>

An MLP, on the other hand, "is a business structure that is taxed as a partnership, but whose ownership interests are traded on a market like corporate stock."<sup>58</sup> Instead of a typical corporate structure—investors, managers, and officers—an MLP's members resemble more closely a partnership and are split into two categories: limited partners, who usually hold ninety-eight percent of the enterprise but have no control in the MLP's operation, and general partners, who hold a two percent ownership stake in the enterprise and oversee the MLP's operation.<sup>59</sup> Similar to forming one's business as a corporation, an MLP seeks investors and promises to reward them with dividends from the company's profits following investment. Unlike a corporation, however, if particular conditions

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54. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 43, at 9–13.

55. I.R.C. § 7704(d)(1)(e) (2012).

56. Legal entities in nature, corporations afford owners and investors significant advantages including legal liability shielding, the issuance of stock to its investors, and a well-established hierarchy of operation. 1 TREATISE ON THE LAW OF CORPORATIONS § 1:5 (3d ed. 2010).

57. *Id.*

58. SEN. COONS, *supra* note 14, at 2.

59. *Id.*

are met,<sup>60</sup> then the MLP is to be treated as a partnership<sup>61</sup> instead of a corporation. This means that the entity's income is only taxed once, on the dividends it gives out to its investors. Thus, MLPs provide many of the same benefits of incorporation without the added double tax liability. The result is more money saved and, thus, more money for an MLP's investors in the form of dividends.

Only businesses that fall under a categorical exception<sup>62</sup> may take advantage of all that an MLP structure provides. The default position of the IRC is to treat MLPs as corporations.<sup>63</sup> However, if ninety percent of an MLP's gross income comes from a qualifying source, the IRC treats the MLP as a partnership.<sup>64</sup> Qualifying sources include interest-based income, real property rents,<sup>65</sup> and, most importantly, "income and gains derived from the exploration, development, mining or production, processing, refining, transportation (including pipelines transporting gas, oil, or products thereof), or the marketing of any *mineral or natural resource* . . . ."<sup>66</sup> Ultimately, if an oil and gas producing taxpayer structures its business as an MLP, the taxpayer may avoid corporate double taxation and instead give that money to its investors.

The current market capitalization<sup>67</sup> of MLPs is nearly \$490 billion.<sup>68</sup> Eighty-six percent of which comes from stocks held in the energy and natural resource income stream.<sup>69</sup> Additionally, MLPs offer dividends to their investors at an average of six percent,<sup>70</sup> which due to its higher than average dividend rate, is likely to bring continued investment in the future.

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60. See *infra* Part III.A.

61. See I.R.C. § 701 (2012) (stating that, in partnerships, partners owe taxes in their individual capacities, not the partnerships in their capacities as entities).

62. See I.R.C. § 7704(c) (2012).

63. I.R.C. § 7704(a) (2012).

64. I.R.C. § 7704(c) (2012).

65. I.R.C. § 7704(d)(1) (2012).

66. I.R.C. § 7704(d)(1)(E) (2012) (emphasis added).

67. Current market capitalization is a common measurement of an entity's worth, which takes into account the value of the shares of the company multiplied by the number of shares, that is, if an entity were to take all of its shares and multiply them by the current value of those shares, the resulting figure is the current market capitalization. *Market Capitalization*, INVESTOPEDIA, <http://www.investopedia.com/terms/m/marketcapitalization.asp> (last visited Nov. 16, 2014).

68. Nat'l Ass'n of Publicly Traded Partnerships, *Master Limited Partnerships 101: Understanding MLPs* 33 (Oct. 4, 2013), available at [http://www.naptp.org/documentlinks/Investor\\_Relations/MLP\\_101.pdf](http://www.naptp.org/documentlinks/Investor_Relations/MLP_101.pdf).

69. *Id.*

70. Felix Mormann & Dan Reicher, *How to Make Renewable Energy Competitive*, N.Y. TIMES (June 1, 2012), <http://www.nytimes.com/2012/06/02/opinion/how-to-make-renewable-energy-competitive.html?pagewanted=all>.

*E. Renewable Energy Tax Subsidies*

In contrast to the first traditional energy tax subsidies in 1913, Congress passed the first renewable energy tax credits in 1978,<sup>71</sup> likely as a response to the energy crisis of the late 1970s.<sup>72</sup> From 1978 until 2012, Congress created new incentives, extended existing incentives, and renewed expired incentives for renewable energy.<sup>73</sup> Generally speaking, these laws offered tax credits and deductions to entities<sup>74</sup> to purchase renewable energy technology and to energy producers to produce energy from alternative energy sources. These incentives included accelerated and bonus depletion allowances for businesses that purchase certain types of renewable energy property and an income tax deduction for taxpayer's producing energy from certain renewable energies.

For example, the Modified Accelerated Cost-Recovery System (MACRS) in Section 168 of the IRC<sup>75</sup> functions as a tax incentive for renewable energy companies. It permits businesses to recover investments in certain property through depreciation deductions at a faster rate than otherwise permissible under the IRC's standard depreciation deduction. The relevant qualifying properties include a variety of solar technologies and small-scale wind turbines.<sup>76</sup> For example, the MACRS allowance permits a business to purchase solar or small-scale wind technology that would normally depreciate over a lifetime of five to ten years, and instead deduct its depreciation over five years.<sup>77</sup> Additionally, the 2012 extension of the MACRS deduction extends a bonus depreciation, which "allows industrial and commercial businesses to recover investment in, among other renewables, solar and wind and deduct a depreciation allowance up to 50 percent in the first year that the equipment is

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71. The first legislation creating tax credits for renewable energy was the Energy Tax Act of 1978, Pub. L. No. 95-618, 92 Stat. 3174 (1978). Hymel, *supra* note 1, at 160.

72. See Hymel, *supra* note 1, at 160.

73. In 2005, Congress passed the Energy Tax Incentives Act of 2005, Pub. L. No. 109-58, 119 Stat. 986 (2005). In 2008, Congress passed the Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343, 122 Stat. 3765 (2008) (codified at 12 U.S.C. §§ 5201-61). In 2009, Congress passed the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009). In 2012, Congress passed the American Taxpayer Relief Act of 2012. Hymel, *supra* note 1, at 160 n.11-13; Database of State Incentives for Renewables and Efficiency, *Federal Incentives/for Renewables & Efficiency: Modified Accelerated Cost-Recovery System* (Jan. 1, 2013), available at [http://.org/.cfm?Incentive\\_Code=US06F](http://.org/.cfm?Incentive_Code=US06F) (DSIRE); American Taxpayer Relief Act of 2012, Pub. L. 112-240, 126 Stat. 2313 (2012).

74. Note, that these entities do not include residential parties. These subsidies were typically addressed to utilities and industrial entities.

75. I.R.C. § 168 (2012).

76. I.R.C. § 168(e)(3)(B)(vi) (2012).

77. *Id.*

purchased and placed into service,” as long as it was purchased between 2008 and 2012.<sup>78</sup>

One of the most significant renewable energy tax credits is the federal renewable electricity production tax credit (PTC), which allows taxpayers to receive a credit on their taxes for the electricity that they produce from qualifying renewable energy technology and sell to unrelated parties.<sup>79</sup> It is “a per-kilowatt-hour tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person during the taxable year.”<sup>80</sup> Unlike the MACRS, which primarily allows a party to deduct the purchased renewable energy technology’s depreciated *value* from their taxes and thus pay fewer taxes on the technology, the PTC benefits parties who *produce and sell* electricity with their renewable energy technology by giving the taxpayer a credit on their income taxes. To give an idea of the PTC’s scope, between 1992 and 2015, the United States will not collect eighteen billion dollars in revenue through parties using the PTC in tax expenditures.<sup>81</sup>

The PTC is available for any scale wind project, but not for solar energy production.<sup>82</sup> This restriction against solar panels may be due to the disturbance that a production tax credit’s application could have on a taxpayer’s income tax burden as well as on the utility industry. Because residential scale solar energy production is becoming increasingly feasible and popular across the country,<sup>83</sup> tax credits for electricity production by owners of small-scale solar panels would disadvantage utility competitors and reduce individual homeowners’ income tax burdens.

With regard to the PTC’s longevity, unlike oil and gas tax incentives that require proactive removal, the PTC for renewable energies expires and must be renewed.<sup>84</sup> Given this structure, the PTC has experienced what amounts to a frequent stopping and

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78. Wang Mingyuan, *Government Incentives to Promote Renewable Energy in the United States*, 24 TEMP. J. SCI. TECH. & ENVTL. L. 355, 362 (2005); DSIRE, *supra* note 73.

79. I.R.C. § 45.

80. Database of State Incentives for Renewables and Efficiency, *Federal Incentives/for Renewables & Efficiency: Renewable Electricity Production Tax Credit* (Oct. 2, 2013), available at [http://.org//.cfm?Incentive\\_Code=US13F](http://.org//.cfm?Incentive_Code=US13F) (DSIRE).

81. *Impact of Tax Policies on the Commercial Application of Renewable Energy Technology: Hearing Before the H. Comm. on Science, Space, and Technology, Subcomm. on Investigations and Oversight & Subcomm. on Energy and Environment*, 112th Cong. 3 (2012) (statement of Molly Sherlock, Specialist in Public Finance), available at <http://.house.gov//.science.house.gov////-SY21-WState-MSherlock-20120419.pdf> at 3.

82. See I.R.C. § 45 (2012) (omitting solar as a qualifying energy source).

83. See SHAYLE KANN ET AL., SOLAR MARKET INSIGHT REPORT 2014 Q1, at 3 (Solar Energy Indus. Ass’n 2014) <http://.us/>.

84. See, e.g., I.R.C. § 45(d) (2012) (limiting the tax credit’s coverage to qualifying facilities and defining qualifying facilities as those put into service prior to January 1, 2014).

starting through the course of its history. Enacted in 1992, the PTC first expired in 1999.<sup>85</sup> Between late 1999 and early 2013, the PTC expired three times, with at least half a year and sometimes a year-long gap before renewal; as is currently the case following Congress' failure to renew the most current enactment after expiring in 2013.<sup>86</sup> However, regardless of this intermittent history, the PTC remains the primary incentive for wind power development.<sup>87</sup>

A taxpayer who wishes to produce and receive a tax credit for wind power must follow certain conditions. First, according to the most recent legislation passed in January 2013, a wind developer must begin construction on the project prior to January 1, 2014 in order to receive a tax credit.<sup>88</sup> Second, a PTC-eligible facility only qualifies if it is within its first ten years of operation.<sup>89</sup> If a wind farm meets both conditions, once the wind farm begins to produce wind energy, the taxpayer is eligible for a tax credit—currently 2.2 cents per kilowatt-hour—for each kilowatt of electricity the facility delivers to the grid.<sup>90</sup>

The Renewable Energy Investment Tax Credit (ITC)<sup>91</sup> permits businesses and energy producers to deduct up to thirty percent of the cost of purchasing solar and small-scale wind technology (less than 100kW), but not large-scale wind technology.<sup>92</sup> The ITC historically represented a smaller loss of tax revenue, compared to the PTC. For example, the revenue loss attributable to the ITC from

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85. DSIRE, *supra* note 80.

86. *Id.* (showing that the PTC was renewed in late 1999 until 2001; it expired again in 2001 and then was renewed in 2002; it expired in 2003 and was not renewed until 2004; it was extended twice to 2008 and was renewed in 2009 until 2013, and it was not renewed for 2014).

87. Melissa Powers, *Sustainable Energy Subsidies*, 43 ENVTL. L. 211, 222 (2013).

88. *Id.* at 222 n.54; *see also* I.R.C. § 45(d)(1) (2012) (limiting the production tax credit to those facilities whose construction begins prior to January 1, 2014); U.S. INTERNAL REVENUE SERV., Notice 2013-29 (2013), *available at* <http://irs.gov///-60.pdf>.

89. Powers, *supra* note 87, at 222; *see also* I.R.C. § 45(a)(2)(A)(ii) (2012) (limiting the credit for the first ten years of the operation of a facility).

90. Powers, *supra* note 87, at 222; *see also* 26 I.R.C. § 45(b)(2) (2012) (credit and phase-out adjustment based on inflation).

91. I.R.C. § 48. *See generally* Database of State Incentives for Renewables and Efficiency, *Federal Incentives for Renewables & Efficiency: Business Energy Investment Tax Credit (ITC)*, *available at* [http://.dsireusa.org//.cfm?Incentive\\_Code=US02F](http://.dsireusa.org//.cfm?Incentive_Code=US02F) (last updated Mar. 13, 2014) (DSIRE).

92. I.R.C. §§ 48(a)(1)–(2) (2012) (percentage deduction and duration of credit); I.R.C. § 48(a)(3)(A)(i) (2012) (solar energy); I.R.C. § 48(a)(3)(A)(vi) (2012) (small wind energy). Large-scale wind investment is likely not included in the ITC for political and economic reasons. It is unlikely that coal and gas companies would permit Congress to heavily subsidize investments in large-scale wind technology because more investment in wind technology would lead to less coal and gas investment. In addition, large-scale wind technology paired with the PTC makes wind technology investments cost competitive with subsidized natural gas. But, in line with the Note's central theme, wind technology being cost competitive is insufficient because it does not fully incentivize the adoption of renewable energy.



2011 to 2015 is anticipated to be nearly \$2.7 billion.<sup>93</sup> Although some of these parties would be glad to receive a tax credit for potential investments in large-scale wind, the thought of making it easier for competitors to enter the electricity market would result in significant pushback from utilities and the producers of traditional energy sources.

Although the ITC does not apply to the full range of renewable energy technology, its benefits are numerous. Unlike the PTC, the ITC does not require the purchaser to produce any electricity to earn the credit.<sup>94</sup> Additionally, the Tax Code does not limit how many credits a taxpayer may receive in a taxable year for purchasing solar and wind technology.<sup>95</sup> However, the ITC has its disadvantages. For example, it explicitly disallows companies to elect the ITC for property for which, in the same taxable year or in prior taxable years, they elected the PTC.<sup>96</sup> In other words, for renewable energy technology that produces electricity, a party cannot in the same year deduct the cost of purchasing the technology *and* receive a tax credit for producing renewable energy.

The qualifying investments under the ITC include costs such as “installation costs and the cost for freight incurred in construction of the specified energy property.”<sup>97</sup> Absent an exemption from the restriction on deducting capital expenditures, however, the ITC does not include all potential project costs such as the cost of land, buildings, certain land improvements,<sup>98</sup> siting the technology,<sup>99</sup> and connecting transmission lines to the grid.<sup>100</sup>

Apart from piece-meal expansions, the ITC experienced a significantly less intermittent reenactment history than the PTC.<sup>101</sup> Congress first enacted the ITC in 2005 and restricted its application

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93. Sherlock, *supra* note 81, at 2–3.

94. Dewey, *supra* note 19, at 1116–17.

95. DSIRE, *supra* note 80.

96. See *infra* Part II(C). “Such term shall not include any property which is part of a facility the production from which is allowed as a credit under section 45 for the taxable year or any prior taxable year.” I.R.C. § 48(a)(3).

97. Howard Cooper, *PTCs, ITCs and Section 1603 Grants: Compare and Contrast*, U.S. P’SHIP FOR RENEWABLE ENERGY FIN. (Feb. 2011), available at <http://reffwallstreet.com/us-pref/wp-content/uploads/2011/06/PTC-ITC-and-Section-1603-Grants-v2.2.pdf>.

98. *Id.*

99. See Shalini P. Vajjhala, *Siting Renewable Energy Facilities: A Spatial Analysis of Promises and Pitfalls*, RES. FOR THE FUTURE, 2-3 (July 2006), available at <http://www.rff.org/rff/Documents/RFF-DP-06-34.pdf>.

100. Compare I.R.C. §§ 48(a)(3)(A)–(B) (referring only to equipment technology and construction), with Part II(B) (referencing the interpretation of intangible drilling costs to include all costs reasonably related to drilling wells), *infra*.

101. See generally SOLAR ENERGY INDUS. ASS’N, *Solar Investment Tax Credit (ITC)*, <http://.seia.org///-tax-credit> (last visited Nov. 29, 2013).

to commercial and residential solar energy systems with an expiration date of 2007.<sup>102</sup> In December 2006, Congress extended the ITC through the end of 2008.<sup>103</sup> Most recently, in 2008 Congress extended the ITC through the end of 2016.<sup>104</sup>

In addition to this unprecedented eight-year extension, one of the most important developments for the ITC occurred in 2009 when Congress expanded the scope of the ITC to reach companies that also used the PTC. In other words, for the first time, the ITC permitted companies that were already producing renewable energy to invest in additional renewable energy technology and receive a tax credit for that investment.<sup>105</sup>

As the above discussion explained, the tax subsidies for oil and gas costs, production, and investment were more expansive at their inception than those subsidies allotted to the investment in and production of renewable energy. While the benefit that oil and gas companies derived from the subsidies diminished over time, the subsidies helped the oil and gas companies grow into the hegemony they are today. The subsidies for renewables, on the other hand, do not begin to approach the same level of benefit that was given to oil and gas producers in the past. With that in mind, the next Part will detail the reasons behind why the current energy subsidization regime must change.

## II. WHY THE UNITED STATES' ENERGY TAX POLICY NEEDS TO CHANGE

Economic and environmental challenges motivate the need to expand renewable energy industry subsidies. In particular, the renewable energy industry must expand to address climate change, national security, and economic competition. However, existing subsidies are insufficient to facilitate this expansion due to an intermittent reenactment history and the subsidy structure, which have

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102. The Energy Policy Act of 2005, Pub. L. No. 109-58 § 1337(a) (amending section 48(a)(2)(A) of the I.R.C. to cover investments made prior to January 1, 2008); SOLAR ENERGY INDUS. ASS'N, *supra* note 101.

103. The Tax Relief and Health Care Act of 2006, P.L. 109-432 § 206(a) (amending section 25D(d)(2) of the I.R.C. to cover solar investments made prior to January 1, 2008).

104. The Emergency Economic Stabilization Act of 2008, Pub. L. No. 110-343 § 104(b) (amending section 48(a)(2)(A) of the I.R.C. to cover investments made after December 31, 2016); SOLAR ENERGY INDUS. ASS'N, *supra* note 101.

105. American Recovery and Reinvestment Act of 2009, Pub. L. No. 110-5 § 1102; Database of State Incentives for Renewables and Efficiency, *Federal Incentives/for Renewables & Efficiency: Renewable Electricity Investment Tax Credit*, [http://.dsireusa.org/.cfm?Incentive\\_Code=US02F](http://.dsireusa.org/.cfm?Incentive_Code=US02F) (last updated Sept. 8, 2014) (DSIRE).

both limited the investor pool for those subsidies and stifled renewable energy investment. This Part will evaluate each of these issues to demonstrate why the tax subsidization status quo must change.

*A. Promoting Renewable Energy Industry Subsidization Would Help  
Address Climate Change, National Security,  
and Economic Competitiveness*

Tax Code reform is necessary to encourage more investment in and production of renewable energy. If the United States does not participate in such reform, it will continue to expose itself to climate change effects, national security risks, and disadvantages in economic competition. But, if Congress encourages more investment in and production of renewable energy technology, the United States will be in a position to benefit greatly by diversifying its energy portfolio, promoting economic growth, and securing numerous environmental benefits.

The most pressing danger is climate change. This is an issue in the United States because the nation's primary fuel sources—natural gas, coal, and oil—emit greenhouse gasses (GHGs) when burned,<sup>106</sup> which an unprecedented number of scientists concur contributes to climate change.<sup>107</sup> Reforming the Tax Code to encourage renewable energy will wean the United States off of these traditional energy sources and lessen the most severe consequences of climate change, which will be disruptive to all facets of American life. Currently, climate change is felt on a global scale with increasing average temperatures, rising sea levels, and more.<sup>108</sup> If nothing is done, climate change will be even more destructive in the future,<sup>109</sup> causing additional heat-related injuries and deaths; more severe storms and storm damage; more heat-related illnesses and diseases; changing landscapes and rising seas; increased risk of

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106. More specifically, burning coal and oil gives off carbon dioxide (which accounts for nearly eighty-four percent of the GHGs in the United States) and burning natural gas gives off methane (accounting for 2.2 percent of U.S. GHG emissions and increasing as natural gas use becomes more prevalent). See ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2011 at 5, 9 fig.ES-5, 13, 21 fig.ES-13 (2013), available at <http://.epa.gov/---Inventory-2013-ES.pdf>.

107. See Robert H. Socolow & Stephen W. Pacala, *A Plan to Keep Carbon Check*, SCI. AM., Sept. 2006, at 50.

108. L. JEREMY RICHARDSON & BUD WARD, REPORTING ON CLIMATE CHANGE: UNDERSTANDING THE SCIENCE VIII (Envl. L. Inst. 4th ed. 2011) (increases in temperature, increases in sea level, decreases in snow, increases in extreme weather).

109. BERNSTEIN, ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 30 (2007) (observing that the "warming of the climate system is unequivocal").

drought, fire, and floods; and economic losses.<sup>110</sup> However, through an increase in renewable energy use, the United States will move away from known GHG sources and mitigate the most extreme climate change impacts.

Maintaining the tax subsidy status quo involves national security risks and a loss of economic competition with other developed countries. In the United States, the major electricity-production facilities are large, highly centralized institutions, and as a result ideal targets for terrorist attacks.<sup>111</sup> Promoting renewable energy would diversify energy sources and decentralize the energy grid, allowing renewable sources, such as solar and wind, to make the grid less vulnerable.<sup>112</sup> Additionally, if the United States fails to invest in or delays encouraging investment in renewable energy, it will lose out to other nations even more opportunities to develop renewable energy technology.<sup>113</sup>

In addition to avoiding the consequences of inaction, the United States will obtain numerous benefits from encouraging renewable energy. First, by adding more renewable energy to its electricity grid, the United States can diversify its energy-generation sources. Increased diversity, in turn, will contribute to price stability, improve system reliability, and promote competition.<sup>114</sup> Second, promoting renewable energy will cause new industries to grow in response to demand for renewable energy sources (wind turbines

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110. THE NATURE CONSERVANCY, *Climate Change: Threats and Impacts*, <http://.nature.org//climate-change/> (last visited June 22, 2014).

111. ROSS GELBSPAN, *BOILING POINT: HOW POLITICIANS, BIG OIL AND COAL, JOURNALISTS, AND ACTIVISTS HAVE FUELED THE CLIMATE CRISIS—AND WHAT WE CAN DO TO AVERT DISASTER* 176 (2004).

112. Elizabeth Burleson, *A Climate of Extremes: Transboundary Conflict Resolution*, 32 VT. L. REV. 477, 494 (2008) (citing ANDREW BLAKERS, KLAUS WEBER & WERNIE EVERETT, *SOLAR ELECTRICITY* 7 (Ctr. for Sustainable Energy Sys. 2006), available at [http://www.researchgate.net/publication/228965891\\_SOLAR\\_ELECTRICITY](http://www.researchgate.net/publication/228965891_SOLAR_ELECTRICITY)).

113. Cf. Benjamin K. Sovacool & Christopher Cooper, *Congress Got It Wrong: The Case for A National Renewable Portfolio Standard and Implications for Policy*, 3 ENV'T'L & ENERGY L. & POL'Y J. 85, 148 (2008) (stating that the United States will lose "economic competitiveness as Europe and Japan become the major manufacturing center for new renewable energy technologies").

114. NANCY RADER & SCOTT HEMPLING, *RENEWABLES PORTFOLIO STANDARD: A PRACTICAL GUIDE* 4 (Feb. 2001), <http://.gov/////pdf> ("Renewables contribute to price stability because of the tempering effect of fixed-cost resources in an electric system that relies heavily on variable-cost fuels. Renewables improve system reliability by reducing the number of power plants that a single event will affect similarly [e.g., a coal miner's strike, a shortage of natural gas, gas pipeline rupture]. Renewables promote competition among different types of fuels, and among retailers that utilize different types of fuels. For example, if some retailers have a significant fraction of renewable energy under contract at fixed prices, it will add competitive pressure on retailers who rely on gas and coal, and their fuel suppliers, to keep their prices down.").

and solar panels).<sup>115</sup> It will also facilitate cheaper electricity generation over time because greater investment in renewable energy leads to stronger technological growth, which in turn leads to more efficient energy output. Lastly, an increase in renewable energy provides countless environmental benefits.<sup>116</sup> Even with these benefits and consequences in mind, however, if renewable energy is not financially viable, then it will not be pursued.

Putting renewable energy on the same footing as traditional energy sources will require significant investment and infrastructure. The United States currently uses traditional energy sources (natural gas, coal, and oil) for electricity at a rate *seventeen times* that of its wind and solar energy use. Furthermore, the cost of scaling renewable energies to the level of traditional energy sources will require *trillions of dollars* of investment, mostly private.<sup>117</sup> Thus, the creation and deployment of large-scale renewable energy in the United States must overcome similarly large-scale financial problems for renewable energy to become a dominant player in the United States' domestic energy market.

### B. *The Intermittent Expiration and Renewal of the Subsidies Harms Investment*

The intermitted expiration and renewal of existing renewable energy subsidies is one of the most pressing issues facing the renewable energy industry. A basic rule of finance is that investors do not wish to put their money in such a project unless they are confident about the investment.<sup>118</sup> With regard to renewable energy, investors do not consider renewable energy production,

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115. To better understand how subsidies can assist an industry in developing, see the discussion regarding subsidies and the growth of the oil and gas industries, *supra* Part I.D.

116. RADER & HELPING, *supra* note 114, at 3 (“[R]enewable energy resources have modest environmental impacts in many or all of the following areas: air pollution, climate change, degradation of land and water, water use, wildlife impacts, and radioactive wastes.”).

117. U.S. ENERGY INFO. ADMIN., *Electricity Explained: Electricity in the United States* (Nov 5, 2013) [http://www.eia.gov/energyexplained/index.cfm?page=electricity\\_in\\_the\\_united\\_states](http://www.eia.gov/energyexplained/index.cfm?page=electricity_in_the_united_states). (explaining that renewable energy was the source of less than twelve percent of the United States' electricity production, with wind energy representing three percent and solar representing less than one percent and traditional energy sources comprising nearly sixty-eight percent); Felix Mormann, *Enhancing the Investor Appeal of Renewable Energy*, 42 ENVTL. L. 681, 686–87 (2012).

118. See Dewey, *supra* note 19, at 1129.

without steady subsidization, an investment they can make confidently.<sup>119</sup>

One way to increase investor confidence in an industry is by offering tax incentives for that industry. These incentives can lower the risk of an investment, so long as they are available for a period of time that allows an investor to take advantage of them.<sup>120</sup> However, if that incentive is not consistently available, has the potential to expire, may expire before an investor can reap its benefits, and only a small number of parties are interested in or capable of taking advantage of the tax subsidy, investors may be disincentivized and industry investment may continue to lag. Currently, investors in the renewable energy industry face each of these issues.

The renewable energy subsidies' inconsistent re-enactment history and the tax credit structure are the primary causes of its lag and limit private funds available for renewable energy. Whereas Congress must take affirmative action to *remove* the oil and gas industries' subsidies, Congress must affirmatively *renew* the renewable energy industry's subsidies, making their extension a frequent question.<sup>121</sup> Compounding this challenge, the renewable energy tax subsidies' structure as a tax-credit does not lend itself to a wide array of potential investors.<sup>122</sup> Given this backdrop, increasing investor confidence in renewable energy projects is vital to expanding the renewable energy industry.<sup>123</sup>

The enactment history of the subsidies does not encourage investment due to the PTC's constant expiration, the resulting investment fallout, and the recent development permitting renewable energy producers to use the ITC. Since 2000, Congress has allowed the PTC to expire almost every two to three years, stifling efforts to build renewable energy from the ground up.

As a brief review, the PTC's per kilowatt hour credit acts to lower the cost of energy production to make it competitive with traditional energy sources. However, it is important to note that although parties who began construction prior to January 1, 2014 are eligible for the tax credit, parties only receive the tax credit

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119. *Cf. id.* Note that the PTC makes renewable energy production cost effective, but as this Note argues, being cost effective is insufficient to encourage renewable energy development at the scale necessary to mitigate the consequences of the status quo.

120. *See id.*

121. *See supra* Part I.E.

122. *See* U.S. P'SHIP FOR RENEWABLE ENERGY FIN., *Prospective 2011-2012: Tax Equity Market Observations* (2011), <http://uspref.org/wp-content/uploads/2011/07/US-PREF-Tax-Equity-Market-Observations-v2.2.pdf> (describing a pool of fifteen investors who have shown interest in tax equity investment in 2011).

123. *See id.*

when a facility *actually produces* the qualifying energy.<sup>124</sup> This timeline creates difficulties because the development cycle of a renewable energy project requires at least a year to plan, finance, and receive permits before construction may begin.<sup>125</sup> Once construction begins, a project can be up and running, however, if the PTC is not guaranteed during the construction process, it may discourage investment for fear that the electricity produced will not be cost competitive.

Furthermore, the start-stop nature of the PTC leads to boom-and-bust cycles in renewable energy development and its underlying infrastructure.<sup>126</sup> When the PTC expires and is subsequently renewed, prices for goods and labor inflate due to increases in prices when demand is high.<sup>127</sup> Additionally, the potential expiration of the PTC may influence the negotiation process for the rates a renewable energy producer may charge for its electricity. Because the PTC's potential expiration is a yearly question, renewable energy producers enter rate negotiations with less power because they are not guaranteed the mechanism that makes renewable energy production competitive with traditional energy production.<sup>128</sup> Lastly, the expiration of the PTC decreases demand for renewable energy jobs and products, which disrupts the industry's labor force, manufacturing process, and supply chains.<sup>129</sup>

These issues make investors less willing to risk capital on renewable energy production.<sup>130</sup> Though Congress has extended the ITC until 2016, allowing it to potentially bridge the gap between the PTC expirations, the ITC was only recently made applicable to large-scale energy producers and it remains to be seen whether the ITC will assist if the PTC expires. Additionally, when the end goal is to achieve profitable, sustainable, large-scale renewable energy production, disruptions in the production's profitability can upset the entire process, including development.

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124. See *supra* Part I.E.

125. See Dewey, *supra* note 19, at 1107 (“Instead, the PTC has been enacted subject to expiration, or sunseting, that requires periodic extensions every one to three years, a period far shorter than the typical development cycle of a renewable energy project.”); see also *Wind Energy's Frequently Asked Questions (FAQ)*, EUROPEAN WIND ENERGY ASS'N, <http://www.ewea.org/-basics/faq/> (last visited Dec. 18, 2013) (explaining that construction of a wind farm takes only a few months, but that it may take at least a year to measure the wind in a specific location before construction may begin).

126. See, e.g., Melissa Powers, *Sustainable Energy Subsidies*, 43 ENVTL. L. 211, 222–23 (2013).

127. *Id.* at 223.

128. *Id.*

129. *Id.*

130. See Hymel, *supra* note 1, at 181 (“With annual expiration a constant threat to investors, taking the risks involved with emerging technologies is too high.”).

*C. The Pool of Potential Investors is Limited*

The manner in which renewable energy tax subsidies encourage investment through tax credits limits the pool of potential investors to those who are both willing to invest and have sufficient capital to invest in tax equity.<sup>131</sup> As a foundational matter, renewable energy projects require significant investment, with small-scale renewable energy generation projects requiring millions of dollars of investment,<sup>132</sup> and large-scale projects often requiring hundreds of millions of dollars in upfront investment.<sup>133</sup>

A further complication is that parties looking to use renewable energy tax incentives must be profitable enough to actually pay income taxes.<sup>134</sup> In essence, “[m]any developers, whether they are start-ups that have not yet reached profitability or are established power companies that earn most of their income in currently depressed energy markets, have little or no ability to use tax benefits themselves.”<sup>135</sup> Therefore, those seeking to produce renewable energy must identify and partner with parties earning a high enough income to benefit from tax credits, accelerated depreciation, and similar policies to make the investment worthwhile.<sup>136</sup> However, the number of potential investors that qualify as tax equity investors is limited due to the amount of income required to take advantage of the tax credits.<sup>137</sup>

Once a developer partners with a tax equity investor, the resulting relationship looks like a partnership where the investing party has control at the onset followed by a flip of the ownership once the project is up and running. This relationship can be described as follows:

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131. See Scott Fisher, Steve Cornell & Steve Taub, *Tax Credits, Tax Equity and Alternatives To Spur Clean Energy Financing*, U.S. P'SHIP FOR RENEWABLE ENERGY FIN. 1 (2011), <http://uspref.org/wp-content/uploads/2011/09/Tax-Credits-Tax-Equity-for-Clean-Energy-Financing.pdf>. See also U.S. P'SHIP FOR RENEWABLE ENERGY FIN., *supra* note 122.

132. See e.g., Yoni Cohen, *Tips on Financing a Small Solar or Wind Project*, GREENTECHMEDIA.COM (Oct. 8, 2013), <http://www.greentechmedia.com/articles/read/tips-on-financing-a-small-solar-or-wind-project> (explaining what it describes as small-scale wind power projects for less than \$25 million).

133. Mormann, *supra* note 117, at 687; see, e.g., Paul Dickerson, *The (Too Short) Extension of Section 1603 Renewable Energy Cash Grants*, 24-2 ELECTRICITY J. 27, 28 (2011) (describing a planned solar thermal power plant in Arizona that will require \$2 billion in financing, and a 161 MW wind farm in Texas that is estimated to cost \$190 million).

134. Fisher, Cornell & Taub, *supra* note 131, at 1.

135. *Id.*

136. *Id.*

137. Mormann & Reicher, *supra* note 70 (describing that investors with hefty tax bills—big banks or corporations—can take advantage of renewable energy's tax subsidies).



Under these arrangements, an investor joins the developer in a partnership to create a renewable energy project. As a joint partner in the resulting project, the investor may claim the tax credits earned by the partnership. Flip partnerships allow the investor to be treated as the majority partner for purposes of claiming tax credits during the period that the investor is being paid back. Normally, this is during the early years of the project. Afterwards, the partnership “flips” and the investor becomes the minority partner and the developer becomes the majority partner. The developer has received financing, in part, from the tax credits that it would not have been able to use, and the investor has received the benefit of the tax credits.<sup>138</sup>

This relationship helps address some of the investment problems associated with tax equity. However, the small investor pool and transaction costs limit renewable energy investment under the tax equity structure.<sup>139</sup> Although the federal government took some measures to make tax credits directly available to renewable energy developers—which gave private developers the credit directly without needing to involve tax equity investors—this program has since expired and developers must resort to tax equity funding.<sup>140</sup>

In sum, the existing tax subsidies for renewable energy do not create a healthy environment for investors. The tax subsidies themselves do not significantly lower investor risk, the process of developing and producing renewable energy requires significant investment, and the pool of investors from which that investment may come is limited by the nature of the tax subsidies. One means of addressing these problems is to incentivize renewable energy subsidies for investors. Ensuring that the PTC and the ITC subsidies are not in a position to expire would increase investor confidence. However, increasing the development of renewable energy to the scale of traditional energy production requires an increase in the scope of the renewable energy tax subsidies. More specifically, the

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138. Dickerson, *supra* note 133, at 28–29.

139. Fisher, Cornell & Taub, *supra* note 131, at 1.

140. The Section 1603 Treasury Grant program made cash grants available directly to energy producers who could elect cash in lieu of the ITC. Dickerson, *supra* note 134, at 29. But, Congress, like with the PTC and the ITC, did not affirmatively renew the Section 1603 program, and it expired at the end of 2011, limiting the application of the cash grant to projects that had made significant progress in their construction before 2011. U.S. DEP'T OF THE TREASURY, *Payments for Specified Energy Property in Lieu of Tax Credits Under the American Recovery and Reinvestment Act of 2009: Frequently Asked Questions and Answers*, (Nov. 6, 2013), <http://www.treasury.gov/initiatives/recovery/Documents/A%20FAQs0411%20-%20general.pdf>.

renewable energy tax subsidies' scope does not begin to compare to that of earlier tax subsidies for traditional energy sources, which was necessary for those sources to become dominant players in the American energy market.<sup>141</sup> Part III will analyze the oil and gas industries' subsidies described in Part I and recommend an increase in the scope of current tax subsidies by adapting several traditional energy subsidies in the context of renewable energy investment and production.

### III. ANALYSIS AND RECOMMENDATIONS TO INCREASE THE SCOPE OF RENEWABLE ENERGY SUBSIDIZATION

The subsidies for the renewable energy industry do not provide nearly the same benefit as those historically enjoyed by the oil and gas industries.<sup>142</sup> Or, as one author put it, “[a]lthough relatively new ‘environmental tax’ provisions are sprinkled throughout the Internal Revenue Code, history suggests that these incentives are too small, too few, incoherent, and poorly structured. Alongside the massive, 100-year government investments in the existing U.S. fossil fuel economy, [renewable] energy sources [do not] stand a chance.”<sup>143</sup> It should be noted that these subsidies, the Production Tax Credit (PTC) and the Investment Tax Credit (ITC), have actually prompted considerable growth in the renewable energy industry. However, they are also “akin to putting a Band-Aid on a bleeding artery.”<sup>144</sup> Additional subsidies are needed to reach the amount of investment that will lead to the growth necessary to avoid the climate and economic consequences of inaction. Given the success of the oil and gas industries' subsidies, it is reasonable to amend the tax subsidies historically available to the oil and gas industries to include the renewable energy industry.<sup>145</sup>

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141. See Hymel, *supra* note 1, at 172.

142. See *supra* Part I.D, E.

143. Hymel, *supra* note 1, at 159–60.

144. *Id.* at 161.

145. However, not all of the oil and gas industries subsidies can be analogized to the renewable energy industry based on their rationales. Specifically, the percentage depletion allowance, I.R.C. § 611(a), does not have a parallel in the renewable energy industry. The depletion allowance permits companies that have extinguishable assets, such as oil and gas resources, to deduct from their income tax the reduced value of their investment. *Id.* Although all natural resources are technically exhaustible, “exhaustion for tax purposes is judged . . . but for the life span of mortals.” BITTKER & LOKKEN, *supra* note 16, ¶ 24.1. The rules strictly limit the energy sources of renewable energies, claiming that “the air or similar inexhaustible resources” are ineligible for depletion. *Id.*

Although those rules could be amended as well, permitting a wind or solar energy developer to claim the subsidy would run counter to the rationale behind the depletion allowance for

Part III reviews the oil and gas industries' subsidies that do not include the renewable energy industry, the benefits of those subsidies, and their closest counterparts for the renewable energy industry. Additionally, Part III suggests amending each subsidy to include corresponding subsidies for the renewable energy industry. Under this framework, Section A will evaluate current legislation that attempts to bridge the gap between renewable and traditional energy. Section B will further recommend using the rationales of three traditional energy tax subsidies—intangible drilling costs, enhanced oil recovery credit, and fuel production from nonconventional source credit—to subsidize renewable energy's unique investment and production costs and renewable energy's development and production in hard-to-reach locations.

#### A. Master Limited Partnership

The Master Limited Partnerships (MLP) subsidy is an oil and gas tax subsidy that has no counterpart for the renewable energy industry, but could be amended to include such a counterpart.<sup>146</sup> The MLP subsidy allows an organization with income primarily from oil and gas production to have its revenues taxed only once. Put another way, the MLP subsidy prevents a particular taxpayer<sup>147</sup> from having his profits subjected to double taxation<sup>148</sup> if a qualifying percentage of that taxpayer's income comes from oil and gas production.<sup>149</sup> For the renewable energy industry, the Tax Code grants a production-oriented subsidy like the MLP in the form of the PTC.<sup>150</sup> However, the PTC simply does not provide the same

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two reasons. First, it would permit a party to claim that property in which he does not have an ownership interest, namely the wind and solar resource, is being depleted. Second, it would permit a party to claim that he has lost value through depletion of a resource that is relatively incapable of depletion. Thus, if a developer were permitted to claim such depletion, he would be able to recover for a depletion that never occurred for property that he does not own. For these reasons, the percentage depletion allowance is not an ideal model upon which to base a renewable energy analogue.

146. See I.R.C. § 7704(d).

147. See *supra* Part I.D.5. To qualify for the MLP subsidy, the taxpayer must first organize itself as a Master Limited Partnership.

148. See *id.* A corporation, before when it issues its dividends, first has its revenues taxed. Then, with its remaining after-tax revenue, the corporation issues dividends to its investors. The investor's dividends are then also taxed as the investor's individual income. The MLP subsidy, on the other hand, allows the taxpayer to forgo the initial revenue taxation, leaving only the dividends to be taxed.

149. See *id.*

150. The Production Tax Credit allows taxpayers who generate electricity from certain forms of renewable energy (such as small-scale wind and solar) to receive a cent per kilo-watt hour tax credit based on the energy amount generated. DSIRE, *supra* note 80.

kind of investor appeal as the MLP subsidy. More specifically, the MLP subsidy provides an *organizational* benefit to an energy producer, which confers investment advantages unavailable to the renewable energy industry.

For instance, the investment advantage of avoiding double taxation could make an investment in the renewable energy industry significantly more desirable than other investments. Furthermore, a natural gas producing entity's ability to gain a tax benefit when organized as an MLP gives it an advantage in the electricity industry over competing renewable energy producers whose enterprise organization options are more limited.<sup>151</sup> Additionally, the ability to form as an MLP allows the partnership to be traded publicly, to offer more money to its investors, and to permit a company already in the production stage to garner additional investment and expand.<sup>152</sup> Although the PTC makes energy production cost competitive, its potential does not reach the scope of the benefit awarded to those who may qualify for the MLP subsidy.

With regard to a policy rationale for the MLP subsidy's exclusivity, it is unclear why entities that produce oil and gas should be allotted this benefit, but not entities that produce other types of energy.<sup>153</sup> At a minimum, it is likely that the original policy rationale of encouraging domestic energy growth was a motivating factor for the MLP subsidy, which equally applies to the circumstances of the renewable energy industry.

Given that no reason exists as to why the MLP subsidy should be limited to organizations that produce oil and gas, the MLP subsidy should be amended to include entities that produce wind and solar energy. In a recently announced proposal, U.S. Senator Chris Coons (D-Del.) introduced exactly that amendment. Called the Master Limited Partnerships Parity Act (MLPPA), the bill would expand the MLP subsidy's definition of qualifying sources to include renewable resources, thus opening up renewable energy producers who organize as MLPs significant investment opportunities.<sup>154</sup> The language of the bill is fairly straightforward. It amends the definition of qualified sources under Section 7704 to include, among others, renewable energy resources that the PTC and the ITC cite as qualifying sources of energy,<sup>155</sup> which include wind and solar energy.

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151. SEN. COONS, *supra* note 14, at 2.

152. *Id.*

153. See Mormann & Reicher, *supra* note 70 (describing the benefits of including renewable energy producing entities in the MLP's subsidies).

154. SEN. COONS, *supra* note 14.

155. *Id.* at 3.

The expansion of the MLP would allow for significantly greater investment in renewable energy. In addition to the single taxation benefit listed above, it would also permit wind and solar companies to be traded publicly so that any member of the public can invest in the wind and solar industry.<sup>156</sup> This alone could potentially increase the amount of investment in wind and solar companies fivefold.<sup>157</sup> The MLPPA is a perfect example of how the scope of renewable energy subsidies may be expanded using current subsidies for traditional energy. Additionally, as the next sections will demonstrate, other available oil and gas industry subsidies could be amended to further subsidize the renewable energy industry.

*B. Intangible Energy Development Costs, the Enhanced Energy Recovery Credit, and the Credit for Producing Energy from a Nonconventional Source*

The Intangible Drilling Costs (IDC)<sup>158</sup> subsidy is another subsidy that provides a greater benefit to oil and gas industries than does its closest parallel in the renewable energy industry, the Investment Tax Credit (ITC).<sup>159</sup> The IDC allows the taxpayer to subsidize expenses falling under the broad heading of being “incident to and necessary for” the drilling of wells and for preparation of wells for oil and gas production, such as wages, fuel, repairs, supplies, buildings, and equipment.<sup>160</sup> Uniquely, this subsidy permits oil and gas producers to recover capital expenditures that are typically barred from deduction,<sup>161</sup> which makes oil and gas development a more attractive investment overall.

In the context of renewable energy, certain investment and construction costs of small-scale wind and solar energy equipment are eligible for a tax credit under the ITC. More specifically, the ITC covers investments in qualifying equipment<sup>162</sup> and the construction and erection costs thereof, which include “both equipment and labor but generally does not include the building or structural components on which the equipment is placed.”<sup>163</sup> For solar installations, solar components eligible for the ITC include “equipment,

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156. *See id.* at 2–3.

157. Mormann & Reicher, *supra* note 70.

158. I.R.C. § 263(c) (2012).

159. I.R.C. § 48 (2012).

160. BITTKER & LOKKEN, *supra* note 16, § 26.1.

161. *See supra* Part I.D.2.

162. I.R.C. § 48(a)(3)(A) (2012).

163. OFFICE OF THE COMPTROLLER OF THE CURRENCY, PUBLIC WELFARE INVESTMENTS IN SOLAR ENERGY FACILITIES USING RENEWABLE ENERGY INVESTMENT TAX CREDIT 1 (2014), *available*

such as solar panels, mounts, wiring, and installation”<sup>164</sup> and wind components include the cost of small-scale wind turbine equipment.

Although some overlap exists between the two subsidies, there are two key differences. First, the language that describes the subsidized expenses of the IDC is broader than that of the ITC. Instead of being able to recover costs in items that are “incident to and necessary for” energy production, the renewable energy industry is permitted recovery of a subset of the expenses subsidized by the IDC. Second, the ITC excludes large-scale wind while the IDC does not contain a limiting counterpart for the oil and gas industries. This is a significant distinction because large-scale wind is one of the most potent avenues of renewable energy generation,<sup>165</sup> and yet the ITC does not cover expenses arising out of it.

The underlying rationale of the IDC subsidy supports an amendment to include the renewable energy industry. The IDC’s rationale at its inception was to stimulate the then-budding oil and gas industry, which was critical in improving domestic energy investment and production to address the high fuel costs of the twentieth century.<sup>166</sup> This rationale applies in the context of renewable energy, to help a budding renewable energy industry grow by accounting for intangible production costs, which could make renewable energy investment more appealing and facilitate industry growth to address pressing twenty-first century issues.

The IDC subsidy could be extended to renewable energy by amending Section 263(c) of the Tax Code, in the same way in which the MLPPA would amend Section 7704. Such reform would involve adding wind and solar energy of any scale as qualifying sources to the IDC.<sup>167</sup> This subsidy would include costs such as wages for the construction and maintenance of wind and solar

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at <http://www.occ.gov/topics/community-affairs/publications/fact-sheets/fact-sheet-solar-energy-invest-tax-credits-grants.pdf>; 26 U.S.C. § 48(a)(3)(B).

164. *Id.*

165. Charges to Capital and to Expense in Case of Oil and Gas Wells, 26 C.F.R. § 1.612-4(a) (1965); see NATIONAL RENEWABLE ENERGY LABORATORY, RENEWABLE ELECTRICITY FUTURES STUDY, VOLUME 2: RENEWABLE ELECTRICITY GENERATION AND STORAGE TECHNOLOGIES at 11-3 (2012), available at <http://www.nrel.gov/docs/fy12osti/52409-2.pdf> (explaining that, if eighty meter wind turbines were installed in the contiguous 48 states to take advantage of their wind capacity, then those turbines’ annual energy generation would exceed current electricity generation by a factor of twelve).

166. 131 CONG. REC. H6, at 392-93 (1985) (statement of Rep. Frank Horton); Temi Kolarova, *Oil and Taxes: Refocusing the Tax Policy Question in the Aftermath of the BP Oil Spill*, 42 SETON HALL L. REV. 351, 360 (2012) (citations omitted).

167. Note that this would likely involve repealing the ITC because the broad nature of the IDC overlaps with the ITC once wind and solar energy are added.

farms,<sup>168</sup> and costs associated with transporting wind turbine blades or solar panels and reflectors. In addition, in the spirit of other costs “incident to and necessary for” renewable energy production, extending the IDC could help with costs unique to renewable energy, such as purchasing easements on which transmission lines associated with renewable energy projects would be constructed to connect the project to the electricity grid.

The Enhanced Oil Recovery Credit (EOR)<sup>169</sup> and the Fuel Production from a Nonconventional Source Credit (NSC)<sup>170</sup> are also frameworks with which to expand the renewable energy industry. Both the EOR and the NSC provide a tax credit that encourages parties to search for and attempt to drill oil and gas in hard-to-reach areas, wells that are nearly dry, or wells that contain a particularly inaccessible kind of oil.<sup>171</sup> As discussed in Part I, the EOR provides tax deductions for the costs associated with development in difficult areas, and the NSC provides a per barrel tax credit for the production of oil and gas from unconventional sources, such as shale gas or oil from tar sands.

Similar to the way in which the IDC subsidizes energy production costs more broadly than the ITC, both the EOR and the NSC subsidize oil and gas industry practices more broadly than the relevant renewable energy industry subsidies. In the case of existing renewable energy, the MLP and the IDC subsidies either discount expenses or provide tax credits for production, while the EOR and the NSC go a step further to discount riskier expenses and incentivize riskier energy production, respectively.<sup>172</sup> The ITC, on the other hand, does not subsidize expenses related to wind or solar energy development located in hard-to-reach areas, nor does the PTC provide a production credit for wind or solar energy produced from unconventional sources.

The underlying rationale of the EOR and NSC is two-fold: (1) to encourage domestic developers and operators to locate fuel sources in hard-to-reach areas and (2) to produce fuel from sources where

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168. More specifically, an IDC that included renewable energy would include wages above and beyond those covered as a cost of labor under the ITC because the IDC’s language covers all costs “incident to and necessary for” renewable energy and the ITC does not contain such broad language. *Compare* I.R.C. § 263(c) (2012), *with* I.R.C. § 48 (2012).

169. I.R.C. § 43(a) (2012).

170. I.R.C. § 45K (2012).

171. *See* ZEPEZAUER, *supra* note 25, at 119.

172. *See supra* Part I.D.3. The expenses and production for the EOR and NSC are riskier because the revenues and dividends that would flow from the expenses and production of qualifying oil and gas are less guaranteed. *See id.*

the energy production and operation would normally be less efficient.<sup>173</sup> These subsidies would be particularly helpful for the renewable energy industry because the areas that have the most generation capacity for wind and solar energy—offshore and the desert, respectively—are recognized as difficult locations from which to generate and transfer energy.<sup>174</sup>

Consequently, the EOR and the NSC should be amended to include renewable energy. Expanding the EOR would involve amending Section 43 of the Tax Code to appropriately subsidize desired wind and solar energy expenses. Under the structure of Section 43, it would be necessary to amend the meaning of “enhanced oil recovery costs” and “enhanced oil recovery project.” It would also require adding a subheading (E) to subsection (c)(1) which states that enhanced energy recovery costs also include “any amount paid or incurred within the taxable year for tangible property which is an integral part of a qualified enhanced energy recovery project.”

Furthermore, it would be necessary to define an “enhanced energy recovery project.” Instead of using the structure of the existing subsidy for oil,<sup>175</sup> it would be more efficient to simply amend subsection (c)(2)(A) to define the qualifying projects within Section 43. The suggested amendment would add a new subsection under subsection (c)(2)(A) for renewable energy, that both explains that

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173. See Kolarova, *supra* note 166, at 362 (citations omitted).

174. See *supra* Part I.A (discussing issues surrounding generation and transmission of wind and solar energy). See also BUREAU OF OCEAN ENERGY MGMT., OFFSHORE WIND ENERGY, <http://www.boem.gov/renewable-energy-program/renewable-energy-guide/offshore-wind-energy.aspx> (last visited Nov. 21, 2014) (“Offshore winds tend to blow harder and more uniformly than on land.”); see DEP’T OF ENERGY, SOLAR ENERGY POTENTIAL, <http://energy.gov/maps/solar-energy-potential> (last visited Nov. 21, 2014) (showing higher energy potential in the desert regions of the U.S.).

175. Section 43 defines an enhanced oil recovery project by referencing “tertiary recovery methods” that are found in Section 193. I.R.C. § 43(c)(2)(A)(i) (2012):

The term ‘qualified enhanced oil recovery project’ means any project—(i) which involves the application (in accordance with sound engineering principles) of 1 or more tertiary recovery methods (as defined in section 193 (b)(3)) which can reasonably be expected to result in more than an insignificant increase in the amount of crude oil which will ultimately be recovered.

*Id.* (emphasis added). Section 193 in turn defines those methods as they are found in a section of a set of energy regulations from 1979. I.R.C. § 193(b)(3) (2012):

The term ‘tertiary recovery method’ means—(A) any method which is described in subparagraphs (1) through (9) of section 212.78(c) of the June 1979 energy regulations (as defined by section 4996(b)(8)(C) as in effect before its repeal), or (B) any other method to provide tertiary enhanced recovery which is approved by the Secretary for purposes of this section.

*Id.*



an enhanced energy recovery project includes a project “which involves the generation of electricity from a qualified offshore or desert environment,” and that leaves a residual clause allowing for “any other method to provide alternative enhanced recovery which is approved by the Secretary for purposes of this section.” Although this language is vague, it is best left to the expertise of the Secretary of the Treasury to interpret what constitutes offshore or desert environments.

Generally speaking, the new amendment would subsidize expenses that make renewable energy production more difficult, such as the costs relating to siting renewable energy generation capacity and installing transmission lines in areas located far from the grid.<sup>176</sup> Extending the EOR to renewable energy would help defray the costs of installing offshore wind farms or solar farms deep in the desert and connecting transmission lines from those isolated places to the grid.

Extending the NSC subsidy is more straightforward, and like the MLP and IDC subsidies, would primarily involve amending Section 45K to include energy generated from particularly risky wind and solar farms as qualified fuels. More specifically, the amendment would follow the structure of the other qualified fuel section of the subsidy<sup>177</sup> and insert a fourth part (D) to Section 45K(c)(1) stating that qualified fuels include “wind and solar energy produced in offshore or desert environments.” Similar to the EOR amendment, the interpretation of this section would be left to the Secretary to define those environments, and to determine, under Subsection (a), the appropriate dollar amount sufficient to incentivize the production of renewable energy from those environments. This amendment should properly incentivize renewable energy generation from places where renewable energy has the most potential.

In general, the Tax Code contains oil and gas industry subsidies comparable to those for the renewable energy industry. However, the scope of renewable energy subsidies does not compare to subsidies for the oil and gas industries. The current state of renewable energy subsidization simply cannot propel renewable energy to become a dominant participant in the electricity market. The renewable energy industry requires tax subsidies that are at least as effective as those historically provided to taxpayers who develop

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176. Dewey, *supra* note 19, at 1106, 1112 (citations omitted).

177. I.R.C. § 45K(c)(1) (2012). “The term ‘qualified fuels’ means—(A) oil produced from shale and tar sands, (B) gas produced from—(i) geopressured brine, Devonian shale, coal seams, or a tight formation, or (ii) biomass, and (C) liquid, gaseous, or solid synthetic fuels produced from coal (including lignite), including such fuels when used as feedstocks.” *Id.*

and produce traditional energy sources. The reforms suggested here, if adopted, could substantially assist the renewable energy industry's growth and place the United States on a path to avoid the environmental and economic consequences of inaction.

#### CONCLUSION

Ultimately, traditional energy tax subsidies can be amended to account for the unique challenges faced by the renewable energy industry. There are great environmental and economic needs to incentivize increased renewable energy industry investment. As this Note has explained, a viable way to accomplish this goal is to subsidize the renewable energy industry by extending existing oil and gas industry subsidies to include production and investment subsidies for the renewable energy industry.

