Economic and Cultural Impacts of Wind Farm Developments on Native American Lands

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Abstract

Wind farm developments generate substantial profit in wind resource-rich tribal areas of the United States. By analyzing prior instances of wind farm development on or near Native American tribal lands in the United States, this paper hopes to uncover their economic and cultural impacts. The expansion of wind energy does not always have all positive effects. By unraveling some of the obstacles that face development in some favorably windy Native American areas, one can understand and implement methodologies leading to overall success for all relevant parties involved. Using a social construction of technology (SCOT) approach, this research assesses the positive and negative effects of wind developments on Native Americans' economics and culture. Under the correct circumstances, wind farm developments can lead Native American tribes toward long-term economic success while avoiding the degradation of their cultural beliefs, practices, and history. However, there are always some complications and limitations that stand in the way of these developments, whether financially or aesthetically, and they must be noted.

Introduction

As the world begins to realize the dire consequences of global warming, countries across the globe face mounting pressure to implement renewables with haste. Under the 2015 Paris Agreement, nearly all the world's 195 countries committed to shifting towards net-zero emissions and limiting the global temperature increase to under 2 degrees Celsius this century (United Nations, 2021). Many have embraced wind energy to meet these goals. "Over the past decade, wind turbine use has increased more than 25 percent per year" (National Geographic, 2021). However, further expansion of wind developments is limited by both the technological advancement and social implications of their implementation.

Wind farm siting can be a complicated process. Neighbors of wind farms often complain of the visual aesthetics, noise, and flickering shadows caused by spinning blades. (U.S. Department of Energy, n.d.) To avoid opposition, many wind power developers look for sparsely populated areas to establish new wind farms. Many Native American tribal lands, sparsely populated and rich with wind resources, are prime candidates for development. Yet in tribal areas, such projects may be opposed as unwelcome intrusions on ancestral lands. While some tribal members typically welcome wind farms, others oppose them, especially near cultural sites. This paper hopes to explore the economic benefits and cultural detriments of wind farm developments on or near Native American tribal lands, improving the ability of wind developers to find success in expanding wind energy use.

The purpose of this paper is to unravel some of the obstacles that face wind farm developments as the world races to switch to sustainable energies. Specifically, this research hopes to shed light on the issues developers face while siting wind farms near or on indigenous peoples' lands in the United States, using a social construction of technology (SCOT) analysis.

Indigenous peoples, in this context, refer to the historical inhabitants of a given territory who continue to reside there, often labeled Native Americans in this research. Developers refer to renewable energy companies hoping to start new projects and find the best possible places for setting up utility-scale wind farms. Other participants range from local, state, and federal government agencies to historical societies and activist groups. In short, this research looks to explore the relationship between Native American society and expanding wind farm development technologies.

History of Native American Abuse

Native American peoples have suffered a long history of abuse and neglect in the centuries since the Europeans' discovery of the Americas in 1492. During that time, Native American tribes "ceded millions of acres of land that made the United States what it is today, and, in return, received the guarantee of ongoing self-government on their own lands" (National Congress of American Indians, n.d.). More than 500 sovereign tribal nations continue to hold formal nation-to-nation trusts with the United States federal government today. Each tribe utilizes its lands to support critical elements of Native American culture, including subsistence farming, economic development, and sacred tribal practices. With many of these tribes located in the favorably windy great plains region of the United States, wind farm developers look fondly upon these large swaths of land as opportunities to profitably expand clean energy use. According to the United States Department of Energy, new wind power from tribal lands alone could satisfy 32% of U.S. electricity demand (National Congress of American Indians, n.d.), an enticing clean energy market opportunity for those willing to pursue it.

It is important to consider that living conditions on many Native American reservations are characterized by poverty. Many families lack access to electricity, running water, and dependable food sources. From a quantitative perspective, recent estimates suggest that the poverty rate for American Indians living on reservations is 29.4 percent. This statistic is much higher than the United States national average poverty rate of 15.3 percent and may come as a shock to many who do not realize the extent of this disparity (U.S. Department of Health and Human Services, 2012). To soothe their adversities, some tribes have embraced wind energy as a solution. Tribes have found that they can generate income by either investing in the development of wind farms on their lands themselves or leasing portions of their land to those willing to do so, through an agreement called a wind and solar resource lease (U.S. Department of the Interior, n.d.). This has been mutually beneficial for many tribes, clean energy investors, and wind energy development companies. On the other hand, some native tribes have struggled with the impact of these developments on or near their lands and see them as part of the continued degradation of their culture's sacred traditions and ways of life.

Economic Benefit

Bearing in mind the vast abundance of wind energy potential on Native American lands, it is important to first consider the economic benefits wind developments can provide for these underserved communities. One excellent example of wind development success on tribal land is apparent in the coalition of six Native American tribes from North and South Dakota who banded together to create the Oceti Sakowin Power Authority or OSPA for short. By consolidating resources, OSPA has been able to take huge steps toward its goal of bringing "over one gigawatt of renewable energy production, sustainable development, and jobs" to their

communities in the Great Plains region (Oceti Sakowin Power Authority, 2022). Together, the tribes' unique joint venture hopes to sustain shared Native American values and stimulate long-term economic benefits for their tribes.

Rather than earning royalties as passive landowners leasing land to wind developers, OSPA has been clear in its intentions to have true ownership in their utility-scale wind and other renewable energy projects. By consolidating finances and other resources, OSPA has been able to do just that and keep majority ownership of their projects. As a result, OSPA tribes have reserved their ability to make decisions with respect to their developments, maintain transparency, and engage with partners that respect their cultural beliefs (Cedar, 2021). Furthermore, they have been able to qualify their coalition for non-profit status in the eyes of the United States federal government, a huge tax break for the costs of wind farm development.

Currently, OSPA is working on finalizing its first two projects in pursuit of its one-gigawatt production goal: the 450-megawatt Ta'Teh Topah and 120-megawatt Pass Creek site projects. It's estimated that the tribes could receive more than $20 million in tax revenue from these first two projects on top of additional millions to be earned from lease revenues of the sites. Lyle Jack, OSPA Board Chairman and member of the Oglala Sioux Tribe, stated at the beginning of these projects that "the Oglala Lakota people have always been concerned stewards of the earth, and we are excited to bring economic development, jobs and clean energy to the Pine Ridge Reservation and the greater Bennett County area" (Hunt, 2018). With their profits, OSPA hopes to invest in similar projects and increase revenue in order to ultimately invest back into tribal communities. Clearly, replicating the strategy of OSPA is an exceptional opportunity for Native American tribes to not only support their long-term economic development but also take part in the global battle against climate change and greenhouse gas emissions.

Cultural Detriment

While many will point to the economic benefits that wind developments can provide for Native Americans, others will highlight the intangible costs they impose on what remains of Native American culture in the United States. One example of this comes from the Upper and Lower Sioux tribes in southwestern Minnesota, where communities were divided over a proposed nearby wind farm development by Apex Clean Energy. Based in Virginia, Apex is a relatively young company, yet owns one of the largest portfolios for renewable energy assets in the United States. Guided by their mission to "accelerate the shift to clean energy" (Johnson, 2019), their Big Bend Wind project, in association with their Red Rock Solar project, proposed the construction of a hybrid renewable energy plant which would have been one of the largest in the state of Minnesota. The project detailed plans to install 55 turbines on approximately 27 acres of land, enough to generate around 300 megawatts of electricity (Brooker, 2021). While certainly essential for making meaningful strides against climate change, projects like Big Bend Wind can also take a toll on the experience and visual aesthetic of nearby lands. In this case, the project threatened the Jeffers Petroglyphs, a long-held cultural site of the Upper and Lower Sioux communities as well as other nearby tribes.

Located just a few miles down the road from the proposed wind development, Jeffers Petroglyphs is home to around 5,000 rock carvings made by ancestors of today's Native Americans (Minnesota Historical Society, n.d.). Speaking on behalf of their cultural significance, Joe Williams of the Sisseton Wahpeton Oyate tribe notes that the most important thing to take away from the petroglyphs is just how long they have been there (Minnesota Historical Society, 2015). A monument to nearly 7,000 years of their history, Jeffers Petroglyphs has been a spiritual

haven for the Upper and Lower Sioux, Sisseton, and other nearby tribes for an incredible period of time. Therefore, when Apex originally planned to build their closest turbines only two miles from the site, opposition from nearby tribes was unsurprisingly widespread. Responsible for the upkeep of the petroglyphs, historical preservation officials at the Minnesota Historical Society joined nearby tribes in the criticism of Apex's original plan. David Briese, the site manager of Jeffers Petroglyphs for the Minnesota Historical Society, acknowledged that there is already a wind farm with 15 turbines located eight miles from the site, visible in the distance on a clear day. However, Apex's development would have introduced much larger and closer turbines, all visible from everywhere on the property. Emphasizing just how impactful Apex's development would be, he concluded that "you would be looking at a forest of wind turbines," (Brooker, 2021) taking away some of the spirituality and sanctity of the site.

Deliberations with Apex led to a revised plan with their closest turbines five miles away from the site. However, this change was offset by plans to make the turbines taller and larger. Nearby tribes and the Minnesota Historical Society again protested, and Apex was brought back yet again to the negotiation table. Most recently in September 2021, as reported by a community announcement to the Lower Sioux, Apex has agreed "to not apply for additional permits to develop wind turbines within 8 miles of the Jeffers Petroglyphs," with some exceptions (Lower Sioux Community, 2021). However, Big Bend Wind is still awaiting approval from the Minnesota Commerce Department, responsible for administering permits to wind developers in the area (2021).

Analysis

After considering instances of both economic benefit and cultural detriment to Native American tribes, it is undeniably evident that wind developments have a significant impact on their surrounding areas. Under ideal conditions, tribes can use the profit from wind farm developments on their lands to reinvest into their communities, often some of the most impoverished in the United States. OSPA's success offers a guidebook to others who wish to reap the welfare wind farm developments on tribal lands can provide. By forming more non-profit partnerships between tribes and emphasizing majority ownership, others can also enjoy the long-term economic benefits of their wind resource-rich areas.

On the other hand, the seemingly altruistic nature of clean energy wind farm developments can blind some to their cultural impact, as seen in the case of the Jeffers Petroglyphs. Although Apex and nearby tribes eventually settled to terms in such a difficult situation, other dilemmas like it may not be so easy to solve. Looking at other parts of the world, researchers have investigated instances of wind developments troubling indigenous peoples before. Rubiano (2021) found that the Colombian government is currently constructing five wind turbines in the La Guajira desert, ancestral lands of the Wayúu, without informing their communities of planned developments. In other research, Lawrence (2014) explored "contestations between the Saami people and the Swedish state" over the industrial encroachment of wind power developments on Saami lands, while Hunt and others (2021) debated whether wind power developments in northern Australia "enhance or inhibit" the capabilities of nearby Aboriginal communities. In all these instances, negotiations between wind developers and indigenous peoples have yielded diverse results, some less ideal than others. By

contemplating the faults of these cases, one can have a better understanding of how to approach issues arising from the development of wind farms on Native American lands.

In short, wind developers sometimes lack awareness of the disturbances wind developments bring to indigenous peoples' sacred lands and culture. At the same time, indigenous peoples lack strong partnerships allowing them to develop wind farms on their terms and in their best long-term economic interest.

Counter Argument

While many would agree that wind developments on tribal lands can be a great opportunity to spur economic growth in Native American communities, others might argue that they actually limit economic potential. In instances where tribes merely receive royalties from leasing land to developers and clean energy investors, one would be correct. However, it is indeed possible for Native American tribes to take majority ownership of potential wind developments on their lands, use revenues to expand, and foster long-term economic prosperity, as proven by the OSPA coalition. With a proper allocation of financial resources, tribes can use their valuable wind resource to establish themselves in the market for energy demand.

Conclusion

Given the impending consequences of climate change, the world has no choice but to come together in pursuit of a quick transition to renewable energies. By examining the obstacles that face further wind energy development through SCOT, one can begin to work towards this larger goal. In the case of this research, uncovering the impact prior wind developments have had on wind resource-rich Native American lands and their tribes' cultures can improve techniques

for appropriately expanding wind energy use without harm in the United States. Coalitions like OSPA as well as developments near sites like the Jeffers Petroglyphs exemplify what methodologies should be encouraged and avoided in wind development. Under the correct circumstances, wind developments on tribal lands not only offer an impactful means of battling climate change but can also provide pathways to long-term economic success in many long impoverished Native American areas.

References

Brooker, J. (2021, May 18). A clean energy proposal near a sacred indigenous site divides a Minnesota community. https://grist.org/energy/a-clean-energy-proposal-near-a-sacred-indigenous-site-divides-a-minnesota-community/

Cedar, S. (2021, March 4). A just energy transition in action: Developing 1G of wind power with tribes. https://www.greenbiz.com/article/just-energy-transition-action-developing-1g-wind-power-tribes

Hunt, J., Riley, B., O'Neill, L., & Maynard, G. (2021, April 03). Transition to Renewable Energy and Indigenous People in Northern Australia: Enhancing or Inhibiting Capabilities? *Journal of Human Development and Capabilities,* Web of Science.

Hunt, M. (2018, December 11). Public meeting held for Pass Creek Wind. Retrieved May 2, 2022, from https://bennettcountyboostersd.com/news/3732-public-meeting-held-for-pass-creek-wind

Johnson, C. (2019, July 22). Bringing Clean Energy Home to Virginia. https://www.apexcleanenergy.com/article/bringing-clean-energy-home-virginia/

Lawrence, R. (2014). Internal colonisation and Indigenous resource sovereignty: Wind power developments on traditional Saami lands. *Environment and Planning D: Society and Space*, Web of Science.

Lower Sioux Community. (2021, September 16). Community Announcement. https://lowersioux.com/community-announcement/

Minnesota Commerce Department. (2021). Big Bend Wind Project. https://mn.gov/eera/web/project/14153/

Minnesota Historical Society. (2015, April 27). Jeffers Petroglyphs: History of the people. https://www.mnhs.org/media/news/5114

Minnesota Historical Society. (n.d.). Mission, Vision, Values & Strategic Priorities. https://www.mnhs.org/about/mission

Minnesota Historical Society. (n.d.). The Rock. https://www.mnhs.org/jefferspetroglyphs/learn/rock

National Congress of American Indians. (n.d.). Energy & Minerals. https://www.ncai.org/policy-issues/land-natural-resources/energy-and-minerals

National Congress of American Indians. (n.d.). Tribal Governance. https://www.ncai.org/policy-issues/tribal-governance

National Geographic. (2021, May 03). Wind Power. https://www.nationalgeographic.com/environment/article/wind-power?loggedin=true

Oceti Sakowin Power Authority. (2022). Banding Together to Create Energy History. https://www.ospower.org/

Rubiano, M. P. (2021, May 19). Indigenous lands can be ground zero for a wind energy boom. https://www.greenbiz.com/article/indigenous-lands-can-be-ground-zero-wind-energy-boom

ScienceDirect. (n.d.). Social Construction of Technology. Retrieved May 2, 2022, from https://www.sciencedirect.com/topics/social-sciences/social-construction-of-technology

United Nations. (2021). The Paris Agreement. https://www.un.org/en/climatechange/paris-agreement

U.S. Department of Energy. (n.d.). Advantages and Challenges of Wind Energy. https://www.energy.gov/eere/wind/advantages-and-challenges-wind-energy

U.S. Department of Health and Human Services. (2012). American Indians and Alaska Natives - By the Numbers. https://www.acf.hhs.gov/ana/fact-sheet/american-indians-and-alaska-natives-numbers#:~:text=The%20poverty%20rate%20for%20American,poverty%20rate%20of%209.2%20percent.

U.S. Department of the Interior. (n.d.). Native American lands: Natural resource production. Retrieved May 2, 2022, from https://revenuedata.doi.gov/how-revenue-works/native-american-production/