Anti-Wind Power Rhetoric and the Communication of Environmental Conflicts in Central Indiana

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Introduction and Statement of Purpose

Responding to climate change and looming energy crisis within the next decades will require a large-scale shift to renewable energy generation. The Midwest's large, flat expanses of land are an ideal location for wind power investment in the U.S. and new turbine projects are increasingly being pursued in these states (Jossi, 2017). The influx of wind developers moving into the region has coincided with the Midwest's largest flooding and hottest years on record (Dolce, 2019). These events have been disastrous for much of the agriculture in Corn Belt states, simultaneously rattling small-town economies. However, there is a looming obstacle to a renewables transition in the central U.S.; these same communities are also home to the most active, vocal, and outraged opponents to wind energy. Anti-wind activism groups are remarkably diverse coalitions of community members opposed to wind development who rely on appeals to science, public health, public safety, anti-corporate rhetoric, and environmental concerns to make their case against wind turbines.

However small, these groups of local anti-wind activists have had some success in either limiting or outright banning the adoption of wind power in their localities. Previously zoning-free towns in Indiana have recently introduced zoning regulations that require setbacks large enough to ban turbines within the county (Haggerty, 2019). These changes would point to a considerable roadblock to a transition to renewables. The small towns who are best-suited to implementing wind energy are mounting an impassioned resistance against the so-called "Big Wind" corporations they see as a threat.

I will address the following research question: How do public-facing anti-wind power campaigns in central Indiana use value-laden messaging to influence the local public policy around wind power adoption? An analysis of posts on anti-wind Facebook groups (dedicated to

Cass County and Jasper County, Indiana) will contribute to answering the question. For comparison, this will include an analysis of the corresponding counties' publicly available meeting minutes of public comments given at Planning Commission meetings where wind power ordinances were discussed.

Background

The Midwest has a large potential for wind power generation and has increasingly become an area of interest for renewable energy development– in 2016 the region made up 89% of American wind energy investment (Jossi, 2017). However, new project proposals are increasingly being met with strong opposition, especially in rural areas. This creates a problem for any local government or individual interested in welcoming wind power. Turbine siting is almost entirely controlled at the local level, primarily through county zoning regulations and "in many cases they include some requirement for community input into the process, including environmental assessment, notice, public comment, and public hearings (Stanton, 2012), although some states have limited public participation mandates (Geißler, Köppel, & Gunther, 2013)" (Firestone, et al., 2017).

Broadly favorable public views of wind power in North America and Europe originally lead the industry to believe that community-based opinions would be equally favorable (Rand & Hoen, 2017). Many early studies of wind power attitudes or acceptance only measured broad opinion. Since wind power siting decisions are made on the county level, resistance located in these key geographic and lower populated areas of wind power potential may be lost in studies using broad sweeping survey data. Several researches have acknowledged this problem. A diverse set of methods for studying wind power resistance has emerged over the years. "Not in

my backyard," or NIMBY, analysis was popular in earlier research on wind power siting acceptance, but recent work has found that framework to be lacking explanatory power for the varying degrees of acceptance across geographic location, age, and notions of fairness or equality (Sovacool, 2009). The simplicity of the NIMBY approach obscures the aspects of game theory and psychology that are often at play in community opposition (Sovacool, 2009). In fact, NIMBY analyses revealed that individuals with positive general opinions of wind power and individuals mounting local resistance to specific projects rarely overlapped (Sovacool, 2009). The large scope of surveys of national opinions on wind power as a general concept produced positive-leaning results that overshadowed smaller pockets of localized resistance to specific projects (Sovacool, 2009). Firestone et al. (2017) falls into this category because the results show a generally favorable public attitude towards wind power across the nation. This strengthens the argument that a deeper understanding of localized resistance is important to unearth the obscured "values" that the paper identifies. The research leaves "values" undefined and does not explore which ones might be at play in wind power opinions. Instead, "values" is used as an abstract term to explain differences in acceptance between cultures and the paper states "our findings might be best summed up as: 'it's the public process, the developer, aesthetics and general wind power attitude/clean energy values'" (Firestone, et al., 2017). Clearly, the largest study of U.S. attitudes towards wind power indicates that values play an important role in acceptance or opposition, but the questions of which values matter or how they are used is unanswered.

Now considered a "self-evident" fallacy of wind power siting, the NIMBY theory has also proven to hold slightly pejorative connotations that often prevent wind power experts from taking a more nuanced approach to understanding resistance (Wolsink, 2012). In particular, Maarten Wolsink has written extensively about the harm of using NIMBY as an explanation for

wind power resistance. Among them, Wolsink identifies that NIMBY theories confuse "public," for "social," a difference that is key to understanding the gap between positive attitude results in survey studies and persisting local-level opposition (Wolsink, 2012). Instead, social acceptance is what most research should aim to measure; it "concerns decisions, affirmative as well as negative, at all scales and levels," and that understanding of social acceptance informs the analysis of anti-wind zoning decisions in this paper (Wolsink, 2012).

Rand & Hoen's review of the history of wind power acceptance research identifies the following litany of general categories that studies have addressed in an attempt to understand acceptance or opposition: socioeconomic aspects, sound/annoyance and health risk perceptions, visual/landscape aspects, and place attachments; environmental concerns and attitudes; perceptions of planning process, fairness, and trust; distance from turbines (proximity hypothesis); other potential correlates of acceptance (Rand & Hoen, 2017). However, while identifying these categories explains the content of local objections to wind power, it does not explain how those objections are formed and communicated. Research is still trying to grapple with what drives a community's place attachment or perception of fairness. What values are at play when a small town drastically changes its zoning laws specifically to ban turbines? Understanding the values inherent to the construction of opposition to wind power is critical to knowing how to address it.

Literature Review

This analysis will draw upon and be informed by the following literature bases: studies of public opinion surrounding wind power or low-carbon energy solutions, value analyses, and studies of environmental communication.

The beginning of the field emerged in the 1980s and focused first on industry failures to understand local stakeholders and the importance of aesthetics (Rand & Hoen, 2017). Since then, a wide variety of methodological approaches to measuring acceptance have emerged along with a corresponding variety of theories behind public opinion and wind energy. In order to connect two often-distanced disciplines, this analysis will include studies and tools from communications theory (specifically surrounding environmental controversies) to inform its methods. This is an area not included in Rand & Hoen's comprehensive survey of the topic; there is a gap in the literature base surrounding analysis and understanding of how value statements get communicated and replicated in local opposition. According to this 30-year survey of the literature, the primary missing piece of research was a nation-wide survey of American public opinion on wind power to gauge acceptance levels in the same way that many European countries had (Rand & Hoen, 2017). A national survey was performed in 2016 and 2017 in Firestone et. al.'s survey of over 600 U.S. wind projects and the residents living within 8 kilometers of those projects (Firestone, et al., 2017). The results showed a close relationship between developer transparency, active stakeholder engagement in the planning process, and positive acceptance of wind energy projects (Firestone, et al., 2017). As the widest-reaching national survey of wind power acceptance, the results should be taken seriously as guidance for understanding community attitudes, but (as mentioned above) "general wind power attitude/clean energy values," as a correlate of wind power acceptance is too vague to provide an understanding of how or why values matter. This is where a closer evaluation of values in coordinated wind power opposition groups can deepen the meaning of much of the quantitative research already done on the topic.

One attitudes survey was done on three Indiana counties where wind power is quickly becoming an emerging local policy question. Mulvaney et. al. surveyed Benton, Boone, and Tippecanoe counties and found a potential "democratic deficit," or the process in which public support for a project or technology is high, yet development of the project is blocked by a vocal minority (Bell, Gray, & Haggett, 2005; Mulvaney, Woodson, & Prokopy, 2013). According to the results of the survey data, this is likely the case in the three Indiana counties sampled. Both general support for wind energy and support for wind power siting within residents' counties were high (75% of total respondents and 88% of respondents, respectively) (Mulvaney, Woodson, & Prokopy, 2013). However, the survey included the potential to respond with qualified answers, or "support with reservations" and "don't support with reservations," which might indicated that large portions of the supporting and opposing populations are fluid or potentially flexible in their stance on wind energy (Mulvaney, Woodson, & Prokopy, 2013). Overall, Mulvaney et. al. concluded that local governmental development of wind energy does not match the seemingly high levels of acceptance in a way that suggests the power of "democratic deficit" as a theory in these counties (Mulvaney, Woodson, & Prokopy, 2013). Democratic deficits in wind power siting are further explored in Bell et. al. 2005. Unfortunately, the literature lacks corresponding survey data for the counties included in the two cases presented here; however, investigating which values construct the opposition that vocal minorities bring to public officials will create a better understanding of why that opposition exists in the first place.

Where institutional analysis, public policy recommendations, and public acceptance studies intersect, the waters become muddy in terms of expert consensus. Some researchers in the public acceptance and institutional analysis fields have gone so far as to suggest that too

much importance is assigned to public opinions surrounding wind power; instead, they suggest that an institutional analysis should guide siting decisions (Wolsink, 1999). However, it has been clearly established that small local government, agenda-setting within institutions is influenced by outside, public factors of attention and interest-goup pressure (Liu, Lindquist, Vedlitz, & Vincent, 2010). The Facebook groups analyzed here also establish that citizen groups are actively creating and maintaining public-facing anti-wind power campaigns. But the current literature base is lacking an understanding of *how* these groups and campaigns are communicating their values to influence policy and siting decisions. This is where an analysis of the communications happening in anti-wind power Facebook groups can provide some insight into values communication.

It is necessary to define values so as to help understand how environmental communications and ethics identify of values and their uses. Often used to express worth, esteem, or utility, the concept of "a value" has meaning in a material and moral sense. Dietz, Fitzgerald, and Shwom in 2005 wrote a comprehensive analysis of the concept of values in environmental sociology, policy, and economics and their words are helpful for a definition here: "In everyday language, we use values in all three of these senses: what something is worth, opinions about that worth, and moral principles." Specific values were studied in this analysis with attention given to the way they were used to indicate worth, opinion, and principles.

The analysis of values and beliefs as a way of decoding support and opposition emerged from the Values, Beliefs, and Norms model (VBN model) developed to understand how individuals form attitudes towards new advances in environmental science (Stern, Kalof, Dietz, & Guagnano, 1995). Values influence beliefs (in this case about the environment) which "in turn influence attitudinal and behavioral norms" (Bidwell, 2013). Stern and Kalof's work emphasizes

that this influence on norms and attitudes help individuals and communities create attitudes about new "social objects," or the developments and changes in technology and environmental understanding that arise from advances (Stern, Kalof, Dietz, & Guagnano, 1995). Bidwell specifically applies this label of "social objects" to wind power projects and demonstrates how the VBN model can be useful to understand the core environmental values– egoistic values, altruistic values, traditional values, and biospheric values (Bidwell, 2013). Surveys of "general values and beliefs" underlying support and opposition for wind energy have found that local support tends to be tied to belief in economic benefits while opposition is more complex and often involves "traditionalism" values (Bidwell, 2013). Many have suggested that conflicting values between developers and local residents are the source of some of the strength of opposition to wind power (Ellis, Barry, & Robinson, 2007; Warren & Birnie, 2009; Szarka, 2004; Bidwell, 2013). This conflict is potentially framed in terms of "outside" intrusion of developers pitted against the local community in-groups of opposition and this framing often includes values-coded language that implies that developers hold different, potentially nefarious interests compared with those of the community (Jessup, 2010). Some have observed that earlier research in the field of wind power opposition/acceptance mistakenly coded the outsider/in-goup values divide as NIMBY-ism (now largely rejected, as noted above) (Jessup, 2010).

Following the theory of a Values, Beliefs, Norms model, values (whether explicit or hidden) play a large role in our choice of policy decisions. Dietz, et. al. write, "In measuring values to inform policy decisions, we have no direct way of assessing intrinsic value but have to rely on observations of human behavior, including statements about intrinsic value," (Dietz, Fitzgerald, & Shwom, 2005). A direct investigation of indirectly expressed values, like the one

presented here, is important to understand what has constructed policy choices in localities adopting or rejecting wind power.

Research Design and Methods

Design

This paper will be using case study design with qualitative analysis methods. Two cases are presented here: Jasper County and Cass County, both in Indiana. Cases were chosen based on the following criteria:

- Existence of a county-specific anti-wind Facebook group with ongoing activity
- Available public transcripts/record of zoning policy change discussions by county Planning Commissions or Boards of Zoning and Appeals
- Similar population size range for both counties (both comprise between 0.5%-1% of Indiana's total population) (Stats Indiana, 2018)

The requirements of county-specific anti-wind Facebook groups and publicly available transcripts were both important to ensure that each case had comparable material for the values analysis. Both Facebook groups and transcripts are necessary in order to establish the presence and content of public anti-wind discussion and to track if themes from anti-wind discussion are mirrored in zoning and county planning decisions. Having only one of both resources from each county would skew the comparative ability of this analysis and make any data gathered from either type of resource for that county meaningless without context.

A similar population size between both cases is necessary for two reasons. First, coordinated opposition (in this research, in the form of Facebook groups) requires the participation of willing members of the community. If community sizes between the two cases

are vastly different, the disparity would threaten the comparability of each county's public opposition efforts. It would be understandable if a larger county had a more successful or more active anti-wind group because the group simply had a larger local population from which to draw support. Second, decisions around wind power siting are often closely tied to concerns of population size and density. Regardless of local community's opinions on wind power, it is common for counties to have regulations requiring certain "set-backs" (distances from property lines or buildings) for industrial equipment and energy generation. In counties where the majority of would-be open land is taken up by urban areas or subdivisions, wind siting is either much more difficult or non-existent. It is important that the two cases have somewhat similar populations sizes to ensure that each county has similar potential for wind power siting. Here, the counties are considered comparable enough in size if both are within the range of 0.5%-1.0% of Indiana's total population (Stats Indiana, 2018).

Data Sources

Two main types of data source were used for each county. Communications examples were drawn from county-specific Facebook pages dedicated to anti-wind power messaging. Examples of local policy change discussions were drawn from transcripts or meeting minutes publicly published on county government websites. All examples of Facebook communication are time stamped and dated when the post was made; that information makes it possible to select only those posts that correspond with the same timeframe (in this case, month) of when the policy discussion occurred.

Transcripts and meeting minutes were downloaded directly from government websites in PDF form. Facebook posts, since not downloadable, were documented through screenshots of

each individual post available on the page's main landing. The screenshots were taken all on the same date and done chronologically, starting with the earliest available post made on the page for the chosen month (corresponding to the month when transcripts or meeting minutes were documented). Since this analysis is only focused on the communications of coordinated anti-wind power efforts and community groups, no comments from any Facebook post were analyzed as data (though some screenshots show comments).

Methods

The collected data was coded based on the four broad value categories outlined above: altruistic (red), egoistic (blue), traditional (yellow), and biospheric (green). During the coding process, detailed notes were made to name the sub-values, or traits, that emerged in each broader category. The broad categories come from Bidwell's four fundamental values that determine environmental attitudes, but the traits outlining each category are based on the analysis of Facebook data and public comments from the two cases here. Bidwell's more quantitative analysis of values does not detail the sub-traits within each broader value, so this analysis has outlined the recurring traits found in each value in order to better define the larger concepts (see *Results* section for a detailed table of large categories and the associated traits).

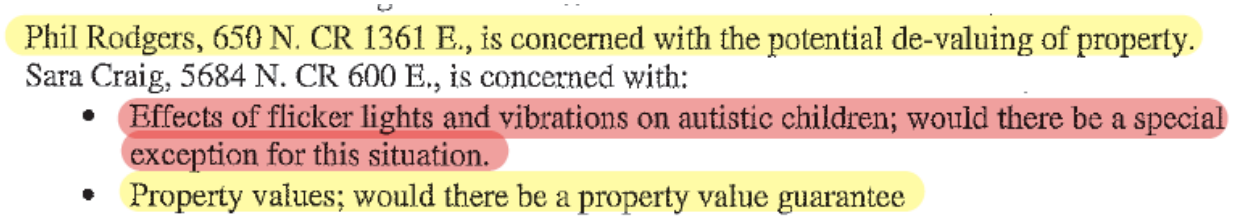
Though many posts were coded as being only one value category, a large portion of the posts from both pages were multi-coded as belonging to more than one value category. Multi-coding posts allowed the coding method to account for potential slippage between value categories; for example, the similar natures of the altruistic value category and biospheric category meant that multiple posts fell into both categories. This also created a more nuanced analysis of the complex messages contained in many of the Facebook posts. Additionally, not

every post or every public comment was coded as one of the value categories. This "uncodable" data often did not express values or an identifiable value-based message; much of it was informational announcements, or in the case of public comments, the transcript did not provide enough contextual information for the comment to be code-able.

The same coding system was used to categorize portions of public comments in the meeting minutes. Because the public meeting minutes, as data, are not divided into discrete data "points" like the Facebook posts are, there was no need to code any statement as multi-coded in more than one value category. Figure 1 shows an example of how coding was used to analyze the public minutes and divide single comments or statements into multiple portions assigned to different value categories.

Figure 1:

Example of Coding on Public Comment Data


Phil Rodgers, 650 N. CR 1361 E., is concerned with the potential de-valuing of property.
Sara Craig, 5684 N. CR 600 E., is concerned with:

- Effects of flicker lights and vibrations on autistic children; would there be a special exception for this situation.
- Property values; would there be a property value guarantee

Note. Public comment texts were coded by looking for instances of value expression or specific value traits.

After the first initial coding for all data was complete, a second-pass analysis was made where all of the previously-done coding was reviewed and checked against the value traits that were used to define value categories during the first coding. This ensures that the application of each value category remained consistent across all of the coded data and helps to minimize the

risk of coding errors. The final step in data analysis was to total the number of Facebook posts in each value category (including those posts that fell into multiple categories, so some posts counted multiple times) in order to determine which large values were most present in the anti-wind communications online. Post data on value category prevalence was then compared to the meeting minutes coding to determine which value categories were mirrored in public comment the most frequently.

Justification

Use of the VBN model is in line with the author's original intent and proposed application of their research into environmental attitude formation. The concept of wind power and wind turbines, in the cultural context of the rural Midwest, fits Stern et. al.'s definition of an emergent social object and the VBN model is an appropriate tool, which "can be used for analyzing the construction of individual's attitudes toward a wide range of emergent or transforming social objects" (Stern, Kalof, Dietz, & Guagnano, 1995). Since comprehensive quantitative data about wind power attitudes in these communities is not available, a case study model that applies a values-based analysis was the best option. The limited nature of a case study design allows for in-depth, rigorous data analysis that is more appropriate for the qualitative approach required for studying communication.

The choice of value categories was done with careful attention to the nature of wind power conflict as a combination of environmental controversy and local governance conflict. The four value categories used in this analysis have been established by the literature as being the most salient constructors of environmental attitudes and norms:

> "The VBN theory assumes that in some sense self-interest (called egoistic in the most recent version of the theory), humanistic altruism (called simply altruism), and biospheric altruism (called simply biospheric values) are the most fundamental determinants of environmental concern. They are fundamental in two senses. First, they are viewed as the most stable determinants of environmentalism across the life course. This also means they are hardest to change in the short run, but in the long run, value changes may have the most impact on decisions about the environment. Second, they are fundamental in that they are hypothesized as influences on worldviews and specific beliefs. This means that they have considerable leverage, but it also means that, net of other variables in the model, values have modest direct (but considerable indirect) influence on environmental decisions (8, 18)" (Dietz, Fitzgerald, & Shwom, 2005).

Dietz et. al. goes on to establish that traditional values should be included in value analyses because of their significant effect on environmental behaviors. Additionally, the frequency of traditional values expressed in the data indicated that an analysis that excluded traditionalism as a value category would be incomplete.

Validity

The case study design of this research limits its generalizability. The context-specific meaning inherent to a lot of the communication analyzed here cannot be widely applied as empirical evidence for all situations of anti-wind power resistance. The cultural context of rural Indiana embeds much of the online communication with very specific references and values that are not applicable in, for example, Mountain West communities where there might be similar anti-wind community opposition. However, the patterns of communication analyzed here might

be applicable elsewhere or might contribute to a method of understanding tools or forms of communication used to oppose low-carbon energy technologies.

The main validity threat comes from using public meeting transcripts as a data source. Inevitably, this record of the content and context of individual comments at public meetings is imperfect because it was filtered through the lens of the person(s) responsible for taking meeting minutes and notes. Besides the reality of human error, the nature of taking detailed minutes at a fast-paced public meeting means that this third-party filter also adds a layer of abbreviation, interpretation, or some alteration to the information. This is most evident in the meeting minutes from the Jasper County Plan Commission. Even though the available record shows that multiple community members showed up to give public comments, each comment has been reduced to a couple lines of abbreviated text that mainly focuses on the content of the individual's statement. It is possible that this type of data has excluded information that might be helpful to this analysis, for example personal anecdotes from community members or less-detailed, more abstract objections to the proposed wind ordinance amendments. Despite this validity threat, many of the public comments available were still robust enough to provide a comparison analysis for the Facebook posts. The content of each comment often included themes that made it possible to code certain portions of the meeting minutes text as falling into one or more of the value categories.

Results

Between Cass County Facebook data and Jasper County Facebook data, all value categories were present in the anti-wind turbine posts with multiple examples of each category in both single-coded posts and multi-coded posts. Table 1 is a breakdown of the prevalence of each

value category including un-codable posts and multi-coded posts. This means that although there were only 173 data points, the total of all value categories exceeds 173 because multi-coded posts were counted multiple times in different values.

Table 1:

Facebook Data Value Results

Value Category	Total Incidences
Altruistic	43
Egoistic	18
Traditional	87
Biospheric	10
Multi-coded	32
Un-coded	52

Note. Value incidences were totaled to combine the results of both Jasper and Cass counties.

For the public comment data, since the meeting minutes are not easily divisible into data points in the way that Facebook posts are, incidences of value categories were totaled in terms of coded portions of text (see: Figure 1). Between both counties, all value categories were present except for biospheric. There was no indication that any public comment was made about populations, habitats, environmental destruction, or any of the traits that indicated biospheric concern in the Facebook data. Again, the traditional and altruistic value categories were the most frequently-occurring.

Table 2:

Public Comment Data Value Results

Value Category	Total Incidences
Altruistic	14
Egoistic	1
Traditional	10
Biospheric	0

Note. Value incidences were totaled for both Jasper and Cass counties.

During the coding process, detailed notes were taken in order to define what traits of each value category emerged from the data. These traits were reoccurring messages, tropes, narratives, images, or types of language that exhibited the types of values being coded for. They help define how each value category was expressed in the specific context of this anti-wind turbine communication and form an important part of the analysis of each value in context.

Table 3:

Four Value Codes and their Traits Expressed in Anti-Wind Power Data

Value Category	Color	Traits
Altruistic	Red	• Expresses empathy, sympathy, or support for others or other communities • Concern for the health or safety of the general

		public (not directed towards oneself) • "good neighbor" language • Whistleblower-style language • "prayers" language
Egoistic	Blue	• Reader-oriented language • Appeals to defend personal interests or take action on behalf of oneself
Traditional	Yellow	• Security-oriented language • Support for the military/law enforcement • Support for conservative or anti-liberal politics • Financial or fiscal responsibility language or imagery • Emphasis on "reliability" over "unreliable" energy sources • Underdog conflict (big v. small, individual v. corporation) • Land rights/private property language • Place attachment or "heritage" language
Biospheric	Green	• Habitat concern • Species concern (primarily birds and bats)

		• "Destruction" language or imagery • "Endangerment" language • "Purity" language or images of pristine landscape • Expert credibility

Note. Specific traits will be defined further in the Discussion section.

Discussion

Traditional

The traditional value category was the most frequently-occurring value in the Facebook data and comprised a large portion of the coded public comment data. "Traditional," as a name for these values, is somewhat abstract and heavily context-dependent. In the case of this research, traditional means having some relation to what is culturally conservative in an American social and political context. In this case, the traditional value is best described by the traits identified in the analysis, two of which are more complex than the others and will be examined in-depth: underdog conflict and place attachment/ "heritage" language.

In previous research on values and environmental conflicts,

> "studies have generally found that those with strong traditional/conservative values tend to be less pro-environmental than others. . . Such results may indicate that environmentalism is perceived as contradicting conservative values by suggesting a move away from traditional patterns of behavior, and it may also be that conservative value items tap a general value frame that favors the market over government intervention and thus is resistant to government regulation that usually accompanies environmental policy" (Dietz, Fitzgerald, & Shwom, 2005).

There are certainly elements of both theories in the traits identified for the traditional value category. Anti-big-government sentiment was a portion of what this analysis identified as "underdog conflict." This was a reoccurring narrative in many of the traditional-coded posts and it is any "us versus them" messaging or storyline. It presented in many forms across the data: individual vs. corporation, citizen vs. big government, in-group members vs. outsiders or foreigners. Used as a trope, it invokes sympathy with the "us" and animosity against the "them." There is something nefarious implied by naming an opponent, even implicitly; it creates the image for a reader of a righteous battle that needs to be fought and hints at a sense of duty or valor for the "little guy."

Figure 2 is an example of a post that was coded as traditional and includes traits of the underdog conflict trope. The language emphasizes the size of "big wind companies" juxtaposed with the category of "residents." These companies are named as "overlords" and the narrative of the caption makes it clear to the reader that these corporations have dark intentions to get "easement to your whole farm." The post explicitly describes the large opponents and "how much power the wind companies would have over the land." The message of corporate greed is then automatically contrasted, in the same sentence, with language of "the people working" the land. The caption rhetorically crafts a picture of small farmers facing off against a large corporation, intent on stealing the land that is their livelihood. It is a familiar and personal storyline for rural communities. By creating a sense of injustice, the underdog trope subtly supports the security or protection language that is another trait of traditional values. For farmers, land is an incredibly costly investment and any threat to that investment from outsiders, in this case large corporations, should be protected against.

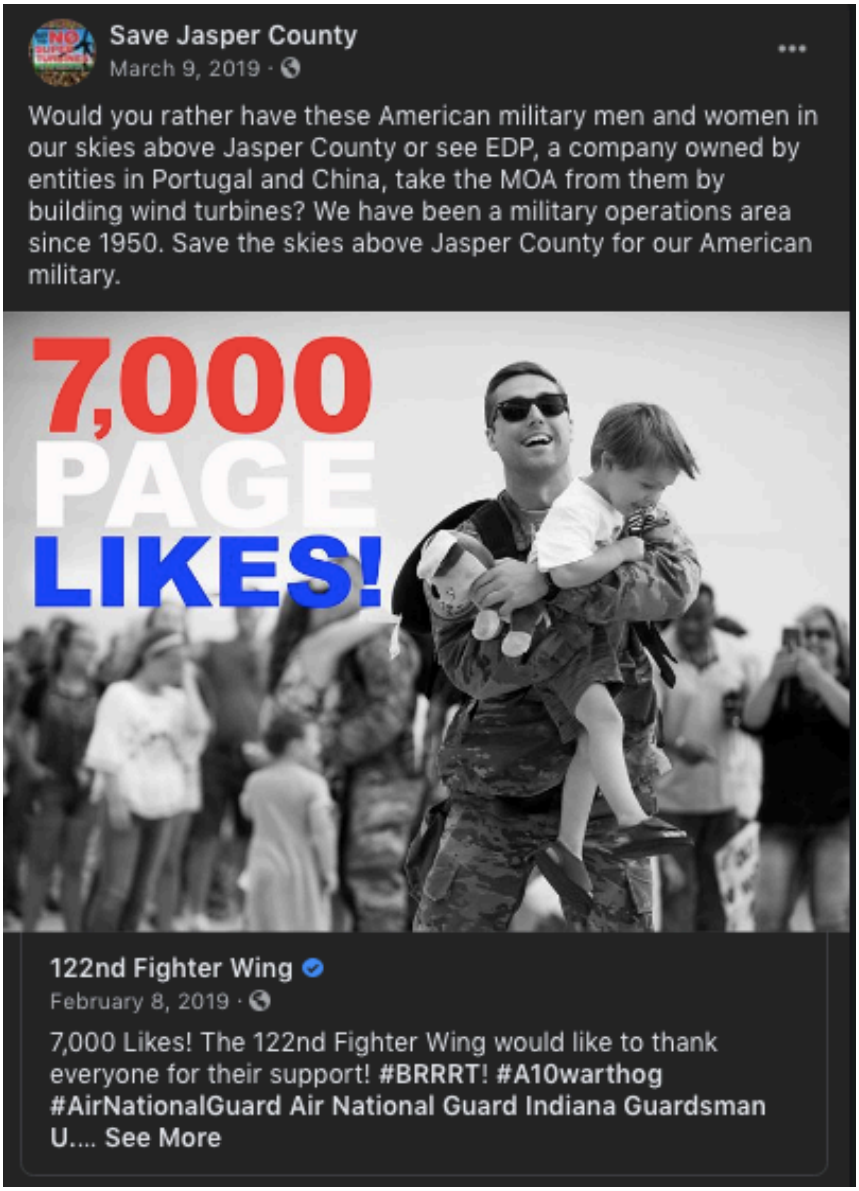
Figure 2:

Example Post of Underdog Conflict in Traditional Values

The emphasis on heritage, history, and place attachment suggest that wind power is seen as something new and unfamiliar that would threaten the traditional patterns of rural life. The post shown below in Figure 3, from the Jasper County Facebook data, was coded as the traditional value. In line with conservative politics, it expresses support for the military by emphasizing Jasper County's long history of being a Military Operations Area. The language of the post indicates that intrusion from foreign wind companies like EDP is unwelcome specifically because it would interrupt Jasper County's previous pattern of military life. In this way, place attachment as an expression of traditional values is heavily connected to other traits of the traditional value category. It includes security-oriented language by pleading with the reader to "save the skies" and invokes nationalism by emphasizing the need of "our American military" in contrast with the foreign "entities in Portugal and China."

Figure 3:

Example Post of Place Attachment and Heritage Language in Traditional Values



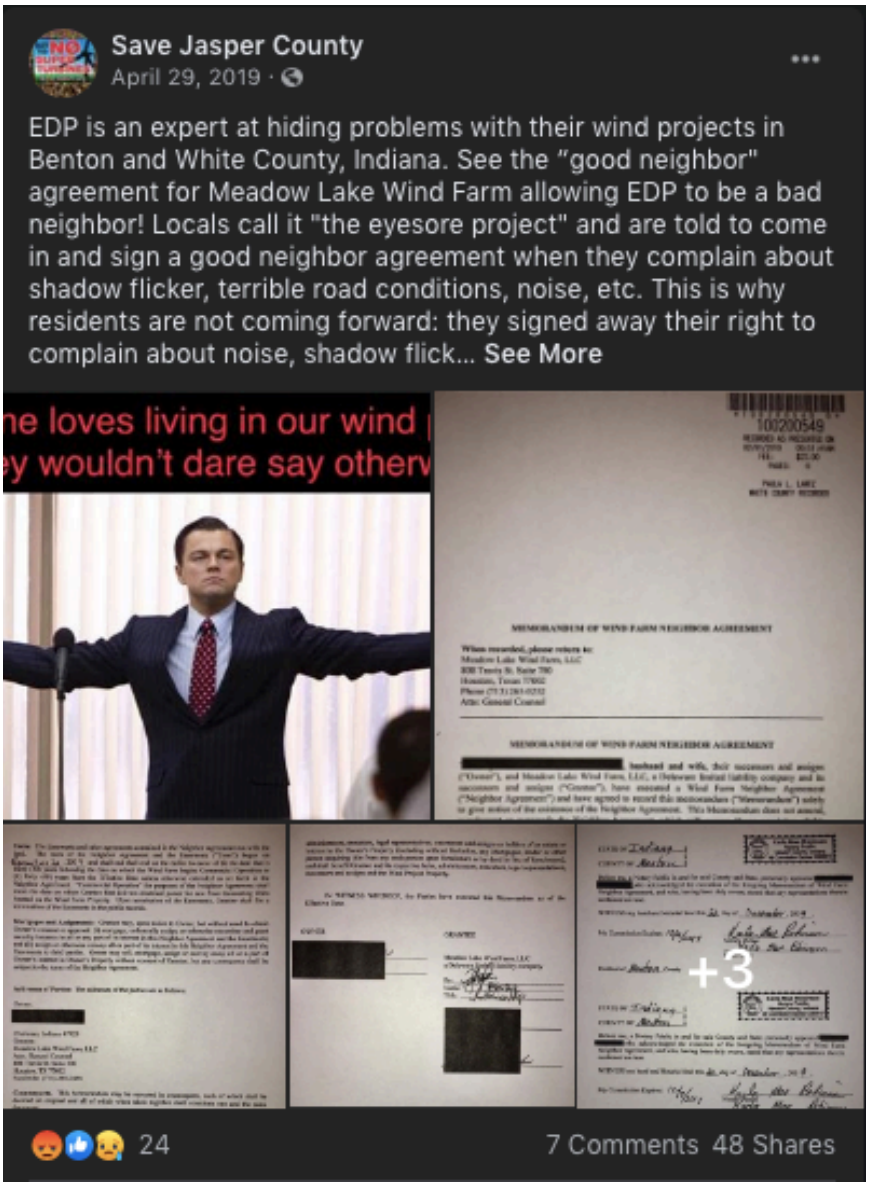
Altruistic

Altruistic values were the second-most identified in Facebook data and was more prominent in public comment data than traditional values. In previous studies, altruism has been classified into two types, humanistic and biospheric (Dietz, Fitzgerald, & Shwom, 2005). For the purposes of this research, the two have been separated into distinct categories because altruistic orientation towards other humans or towards the environment presented as very different concepts in the Facebook data. Altruistic values were identifiable through traits like language that expressed empathy or support for other communities or expressions of concern for the health or safety of the general public. "Whistleblower" language was a distinct trait of the altruistic values that emerged from the Facebook data. This was any language that emphasized truth-telling, public knowledge, or duty to a general need to know. Figure 4 is an example of a post coded altruistic with whistleblower language.

The language in the post exposes that "EDP is an expert at hiding problems." The pictures attached share documents related to the agreements that the post is describing as evidence for a viewer to read. The caption also emphasizes that "residents are not coming forward," indicating that there are untold stories about experiences with shadow flicker and noise. The information is put forward for the public to read, as proof of the harms of a wind power company, and the truth is revealed. This type of language was a recurring theme in posts coded as altruistic and appeared as a different expression of the core altruistic concepts of outward-oriented concern or duty to others.

Figure 4:

Example Post of Whistleblower Language in Altruistic Values

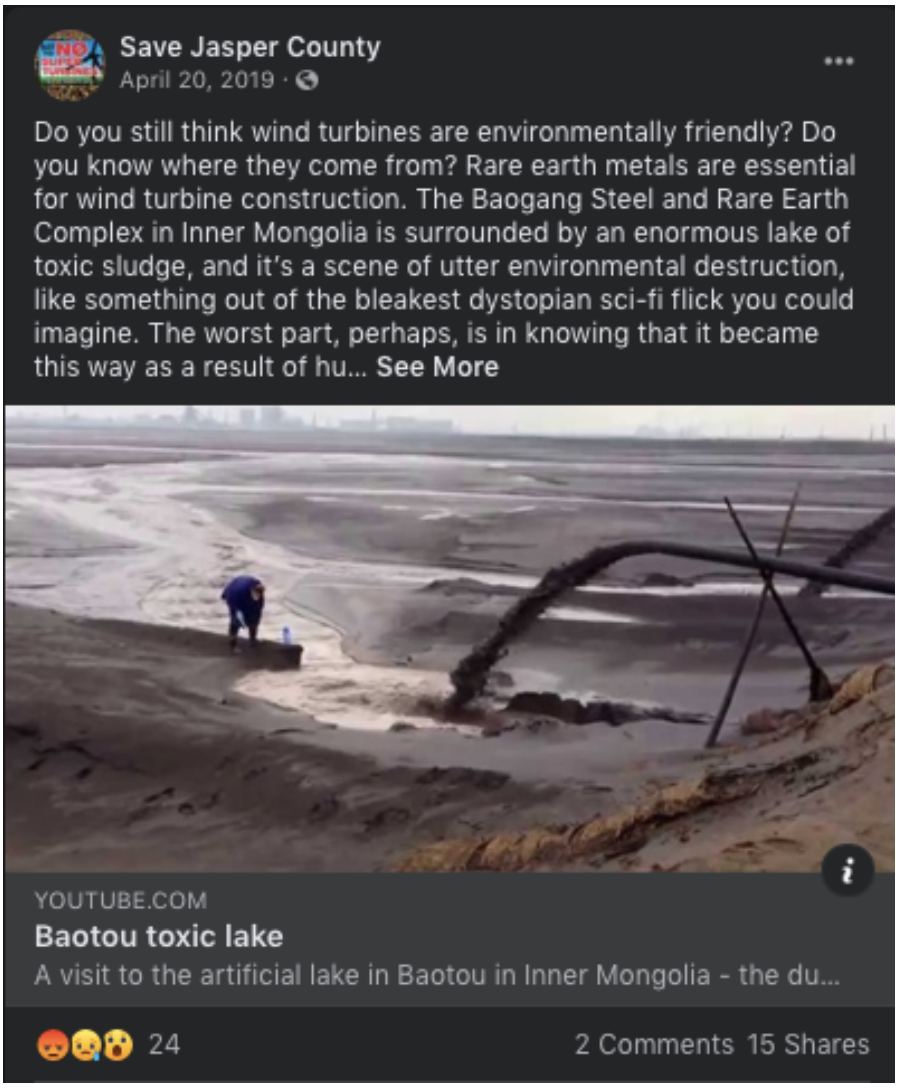


Biospheric

This was the only value that was not expressed in the public comment despite occurring multiple times in Facebook posts. Similar to altruistic values, biospheric values (sometimes called biospheric altruism) are defined by a core expression of outward-oriented care or concern that is ecocentric instead of human-centric (Dietz, Fitzgerald, & Shwom, 2005). In Facebook posts, this was expressed through sharing articles about turbine impacts on bird populations, bat deaths, or species endangerment. There was a heavy focus on habitats as a theme of concern. One of the unique traits that emerged during data analysis was purity language, or the tendency to emphasize pristine landscape or the desirability of a "clean" environment. Figure 7 below shows a post with frequent use of purity language through phrases like "toxic" to describe the pollution that results from wind turbine manufacturing. It emphasizes the "utter environmental destruction" that rare earth mining creates and uses strong visual imagery to craft a vision of "the bleakest dystopian sci-fi flick you could imagine."

Figure 5:

Example Post of Biospheric Values



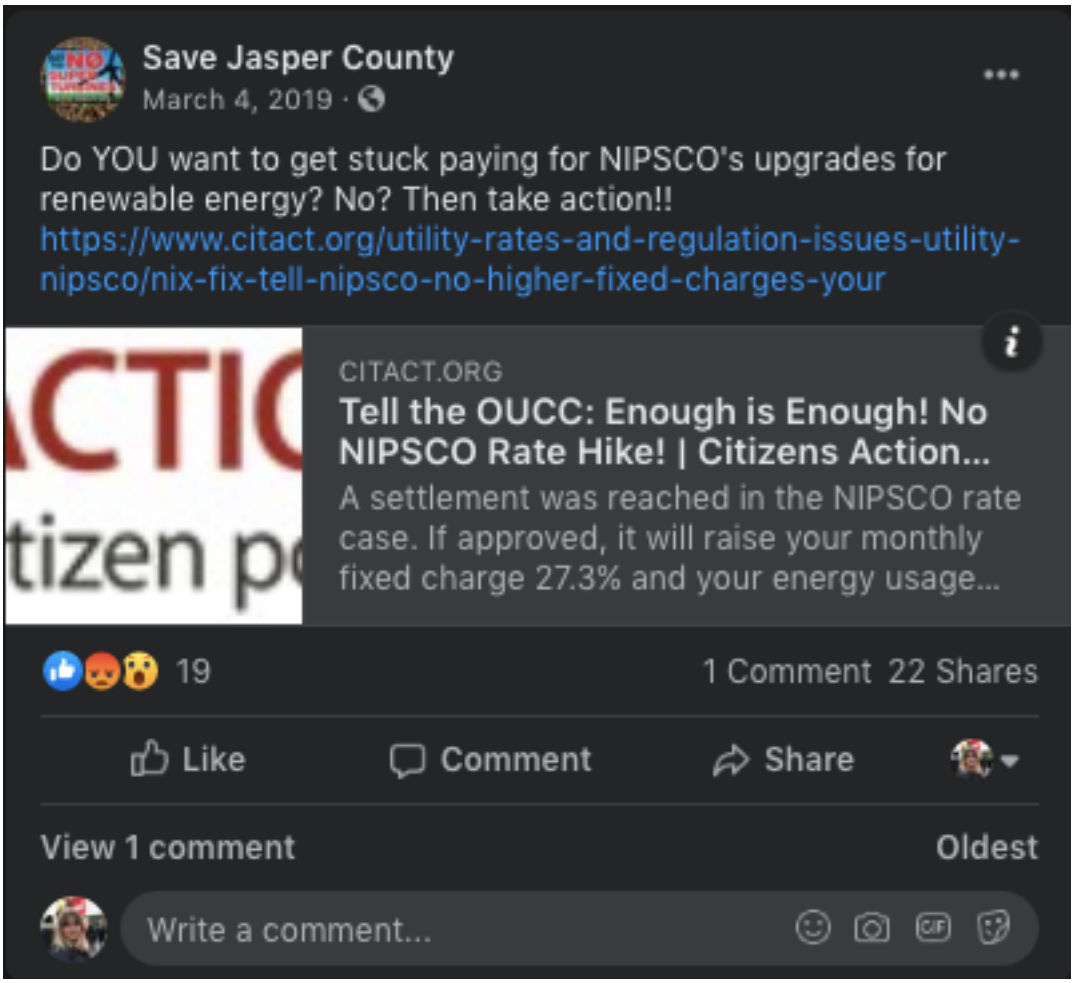
Egoistic

Sometimes called egocentric or self-enhancement values, egoistic values are specifically self-oriented and had a unique expression in Facebook posts. Since most posts are not written explicitly in the first person, many of the egocentric-coded posts expressed county-centric concern. This was often worded in the form of an address to Jasper County or Cass County residents or any reader of the post to consider the wellbeing or safety of *their* community or property values. The post shown below in Figure 6 specifically calls on the reader to take action to protect their self-interest, a trait found in other egocentric posts with reader-oriented language. Some egoistic-value posts were written in the first person with references to action that "we" (implied the people of the county) would take against wind turbines.

Similar to the traditional values, research on environmental values and behavior has tentatively shown that egoistic self-interest has a negative effect on pro-environmental attitudes, especially in the U.S.'s cultural context. This relationship to pro-environmentalism seems contradictory when egoistic values are present in the same community as biospheric altruism and indicates that "a key question for research on environmental values is whether or not self-interest is consistent with environmentalism. This reminds us that the altruism/self-interest distinction is central to work on values" (Dietz, Fitzgerald, & Shwom, 2005). That inconsistency supports this analysis' finding that the values expressed in anti-wind power conflicts are complicated, layered, and not always inconsistent with environmentalism, which has been termed by the literature to be "green-on-green" conflict (Rand & Hoen, 2017).

Figure 6:

Example Post of Reader-Oriented Language in Egoistic Values



Conclusion

The frequent expression of traditional and altruistic values on the anti-wind Facebook pages and in public comment shows that the two forums mirror each other in the type of wind power opposition. The VBN model suggests that since these values play a large role in anti-wind opposition (in its forms both online and in person), they will likely play some role in shaping any community-held beliefs that wind power is dangerous, unreliable, or wasteful. And those beliefs, if held by individuals with local decision-making power, can impact what is an accepted norm or course of action for wind siting policies.

The Facebook post analysis is critical to understanding wind power opposition because it gives a grounding context for understanding citizen opinion that might be otherwise brushed aside as incorrect or uneducated. The individuals sharing and discussing anti-wind power information through Facebook are members of a community with a shared set of consistent values with complex traits: safety, security, private property protection, fiscal responsibility, neighborly care, and place attachment, among others. Some of this complexity is exhibited in the seemingly contradictory co-existence of values that have been shown to increase pro-environmental behavior (altruistic and biospheric values) and those that have been related to lower tendency towards pro-environmental behavior (egoistic and traditional values) (Dietz, Fitzgerald, & Shwom, 2005).

Anecdotal evidence is a powerful tool in a community with such values because personal stories contribute well to the narrative tropes of underdog conflict and whistleblower truth-telling. It also shows a stark contrast between Facebook and public meetings as forums for citizen concern. Both put constraints on the speaker– Facebook through its formatting requirements and public meetings through their time limits on individual comments. However,

each value category exhibited in the Facebook posts revealed a wider range of identifiable traits and longer-form anti-wind opinions compared to the public comment data. When one of the four broad values were identifiable in public comments, they were in the form of abbreviated versions of traits that had been more obviously present in Facebook data. Many times, the same concerns about property value or public health were phrased in the form of questions, as compared to the statements made in Facebook posts. Often, those questions were aimed at public officials who, because of the style of one-after-the-other public comment sessions, do not respond with an answer. In other words, the same values that were present in Facebook data were mirrored in public comments but reduced into abbreviated versions.

The constraints of public meeting formats and the gap between values expressed in Facebook data and meeting data indicates an area for further research. If wind power proponents want to change the minds of local governments making zoning decisions, it is important to know if forums like Planning and Zoning Meetings are effective at addressing citizen concern or answering questions. Another potential area for further research concerns risk assessment ability. Many of the coded posts used values to communicate risk in some form– health, safety, or security risk. Whether or not the implied risks match up with the actual risks of wind power is uncertain, but for a viewer of a post to believe its message requires an individual to do a lot of ad-hoc risk assessment and interpretation; for example, a post that shows a photo of a burning wind turbine with a caption about safety dangers implicitly asks the viewer to estimate whether or not burning turbines are likely and how much danger they could realistically pose. It is important to know if individuals are adept at comparing the communicated risk to realistic risk assessments– if they are not, it is likely that values-based anti-wind power communication is effective at inflating perceived risks as a persuasive tool.

Bibliography

Bell, D., Gray, T., & Haggett, C. (2005). The Social Gap in Wind Farm Siting Decisions: Explanations and Policy Responses. *Environmental Politics*, 460-477.

Bidwell, D. (2013). The role of values in public beliefs and attitudes towards commercial wind energy. *Energy Policy*, 189-199.

Dietz, T., Fitzgerald, A., & Shwom, R. (2005). Environmental Values. *Annual Review of Environmental Resources*, 335-372.

Dolce, C. (2019, May 29). *Record cold, snow, flooding and tornadoes: why the Midwest and Plains have been most extreme weather regions in 2019*. Retrieved from Weather: https://weather.com/storms/winter/news/2019-05-29-plains-midwest-record-cold-snow-flooding-tornadoes-2019

Ellis, G., Barry, J., & Robinson, C. (2007). Many Ways to Say 'No', Different Ways to Say 'Yes': Applying Q-Methodology to Understand Public Acceptance of Wind Farm Proposals. *Journal of Environmental Planning and Management*, 517-551.

Firestone, J., Hoen, B., Rand, J., Elliott, D., Hubner, G., & Pohl, J. (2017). Reconsidering Barriers to Wind Power Projects: Community Engagement, Developer Transparency, and Place. *Journal of Environmental Policy and Planning*, 370-386.

Guo, Y., Ru, P., & Diaz Anadon, L. (2015). Not in my backyard, but not far away from me: Local acceptance of wind power in China. *Energy*, 722-733.

Haggerty, T. (2019, June 10). *Montgomery County Commissioners Pass First-Ever Zoning Ordinance*. Retrieved from WBAA: https://www.wbaa.org/post/montgomery-county-commissioners-pass-first-ever-zoning-ordinance#stream/0

Hall, N., Ashworth, P., & Devine-Wright, P. (2013). Societal acceptance of wind farms: Analysis of four common themes across Australian case studies. *Energy Policy*, 200-208.

Jessup, B. (2010). Plural and hybrid environmental values: a discourse analysis of the wind energy conflict in Australia and the United Kingdom. *Environmental Politics*, 21-44.

Jones, C., & Eiser, J. R. (2010). Understanding 'local' opposition to wind development in the UK: How big is a backyard? *Energy Policy*, 3106-3117.

Jossi, F. (2017, April 19). *Industry Report: Midwest and Great Plains lead wind energy expansion*. Retrieved from Energy News Network: https://energynews.us/2017/04/19/midwest/industry-report-midwest-and-great-plains-lead-wind-energy-expansion/

Ladenburg, J., & Dahlgaard, J.-O. (2012). Attitudes, Threshold Levels, and Cumulative effects of Daily Wind Turbine Encounters. *Applied Energy*, 40-46.

Langer, K., Decker, T., & Menrad, K. (2016). Public participation in wind energy projects located in Germany: Which form of participation is the key to acceptance? *Renewable Energy*, 63-73.

Liu, X., Lindquist, E., Vedlitz, A., & Vincent, K. (2010). Understanding Local Policymaking: Policy Elites' Perceptions of Local Agenda Setting and Alternative Policy Selection. *Policy Studies Journal*, 69-91.

Mulvaney, K., Woodson, P., & Prokopy, L. (2013). A tale of three counties: Understanding wind development in the rural Midwestern United States. *Energy Policy*, 322-330.

Rand, J., & Hoen, B. (2017). 30 Years of North American Wind Energy Acceptance Research: What Have We Learned? *Energy Research and Social Science*, 135-148.

Rogers, E. M. (2003). *Diffusion of Innovations.* New York, NY: Simon and Schuster.

Scherhaufer, P., Holtinger, S., Salak, B., Schauppenlehner, T., & Schmidt, J. (2017). Patterns of acceptance and non-acceptance within energy landscapes: A case study on wind energy expansion in Austria. *Energy Policy*, 863-870.

Sovacool, B. (2009). Exploring and Contextualizing Public Opposition to Renewable Electricity in the United States. *Sustainability* , 702-721.

Stats Indiana. (2018). *Indiana INDepth Profile*. Retrieved from Stats Indiana: http://www.stats.indiana.edu/profiles/profiles.asp?scope_choice=a&county_changer=18017

Stern, P., Kalof, L., Dietz, T., & Guagnano, G. (1995). Values, Beliefs, and Proenvironmental Action: Attitude Formation Toward Emergent Attitude Objects. *Journal of Applied Social Psychology*, 1611-1636.

Szarka, J. (2004). Wind Power, Discourse Coalitions and Climate Change: Breaking the Stalemate? *European Environment*, 317-330.

Toke, D. (2005). Community Wind Power in Europe and the UK. *Wind Engineering*, 301-308.

Toke, D. (2005). Explaining wind power planning outcomes: Some findings from a study in England and Wales. *Energy Policy*, 1527-1539.

Toke, D. (2005). Explaining wind power planning outcomes: Some findings from a study in England and Wales. *Energy Policy*, 1527-1539.

Warren, C. R., & Birnie, R. V. (2009). Re-powering Scotland: Wind Farms and the 'Energy or Environment?' Debate. *Scottish Geographical Journal*, 97-126.

Warren, C., Lumsden, C., O'Dowd, S., & Birnie, R. (2005). 'Green On Green': Public Perceptions of Wind Power in Scotland and Ireland. *Journal of Environmental Planning and Management*, 853-857.

Weart, S. R. (1988). *Nuclear Fear: A History of Images.* London: Harvard University Press.

Wolsink, M. (1999). Wind Power in the NIMBY-myth: Institutional Capacity and the Limited Significance of Public Support. *Renewable Energy*, 49-64.

Wolsink, M. (2012). Understanding Reinforcment of Harmful 'self-evident truths' Concerning Implementation of Wind Power. *Energy Policy* , 83-87.