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Government Taxation of Renewable Resources and Its Fatal Effects on Emerging Wind Energy Technology

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**GOVERNMENT TAXATION OF RENEWABLE
RESOURCES AND ITS FATAL EFFECTS ON
EMERGING WIND ENERGY TECHNOLOGY**

Erin Abels

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I. INTRODUCTION

It is no secret that many citizens throughout the United States desire to replace non-renewable energy resources, namely coal, oil, and natural gas, with renewable energy resources. This is seen on many levels, be it local, statewide, national, or global.¹ Nationally, the United States has begun to explore the implementation of renewable energy resources, and the federal government, along with many states, has begun to provide tax exemptions to those who produce power from renewable resources, such as wind turbines.² As a result, oilrigs across the United States have decreased.³ Internationally, in September 2015, former President Barack Obama spoke at the United Nations, promising a willingness to address climate change with other countries.⁴ In December 2015, the United States pledged to implement a new strategy, known as the Clean Power Plan,⁵ designed to reduce carbon emissions in the United States by over 30% in the next fifteen years.⁶ Prior to this, the Obama Administration declined to permit the construction of the Keystone XL Pipeline between Canada, Illinois, and Texas, stating that “the United States could not ask other countries to make tough choices to address climate change if the U.S. is not willing to make them.”⁷

Since these events, the Clean Power Plan has been stayed by the United States Supreme Court,⁸ and President Donald Trump is expected to

¹ See generally Christine Lins, Laura E. Williamson, Sarah Leitner & Sven Teske, *10 Years of Renewable Energy Progress*, RENEWABLE ENERGY POLICY NETWORK FOR THE 21ST CENTURY, http://www.ren21.net/Portals/0/documents/activities/Topical%20Reports/REN21_10yr.pdf (last visited Nov. 21, 2017).

² Lisa Daniels, *Community Wind Toolbox: Chapter 10: Tax Incentives*, WINDUSTRY (Nov. 25, 2007), http://www.windustry.org/community_wind_toolbox_10_tax_incentives (last visited Nov. 21, 2017).

³ Nicole Ruble Metcalf, *What Does the Plummet in Oil Prices Mean for Litigators?*, A.B.A. SEC. LITIG., <https://www.americanbar.org/groups/litigation/committees/trial-practice/articles/2015/spring2015-0515-what-does-plummet-in-oil-prices-mean-for-litigators.html> (May 28, 2015).

⁴ See *President Obama's Speech to the United Nations General Assembly 2015*, N.Y. TIMES (Sept. 28, 2015), <https://www.nytimes.com/2015/09/29/world/americas/president-obamas-speech-to-the-united-nations-general-assembly-2015.html> (“No country can escape the ravages of climate change. And there is no stronger sign of leadership than putting future generations first. The United States will work with every nation that is willing to do its part so that we can come together in Paris to decisively confront this challenge”).

⁵ Courtney Scobie, *Supreme Court Stays EPA's Clean Power Plan*, A.B.A. LITIG. SEC., <https://www.americanbar.org/publications/litigation-committees/environmental-energy/practice/2016/021716-energy-supreme-court-stays-epas-clean-power-plan.html> (Feb. 17, 2016).

⁶ *Id.*

⁷ Courtney Scobie, *Obama Administration Rejects Keystone XL Pipeline*, A.B.A. LITIG., <https://www.americanbar.org/publications/litigation-committees/environmental-energy/practice/2015/111715-energy-obama-administration-rejects-keystone-xl-pipeline.html> (Nov. 17, 2015).

⁸ Scobie, *supra* note 5; *West Virginia v. EPA*, 136 S. Ct. 1000, 1000 (2016) (stating “The Environmental Protection Agency’s ‘Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units,’ 80 Fed. Reg. 64,662 (October 23, 2015), is stayed pending disposition of the applicants’ petitions for review in the United States Court of Appeals for the District of Columbia Circuit and disposition of the applicants’ petition for a writ of certiorari, if such writ is sought.”)

take action to undo other Obama Administration regulations.⁹ For instance, President Trump resurrected the Keystone XL Pipeline and expedited the Dakota Access Pipeline in North Dakota.¹⁰ The latter pipeline would cross four states and run beneath Lake Oahe and other valuable water resources.¹¹

Despite the desire across the United States to embrace renewable energy, the country is divided on the appropriate response to energy-related issues.¹² Eventually, wind power will become a more integral part of our energy policy, and legal issues have already arisen relating to it, including issues of taxation.¹³ In 2010, Wyoming became the first state to place a production tax on electricity generated through wind turbines, the focal point of this Comment.¹⁴ Because of the state and federal government's apparent authority to tax natural resources, the issue becomes whether wind may be controlled and taxed after being generated into electricity.¹⁵ Due to the nature of the environmental impact at stake and the national interest in reducing reliance on non-renewable resources, taxation on wind power is both premature and unwise.

After a brief introduction on Wyoming's wind turbine tax legislation, this Comment begins with a focus on how wind turbines operate, the costs of construction, and the recent increase in wind turbine production. Next, this Comment delves into the pros and cons associated with wind turbines, and lastly, this Comment considers why renewable energy should not be taxed at this time – or at all. There are four arguments discussed: (1) taxing an intangible item can be problematic as a matter of public policy; (2) taxing renewable energy contradicts the purposes of taxing fossil fuels; (3) taxing renewable resources in the same manner as non-renewable resources is inappropriate because the two are inherently different; and (4) taxing wind turbines prematurely will have a negative environmental impact.

⁹ See *24 States Ask Incoming Trump Admin to Dump CPP on 'Day One'*, MARCELLUS DRILLING NEWS, <http://marcellusdrilling.com/2016/12/24-states-ask-incoming-trump-admin-to-dump-cpp-on-day-one/> (Dec. 19, 2016).

¹⁰ Peter Baker & Coral Davenport, *Trump Revives Keystone Pipeline Rejected by Obama*, THE NEW YORK TIMES (Jan. 24, 2017), <https://www.nytimes.com/2017/01/24/us/politics/keystone-dakota-pipeline-trump.html>.

¹¹ Michael Kennedy, *The Dakota Access Pipeline*, EARTHJUSTICE, <http://earthjustice.org/cases/2016/the-dakota-access-pipeline> (last visited Feb. 27, 2017).

¹² See Paul Pronovost, *Cape Cod Wind Farm Still Going Hound and Round*, 71 PLANNING 46 (2005) (illustrating a division in opinions over the development of a controversial wind farm).

¹³ See Christy Hemken, *Wyoming Ponders Wind Ownership*, WYOMING LIVESTOCK ROUND-UP, <http://www.wylr.net/energy/284-wind-development/2806-wyoming-ponders-wind-ownership> (last visited April 2, 2017) (discussing the need to address whether wind should be treated as a property right, to which North and South Dakota have already ruled in favor of).

¹⁴ Walter Wang, *Challenging State Taxation of Renewable Energy: Will Wyoming be the Battleground*, 15 LEWIS & CLARK L. REV. 451, 455 (2011).

¹⁵ Tom Lutzenberger, *Why Does the Federal Government Collect Taxes?*, CLASSROOM, <http://peopleof.oureverydaylife.com/federal-government-collect-taxes-9670.html> (last visited Apr. 3, 2017).

II. BACKGROUND

Wyoming was the first state to tax wind power, beginning on March 5, 2010.¹⁶ The Wyoming legislature set the tax at one dollar per megawatt, and since its implementation Wyoming has not seen any further construction of wind farms.¹⁷ The Wyoming statute states:

There is levied an excise tax upon the privilege of producing electricity from wind resources in this state. The tax shall be imposed upon the production of any electricity produced from wind resources for sale or trade on or after January 1, 2012, and shall be paid by the person producing such electricity. The tax shall be imposed on each megawatt hour of electricity produced from wind resources at the point of interconnection with an electric transmission line.¹⁸

Since the implementation of Wyoming's wind tax, the state has twice attempted to raise the tax to three¹⁹ and five dollars per megawatt; the bills were rejected in September 2016 and January 2017.²⁰ Another recent bill in Wyoming is attempting to fine utilities ten dollars per megawatt hour for producing wind energy – this bill is highly opposed.²¹

A. How Wind Turbines Operate

When wind blows through a wind turbine the blades of the turbine begin to spin, causing a generator within the turbine to transform kinetic energy into electricity.²² Once this occurs, the electricity is ready for consumption.²³ The electricity is distributed through transmission lines, and presently, substantial additional development of transmission lines is needed before electricity generated by wind power can be readily available throughout the country.²⁴

¹⁶ Wang, *supra* note 14, at 455.

¹⁷ Mark D. Franco, *In Wyoming, The Tax Man Cometh For More*, NORTH AMERICAN WINDPOWER, http://www.nawindpower.com/online/issues/NAW1606/FEAT_01_In-Wyoming-The-Tax-Man-Cometh-For-More.html (last visited Apr. 4, 2017).

¹⁸ 22-103 (LexisNexis 2017).

¹⁹ Stephanie Joyce, *Legislative Committee Nixes Wyoming Tax Increase*, INSIDE ENERGY (September 23, 2016), <http://insideenergy.org/2016/09/23/legislative-committee-nixes-wyoming-wind-tax-increase/>.

²⁰ Laura Hancock, *Legislators Kill Wind Tax Bill*, CASPER STAR TRIBUNE (January 23, 2017), http://trib.com/news/state-and-regional/govt-and-politics/legislators-kill-wind-tax-bill/article_2cce36b6-b8e7-51e2-b4cf-3add20f8719a.html; See also H.R. 0127, 64th Leg., General Sess. (Wy. 2017) (depicting the most recent house bill that was rejected in January 2017 which would have raised the wind production tax to five dollars per megawatt hour in Wyoming).

²¹ *Wyoming Lawmakers Seek to Compel Use of Fossil Fuels*, MOHAVE VALLEY DAILY NEWS (January 28, 2017, 11:54 PM), http://www.mohavedailynews.com/news/wyoming-lawmakers-seek-to-compel-use-of-fossil-fuels/article_c4ae5380-e5ef-11e6-8846-5f20008d1fb1.html.

²² Christopher E. Cotter, Comment, *Wind Power and the Renewable Portfolio Standard: An Ohio Analysis*, 32 DAYTON L. REV. 405, 407 (2007).

²³ Yael Lifshitz-Goldberg, *Gone with the Wind? The Potential Tragedy of the Common Wind*, 28 UCLA J. ENVTL. L. & POL'Y 435, 441–42 (2010).

²⁴ Cotter, *supra* note 22, at 409.

The amount of electricity a wind turbine can produce depends on several factors.²⁵ First, it will fluctuate with the weather because the more wind moving through a wind turbine, the more electricity produced.²⁶ Similarly, the speed by which the wind travels also affects the amount of electricity generated²⁷ – fourteen mile per hour winds are usually necessary for a wind farm to operate adequately.²⁸ Lastly, a wind turbine's size also has a direct impact on the amount of electricity generated.²⁹ Typically, those used for commercial purposes can produce up to nearly two megawatts, and can reach three hundred feet in height.³⁰ Wind turbines used for wind farms are smaller, producing between fifty and three hundred kilowatts.³¹

“Kilowatts” measure how much electricity is generated, whereas “kilowatt-hours” measure how much electricity is consumed.³² The calculation to determine kilowatt-hours – or the amount of energy consumed – is the amount of power a wind turbine has produced multiplied by the span of time it operates.³³ Most homes in the United States consume an average of ten to eleven megawatt hours per year.³⁴

B. Cost

Due to their substantial size, manufacturing and building wind turbines is expensive.³⁵ Advances in technology have continually helped in

²⁵ Kevin L. Shaw & Richard D. Deutsch, *Wind Power and Other Renewable Energy Projects: The New Wave of Power Project Development on Indian Lands*, ROCKY MT. MIN. L. INST. 9-1 (2005).

²⁶ Cotter, *supra* note 22, at 407.

²⁷ Shaw & Deutsch, *supra* note 25.

²⁸ *Discussion Following the Remarks of Mr. Mogel and Mr. Kaga*, 28 CAN.-U.S. L.J. 369, 372 (2002).

²⁹ Shaw & Deutsch, *supra* note 25.

³⁰ Cotter, *supra* note 22, at 407-08.

³¹ *Id.* at 408.

³² Erica Schroeder, Comment, *Turning Offshore Wind On*, 98 CALIF. L. REV. 1631, 1636 (2010).

³³ *kW & kWh Explained*, BIZEE, <http://www.energylens.com/articles/kw-and-kwh> (last visited Feb. 27, 2017). For an example of how the conversion to kilowatt hours and megawatt hours works, follow these steps:

- (1) Assume there is a two-megawatt turbine. Two megawatts converts to 2,000 kilowatts.
- (2) Next, assume the wind turbine runs twenty-four hours a day, three hundred sixty-five days a year – though, as stated earlier, this is highly unlikely considering the nature of the wind. Now, multiply 365 days by 24 hours. This gives you 8,760 hours in a year.
- (3) Third, multiply 8,760 hours by 2,000 kilowatts to get the conversion to kilowatt hours. This is 17,520,000 kilowatt-hours per year.
- (4) To convert this to megawatt-hours, simply move the decimal three spaces to the left and you will get 17,520. megawatt-hours.

The yearly average consumption of electricity per residence in the United States is approximately ten megawatt hours, which is enough electricity for one hundred seventy-five homes. It must be noted, however, that the wind does not blow at all times. In fact, most wind turbines are only able to use twenty to forty percent of their capacity. Taking this into account, a two-megawatt wind turbine working at thirty percent capacity is still going to generate ten megawatt-hours for approximately fifty-two homes. This still demonstrates the mass benefit that can be drawn from one two-megawatt wind turbine.

³⁴ Michael P. Vandenbergh et. al., Symposium, *Individual Carbon Emissions: The Low-Hanging Fruit*, 55 UCLA L. REV. 1701, 1732 n.122 (2008).

³⁵ Emily L. Wasserman, Comment, *I'll Huff and I'll Puff and I'll Blow Your House Down: The Argument for the Ability to Purchase Your Neighbor's Wind*, 84 U. COLO. L. REV. 861, 863 (2013). Though wind turbines generally are expensive, the costs of manufacturing offshore wind turbines are even more extravagant due to the exposure to strong winds, waves, and marine life; Adam M. Dinnell & Adam

reducing these costs,³⁶ but because the technology is still developing, the cost remains extremely high and varies greatly. For example, whereas a four hundred foot wind turbine may cost over 1.5 million dollars, smaller residential turbines may only cost a couple thousand dollars.³⁷ These costs include the construction of the turbine, connection to a transmission grid, and costs of land.³⁸ A further cost is the construction of transmission lines required to transfer the electricity³⁹ – a transmission line between Wyoming and California, known as the Frontier Line, was expected to cost 3.3 billion dollars.⁴⁰

Despite the high costs associated with wind turbines and transmission lines, analysts have found that, in the long-term, electricity generated by wind energy will be cheaper than electricity produced by coal and natural gas.⁴¹ In large part, a primary reason why the price of electricity generated through wind turbines is so low today is because of a federal production tax credit.⁴² Developers rely on the production tax credit, which has been renewed several times,⁴³ not only to help soften the blow of expenses, but to keep costs of electricity low in order to compete with non-renewables.⁴⁴ Without government subsidies and tax credits, electricity generated from wind turbines would likely cost twenty to twenty-five cents per kilowatt-hour.⁴⁵ In the 1980's, the price of electricity generated from wind turbines was forty cents per kilowatt-hour, but in 2010, it was a mere three cents.⁴⁶ Once wind turbines and transmission lines are operational, the benefits of low-cost energy are evident after a few short years⁴⁷ – the Frontier Line was expected to produce up to 1.7 billion dollars per year once it was fully operational, making up for what it cost to build in only two years.⁴⁸ Therefore, even though the initial costs of wind turbines and transmission lines are substantial, the long-term economic benefits make the initial investments worthwhile.

J. Russ, Symposium, *The Legal Hurdles to Developing Wind Power as an Alternative Energy Source in the United States: Creative and Comparative Solutions*, 27 NW. J. INT'L L. & BUS. 535, 544 (2007).

³⁶ Lifshitz-Goldberg, *supra* note 23, at 442–43.

³⁷ Shaw & Deutsch, *supra* note 25.

³⁸ S. Michael Gray, *Can State Regulation of Renewable Electricity Achieve Discriminatory Effects on Interstate Trade Without Triggering the Dormant Commerce Clause?*, 44 S. TEX. L. REV. 783, 798 (2003).

³⁹ Daniel A. Lyons, Symposium, *Federalism and the Rise of Renewable Energy: Preserving State and Local Voices in the Green Energy Revolution*, 64 CASE W. RES. 1619, 1637 (2014).

⁴⁰ Joshua P. Fershee, Symposium, *Levels of Green: State and Regional Efforts*, in *Wyoming and Beyond, to Reduce Greenhouse Gas Emissions*, 7 WYO. L. REV. 269, 280 (2007).

⁴¹ Gray, *supra* note 38, at 798; Shaw & Deutsch, *supra* note 25.

⁴² Cotter, *supra* note 22, at 423.

⁴³ *Id.* at 439.

⁴⁴ Wang, *supra* note 14, at 453.

⁴⁵ Gene Ameduri, *From Blackout to Shock and Awe: Renewable Energy and the Shared Canada-United States Electricity Grid*, 36 CAN.-U.S. L.J. 160, 167 (2012).

⁴⁶ Lifshitz-Goldberg, *supra* note 23, at 443.

⁴⁷ Fershee, *supra* note 40, at 280.

⁴⁸ *Id.*

C. Surge in Wind Turbines

Of all renewable resources, wind turbines are developing the quickest⁴⁹ despite Wyoming's decrease in wind farm construction.⁵⁰ In 2012, the United States had its largest wind energy capacity to date,⁵¹ and it was predicted that the United States has the potential to produce up to 10,777 billion kilowatt hours per year, well over what is required to provide electricity to the entire country.⁵² In Wyoming, the Chokecherry and Sierra Madre Project alone will generate enough electricity for nearly one million homes – a state with a population below six hundred thousand people.⁵³

Though the United States has the ability to supply electricity to the whole country through wind power, only 3.5% of the energy in the United States comes from wind.⁵⁴ However, the numbers have been increasing.⁵⁵ In 1985 the wind capacity was near 1,000 megawatts, but in 2009 the wind capacity was close to 35,000 megawatts.⁵⁶ In 2015, it grew to 65,800 megawatts.⁵⁷ Thus, in six years, wind energy capacity grew from having the ability to produce electricity for 9.7 million homes⁵⁸ to 18 million homes.⁵⁹ With these strides, the U.S. Department of Energy hopes that 20% of all energy used in the United States will come from wind power by 2030.⁶⁰

Two incentives for individuals and groups to manufacture wind turbines and begin the transformation of energy in the United States are the federal production tax credits, as discussed above, and Renewable Portfolio Standards ("RPS").⁶¹ RPSs have not been enacted in every state, but most states have developed some form of an RPS.⁶² The standards require states to purchase a set amount of energy produced through renewable energy resources.⁶³ Ohio's RPS requires the purchasing of 12.5% of its electricity from renewable resources and it requires that 25% of its electricity come from

⁴⁹ Cotter, *supra* note 22, at 405.

⁵⁰ Franco, *supra* note 17.

⁵¹ Lyons, *supra* note 39, at 1621.

⁵² Joshua P. Fershee, Symposium, *supra* note 40, at 286-87.

⁵³ *Wyoming Lawmakers Seek to Compel Use of Fossil Fuels*, *supra* note 21.

⁵⁴ Erik Lange, *Local Control of Emerging Energy Sources: A Due Process Challenge to Disparate Treatment by States*, 64 CAS. W. RES. L. REV. 619, 623 (2013).

⁵⁵ Benjamin Fox, *The Offshore Grid: The Future of America's Offshore Wind Energy Potential*, 42 ECOLOGY L.Q. 651, 653 (2015).

⁵⁶ Schroeder, *supra* note 32, at 1631.

⁵⁷ Fox, *supra* note 55, at 653.

⁵⁸ Schroeder, *supra* note 32, at 1631.

⁵⁹ Fox, *supra* note 55, at 653.

⁶⁰ Lange, *supra* note 54, at 626.

⁶¹ Cotter, *supra* note 22, at 423. The production tax credit provided by the federal government has been renewed several times, most recently in December 2015. This has resulted in massive development when the credit is active and significant developmental decreases when it is not; Wang, *supra* note 14, at 454. The current federal production tax credit extends to December 31, 2019, but the credit amount applied is adjusted each year. *Renewable Electricity Production Tax Credit (PTC)*, ENERGY.GOV, <https://energy.gov/savings/renewable-electricity-production-tax-credit-ptc> (last visited April 8, 2017).

⁶² *Wyoming Lawmakers Seek to Compel Use of Fossil Fuels*, *supra* note 21.

⁶³ Cotter, *supra* note 22, at 405–06.

other alternative energy resources by 2025.⁶⁴ Wyoming does not currently have an RPS or any other renewable energy requirement in place.⁶⁵ These state standards, as well as the Public Utilities Regulatory Policy Act of 1978, which was partially enacted to encourage the use of renewable resources, have all contributed to the increase in wind turbine development.⁶⁶

Based on the foregoing, it becomes evident that many are attempting to pursue wind energy technology in light of climate change, global warming, and the long-term financial benefits involved. Problems arise when the production of wind energy and other renewable resources is slowed down because of inappropriate governmental intrusion.⁶⁷

III. ANALYSIS

Taxation on wind turbines is unwise and premature. To demonstrate why, this analysis lists the pros and cons associated with wind turbines, and follows with an analysis of four reasons why taxing wind energy production creates an overall negative impact: (1) taxing an intangible item can be problematic as a matter of public policy; (2) taxing renewable energy contradicts the purposes of taxing fossil fuels; (3) taxing renewable resources in the same manner as non-renewable resources is inappropriate because the two are inherently different; and (4) taxing wind turbines prematurely will have a negative environmental impact.

A. Pros and Cons

To further develop an understanding of wind turbines and their development, it is beneficial to analyze the arguments made by those who support, and those who oppose, the production of electricity through wind turbines.

1. Pros

Electricity generated through wind turbines allows for stability in energy prices because wind energy is a non-exhaustive resource.⁶⁸ It is predicted that the United States will substantially increase its use of electricity

⁶⁴ Katherine Saks, *North American Dispute Settlement: Great Lakes, Great Potential: Examining the Regulatory Framework for Wind Farms in the Great Lakes*, 35 Can.-U.S. L.J. 209, 226 (2011).

⁶⁵ *Wyoming Lawmakers Seek to Compel Use of Fossil Fuels*, *supra* note 21.

⁶⁶ Wang, *supra* note 14, at 452–53; The Public Utility Regulatory Policies Act (PURPA) was enacted to enhance energy conservation, as well as promoting the development of domestic renewable energy. The Public Utility Regulatory Policies Act, 16 U.S.C.S. § 2601 (2017).

⁶⁷ Schroeder, *supra* note 32, at 1666; Daniel A. Lyons, Symposium, *Federalism and the Rise of Renewable Energy: Preserving State and Local Voices in the Green Energy Revolution*, *supra* note 39, at 1667; Shaw & Deutsch, *supra* note 25 (stating that various rules and regulations that may be inconsistent and unclear, thereby penalizing the development of wind energy technology); Lange, *supra* note 54, at 691 (discussing Ohio's state regulation of fracking compared to its local regulation of wind turbines – creating the potential for unfavorable treatment of wind turbines).

⁶⁸ Cotter, *supra* note 22, at 405.

by nearly 40% from 2005 to 2030. A concern with the use of fossil fuels is that prices often fluctuate because of supply and demand and they will eventually become nonexistent.⁶⁹ Being able to implement wind turbines now prepares for the future depletion of fossil fuels and allows energy prices to stabilize.⁷⁰

A second benefit is that the cost of electricity from wind turbines is comparable to energy prices of fossil fuels, provided they remain subsidized rather than taxed – unlike Wyoming. The cost of generating electricity through wind turbines is roughly three to four cents per kilowatt-hour,⁷¹ whereas coal costs five cents per kilowatt-hour.⁷² Keeping prices comparable allows for long-term fiscal and environmental benefits of wind turbines to emerge.

Another widely discussed positive of wind turbine development is the creation of jobs.⁷³ Due to the increase in wind turbine production, the amount of jobs created worldwide is predicted to go beyond two hundred thousand by the year 2030 – in 2012 there were only 40,000 jobs.⁷⁴ By 2017, there were over 100,000 jobs in the wind industry.⁷⁵ Thus, between 2012 and 2030, the amount of jobs in this field of work are expected to more than quadruple in just the manufacturing sector, while more jobs will be needed to develop adequate methods of storing the electricity.⁷⁶ Landowners may also lease their land for the wind industry's use, creating another avenue of economic stimulation.⁷⁷

Fourth, implementing wind turbines as this country's primary domestic form of electrical energy gives the United States the ability to sustain itself without relying on fossil fuel imports.⁷⁸ This will also allow the United States to increase its national security.⁷⁹

A fifth benefit of wind turbines is the positive environmental impact.⁸⁰ Limiting the burning of fossil fuels by utilizing wind turbines will reduce carbon dioxide emissions, along with other harmful gases.⁸¹ This will

⁶⁹ Saks, *supra* note 64, at 209; *Price Volatility*, JUST ENERGY, <https://www.justenergy.com/energy-explained/price-volatility/> (last visited April 8, 2017).

⁷⁰ Schroeder, *supra* note 32, at 1638.

⁷¹ Lifshitz-Goldberg, *supra* note 23, at 443; Gray, *supra* note 38, at 798.

⁷² Ameduri, *supra* note 45, at 167.

⁷³ Cotter, *supra* note 22, at 405.

⁷⁴ Ameduri, *supra* note 45, at 164.

⁷⁵ Jonathan Baker, *Wind Power Reaches 100k Job Milestone*, HIGH PLAINS PUBLIC RADIO (February 8, 2017), <http://hpr.org/post/wind-power-reaches-100k-job-milestone>.

⁷⁶ Ameduri, *supra* note 45, at 164.

⁷⁷ Lyons, *supra* note 39, at 1634.

⁷⁸ Wang, *supra* note 14, at 452.

⁷⁹ Cotter, *supra* note 22, at 405; *See generally* Daniel Yergin, *The Quest: Energy, Security, and the Remaking of the Modern World* (2011).

⁸⁰ Cotter, *supra* note 22, at 405.

⁸¹ William T. Reisinger, Symposium, *Climate Change and the Future of Energy: Federal and State Renewable Portfolio Standards: Conflict or Harmony?*, 41 U. TOL. L. REV. 877, 877 (2010).

not only benefit the environment, but also reduce the likelihood of people developing asthma or heart disease.⁸²

Lastly, and importantly, citizens support the use of wind turbines and other forms of renewable energy.⁸³ In Wyoming, despite the fact that the state recently began taxing electricity generated from wind, its citizens still support these developments.⁸⁴

2. Cons

The first few negatives associated with wind turbines have to do with the inherent limitations of the wind turbine.⁸⁵ For instance, wind blows at its own leisure, so estimating how much electricity will actually be generated is difficult.⁸⁶ Also, being a fairly new technology, it is unclear how long wind turbines will remain productive before they need to be replaced.⁸⁷ Further, due to their recent development, the market for wind turbines fluctuates, in part due to different regulations from different entities.⁸⁸

Second, a common negative associated with wind turbines concerns aesthetic sensibilities. These are the “not in my backyard,” or NIMBY, arguments, stating that wind turbines ruin the view of landscape, especially because wind turbines are preferably placed in rural areas.⁸⁹ Developers have taken strides to make wind turbines appear minimally intrusive by painting them light colors.⁹⁰ Others have compared wind turbines to silos and billboards, arguing that people will eventually accept their presence.⁹¹ In fact, some people find wind turbines to be visually pleasing, suggesting that the aesthetic argument is subjective and not uniformly accepted.⁹² Some believe that wind turbines will decrease their property values; however, several studies have found this not to be true.⁹³

Third, another common argument against wind turbines involves the noise produced.⁹⁴ However, within the past thirty-five years, the noise

⁸² *Id.* at 879.

⁸³ See Wang, *supra* note 14, at 466.

⁸⁴ *Id.*

⁸⁵ See generally Shaw & Deutsch, *supra* note 25.

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ See Wang, *supra* note 14, at 454.

⁸⁹ Cotter, *supra* note 22, at 415–19; See Walker v. Apex Wind Constr., LLC, No. CIV-14-914-D, 2015 U.S. Dist. LEXIS 8460, at *3–4, *10–12 (W.D. Okla. Jan. 26, 2015) (addressing a claim for anticipatory nuisance due to wind farm development); See Rankin v. FPL Energy, LLC, 266 S.W.3d 506, 512–13 (Tex. App. 2008) (noting that Texas courts have not found a nuisance merely because of aesthetic-based complaints); See Sowers v. Forest Hills Subdivision, 294 P.3d 427, 433 (Nev. 2013) (finding that wind turbines may create a nuisance if there is noise or light flickering).

⁹⁰ Cotter, *supra* note 22, at 418.

⁹¹ Lyons, *supra* note 39, at 1634; Cotter, *supra* note 22, at 418.

⁹² Cotter, *supra* note 22, at 417–18.

⁹³ Lange, *supra* note 54, at 686.

⁹⁴ *Id.* at 648.

generated by wind turbines has decreased by 90%.⁹⁵ This is due to advances in technology turning noise from wind turbines into a steady hum.⁹⁶

Many arguments against wind turbines focus on the health and safety of neighboring residents, the environment, and migratory birds.⁹⁷ The negatives concerning human health and safety are ice flying from turbine blades and “wind turbine syndrome”, which has been purported to cause headaches, vertigo, and insomnia.⁹⁸ However, the likelihood of ice flying from a wind turbine is very low, as wind turbines can be built with sensors that prevent them from operating if ice is on the blades.⁹⁹

The main concerns with the environment and migratory birds lie in bird fatalities.¹⁰⁰ New design features have addressed these issues, such as placing wind turbines in certain ranges from one another to protect birds that are flying between them and producing a radio frequency that detracts birds from the immediate area.¹⁰¹ In Ohio particularly, safety features are considered through the dual efforts of the Ohio Power Siting Board and the Ohio Department of Natural Resources, recognizing a need to protect the environment and migratory birds.¹⁰²

Lastly, the final concern is the costs imposed on the government for the production of wind turbines.¹⁰³ First, is the concern of road maintenance – that transporting wind turbines from the place of manufacturing to the place of utilization would increase the deterioration of roads.¹⁰⁴ There are also concerns of costs related to preserving the environment.¹⁰⁵ However, like Ohio, state and local governments can analyze the possible environmental impact that wind turbines have on surrounding areas and engage in preventative efforts and design changes to reduce or eliminate environmental risks.¹⁰⁶

B. Negative Impact of Taxation on Renewable Resource Development

Many agree that state governments are authorized to place taxes on energy resources, such as oil, gas, and coal.¹⁰⁷ But can the government also tax renewable energy resources such as wind turbines? And if so, should

⁹⁵ *Id.* at 684.

⁹⁶ *Id.*; Cotter, *supra* note 22, at 419.

⁹⁷ Lange, *supra* note 54, at 673–74.

⁹⁸ Lyons, *supra* note 39, at 1635.

⁹⁹ Lange, *supra* note 54, at 675.

¹⁰⁰ *Id.* at 679–81.

¹⁰¹ Cotter, *supra* note 22, at 420–21.

¹⁰² Saks, *supra* note 64, at 226.

¹⁰³ Wang, *supra* note 14, at 456.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*

¹⁰⁶ Lyons, *supra* note 39, at 1655; Lange, *supra* note 54, at 645–648.

¹⁰⁷ Walter Hellerstein, POLITICAL PERSPECTIVES ON STATE AND LOCAL TAXATION OF NATURAL RESOURCES, 19 GA. L. REV. 31, 36 (1984).

they? This section of the analysis focuses on four main reasons why the government should not tax electricity generated by wind turbines: (1) taxing an intangible item can be problematic as a matter of public policy; (2) taxing renewable energy contradicts the purposes of taxing fossil fuels; (3) taxing renewable resources in the same manner as non-renewable resources is inappropriate because the two are inherently different; and (4) taxing wind turbines prematurely will have a negative environmental impact.

1. Taxation of an Intangible Resource Creates Bigger Problems

Some states allow taxation of intangible property.¹⁰⁸ Other states have completely exempted intangible property from taxation,¹⁰⁹ most likely because of the difficulty in determining the worth of an intangible asset.¹¹⁰ Of the states that allow taxation on intangible property, some limit taxation to something less than the taxes placed on tangible property.¹¹¹

In New York, the state's sales tax statute speaks directly to tangible property.¹¹² Regarding wind turbines, New York offers a sales tax exemption for certain tangible components and machinery necessary for constructing wind farms.¹¹³ Intangible property in New York, such as goodwill or customized computer software, is not subject to a sales tax at all.¹¹⁴ However, New York's sales tax implements a 4% tax on the sale of electricity, but does not indicate whether renewable resources would be treated differently.¹¹⁵

When states decide to exempt intangible property from taxation, it is common for them to later put limitations on what "intangible" actually means.¹¹⁶ Relating to wind turbines, no matter what limitations are put on the definition of "intangible," it seems difficult to envision a way in which electricity generated from wind turbines would be considered tangible. The electricity produced is intangible¹¹⁷ – like the electricity produced through the combustion of fossil fuels. But, the difference is that before wind is generated

¹⁰⁸ Mark K. Buchi & David K. Detton, *Keeping the Tax Assessor at Bay: A Guidebook to Property and Production Taxes*, 34 ROCKY MT. MIN. L. INST. 2.02(2)(c) (1988).

¹⁰⁹ *Id.* at § 2.02(1)(c) (1988).

¹¹⁰ Richard G. Smith, *Deducting Intangible Asset Value for Property Tax Purposes: How "Necessary Intangibles" Are Treated in Two Recent Cases*, PROP. TAX LITIG. INSIGHTS 62, 63 (2014), http://www.willamette.com/insights_journal/14/spring_2014_4.pdf.

¹¹¹ Mark K. Buchi & David K. Detton, *Keeping the Tax Assessor at Bay: A Guidebook to Property and Production Taxes*, 34 ROCKY MT. MIN. L. INST. 2-1 (1998).

¹¹² NY Tax Law § 1105 (2016).

¹¹³ State of New York Commissioner of Taxation and Finance, TSB-A-09(59)S (2009) (advisory opinion).

¹¹⁴ NY Tax Law § 1105 (2016) (stating that goodwill is intangible); State of New York Commissioner of Taxation and Finance, TSB-A-88(29)S (1988) (advisory opinion).

¹¹⁵ NY Tax Law § 1105 (2016).

¹¹⁶ David Blatt, *State Question 766: Intangible Property Ballot Measure Would Have Tangible Consequences*, OKPOLICY.ORG (September 11, 2012), <http://okpolicy.org/state-question-766-intangible-property-ballot-measure-would-have-tangible-consequences/>.

¹¹⁷ In the Matter of the Appeal of PacifiCorp, 2002 Cal. Tax LEXIS 469, at *27 (Board of Equalization 2002).

into electricity, it is also intangible.¹¹⁸ It is not oil, coal, or natural gas that can be touched or contained. It is wholly intangible from beginning to end. If this process is subject to taxation, then it is difficult to formulate a scenario where the state and federal governments would be forbidden from implementing a tax. The issue becomes where to draw the line in terms of taxation on intangible property or whether a line can exist at all.

2. Taxation on Wind Turbines Contradicts the Purpose of the Taxation of Fossil Fuels

Since the end of the Revolutionary War, taxation has been used to produce revenue, particularly for military services.¹¹⁹ Since that time, taxation has significantly expanded to fund other public services,¹²⁰ and the government eventually initiated taxation on non-renewable resources, such as oil, coal, and gas.¹²¹ To demonstrate how the taxation on wind turbines contradicts the purposes behind the taxation of fossil fuels, this Comment looks at the carbon tax, severance tax/production tax, motor fuel tax, real property tax, and Wyoming's excise tax.

a. Carbon Tax

Every fossil fuel contains carbon, coal carrying the most.¹²² Where the state and federal governments have created carbon taxes, the rate of the tax is based on carbon content.¹²³ It is not the mere presence of the carbon that is taxed, but the combustion of the product.¹²⁴ Thus, the tax only occurs if fossil fuels are used in environmentally negative ways, earning itself the name "carbon pollution tax."¹²⁵ Others believe that the carbon tax is phase one of a larger, general pollution tax to be implemented in the future.¹²⁶

The main purpose of the carbon tax is to encourage people to seek more environmentally friendly means of producing energy.¹²⁷ Opponents of the carbon tax argue that the tax will create harm¹²⁸ by increasing costs paid by low-income households, noting that concern for low-income households

¹¹⁸ Thaddeus Baria, Comment, *Up the Creek With a Paddle: Water Doctrine as a Basis for Small Wind Energy Resource Rights*, 59 DEPAUL L. REV. 141, 155 (2009).

¹¹⁹ Lutzenberger, *supra* note 15.

¹²⁰ *Id.*

¹²¹ Hellerstein, *supra* note 107, at 36.

¹²² *What's a Carbon Tax?* CARBON TAX CENTER, <https://www.carbontax.org/whats-a-carbon-tax/> (last visited Feb. 27, 2017) (hereinafter *What's a Carbon Tax?*).

¹²³ Fershee, *supra* note 40, at 289.

¹²⁴ *What's a Carbon Tax?*, *supra* note 122.

¹²⁵ *Id.*

¹²⁶ Frank Muller & J. Andrew Hoerner, Colloquium, *Greening State Energy Taxes: Carbon Taxes for Revenue and the Environment*, 12 PACE ENVTL. L. REV. 5, 22 (1994) (hereinafter *Greening State Energy Taxes*).

¹²⁷ *What's a Carbon Tax?*, *supra* note 122; *Greening State Energy Taxes*, *supra* note 126, at 9.

¹²⁸ Fershee, *supra* note 40, at 290.

is one reason why subsidies are applied to fossil fuels.¹²⁹ However, fossil fuel subsidies primarily benefit wealthy households because they use more electricity.¹³⁰ Carbon taxes are also not as regressive as other forms of taxes, making them less harmful to low-income households.¹³¹

Opponents of the carbon tax also argue that carbon taxes will harm energy producing industries. However, states are likely to implement rather modest carbon tax rates, at amounts that would not prove overly burdensome to industries that emit carbon into the atmosphere.¹³² Therefore, the potential economic harm to energy producing industries is minor when compared to the environmental benefits that may develop from the carbon tax's encouragement.

Other than encouraging environmentally friendly energy production, the carbon tax also produces additional revenue for the state.¹³³ The additional revenue would most efficiently be used for renewable energy resource development because it would serve the tax's purpose of encouraging cleaner energy while keeping the tax rate low.¹³⁴

i. Not Comparable to a Wind Tax

Implementing taxation on wind turbines is not comparable to an application of a carbon tax, even if for the purposes of revenue. First, to reiterate, the main purpose behind the carbon tax is to encourage environmentally friendly energy production.¹³⁵ Thus, the carbon tax has spurred interest in new technologies, such as wind turbines – a technology that does not encourage environmentally friendly energy production but is the environmentally friendly energy producing entity.

Second, even if the primary purpose of both carbon and wind taxes is revenue, the two are still not comparable. When carbon taxes were implemented, the opposition was based on financial impacts, but the tax generated substantial revenue and businesses did not file bankruptcy because of a tax burden.¹³⁶ However, this would not be the case for wind turbines.

In Wyoming, it has become apparent that a tax on wind turbines is detrimental to development.¹³⁷ When Wyoming became the first state in the United States to implement such a tax, development halted.¹³⁸ This burden almost became a complete restriction on wind energy development in 2017

¹²⁹ Felix Mormann, *Requirements for a Renewable Revolution*, 38 *ECOLOGY L.Q.* 903, 920 (2011).

¹³⁰ *Id.*

¹³¹ Muller & Hoerner, *supra* note 126, at 9, 47.

¹³² *Id.* at 26.

¹³³ *Id.* at 9.

¹³⁴ *Id.* at 15–16.

¹³⁵ Carbon Tax Center, *supra* note 122; Muller & Hoerner, *supra* note 126, at 9.

¹³⁶ Muller & Hoerner, *supra* note 126, at 19–20.

¹³⁷ Franco, *supra* note 17.

¹³⁸ *Id.*

when the state – in what some called an attack on renewable energy – attempted to increase the tax from \$1 per megawatt to \$5 per megawatt.¹³⁹ If the state and federal governments want an opportunity to tax wind energy for purposes of revenue, or any purpose for that matter, it will not work if the resources are not developed first because “[t]he effectiveness of a tax will depend on the overall combination of policies.”¹⁴⁰ Wind turbines are much too costly to tax before there is a sufficient foundation and transmission grids in place.¹⁴¹ This is not to say that a tax on this technology will always be inappropriate, but only that wind energy generators cannot withstand the burden of a tax at this time.¹⁴² The government must look elsewhere for sources of revenue because to do otherwise inhibits wind energy development and allows the environment to continue to deteriorate.¹⁴³

b. Severance Tax/Production Tax

Natural resources taken from beneath the ground are often subjected to severance taxes.¹⁴⁴ The responsibility for paying these taxes is placed on those who extract the resources.¹⁴⁵ The reason for applying a severance tax is threefold: (1) it allows a means to help restore the environment after extraction; (2) it allows those burdened by the extraction of resources to be compensated; and (3) it also allows revenue to be acquired for the state’s general fund.¹⁴⁶ It has been said that severance taxes go beyond what is necessary to provide compensatory revenues.¹⁴⁷ But such taxes are upheld, probably due to the states’ supposed right to utilize any tax for its general fund.¹⁴⁸

i. Not Comparable to a Wind Tax

Like the tax on carbon, a wind tax should not be compared and equated with severance taxes. First, one purpose of the severance tax is to restore the environment after extraction of resources.¹⁴⁹ In the case of wind turbines, there is no deterioration of the environment to be restored. At most, some argue that roadway damage and damage to land around the roadways

¹³⁹ Hancock, *supra* note 20; H.R. 0127 *supra* note 20.

¹⁴⁰ Muller & Hoerner, *supra* note 126, at 15.

¹⁴¹ See Wang, *supra* note 14, at 468.

¹⁴² See Franco, *supra* note 17.

¹⁴³ See *Id.*

¹⁴⁴ *Taxing Natural Gas Production*, NATIONAL CONFERENCE OF STATE LEGISLATURES, <http://www.ncsl.org/research/energy/taxing-natural-gas-production.aspx> (last visited March 2, 2017).

¹⁴⁵ Jacquelyn Pless, *Oil and Gas Severance Taxes: States Work to Alleviate Fiscal Pressures Amid the Natural Gas Boom*, NATIONAL CONFERENCE OF STATE LEGISLATURES (February 2012), <http://www.ncsl.org/research/energy/oil-and-gas-severance-taxes.aspx>.

¹⁴⁶ Hellerstein, *supra* note 107, at 36; *Taxing Natural Gas Production*, *supra* note 144.

¹⁴⁷ Hellerstein, *supra* note 107, at 37.

¹⁴⁸ *Id.* at 38.

¹⁴⁹ *Id.* at 36; *Taxing Natural Gas Production*, *supra* note 144.

occurs due to transporting heavy wind turbine equipment.¹⁵⁰ However, producing equipment for wind turbines onsite or in close vicinity, such as in laydown yards,¹⁵¹ can lessen the impact of these issues.

Second, another purpose of the severance tax is to compensate states which bear the burden of the extraction of non-renewable resources.¹⁵² There is no similar extraction with wind turbines. The supposed equivalent extraction is the wind turbine transforming the wind into kinetic energy,¹⁵³ but that does not carry a similar effect as extracting minerals from the ground. The transformation merely converts the wind energy into electricity, a desirable and non-impactful event.

Other burdens considered for compensation purposes are the aesthetics of wind turbines and the potential hazardous impact that wind turbines may have on migratory birds. However, as stated above, some find wind turbines pleasing, and they are not likely to be any more burdensome than other manmade items.¹⁵⁴ As to migratory birds, safety measures have been implemented for their protection.¹⁵⁵

Lastly, another purpose of severance taxes is to provide revenue.¹⁵⁶ There are two possible uses for this revenue. First, as economist John Hartwick has argued, it is important that exhaustible resources are replaced for future generations, and severance tax revenue can be used for that purpose.¹⁵⁷ In this respect, severance taxes are similar to carbon taxes because they are forward-looking and concerned with the future. This would help preserve non-renewable resources for what renewable energy cannot accomplish and help cure the environmental problems partly caused by the combustion of fossil fuels.

Revenue from severance taxes may also go into the state's general fund to be used for any public purpose.¹⁵⁸ However, the same conflict arises here as it does with carbon tax – taxing wind turbines for revenue will inhibit wind energy development.¹⁵⁹ Severance taxes may be increased and decreased substantially without unduly harming the fossil fuel industry, but wind energy generators do not have the same security.¹⁶⁰

¹⁵⁰ Patricia E. Salkin & Ashira Pelman Ostrow, *Cooperative Federalism and Wind: A New Framework for Achieving Sustainability*, 37 HOFSTRA L. REV. 1049, 1075 (2009).

¹⁵¹ K.K. Duvivier & Roderick E. Wetsel, *Jousting at Windmills: When Wind Power Development Collides With Oil, Gas, and Mineral Development*, 55 ROCKY MT. MIN. L. INST. 9-1 (2009).

¹⁵² Hellerstein, *supra* note 107, at 36; *Taxing Natural Gas Production*, *supra* note 144.

¹⁵³ Cotter, *supra* note 22, at 407.

¹⁵⁴ *Id.* at 417–18.

¹⁵⁵ *Id.* at 420–21.

¹⁵⁶ *Taxing Natural Gas Production*, *supra* note 144.

¹⁵⁷ John B. McArthur, *Preserving Public Natural Resources: Value and Sustainability in a World of High Costs and Budget Shortfalls*, 10 TEX. J. OIL GAS & ENERGY L. 265, 305 n.107 (2015).

¹⁵⁸ *Taxing Natural Gas Production*, *supra* note 144.

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

c. Motor Fuel Tax

Motor fuel taxes contribute \$20 billion dollars a year in revenue to the states and localities.¹⁶¹ Their purpose is to generate revenue for maintaining roads and highways.¹⁶² One negative consequence of the wind turbines is that their weight will significantly deteriorate roadways when they are transported.¹⁶³ But, the motor fuel tax addresses this issue, and implementing a wind tax under a road deterioration rationale would be unnecessary. Further, new technology has been developed so that wind turbines can be built onsite, making a wind tax due to road maintenance even more unreasonable.¹⁶⁴ Any road maintenance due to wind turbines would be minimal.

d. Real Property Tax

Real property taxes apply to real land, its buildings, and its improvements,¹⁶⁵ and are determined based on the fair market value of the property.¹⁶⁶ The main purpose of the tax is to generate revenue.¹⁶⁷

In *Kaheawa Wind Power, LLC v. County of Maui*, a Hawaiian court held that real property taxes do not apply to wind turbines.¹⁶⁸ In *Kaheawa*, the Court interpreted the Maui County Code, which defines “real property” as:

all land and appurtenances thereof and the buildings, structures, fences, and improvements erected on or affixed to the same, and any fixture which is erected on or affixed to such land, building structures, fences and improvements, including all machinery and other mechanical or other allied equipment and the foundations thereof, whose use thereof is necessary to the utility of such land, buildings, structures, fences, and improvements, or whose removal therefrom cannot be accomplished without substantial damage to such land, buildings, structures, fences, and improvements,

¹⁶¹ Muller, *supra* note 126, at 6.

¹⁶² Frank Muller & J. Andrew Hoerner, *Motor and Alternative Fuel Taxes*, PENNSYLVANIA DEPARTMENT OF REVENUE, <http://www.revenue.pa.gov/GeneralTaxInformation/Tax%20Types%20and%20Information/Pages/Motor-and-Alternative-Fuel-Taxes.aspx#.WLnYWXlg0o> (last visited March 2, 2017).

¹⁶³ Salkin, *supra* note 150, at 1075.

¹⁶⁴ Rob Matheson, *On-Site Fabrication Process Makes Taller Wind Turbines More Feasible*, PHYS.ORG (November 6, 2014), <https://phys.org/news/2014-11-on-site-fabrication-taller-turbines-feasible.html>.

¹⁶⁵ *What is Property Tax*, FAO CORPORATE DOCUMENT REPOSITORY, <http://www.fao.org/docrep/005/Y4313E/y4313e05.htm> (last visited March 2, 2017).

¹⁶⁶ Buchi & Detton, *supra* note 108.

¹⁶⁷ *What is Property Tax*, *supra* note 165.

¹⁶⁸ 135 Haw. 202, 204 (2014).

excluding, however, any growing crops.¹⁶⁹

Maui County relied on this definition to apply a real property tax to wind turbines based on their building value.¹⁷⁰ However, the Intermediate Court of Appeals of Hawaii held that wind turbines were neither improvements nor fixtures.¹⁷¹ Instead, it held that wind turbines are machinery, but not the type that would constitute a fixture.¹⁷² In order to be a fixture in Hawaii, a wind turbine must be “necessary to the utility of the land, buildings, structures, fences, and improvements” or “the removal of the wind turbines cannot be accomplished without substantial damage to the land, buildings, structures, fences and improvements.”¹⁷³

First, the court found that a wind turbine is not “necessary to the utility of the land, buildings, structures, fences, and improvements” because the property could be used for purposes other than wind turbines.¹⁷⁴ Second, the court concluded that the removal of wind turbines would not damage the land,¹⁷⁵ and therefore, wind turbines should not be subjected to a real property tax.

Realistically, if wind turbines were taxed as real property, it would be difficult to do based on fair market value. The amount of wind that flows through a wind turbine directly affects how much electricity will be produced and how valuable a wind turbine will be.¹⁷⁶ But, the amount of wind that flows through the air varies daily.¹⁷⁷ Since property taxes are paid annually,¹⁷⁸ a wind turbine’s valuation for a full year would be estimated without knowing how much – or how little – wind will flow through a turbine in a given year. This is much like the issue involving the valuation of minerals – it is difficult to determine the fair market value of minerals beneath real property because it is unclear what type and quantities of minerals are present.¹⁷⁹ For minerals, reasonable estimations can be made by observing results of past extractions.¹⁸⁰ Under this rationale, the government would need to gather years of data before it could produce an accurate estimation of wind production to determine a fair market value of wind turbines and justify imposing a real property tax.

¹⁶⁹ *Id.* at 207.

¹⁷⁰ *Id.* at 204.

¹⁷¹ *Id.* at 208–11.

¹⁷² *Id.* at 209–11.

¹⁷³ *Id.* at 209–210.

¹⁷⁴ *Id.* at 209–11.

¹⁷⁵ *Id.* at 210.

¹⁷⁶ Cotter, *supra* note 22, at 407.

¹⁷⁷ *Id.*

¹⁷⁸ *What is Property Tax*, *supra* note 165.

¹⁷⁹ Buchi & Detton, *supra* note 108.

¹⁸⁰ *Id.*

e. Wyoming's Excise Tax

In Wyoming, the tax on the production of electricity generated by wind turbines is an excise tax and attaches upon the sale or trade of the electricity.¹⁸¹ Excise taxes, including the wind excise tax in Wyoming, are used as a means to generate revenue, but usually attach to unnecessary items, such as cigarettes or alcohol in order to discourage their use, earning the nickname of "Sin Tax."¹⁸²

In this respect, Wyoming's excise tax on wind energy is treated like a sin tax because it is discouraging the use of wind turbines, evidenced by Wyoming's wind turbine development standstill after the implementation of the tax.¹⁸³ Whether the purpose of Wyoming's wind tax be revenue or otherwise, its purposes will not be met so long as wind turbines are not sufficiently built and operational before an implementation of the tax.

3. Renewable Energy Resources Should be Treated Differently Than Non-Renewable Energy

Renewable energy resources are different from non-renewable energy resources in two important respects. First, they are different in their underlying purposes,¹⁸⁴ and second, they are different in their physical characteristics.¹⁸⁵ Due to these differences, it is necessary to treat them differently in terms of taxation. As authors Marke Buchi and David Detton stated, "[t]he fact that many currently important natural resources had not yet been discovered or developed in commercial quantities further contributed to the development of a uniform system of property taxation during [the mid-1800's]" – suggesting that taxation must adjust to the resource, rather than a new resource adjusting to a uniform system of taxation.¹⁸⁶

a. Underlying Purpose

Non-renewable resource development began in another era when governments incentivized moving westward to develop resources in order to enhance the country's economy.¹⁸⁷ The government provided citizens with

¹⁸¹ WYO. STAT. ANN. § 39-22-103 (LexisNexis 2017).

¹⁸² *Excise Tax*, INVESTIGATING ANSWERS (2017), <http://www.investinganswers.com/financial-dictionary/tax-center/excise-tax-1495> (last visited Nov. 27, 2017).

¹⁸³ Franco, *supra* note 17; See Bryce Gray, *Wyoming Considers Raising an Already Unique Wind Tax*, HIGH COUNTRY NEWS (June 3, 2016), <http://www.hcn.org/articles/wyoming-considers-raising-an-already-unique-wind-tax> (stating that Wyoming has not had any new wind turbine construction since the implementation of the tax, though some argue this is in part due to a lack of transmission lines).

¹⁸⁴ Alexandra B. Klass, Article, *Property Rights on the New Frontier: Climate Change, Natural Resource Development, and Renewable Energy*, 38 ECOLOGY L.Q. 63, 67 (2011).

¹⁸⁵ Chris Wold, Grant Wilson, & Sara Foroshani, Article, *Leveraging Climate Change Benefits Through the World Trade Organization: Are Fossil Fuel Subsidies Actionable?*, 43 GEO. J. INT'L L. 635, 668 (2012).

¹⁸⁶ Buchi & Detton, *supra* note 108 at § 2.02(1)(b).

¹⁸⁷ Klass, *supra* note 184.

property rights in western resources,¹⁸⁸ and the environmental consequences caused by the development of resources were not a primary concern.¹⁸⁹ Today, environmental concerns may be more important than previous private property interests.¹⁹⁰

The primary underlying purpose of renewable energy development is the concern for the negative environmental impact of fossil fuels.¹⁹¹ As state and federal governments use tax credits and incentives to encourage the development of renewable resources,¹⁹² some argue that these incentives are inadequate to fight climate change at a level that would allow it to create a positive outcome.¹⁹³ For instance, the Clean Air Act does not even specifically address greenhouse gas emissions.¹⁹⁴ Thus, the question remains, why states like Wyoming are taking away incentives for renewables and taxing electricity from wind power when the incentives are already supposedly inadequate? Imposing such a tax becomes counterproductive to the underlying purpose of encouraging renewable energy development,¹⁹⁵ and alternatively, more incentives should be implemented, and present incentives should be adjusted to become more sufficient.

Despite the fact that the purposes of renewable and non-renewable resource development differ, governments have tried to address renewable energy development regulations by comparing them to non-renewable resources.¹⁹⁶ With new concerns about changing property rights to preserve the environment, it would not be improper to seek out new forms of regulation and treat renewable energy resources different.¹⁹⁷ Resources should be regulated and taxed (or not taxed) based on their underlying purposes in order that those purposes be fulfilled, not only because other “comparable” resources are regulated or taxed in a certain manner.¹⁹⁸

b. Physical Characteristics

Renewable and non-renewable resources also differ in physical characteristics and should not be lumped together for purposes of taxation. There are some obvious similarities between the two – both are capable of producing electricity, and both involve challenges in maintaining access to resources, whether they are underground or sporadically blown through the

¹⁸⁸ *Id.* at 81.

¹⁸⁹ Klass, *supra* note 184, at 81.

¹⁹⁰ *Id.* at 90.

¹⁹¹ *Id.* at 73.

¹⁹² *Id.* at 74-75.

¹⁹³ *Id.* at 68.

¹⁹⁴ *Id.* at 71.

¹⁹⁵ *Id.* at 103.

¹⁹⁶ Klass, *supra* note 184, at 67.

¹⁹⁷ *Id.* at 90.

¹⁹⁸ *Id.* at 103.

air.¹⁹⁹ However, the differences in these two resources outweigh the similarities.

The largest difference in physical characteristics between renewable and non-renewable resources is that renewable resources are produced by wind turbines and other new technology,²⁰⁰ but non-renewable resources are created naturally, beneath the earth's surface.²⁰¹ Second, a smaller difference involves what their physical characteristics allow them to do – renewable resources are usually limited to producing electricity, but non-renewable resources can do more.²⁰² Lastly, there is human preference for electricity generated through renewable energy.²⁰³ Even though the electricity generated by renewable energy or non-renewable energy is similar, the products producing the electricity are not and people recognize and react to knowledge of that fact.²⁰⁴

Recognizing the differences between renewable and non-renewable resources now and creating unique regulations for renewable energy will avoid potential problems and difficulty in changing regulations in the future.²⁰⁵ “[P]olicymakers and scholars [should] avoid hewing too closely to the natural resource development model for...wind, [it] may cause them to lose sight of the pollution control and permitting aspects of resource development that were added as an overlay to natural resources law but now should be fully integrated from the outset.”²⁰⁶

4. Taxation on Wind Turbines Contributes to Negative Environmental Impact

The world has relied heavily on fossil fuels as its chief source of energy for centuries.²⁰⁷ A brief discussion of fossil fuels is warranted since these are what wind turbines are competing with, followed by a discussion on government subsidies and environmental impact. This demonstrates the environmental benefits associated with wind turbines and other renewables.

¹⁹⁹ *Id.* at 79–80.

²⁰⁰ Wold, Wilson, & Foroshani, *supra* note 185, at 668.

²⁰¹ *Id.*

²⁰² *Id.* at 668–69.

²⁰³ *Id.* at 669.

²⁰⁴ *Id.* at 693–94; Some believe that to separate the differences between non-renewable and renewable resources for purposes of regulation and taxation, it may be necessary for the President of the United States to outwardly state that energy produced through the two are, in fact, different and cannot and should not be treated identically. See Chris Wold, *Presidential Powers and Foreign Affairs: Presidential Power to Manage International Economic Affairs: Climate Change, Presidential Power, and Leadership: “We Can’t Wait”*, 45 CASE W. RES. J. INT’L L. 303, 334 (2012).

²⁰⁵ Klass, *supra* note 184, at 67.

²⁰⁶ *Id.* at 67.

²⁰⁷ LEONARDO MAUGERI, *BEYOND THE AGE OF OIL: THE MYTHS, REALITIES, AND FUTURE OF FOSSIL FUELS AND THEIR ALTERNATIVES*, xvii–xx (Sperling & Kupfer Editori S.p.A., Milan 2008).

a. Types of Fossil Fuels

Oil is the most commonly used fossil fuel for the production of energy.²⁰⁸ It is extracted from the ground as crude oil and later refined and used for gasoline, heating fuel, kerosene, asphalt, and other items.²⁰⁹ It is estimated that the oil consumed today is three hundred million years old, and despite the fact that mankind has been consuming it for over five thousand years,²¹⁰ it is believed that there is still a large quantity of oil beneath the earth's surface.²¹¹ Although concerns of "peak oil" are waning, the amount is unknown.²¹²

In large part, the United States imports its oil from other countries, and has fought wars to satisfy demand.²¹³ Wind turbines will help reduce the United States' reliance on other countries, allowing it to be more self-sufficient and avoid wars and adverse foreign policy caused by concerns over oil.²¹⁴

Coal consumption has decreased below the consumption amount of oil.²¹⁵ Coal is typically used to generate electricity, but it also has other uses.²¹⁶ There are three types of coal – lignite, bituminous, and anthracite.²¹⁷ Anthracite produces the most energy of the three, but also contains the highest amount of carbon.²¹⁸ Coal has the largest negative impact on the environment of all the fossil fuels because²¹⁹ coal emits the largest amount of carbon dioxide into the atmosphere when it is burned.²²⁰ In response, some have suggested clean coal initiatives,²²¹ but producing clean coal is a lengthy process, and the costs of doing so negate its positive aspects.²²²

Natural gas also emits carbon dioxide into the air, but it is the least harsh of the three fossil fuels.²²³ It is mainly used to heat homes, for cooking appliances, and as a resource for fuel.²²⁴ Due to natural gas being the least environmentally harmful of all fossil fuels, there is speculation it will rise

²⁰⁸ *Id.* at 3.

²⁰⁹ *Id.* at 21; April Klazema, *Types of Fossil Fuels and Their Uses*, UDEMY BLOG (June 11, 2014), <https://blog.udemy.com/types-of-fossil-fuels/>.

²¹⁰ Klazema, *supra* note 209.

²¹¹ Maugeri, *supra* note 207, at 17.

²¹² Maugeri, *supra* note 207, at 4.

²¹³ Klazema, *supra* note 209.

²¹⁴ *Id.*

²¹⁵ Maugeri, *supra* note 207, at 37.

²¹⁶ Klazema, *supra* note 209.

²¹⁷ Carbon Tax Center, *supra* note 122.

²¹⁸ Klazema, *supra* note 209.

²¹⁹ Carbon Tax Center, *supra* note 122.

²²⁰ Maugeri, *supra* note 207, at 40.

²²¹ *Id.*

²²² *Id.* at 49.

²²³ Carbon Tax Center, *supra* note 122.

²²⁴ Klazema, *supra* note 209.

above coal in terms of consumption.²²⁵

b. Limitation on Fossil Fuels

The amount of oil, coal, and natural gas beneath the earth is not infinite.²²⁶ Many countries have reserves of fossil fuels, demonstrating there is still a lot left.²²⁷ Nonetheless, there is little certainty as to how much is left and experts rely on estimations.²²⁸ Some thought the United States would exhaust all of its oil by 1930, but eighty-six years later, the United States is still producing oil.²²⁹

c. The Effects of Fossil Fuels on Public Health and the Environment

All fossil fuels contain carbon dioxide that emit greenhouse gases into the atmosphere, and carbon dioxide emissions accounted for 78% of global warming emissions in the United States in 2014.²³⁰ Other air pollutants, emitted by fossil fuels include sulfur dioxide, nitrogen oxides, soot, and mercury.²³¹

Fossil fuels have a tremendous impact on human health. Sulfur dioxide increases the likelihood of suffering from pulmonary infections, nasal congestion, and asthma, while nitrogen oxides increase the likelihood of suffering from asthma, bronchitis, and other respiratory diseases.²³² Soot is more harmful than sulfur dioxide and nitrogen oxides and contributes to bronchitis, asthma, and premature death – causing 13,200 deaths in 2010.²³³ Other hidden health risks caused by fossil fuels include: neurological and neurobehavioral problems in children caused by the consumption of mercury contaminated fish; lung, cardiovascular, and kidney disease, as well as low birth rates caused by surface mining; and cancer, mutations, and neurological, cardiovascular, endocrine, and immune system issues caused by oil fracking.²³⁴

Each fossil fuel also harms the environment. Aside from greenhouse gas emissions, much environmental harm from coal comes from underground and surface mining.²³⁵ Underground mining causes acid mine drainage and

²²⁵ Maugeri, *supra* note 207, at 81–82.

²²⁶ Klazema, *supra* note 209.

²²⁷ Maugeri, *supra* note 207, at 35, 55, 83.

²²⁸ *Id.* at 4; *Energy Explained: Your Guide to Understanding Energy*, U.S. ENERGY INFORMATION ADMINISTRATION (2015), http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_reserves; *Coal Explained: How Much Coal is Left*, U.S. Energy Information Administration, http://www.eia.gov/energyexplained/index.cfm?page=coal_reserves (last updated June 17, 2016).

²²⁹ Maugeri, *supra* note 207, at 4.

²³⁰ *The Hidden Costs of Fossil Fuels*, UNION OF CONCERNED SCIENTISTS (August 30, 2016), <http://www.ucsusa.org/clean-energy/coal-and-other-fossil-fuels/hidden-cost-of-fossils#bf-toc-3>.

²³¹ *Id.*

²³² *Id.*

²³³ *Id.*

²³⁴ *The Hidden Costs of Fossil Fuels*, *supra* note 230.

²³⁵ *Id.*

possible mine fires, and surface mining results in mudslides, landslides, flash floods, and a loss of streams.²³⁶ Both affect water flow, that in turn affect the ecosystems in streams and rivers nearby.²³⁷ Oil fracking and gas drilling, by their inherent characteristics, negatively affect the surrounding environment through the processes used to extract oil and natural gas.²³⁸

The health and environmental consequences of fossil fuel leads to significant costs. The health costs directly attributed to soot alone is approximately \$100 billion per year.²³⁹ Health costs related to illnesses, premature mortality, wage losses, and other healthcare system costs are roughly thirty-two cents per kilowatt-hour for coal, thirteen cents per kilowatt-hour for oil, and two cents per kilowatt-hour for natural gas.²⁴⁰ Regarding pollution costs, the combustion of coal and other volatile organic compounds costs \$187 billion each year, roughly 9.3 cents per kilowatt-hour.²⁴¹ Emissions of sulfur dioxide, nitrogen oxides, and soot cost \$62 billion in 2005, costing 3.2 cents per kilowatt-hour.

d. Subsidies for the Use and Production of Fossil Fuels

In 2012, it was estimated nearly \$400 billion in subsidies were distributed to fuel industries for the use and production of fossil fuels,²⁴² making them the third highest subsidy in the United States.²⁴³ Providing these subsidies allows prices to stay low;²⁴⁴ however, keeping prices low is harming renewable energy resource development because there are better financial incentives to keep producing fossil fuels.²⁴⁵ Some of the companies benefitting from these subsidies are BP, Chevron, and ExxonMobil – “some of the world’s most profitable corporations.”²⁴⁶ This makes it a difficult argument to say that providing the third highest amount of subsidies to these companies is necessary for a profitable business to continue. Former President Barack Obama attempted to lower these subsidies, but Congress consistently rejected his changes.²⁴⁷ An argument relating to carbon tax is applicable here, and that is “[e]ven the most environmentally concerned policymakers are reluctant to implement a carbon tax or cap-and-trade regime that could jeopardize the economic wellbeing of their constituencies and,

²³⁶ *Id.*

²³⁷ *Id.*

²³⁸ *Id.*

²³⁹ *Id.*

²⁴⁰ The Hidden Costs of Fossil Fuels, *supra* note 230.

²⁴¹ *Id.*

²⁴² Wold, *supra* note 204, at 356–57.

²⁴³ Norman Myers & Jennifer Kent, *Perverse Subsidies: How Tax Dollars Can Undercut the Environment and the Economy* 66 (Island Press 2001).

²⁴⁴ Wold, *supra* note 204, at 356–57.

²⁴⁵ Wold, Wilson, & Foroshani, *supra* note 185, at 637.

²⁴⁶ Wold, *supra* note 204, at 310, 358 (discussing President Obama’s numerous efforts to address climate change).

²⁴⁷ Wold, *supra* note 204, at 357.

subsequently, their own political future.”²⁴⁸

Subsidies are meant to encourage the development of an industry that is beneficial to the public.²⁴⁹ It would seem beneficial for the costs of fossil fuels to remain low, but as stated above, there are numerous consequences to using fossil fuels. Using fossil fuel subsidies for the development of renewable energy resources would benefit the public on a much larger scale²⁵⁰ because it would increase “air quality, human health, and [address] climate change,” all while keeping the costs of use and production low.²⁵¹ However, subsidizing the use and production of fossil fuels will continue to put those benefits on hold.²⁵² As described by Faith Birol, a Turkish economist and energy expert, fossil fuel subsidies are “the appendicitis of the global energy system, which needs to be removed for a healthy, sustainable development future.”²⁵³

e. Wind Turbines and Environmental Impact

Carbon dioxide contributes to 78% of global warming emissions, whereas renewable resources only contribute to 1%. The primary purpose of utilizing wind turbines to produce electricity is to protect the environment and benefit mankind through better air quality. As evidenced in Wyoming, once wind turbines are taxed, building wind turbines becomes too costly and investors no longer want to invest. With no sources of income and subsidies being used for the production and combustion of fossil fuels, it has become impossible for wind turbines to compete. Many costs associated with fossil fuels are hidden – for instance, one is not likely to immediately attribute an illness to air pollution. But for wind turbines, costs are seen immediately because of high construction costs, making wind energy look more expensive.

Where renewable resources will be cheaper in the long-term, and do not have the negative health and environmental risks or costs associated with fossil fuels, the question becomes why the government would not want to stop subsidizing fossil fuels and start subsidizing renewable energy? While states like Wyoming discourage wind turbine production through taxation and encourage the use of fossil fuels, the environment and every human being suffers. In order to protect the environment and mankind, it is necessary for Wyoming to remove its excise tax on wind energy and subsidize it instead.

²⁴⁸ Mormann, *supra* note 129, at 930.

²⁴⁹ Myers & Kent, *supra* note 243, at 5..

²⁵⁰ Wold, *supra* note 204, at 358.

²⁵¹ Wold, Wilson, & Foroshani, *supra* note 185, at 645.

²⁵² See Wold, Wilson, & Foroshani, *supra* note 185, at 636; Mormann, *supra* note 129, at 920.

²⁵³ David Roberts, *IEA Stunner: Global Subsidies to Dirty Energy Top \$550 Billion a Year*, GRIST (June 8, 2010), <http://grist.org/article/2010-06-07-ica-stunner-global-subsidies-dirty-energy-top-550-billion-year/>.

IV. CONCLUSION

Based on the foregoing – that a tax on the generation of electricity from wind turbines goes against public policy by taxing an intangible resource, that this tax is not comparable to other forms of taxation we see today, that this tax is inherently different from taxes on fossil fuels, and that the tax will create/continue a negative environmental impact – it is time to start encouraging renewable energy development with some rigor and disallow taxation on the generation of electricity through wind turbines, or at least recognize that a tax on wind turbines is premature.

It is vital that legislatures see the differences between wind turbines and fossil fuels. It is time to stop only committing to short-term goals²⁵⁴ and for governments to come together to implement and carry out a plan involving long-term objectives, globally – objectives that will not only create thousands of jobs and stimulate the United States' economy, but will also allow for a healthier environment.²⁵⁵ As Canadian Prime Minister Justin Trudeau stated, "There is no hiding from climate change. . . . It is real and it is everywhere. We cannot undo the last [ten] years of inaction. What we can do is make a real and honest effort – today and every day – to protect the health of our environment"²⁵⁶

²⁵⁴ Muller & Hoerner, *supra* note 126, at 13.

²⁵⁵ See Wold, *supra* note 204, at 355.

²⁵⁶ Rob Gillies, *Trudeau Says Canada to Implement Carbon Tax*, THE BIG STORY (October 3, 2016), <http://bigstory.ap.org/article/15d477e7fff34875a7fa3b3acd7ed322/trudeau-says-canada-implement-carbon-tax>.