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ENVIRONMENTAL GOVERNANCE IN RENEWABLE ENERGY DEVELOPMENT: A CASE STUDY OF ENVIRONMENTAL PERMITTING AND PLANNING IN THE GREAT PLAINS REGION

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ENVIRONMENTAL GOVERNANCE IN RENEWABLE ENERGY DEVELOPMENT: A CASE STUDY OF ENVIRONMENTAL PERMITTING AND PLANNING IN THE GREAT PLAINS REGION

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ABSTRACT

As utility-scale wind and solar deployment continue to increase, the conflict between expediting development and protecting local environments is only going to continue to become more prominent. There are a select number of federal regulations which guide renewable energy development and policy at the state and/or local level varies immensely. The goal of this dissertation is to explore the environmental permitting and planning for utility-scale wind and solar projects from the perspective of three stakeholders involved in putting policy into practice: renewable energy developers, state and federal regulators, and environmental non-profit organizations (ENPOs). Chapter one focuses on the experience of renewable energy developers to understand how formal and informal institutions guide development decisions and interactions. Chapter two focuses on the experience of state and federal regulators, contributing to the existing body on regulatory relationships by expanding the exploration beyond pollution and emission control compliance. Chapter three focuses on the experience of ENPOs, seeking to understand how they are currently engaged and what they could contribute to the business-governance relationships of renewable energy development as well as delving into how they balance the conflict of renewable energy deployment and local environmental concerns. This research provides an in-depth look into how each of these three groups thinks about the environmental planning of renewable energy projects and how they interact with one another. The findings of this research emphasize the complexity of many of the challenges all three stakeholders face in this realm, the importance of collaboration and communication in overcoming these challenges, and the local community challenges that will arise in the future.

INTRODUCTION

With the consequences of climate change being taken on as a priority by government at all levels, renewable energy technology development and implementation has grown dramatically in recent decades. The Biden administration recently announced their goal of achieving a 50-52 percent reduction of 2005 levels of greenhouse gas pollution in 2030, and this will require an increase in renewable energy deployment (The White House, 2021). The Net-Zero American report published at the end of 2021 estimated large amounts of renewable energy, particularly wind energy, will need to be deployed by 2050 to reduce the United States' reliance on fossil fuels and meet future energy demands (Larson et al., 2021).

Despite the increasing importance of transitioning our energy production system, the current sustainability transition frameworks available to understand how and when sustainable transitions occur are insufficient to account for the complexities of an energy transition in the United States. As renewable energy development continues to grow within the U.S., it brings with it opportunities and challenges, which must be considered as our energy system transitions from a traditional fossil fuel economy to a focus on renewables and electrification. This research acknowledges some of the gaps in the current approaches to understanding energy transitions within, specifically focusing on the spatial variation of energy development and the governance of energy projects on differing scales. This introduction first introduces sustainability frameworks broadly, how they apply to the energy transition, and where the current gaps are. I then focus on one avenue of governance – environmental governance – on which this research is based.

1. Sustainability frameworks and the energy transition

Sustainability transitions can be conceptualized as "fundamental changes at the level of complex sociotechnical systems… Sustainability transitions are long-term processes that change deeply rooted structures, practices, and cultures" (Van Poeck et al., 2020, p. 298). Within sustainability transitions, the concept of sociotechnical systems is a key component. Schot (2016) defines sociotechnical systems as "a configuration of products, processes, services and infrastructures, regulations, skills, preferences, expectations, and actors that fulfill societal needs" (p. 447). There are four predominant frameworks for studying sustainability transitions: strategic niche management (SNM), technological innovation systems (TIS), transition management (TM), and multi-level perspective (MLP; Köhler et al., 2019).

Each of these four theoretical frameworks takes a slightly different approach to understanding and charting sustainability transitions. SNM and TIS are used primarily when trying to chart the emergence of new technology. SNM suggests that technology moves from protected spaces i.e. "niches" towards the mainstream market and seeks to understand how technological innovation is facilitated in these spaces and when it is adopted (Köhler et al., 2019; Schot & Geels, 2008). TIS focuses on the emergence of new innovation systems and how these systems support new technology as well as how these systems change over time; it takes a broader systems-based lens compared to SNM when understanding how new technology comes to market (Hekkert et al., 2007; Köhler et al., 2019). TM introduces a policy-oriented framework for considering sustainability transitions and emphasizes that policy makers can and often do influence or shape transitions in many different ways (Loorbach & Rotmans, 2010). Lastly, MLP is the most prominent approach in sustainability transition studies and focuses on framing transitions using three levels of perspective: niches, or the protected spaces for development;

regimes, the systems in which these innovations are attempting to become accepted; and the landscape, which are the exogenous factors and pressures which may impact the success and acceptance of an innovation (Geels, 2002; Köhler et al., 2019).

While these four frameworks are essential for understanding sustainability transitions and form the foundation for much of the literature on sustainability transitions, the systems-based approach that these frameworks take often comes at the expense of understanding the contextual nature of specific transitions and why they may or may not be successful (Köhler et al., 2019). As highlighted by Loorbach, Frantzeskaki, and Avelino (2017) in their review of sustainability transitions research, "A central thesis in the [sustainability transitions] field is that grand societal challenges should be understood as systemic and that dealing with such challenges is only possible through fundamental systemic changes in societal regimes" (p. 602). An understanding of these challenges at large-scale, with a systemic view, however, can leave certain challenges or perspectives unaddressed. Farla et al. (2012) note that "these insights have been very helpful in sketching the bigger picture but might have come at the expense of a more actor-oriented and agency-sensitive analysis" (p. 992). While theories such as TM incorporate policy agendas and seek to understand how governance can lead to sustainability transitions, the macro-level approach and systems-thinking can lead to a heavy focus on large changes or changes to entire systems (Meadowcroft, 2009). Power and politics are also integral pieces of sustainability transitions and are currently underrepresented in the transition literature (Köhler et al., 2019). While much of the sustainability transitions work grew out of the social sciences intending to serve society, there is a growing need to engage in more practical contexts in the spaces where actors are actively living through these transitions.

The transition to renewable energy sources is one example where a systems-based sustainability perspective often misses some of the more localized challenges the energy transition may face. Renewable energy requires a large-scale deployment of technology but with deployment contexts that are much more localized and often occur on multiple scales (Goldthau, 2014). The sustainability transitions literature and the approaches to understanding these transitions create gaps in how we understand the energy transition practically. These gaps include: 1) a lack of understanding of the scale and geography of energy transitions; 2) minimal incorporation of the governance and politics of energy transitions; and 3) generalizations of actor experiences within large systems versus individual impacts and experiences through social science approaches.

1.1 The energy transition and scale

The energy transition is a geographic process that "involves reconfiguring current spatial patterns of economic and social activity" (Bridge et al., 2013, p. 331). Recent literature has begun to move the traditional conceptualization of energy transitions as not spatially sensitive towards a recognition that the relationship between energy systems and society varies across space and that energy development can and often does lead to uneven and contested developments (Gailing et al., 2020). Sustainability transitions, and energy transitions, can be highly contested and context-dependent; a transition may look substantially different between regions (Markard, 2018). Hansen and Coenen offer a review of this recent growth, emphasizing that "sustainability transitions are geographical processes – they are not pervasive but happen in particular places" (p. 95). They highlight several different ways in which space creates specific contexts for energy deployment, including urban and regional vision and policies, informal localized institutions, and local natural resource endowment, and how the literature has begun to better integrate

geographical themes into the exploration of sustainability transitions. Bridge and Gailing (2020) introduced a special issue on integrating political economy theory, where they discuss recent literature and argue that energy transitions need to be conceptualized as "space-making" processes. There is a clear, growing recognition and body of literature that seeks to find ways to integrate a more explicit geographic lens into the conceptualization of energy transitions.

1.2 The energy transition and governance

The literature on energy transitions, particularly those that use a socio-technical lens, often downplays or discredits the complex and contested nature of energy transitions on the ground (Bridge & Gailing, 2020). The challenges of integrating complex governance contexts are deeply interconnected with those of integrating considerations of scale. Energy systems require a multi-level governance arrangement that does not easily fit into current conceptualizations of governance and scale in transitions. The development and growth of the renewable energy system require balancing large-scale infrastructure with local and contextualized problems and solutions (Goldthau, 2014). In discussing the challenges of implementing energy democracy principles in the energy transition, Burke and Stephens (2018) discuss the challenges of the "political ambiguities" of renewable energy technologies. As they note, "the legacy of private property ownership as well as land areas required for siting mid-scale wind and solar facilities remains highly exclusionary" (Burke & Stephens, 2018, p. 86). Current transition frameworks are not oriented around multiple levels of governance across space.

Sustainability transitions are inherently political – most of the success of renewable energy integration thus far has relied on policy implementation and government-set goals – but it is neglected in the transition literature (Meadowcroft, 2011). While the TM approach is a step towards understanding and integrating governance structures, it does not go far enough to

understand the processes involved, focusing mainly on the policy outcomes. TM involves longer time scales and a focus on society and systems as a whole; this long-term, big-picture vision often underestimates the political legitimacy and power challenges present in transitions (Andrews-Speed, 2016). As noted by Beunen and Patterson (2019), "Sustainability transformations will arguably not go far without placing a central focus on the difficult political realities of institutional change…" (p. 21). The sustainability transitions literature currently does not spend time considering what creates, maintains, or disrupts current institutional structures governing our energy systems.

1.3 Actor experiences in the energy transition

The social component of energy transitions and transformations often goes undervalued or unexplored in more analytical approaches to understanding these systems. As Miller et al. (2013, p. 136) put it:

> "[Important aspects of energy transformation] include the social *processes* that stimulate and manage energy transformation, the social *changes* that accompany shifts in energy technologies, and the social *outcomes* that flow from the organization and operation of novel energy systems."

Stronger integration of social science approaches would allow for a deeper understanding of the process of transitions, which connects to the need to expand spatial considerations and delve into governance challenges (Köhler et al., 2019). Current sustainability transition approaches, including conceptualizations of the energy transition, tend to "consider the technical and economic challenges of commercialization as the only obstacles that must be overcome in order to make the leap from dream to reality" (Pasqualetti, 2001, p. 219). Technology development tends to focus first on optimization while neglecting the social aspects (Schot & Geels, 2008).

Success of the energy transition will not be a result of only technological innovation but will also come from the actors involved in the process. In response to Veers et al. (2019) paper on the grand challenges of wind energy science, a group of social scientists challenge the omission of "challenges arising from territorial and institutional dimensions of wind power" and emphasize that there is a body of literature which needs to be better integrated into the discussion of wind energy science (Brannstrom et al., 2019). While specific to one facet of the energy transition, Brannstrom et al.'s call for better inclusion of social science data and approaches reflects the current approach to conceptualizing renewable energy deployment and its challenges in general.

Social science approaches also emphasize the actors' role in impacting institutional structures. Chlebna and Mattes (2020) highlight that the energy transition literature often treats actors as passive recipients of institutional structures (such as policy). The institutional theory literature, however, emphasizes that actors also have the power to create or disrupt institutional structures (Chlebna & Mattes, 2020). A deeper understanding of how various stakeholders impact informal and formal institutions governing renewable energy development will allow for a conceptualization of what policies may or may not succeed in furthering development.

1.4 Energy transition literature and this research

In the context of the three gaps identified above, this research focuses on a more regional, contextual understanding of energy transitions, orienting around the governance context and the actors that are involved in the governance of renewable energy systems. This research focuses specifically on the environmental context for renewable energy deployment, examining the challenges of environmental planning and permitting and the interplay of actors and institutions. These three more broadly-defined gaps described above are placed in the specific context of the environmental governance of renewable energy development in the two sections below.

2. The energy transition and environmental governance

As mentioned in the previous section, sustainability transitions, and the energy transition specifically, are inherently geographic. The resources necessary to successfully produce renewable energy are geographically dispersed and particularly rich in more rural regions of the U.S. (Bridge et al., 2013). Because of this, the costs and benefits of the energy transition will also be geographically uneven. In particular, there are concerns about the local environmental impacts that communities will experience at the expense of a national reduction in greenhouse gas emissions (Delafield et al., 2021). An analysis of the reasons for renewable energy projects (wind, solar, and geothermal) being canceled or severely delayed found that one of the most prevalent concerns, present in over 50% of all projects examined, was environmental impacts (Susskind et al., 2022). Environmental impacts of wind and solar development, in particular, are primarily land use change and habitat conversion or fragmentation as well as bird and bat mortality through direct collision with infrastructure (Sánchez-Zapata et al., 2016).

As renewable energy development continues, these environmental concerns and the associated conflict will only become more pronounced. This conflict is amplified within renewable energy development given the scale and spread of energy infrastructure, which results in multiple governing authorities and actors at a variety of scales, all with different perspectives on the environmental regulation of renewable energy. The environmental impacts of energy transitions represent a unique governance challenge, as they require a balance between large-scale infrastructure required for energy production and distribution with local and contextualized solutions (Goldthau, 2014). The governance of sustainability transitions, and specifically energy transitions, also consist of multiple policy arenas (considering the levels of policy even within the U.S.) and are, therefore, "contested and negotiated between multiple public, quasi-public, and

private actors" (Hansen & Coenen, 2015, p. 97). Because of this unique context, considering energy transitions, environmental impacts, and governance must "look beyond the performance of a local government unit to consider the relationships among governance actors, problems, and institutional arrangements" (Andersson & Ostrom, 2008, p. 77). Our energy systems cannot be conceptualized in isolation. The results could be reaching net-zero goals at the expense of local environments, with larger impacts via cumulative effects that are currently not well understood (Delafield et al., 2021).

3. The energy transition and institutions

The use of institutional theory in understanding and charting socio-technical systems as well as energy transitions has a long but sporadic presence in the literature. It has been used in several different sustainability transition contexts, such as applied to transportation, natural gas, and specific country governance challenges (Andrews-Speed, 2016). Geels (2004) calls out in his paper an issue that has been identified in research on systems of innovation: "pay more attention to institutions" (p. 899). Geels conceptualizes the three pillars of institutional theory (described in the section below) as the rules that stabilize socio-technical systems and recognizes that actors are embedded in these rules (although he orients around the stability of systems only; [Geels, 2004]). Geels attempted to open the black box of institutions in this publication, but policy in sustainability transitions has become neglected again over time (Cherp et al., 2018).

In the context of the energy transition, examples are more limited. For example, Kern (2011) used the concepts of ideas, institutions, and interests to explore differing approaches to energy transition innovation in the United Kingdom and the Netherlands. Kern explored how different actors navigated, impacted, or changed formal and informal institutions or "storylines" in the transition process (Kern, 2011). Genus and Mafakheri (2014) apply institutional theory to

the bioenergy economy in the United Kingdom and conceptualizations of energy security. Of note, Genus and Mafakheri criticize the current literature on bioenergy and institutions, highlighting that too much attention has been paid to regulations and legislation and there has been a lack of recognition that institutions can be maintained, created, or destroyed. This represents an important potential weakness of the way that institutional theory is currently applied to energy transitions. Song et al. (2021) apply the idea of institutional logic, or the organization principles of institutions, to compare wind energy curtailment in the U.S. and China. Tilleman et al. (2020) also use institutional logic to map wind and solar deployment in the U.S. These examples show the value of applying institutional and organizational theory to the energy transition, to understand how transitions move forward in specific concepts.

Overall, there is a need for more integration of facets in institutional theory to conceptualizations of the energy transition; the current literature identifies why it is valuable (as highlighted by Geels) and there is a slowly growing body of literature that puts it into practice. One particular avenue through which institutional theory can provide valuable insight into the energy transition is through its application of environmental governance.

3.1 Environmental governance and institutions

Current environmental policies are rooted in formal and informal institutional structures that may succeed or fail in different governance contexts. Scott (Scott, 2013) defines institutions as "multifaceted, durable social structures made up of symbolic elements, social activities, and material resources" (p. 57). Scott's definition of institutions emphasizes the importance of activities that can provide, reproduce, or change institutions as well as the resources that maintain them. There are three commonly defined pillars of institutions within institutional

theory: regulative, normative, and cultural-cognitive (Scott, 2013). Cultural-cognitive is outside the scope of this research and is, therefore, not discussed further.

The regulative pillar focuses on the explicit regulatory processes that exist, such as the laws that govern environmental impacts (Scott, 2013) – Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and Clean Water Act (CWA) for example. Within the regulative pillar, some institutional theorists argue that laws are often ambiguous in terms of how they are interpreted and implemented, which accurately describes how many environmental policies play out in practice (Scott, 2013). Regulators are responsible for deciding how to monitor compliance or even to decide what compliance is. The regulated can also decide when and when not to comply. All of this can happen as a negotiation between these two parties in social settings (Raaphorst & Loyens, 2020).

The normative pillar includes both values and norms. Values are conceptualizations of preferred or desired behaviors or structures with which current behaviors and structures can be assessed, and norms specify how things should be done. Values can assist in defining the goals and objectives an individual or organization pursues and norms define how those goals and objectives are pursued (Blake & Davis, 1964; Scott, 2013). Within the normative pillar, regulators and the regulated often determine what compliance with environmental regulations means and how to achieve this compliance. In addition, other parties such as environmental organizations can enforce norms and values within the regulated community by serving as a voice for public concerns (Brown & Timmer, 2006). Integration of the normative pillar and the recognition of more informal institutional structures emphasizes that there are rules that guide behavior beyond those entrenched in regulations (Genus & Mafakheri, 2014).

Another important concept within institutional theory is the idea of institutional work, which focuses on the "actions through which actors attempt to, or in effect do, create, maintain, or disrupt institutional structures" (Beunen & Patterson, 2019, p. 23). Institutional work can occur through processes such as drafting policy, enforcing laws, and negotiations about the meanings of particular institutions. Buenen and Patterson (2019) also emphasize an important point of the nature of institutions and institutional work in that institutions can be formal or informal rules governing organizational behavior (connecting to the ambiguity of laws within the environmental realm). It is within this distinction between formal and informal rules that regulative and normative institutional thinking and conceptualization can be examined, given that formal policies may lead to informal rules and approaches based on discretion.

Institutional work is a valuable approach because it focuses more on the efforts of institutional maintenance, creation, or destruction versus the outcomes (i.e. the political nature of institutions versus the politics of them). Of importance, it also accounts for the maintenance of institutions versus just the creation or destruction. Institutional work also emphasizes a focus on the context of institutions – the actors involved, the scale, the institutions of interest, and the power dynamics present. In other words, "analyzing institutional work thus implies studying which perspectives, ideas, beliefs are communicated by particular actors, how they are communicated, and how these communications follow from and impact shared beliefs" (Beunen & Patterson, 2019, p. 24). Institutional work acknowledges that energy transitions involve a wide range of actors which can influence and shape transitions (Farla et al., 2012). Overall, institutional theory and institutional work in particular provide a useful baseline through which to understand the environmental governance context of renewable energy development,

including those formal regulative institutions but also incorporating normative, more informal institutions and how actors operate within this context.

4. Dissertation overview

The sections above highlight that sustainability transitions often neglect specific spatial contexts, simplify the governance of transitions, exclude individual actor involvement, and also introduce how more recent research is attempting to overcome this. Institutional theory and its capacity to incorporate not only how formal and informal rules impact actor behavior but also how actors can influence and even change these rules offer a valuable lens through which to explore energy transitions, and this is becoming increasingly clear in more recent publications. My dissertation takes this general context of institutional theory and its application to energy transitions and focuses specifically on the institutions that govern environmental considerations within renewable energy development. This research explores how environmental governance frameworks play out in practice.

The goal of this dissertation is to begin to understand what synergies and points of contention exist within interactions between renewable energy companies, wildlife departments, and environmental nonprofits in the realm of environmental regulation. This research is exploratory; there are no set hypotheses or expectations other than those set broadly by the theoretical literature that frames this research. My overarching question for this research is: within environmental regulation, how do renewable energy companies, federal and state regulators, and environmental advocacy groups operate within, maintain, or attempt to change current institutions in place for renewable energy development? Using the aspects of institutional theory and introducing more specific theories and literature that apply directly to the stakeholder

groups of interest, this dissertation offers a perspective on how environmental institutions are implemented in practice in renewable energy development (Figure 1).

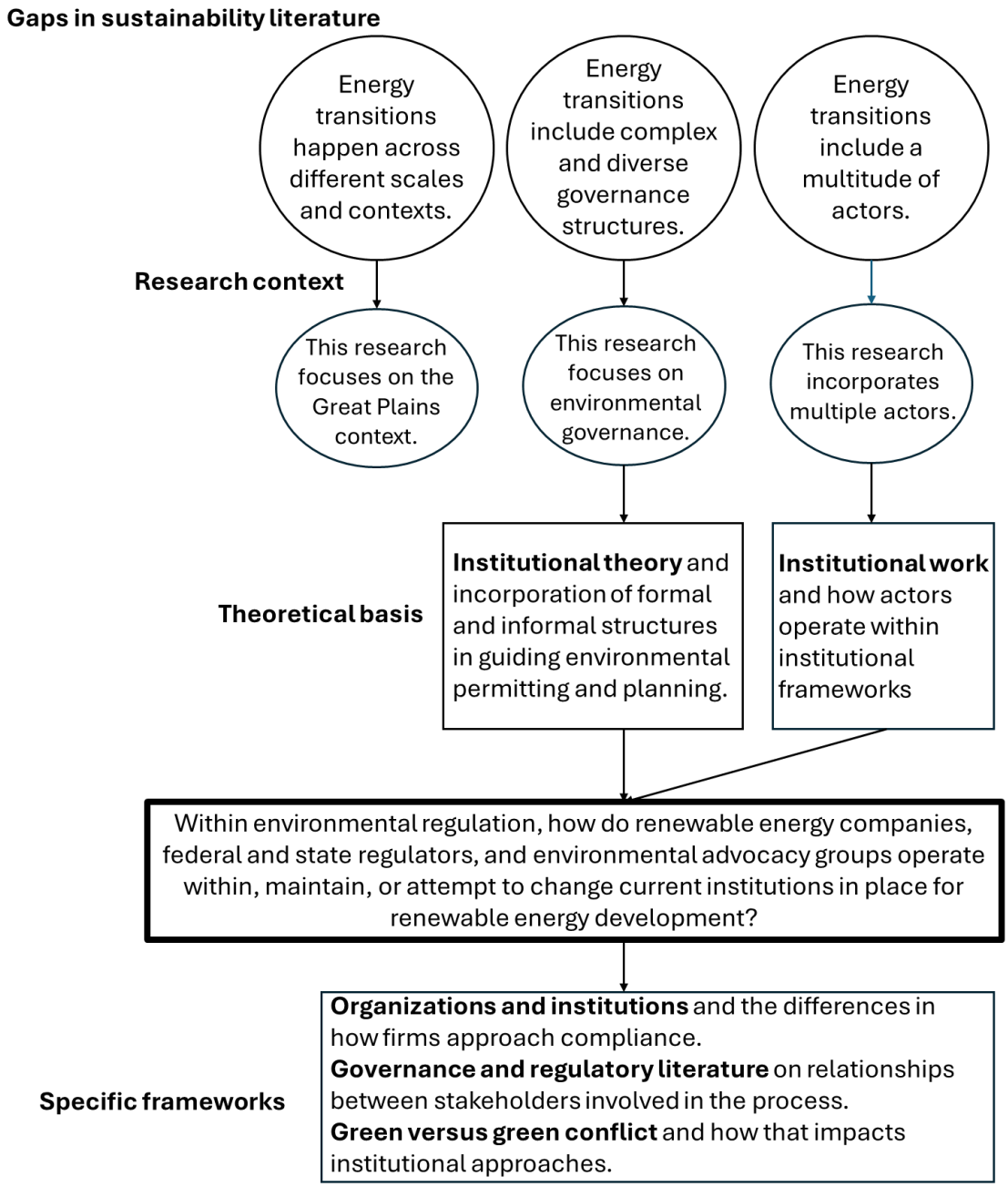

Figure 1. Research framework.

For this research, I focused on utility-scale solar and wind energy as my renewable energy technologies of interest. Wind and solar are currently governed under many of the same policies, with solar development often being guided by current wind energy regulations given the infancy of utility-scale solar compared to wind. This research focused solely on states in the Great Plains region, which included: North Dakota, South Dakota, Nebraska, Iowa, Kansas, Oklahoma, and Texas. These seven states were chosen intentionally. They are predicted to see a large contingency of future development of both wind and solar and have similar ecosystems and environmental concerns (Larson et al., 2021). These states also have a similar level of state regulatory power (AFWA, 2024, p. 20). North Dakota and Kansas both have mechanisms that indirectly create a requirement to consult with the state agencies (particular project funding mechanisms or required permits include consultation with wildlife agencies as a requirement), and Iowa and South Dakota both have mechanisms that indirectly create authority (have permit review processes which may include referring to state wildlife agency opinion on particular projects). Overall, in these seven states, while exist certain contexts where agency consultation is required in coordination with another permit, agency consultation is not required across the board (AFWA, 2024; Enterline et al., 2024). The governance context in the Great Plains region is, therefore, a unique context through which to explore how both formal and informal institutions guide development and how the stakeholder groups of interest operate within, maintain, or attempt to change these institutions.

Each chapter of this dissertation focuses on a different group of stakeholders and their experience with the environmental permitting and planning of renewable energy projects. Each group – renewable energy professionals, environmental professionals, and non-profit professionals – presents a unique set of experiences and perspectives on the process, thus

providing three sets of results that each warrant in-depth exploration. In addition, the environmental permitting and planning process for renewable energy development represents a significant portion of the development process that is not unified in its governance across states, representing a valuable opportunity to explore not only nuances among stakeholders but also nuances within stakeholders across space. In the concluding remarks, I will bring together these three sets of perspectives to provide recommendations about viable steps forward for the industry within the environmental planning of projects.

5. Situating the Researcher

It is important to acknowledge and reflect on one's positionality when conducting and publishing research. Reflecting on positionality leads a researcher to identify their views, values, and beliefs about their research, the methodology used, and the outputs of that research. As stated by Holmes et al., "reflexivity is the concept that researchers should acknowledge and disclose their selves in their research, seeking to understand their part in it or influence on it" (Cohen et al., 2002; Holmes, 2020). Before we transition into the results of this dissertation research and associated conclusions, I must reflect on and acknowledge my positionality in this research.

I am a cisgender, heterosexual, Caucasian woman who grew up in a family with a high level of educational background and educational accomplishments. I also grew up in a predominantly Caucasian community and had access to a public school district with access to all the resources that I may have needed to accomplish my goals. I have faced challenges as a result of my gender and the disciplines I chose to pursue but I have also had the privilege of higher education and financial stability up until this point in my life. I attended a quality institute of higher education and was able to afford to pursue the educational degree and associated internship opportunities that I wanted because of these privileges.

I hold an undergraduate degree in Zoology and Environmental Science, with a minor in Geography focused on International Development. During my undergraduate career, while many of my courses were focused on biological sciences and ecology, I also took courses around sustainability theory and practice as well as courses on Sub-Saharan Africa. These courses on Sub-Saharan Africa and Global Periphery Urbanization, taught by Dr. Ian Yeboah, introduced new perspectives that shifted how I viewed my pursuits in conservation science as well as what I wanted to do next in my career. I became motivated to think about how we can better incorporate the human experience and perspective in the conservation world, to ensure that we were practicing sound science as community partners.

I came to the University of Oklahoma to pursue my Master of Science in Environmental Sustainability, and it was in my first semester here in 2018 that I was introduced to the renewable energy sector. My master's thesis focused on the perspective of environmentally conscious individuals on the impacts of renewable energy development and how that impacted their support for deployment (Burch et al., 2020). During this research and through continued exposure to the renewable energy sector, I realized how complex navigating the environmental considerations of renewable energy deployment was and became interested in digging into how stakeholders experienced that challenge.

It was during my Master's and the start of my doctoral degree that I had two opportunities that helped lead me to this dissertation topic. The first was spending the summer of 2020 at the Tallgrass Prairie National Preserve in Strong City, Kansas, working with the Nature Conservancy and the National Park Service. During this fellowship, I learned a lot about the Nature Conservancy's efforts in the renewable energy sector and experienced the perspective of environmental non-profits and some community members as it related to renewable energy

development in Kansas and prairie ecosystems. The second opportunity was starting an internship with Olsson, an engineering and design firm, in the summer of 2021 within their environmental sciences division. This internship transitioned to part-time employment in the fall of 2021 and then full-time employment in the spring of 2024. I was working part-time with Olsson throughout my time conducting this research. The networks I created during my time with the Nature Conservancy and Olsson gave me access to a pool of potential participants which I may not have had access to without these positions and the trust that came with being associated with these organizations.

At Olsson, my role has been primarily assisting private renewable energy developers plan and permit their utility-scale wind and solar farms. It is important to acknowledge this experience, as I was conducting research in a context in which I also had professional experience and was currently engaged. Olsson's role is as an expert third party; we support our clients with scientifically defensible information which they then use to plan and permit their projects as it fits with their company's approach and internal policies. We provide recommendations about potential next steps for projects from an environmental standpoint, but our clients are the ultimate decision-makers for these projects. I believe that my role with Olsson gave me a unique perspective on the environmental permitting and planning process which allowed me to have educated conversations with my research participants. I believe that I approached my research fairly because of my experience in the sector and received positive feedback from some participants once our interview had concluded which assured me that I was approaching my interviews appropriately.

This research and associated analysis are not intended to identify good and bad players in the renewable energy sector but rather provide an honest perspective of the challenges and

opportunities within the environmental planning of projects. Having attended several conferences and participated in working groups and other conversations before, during, and after this research concluded, I have seen the challenges that all stakeholders face in this realm and I hope that this research helps provide a different perspective on these relationships are currently happening and what could be done to improve them.

I recognize that this research does not include all the perspectives that are involved in the complex process of developing a renewable energy project. I believe that there are perspectives that I am not situated appropriately to collect and am looking for opportunities to amplify those voices in a way that ensures that they are not overshadowed by my positionality and background. The renewable energy sector, in general, and the researchers who work within it have grown immensely in amplifying these previously underrepresented voices. I feel privileged to be entering the energy sector now as ideas of energy justice and energy democracy are being pursued with much more passion and purpose than historically has been the case.

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CHAPTER ONE:

When beyond compliance is the expectation: environmental planning and permitting of renewable energy and the developer experience

1. Introduction

Renewable energy requires space to be built; its infrastructure is much more dispersed than fossil fuel energy sources, in the case of wind, or requires a larger volume of land than fossil fuel energy sources, in the case of solar (Gross, 2020). The immense land use requirements and geographic nature of development make renewable energy more difficult to site and lead to an uneven distribution of the costs and benefits of development (Bridge et al., 2013). As Gross (2020), "For renewable electricity, the site 'chooses' the project, rather than the other way around" (p. 8). Concerns regarding the environmental impact of these large infrastructure projects can hinder development and lead to delay or even cancellation (Susskind et al., 2022). The environmental considerations for a project, therefore, are an important piece of the development puzzle.

The formal mechanisms that may require a renewable energy developer to consult with federal and state wildlife agencies related to potential environmental impacts, such as those to habitats or species, are often limited, especially on private land. While federal wildlife agencies have authority under federal policies such as the Endangered Species Act (ESA), Bald and Golden Eagle Protection Act (BGEPA), and the National Environmental Policy Act (NEPA; in limited cases where project funding or location triggers it), mechanisms which create requirements for consultation are sparse (AFWA, 2024; Loveless et al., 2021). In the region of interest for this research, the Great Plains, the lack of concrete authority to require consultation creates what we argue is a unique governance context (as further described in Section 3.1). In the absence of formal regulations or regulative pressure that require consultation and particular compliance actions, the renewable energy sector and governance have shifted to reliance on normative pressures, becoming subject to the expectations of communities and broader societies

as to what their impact on the environment will be (Hartmann et al., 2021). This normative pressure has created a unique environment of beyond compliance behavior as the expectation within renewable energy development and how renewable energy developers consider their impacts on the environment.

Much of the existing literature on renewable energy development and environmental impacts which is not based on understanding the specific impacts on species or habitats is focused on the public perception and response to environmental impacts (Batel, 2020; Dai et al., 2015; REWI, 2023). In current literature, renewable energy developers are grouped into a singular category which does not acknowledge the wide variation in how individual companies or even staff members within a company approach the environmental planning and permitting of their projects (Van De Grift & Cuppen, 2022). Within any regulatory environment, the individuals being regulated are heterogeneous and each firm behaves differently based on multiple internal and external factors (Nielsen, 2007). The purpose of this research is to provide a perspective on how different renewable energy firms behave in the current regulatory environment given a limited number of regulatory constraints.

Drawing on interviews with individuals who work within renewable energy projects and navigate environmental concerns, we examine the variation in how renewable energy developers approach environmental permitting and planning of projects, what may influence their approach, and what their relationship looks like with wildlife agencies. This research uses institutions and the idea of institutional work to understand what rules guide developer behavior, both regulations as well as more informal institutions like social norms or pressure, and how they navigate varying expectations depending on the state or even the local community they are attempting to develop in. In a vacuum of regulatory requirements, the compliance behavior of renewable

energy developers represents a unique case study for understanding what other factors may influence compliance beyond regulatory frameworks.

2. Literature Review

2.1 Institutions

This paper's approach to the regulatory environment and the policies and guidelines for renewable energy development orients around the idea of institutions. Institutions are defined as rules that guide and constrain actor behavior; these rules include not only actual laws but also organizational policies and social norms (Scott, 2013). In the context of renewable energy development, these institutions include: formal environmental policies such as the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), Clean Water Act (CWA), informal guidelines like the U.S. Fish and Wildlife *Land-Based Wind Energy Guidelines* (WEGs) published in 2012, societal expectations about how these companies proceed with development (i.e. social norms), and internal compliance policies and strategies (Arnett, 2019). Of note, this research focuses on the environmental permitting of renewable energy projects; numerous other policies apply to other considerations for the development of renewable energy projects that are not in the purview of this research.

There are three pillars typically identified within institutional theory: regulative, normative, and cultural-cognitive (Scott, 2013). This research is focused on the regulative and normative pillars. The regulative pillar focuses on the explicit regulatory processes that exist, such as the laws that govern environmental impacts: ESA, MBTA, BGEPA, and CWA for example. Laws can often be ambiguous in terms of how they are interpreted and implemented (Scott, 2013). The normative pillar includes both values and norms. Values and norms can assist in defining the goals and objectives an individual or organization pursues and how those goals

and objectives are pursued (Scott, 2013). Within the normative pillar, developers often determine within the organization what compliance with environmental regulations means and how to achieve this compliance.

2.1.1 Institutional work

Institutions can be conceptualized as constantly being "maintained, altered, contested, or even fundamentally rejected and replaced" through the process of institutional work (Beunen et al., 2017, p. 13; Lawrence et al., 2009). Institutional work shifts the focus away from how institutions guide and govern actors and on to how actors and their actions may impact institutions (Beunen & Patterson, 2019). Creation as a form of institutional work is the most extensively represented examination of institutional work in the literature, pairing well with the exploration of concepts such as institutional entrepreneurship, who is creating new institutions, and under what conditions are they doing so (Lawrence et al., 2009). Similarly, the disruption of institutions has been well-examined, although the exact practices through which actors disrupt or destroy institutions are not as adequately studied (Lawrence et al., 2009). The least examined of the three forms of institutional work is the maintenance of institutions; this could be attributed to the fact that institutions are often taken for granted in their current existence, although it may take significant work to maintain an institution in its current state (Lawrence et al., 2009; Scott, 2013).

Particularly when thinking about the maintenance of institutions, institutional work can bring attention to how actors navigate both flexible and rigid institutional structures, maintaining or changing them along the way (Beunen & Patterson, 2019). As an extension of the institutional work definition outlined by Lawrence et al. (2006), Beunen and Patterson (2019) proposed extending institutional work, specifically in the context of environmental governance, to include

both purposive and non-purposive actions that may impact institutions. This revised conceptualization of institutional work allows for a deeper understanding of how actors influence institutions, whether their actions are intentional or passive occurrences of everyday operation within these frameworks.

2.1.2 Organizations and institutions

We can conceptualize the relationship between organizations and institutions as a game, where institutions are the game's rules and organizations are the players. An organization represents a team in this analogy, which shares a common goal or purpose that drives their overall actions and performance (North, 1990). Organizations abide by existing formal and informal institutions in the pursuit of legitimacy: "the generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, p. 574). In the realm of renewable energy development, institutions that contribute to legitimacy are both the formal policies in place as well as the expectations set by guidelines like the WEGs.

In addition, important for the basis of this research is the idea of an organizational field, which Scott (2013, p. 106) defines as "a collection of diverse, interdependent organizations that participate in a common meaning system." This common meaning system can be conceptualized as a set of institutional logics, or shared institutional frameworks that guide the behavior of organizations within a particular field (Scott, 2013). Focusing on the renewable energy sector as an independent organizational field with a unique set of institutional logics is a key component for the framing of this research.

2.2 Environmental regulations and compliance

Institutional and organizational theory provides a broad framework through which to understand how formal and informal structures impact and are impacted by developer behavior, and we narrow this focus to environmental regulations and guidelines for renewable energy development. The analysis presented is rooted in understanding the compliance behavior of developers in an underrepresented facet of environmental compliance. Much of the existing literature focuses on measurable environmental impacts (pollution, water quality, etc.) but there is very little attention paid to environmental regulations that may be more difficult to enforce, such as monitoring impacts on endangered species in compliance with the ESA (Pacheco et al., 2014). The literature on compliance and permitting in the context of renewable energy is also limited, with examples including Barr et al.'s (2021) review of the permitting process for marine renewable energy, a law review that discusses the call for more federal control over permitting of wind energy in the early 2000s (McCammon, 2008), a review of potential state regulation of wind energy in Texas (Saathoff, 2017), and a chapter in a book on renewable energy and wildlife conservation which explores the current and potential policy directions to balance deployment of renewable energy with potential wildlife impacts (Arnett, 2019).

This research relies on two key concepts within compliance literature: beyond compliance and the social license to operate. Beyond compliance can be conceptualized as business practices that include engaging in environmental programs or pursuing environmental protections that go beyond what the regulatory framework requires (Gunningham et al., 2004). Literature has proposed three main motives for beyond compliance behavior: fear of legal repercussions, reputation, and moral obligation (Borck & Coglianese, 2011). This behavior, however, is largely explored in the context of pollution or water/air quality, which also have

more tangible regulatory frameworks or measurable benchmarks companies must meet (Pacheco et al., 2014). Renewable energy development, comparably, can be argued to rely more on beyond compliance behavior to ensure environmental protections given the limited environmental framework to regulate firm behavior (AFWA, 2024). Closely related to the idea of beyond compliance, arguably a driver of beyond compliance behavior, is the concept of a social license to operate. This social license to operate can be defined as "the demands on and expectations for a business enterprise that emerge from neighborhoods, environmental groups, community members, and other elements of the surrounding civil society" which may often lead to "environmental measures even in circumstances where these are unlikely to be profitable" (Gunningham et al., 2004, p. 308). Beyond compliance and the pursuit of a social license to operate allow for an exploration of compliance behaviors outside of the existing regulatory framework.

This research will also explore the more traditionally identified motives for compliance – economic, normative, and social – and how they are presented in a compliance environment with much more ambiguous regulatory benchmarks (Parker & Nielsen, 2011). The compliance literature, as previously mentioned, has not evaluated the relationship of the regulated with regulators in more ambiguous policy contexts, or in contexts where beyond compliance behaviors are more common (Pacheco et al., 2014). This research also seeks to fill this gap by providing insight into how developers view their relationship with regulators. This connects back to the concept of institutional work presented earlier in this section, as we seek to explore how institutions are maintained or challenged within the interactions between the regulated and the regulator. Consultation between the regulated and regulator is shaped by these formal and

informal institutions, and the perception of developers as to what this relationship looks like provides insight into how they currently operate within or attempt to change these institutions.

2.3 This research

The literature as described in sections 2.1 and 2.2 provides a basis for understanding how regulated actors behave in a multitude of regulatory environments. Institutional theory is used in partnership with literature on the regulatory environment to examine how renewable energy developers behave within the formal and informal institutions which provide a pathway for the environmental permitting and planning of projects and how they interact with other actors in the regulatory environment.

Given the largely voluntary nature of environmental planning of renewable energy projects and the ambiguous nature of enforcement of existing formal policies, we argue that developers are constantly performing institutional work as they pursue project development. At an individual policy level, developers are both trying to maintain certain policies as well as alter existing frameworks to fit their approach to siting and development. Looking at the broader spatial context of development, developers are in a constant state of institutional work in adapting broad formal and informal institutions to fit the specific ecological context within which they are operating. Institutional work offers a valuable framework through which to explore the relationship of developers with environmental governance because it encourages an understanding of developer activities that impact and are impacted by institutions, contributing to a bigger-picture understanding of patterns of compliance behavior amongst developers. The renewable energy sector is also driven by a unique set of institutions that set their compliance behavior apart from other energy generation sectors. The informal nature of many of the institutions governing the behavior of developers allows for an exploration of how organizations

within a field can vary in how they respond to various institutions. This research will explore how the internal values, norms, and policies of different organizations drive their approach, through individual employees, to environmental compliance

In the context of the regulatory environment and compliance, we believe that the renewable energy industry provides a unique perspective on the idea of beyond compliance and the pursuit of a social license, where beyond compliance behavior has become a normative institution for the industry. We argue that much of the environmental practices implemented by renewable energy developers can be conceptualized as beyond compliance behavior in pursuit of a social license to operate and that this is the norm (if not an expectation) within the industry.

3. Methods and Data

For this research, we focused on utility-scale solar and wind energy as our renewable energy technologies of interest. They are currently governed under many of the same policies, with solar development often being guided by current wind energy regulations given the infancy of utility-scale solar compared to wind. We interviewed renewable energy development firms who have built projects or are currently developing projects in the Great Plains region, and we sought out professionals who had experience with the environmental considerations of project development. We purposefully selected seven states as our area of focus: North Dakota, South Dakota, Nebraska, Iowa, Kansas, Oklahoma, and Texas. These seven states are predicted to see a large contingency of future development of both wind and solar and have similar ecosystems and environmental concerns (Larson et al., 2021). These states also have a similar level of state regulatory power (AFWA, 2024, p. 20). North Dakota and Kansas both have mechanisms that indirectly create a requirement to consult with the state agencies (particular project funding mechanisms or required permits include consultation with wildlife agencies as a requirement),

and Iowa and South Dakota both have mechanisms that indirectly create authority (have permit review processes which may include referring to state wildlife agency opinion on particular projects). Overall, in these seven states, while there may be instances where agency consultation is required in coordination with another permit, agency consultation is not required across the board (AFWA, 2024; Enterline et al., 2024).

To explore the compliance behaviors of renewable energy development firms, we conducted confidential, semi-structured interviews with staff members from development firms (interview guide included in Appendix). This research and the associated interview material were approved by the University of Oklahoma's Institutional Review Board (#14823). We requested to speak not only to environmental staff but also to developers, project managers, or any other staff in these firms who felt that they could speak to the environmental piece of developing a renewable energy project. We did not specify what specific environmental planning experience staff needed to have and interviewed any staff member willing to discuss their experience with us. All interviews were conducted via Zoom to increase our geographic reach, and interviews were recorded with the consent of participants. If a participant did not consent to recording, detailed notes were taken and analyzed along with the interview transcripts.

These interviews were conducted in March through October of 2023, and the average length of an interview was one hour. We used a snowball sampling approach to recruit participants, reaching out to contacts in development firms and then asking them to refer others upon completion of the interview (Frankfort-Nachmias et al., 2015). We then expanded our reach by: posting on LinkedIn requesting participants, asking renewable energy trade associations to distribute our call for participation, and submitting contact form inquiries or sending e-mails to firms which we did not have contacts for. In total, we contacted 37 development firms identified

as having wind or solar energy projects in our region of interest to ask if they would be willing to participate; for some firms, we contacted multiple individuals. Our final participant group consisted of 19 staff members representing 15 development firms. Our participant group represented firms with diverse portfolio sizes (both in construction, in the planning and development phase, as well as operational) and encompassed those that developed only wind, only solar, solar and battery energy storage systems, wind and solar, or all three technologies. We interviewed staff members from 12 firms which were identified as owner/operator (they construct the project and then continue to own and operate it) and three were identified as developer-only (they build the project and then sell it). We talked to staff members in a multitude of different roles, from environmental managers working on specific projects to senior staff members, vice presidents, and executive staff members.

The final participant group consisted of ten men and nine women. Most participants were white, and the average age of respondents was 42. 12 participants had some sort of graduate degree (a mixture of Master of Science, Master in Business Administration, professional Masters programs, and Juris Doctorates), and most participants had degrees in disciplines related to Environmental Science or Biology, although there was a wide breadth of degree programs represented. About half of the participants had been at their current company for less than five years but had worked in the renewable energy industry in their prior roles as well.

To analyze the interview data, we coded our transcripts using NVivo™ using an inductive coding approach, where we began with a few coding themes identified from the literature on institutions, organizations, and compliance but added to the codebook as additional themes emerged from the data (Frankfort-Nachmias et al., 2015). One member of the research team was the primary coder, but the codes and associated themes were reviewed by all members of the

research team. All quotations have been anonymized to protect participants; identifying information has been removed and quotes are attributed using a number system, where any individual with the number format #.# was one of multiple individuals interviewed from a single firm.

4. Findings and Analysis

We break our findings into five main sets of themes. First, we identify more generally what values and norms contributed to how different firms approached compliance and the consultation process. Second, we explore how the idea of beyond compliance shows up in firms' approaches to consultation and their reflections on the voluntary nature of much of their environmental due diligence. Third, we look at the overall perspective of participants towards environmental considerations of development. Fourth, we dig into common themes among firms as they relate to the relationship with state and federal regulators and the consultation process. Last, we outline some of the key opportunities and challenges for the industry moving forward, as identified by participants.

4.1 Organizational values and institutional structures

We first asked participants to discuss their general approach and experience with the environmental permitting and planning of projects they work on as well as how their firm prioritizes environmental considerations in project development. Approximately half of the participants identified specific biodiversity or environmental policies or goals that drove their company's commitment to environmental considerations during development. These specific policies or goals ranged from specific biodiversity impact goals (such as a net positive impact on biodiversity through conservation practices) to internal compliance standards related to how each environmental staff member approaches the permitting process. The remaining participants did

not identify any specific goals or policies but indicated that their company valued the environment and recognized it as a key consideration during the development process. For example, one participant indicated that the environmental piece is a priority: "The environmental piece is a strong priority. It's something we discuss, you know, early on in the projects… We're coordinating with the environmental agencies very early in development and then throughout" (Developer 10). In place of citing specific species policies or goals, many participants mirrored this participant in highlighting the environment as a general priority.

When looking at themes in the motivations identified by firms for environmental compliance, they tended to match the general economic, social, and normative motives identified in the compliance literature. Economic motives were mentioned most frequently and included things like: environmental considerations influenced the decisions of firms buying projects or power from developers, or investors wanting to see the environmental risk, and overall risk adversity for projects. Based on the responses of participants, it's clear that remaining environmentally compliant is important for the financial success of development firms. For example, one participant said, "even if you didn't look at it from an environmental perspective but you looked at it from a transactional due diligence de-risking perspective, it's of utmost importance that the environmental considerations are taken into account" (Developer 15).

Social motives for environmental compliance were also mentioned frequently. The most common connection was to the reputation of the firm; environmental due diligence and performance resulted in protecting the reputation of the developer, contributing to their legitimacy. As some of the firms were international firms with a United States portfolio, this reputation facet extended to protecting the overall firm reputation as they developed in countries other than the U.S. as well. Developers also recognized the importance of social acceptance for

overall project success – "…I think my company… took the approach that being a good actor is imperative for being a successful developer" (Developer 13). The pursuit of legitimacy and a social license to operate were clear social drivers. Compared to social motivation for compliance, normative motivations (those internal to the firm) were mentioned far less often. While maybe implicit (i.e. participants didn't mention internal norms for compliance because they perceive it as a given), participants were far more focused on external approval from stakeholders versus internal values and norms, again emphasizing the pursuit of legitimacy and a social license to operate as key factors in environmental due diligence.

Overall, it was fairly mixed within this participant group whether they had formal policies related to environmental considerations of projects or if it was more so an implied value of operations. Most participants cited economic considerations as a key driver for environmental due diligence, although external social acceptance of individual projects or overall company operations was also mentioned frequently. This external social acceptance and pursuit of legitimacy connects well to the next theme of this research: beyond compliance approaches and voluntary environmental due diligence activities.

4.2 Beyond compliance and voluntary due diligence

Seven participants at some point during the interview referenced the voluntary nature of much of the environmental due diligence process for renewable energy development. Five participants either explicitly mentioned the idea of beyond compliance or alluded to it by discussing how voluntary measures are expected of developers. For example, one participant said about the lack of formal policies, "We don't have a blank check. There is still, I think, almost required best practices and lots of expectations on developers of how to put together a renewable energy project that is respectful of the environment" (Developer 14). This theme of beyond compliance

as an expectation or a risk mitigation approach came up often in interviews. For the renewable energy industry, for development, voluntary guidelines like WEGs are thought of as implicitly required. Developers are not seeking approval from any state or federal agencies, but participants consistently framed consultation as a voluntary activity they choose to pursue. For one developer, they highlighted that no one is requiring them to pursue activities like ecosystem restoration. They pursue these activities because it is "a reflection of my company's value and our goal to be a good neighbor for communities" (Developer 3.2). Many developers equated this beyond compliance approach and the use of the WEGs as doing development the "right way."

One point brought up within this idea of beyond compliance, which was not mentioned by many participants during interviews but is certainly part of the dialogue surrounding renewable energy, is the idea that this expectation of beyond compliance is unique to renewable energy developers and the renewable energy sector, compared to other types of energy production. One developer said "But from a cynical perspective, the reality is that renewable energy is always held to a higher standard than other types of industry in infrastructure development. And so if you want to have a social license to operate, you need to take it a step higher than anyone else ever would" (Developer 7). Another developer noted "I think most of us are doing [extensive environmental due diligence]. So, we're one of the only utilities. Oil and gas doesn't do this. You know, nuclear doesn't do this" (Developer 2.1). This represents an important perspective as conversations around the permitting of renewable energy projects continue. This perspective emphasizes that renewable energy is a unique organizational field driven by unique institutional logics compared to other energy production sectors.

4.3 Perceptions of the environmental considerations for renewable energy

When asked about the overall challenges in navigating environmental considerations for projects, sixteen participants identified the changes in regulatory timelines, changes in regulatory content and requirements, and the variability of guidelines and requirements between regions. Five participants specifically brought up the challenge of "uncertainty" – they are trying to plan projects ten to 20 years out in many cases and the flux of the regulatory environment can make this difficult. For example, the challenge of the potential uplisting of multiple bat species came up frequently as a pinch point for development. Firms are waiting for guidance to come out as to what is expected in terms of impact mitigation or how to approach field surveys for presence/absence counts. Beyond the focus of this research, the Waters of the United States designation and overall fluctuations within the CWA also often came up as an example of uncertainty for developers. The institutional context (both formal regulations as well as informal guidelines) is at the forefront of developers' minds as they plan projects. The ambiguous nature of these formal and informal institutions was made clear in these conversations.

When asked which policies participants were most concerned with when developing projects, federal-level policies like ESA (12 participants), BGEPA (6 participants), and the CWA (12 participants) were mentioned the most. State-level policies were mentioned less (8 participants), which makes sense given the lack of formal institutions guiding development at the state level in this region (AFWA, 2024). Local-level policies were also not mentioned as often (7 participants), but those who did mention them emphasized how important they are becoming for project success. The rise in the requirement of conditional use permits or special use permits in this region (and throughout the U.S.) means that local-level considerations are becoming much more important (Lopez et al., 2023). While many of the local-level permitting requirements do not include explicit environmental reporting or assessments, some participants noted that local

officials may reach out to other regulatory bodies to confirm their perspective on a particular project. This comes back to the importance of beyond compliance measures. As one developer put it, “So you know, I think it's really important to understand what the local politics are and what the permitting regime is at these county levels. That may be the most important thing to successful permitting of a project right now” (Developer 4). Local-level institutions are becoming increasingly important, even for development staff who may focus more so on environmental planning of projects, and firms are finding themselves engaged more often with local leaders.

4.4 Regulator relationships

First and foremost, all participants identified that they typically pursue consultation with state and federal wildlife agencies for almost all their projects. Eleven participants said that they typically complete consultation before completing any significant fieldwork efforts, but five participants stated that at least in some instances, they will go and collect what they perceive as all of the necessary data before beginning the consultation process. Those who collected data before a consultation were looking to come to a consultation with as much information prepared as possible. Overall, it appears that at least within this sample of development firms, consultation with agencies represents a key part of the environmental due diligence process; the timing and depth of information provided depends on the firm.

Challenges identified within the consultation process largely revolved around staff turnover within agencies (6 participants), the way various guidelines are applied in different regions (7 participants), and individual staff member personalities and biases (7 participants). When discussing staff turnover, most developers who identified this as a challenge focused on the fact that the projects they are working on take years to develop, and having to “start over”

with new staff can be difficult. Ten developers also noted that their perception of regulatory agencies as understaffed and overwhelmed impacted how often they communicated with agencies. For example, one developer said, “We wouldn’t do an introductory meeting with the agencies because agencies are really, really busy and they’re meeting lots of developers and I know they’re already short-staffed” (Developer 1.2). It’s important to note that developers who identified this as a challenge recognized the staffing and financial constraints that result in staff leaving; developers were not blaming agencies or individuals when discussing staff turnover. Staffing levels and turnover represented a key point of discussion when talking about the consultation process.

Participants also identified how regulations are enforced or applied varies depending on the location and that this can be a challenge when developing in multiple states. This is a clear example of institutional work in practice. They are frequently operating in different institutional contexts, given the flexibility of existing regulations and the discretion given to both those implementing institutions and those operating within institutions. Permitting related to eagle take permits was an item mentioned by four participants, which provides a clear example of the variation in interpretation and implementation. The entire process is intended to be applicant-driven, but participants who discussed this permit mentioned the challenges in negotiations and overall implementation, which make it feel as if they have limited control. Six participants also discussed the WEGs; given that they are guidelines versus formal rules, the expectations tied to completion of the tiers and the associated consultation may also vary depending on the state or region. The ambiguity of many of the institutions guiding development led to uneven implementation and firms are constantly adjusting their approach to meet different expectations.

Throughout the discussions of the consultation process, this application of ambiguous guidelines and lack of clear regulatory structures is one spot where many participants identified that regulators held the power in the relationship. This point is interesting given the lack of general power given to regulators by existing regulation, but their ability to provide best management practices and project design suggestions was perceived by some participants as "the discretionary power of field offices" (Developer 11). Participants discussed challenges in the differences in opinion between state and federal regulators when participating in joint consultation, and ultimately, many participants noted that a good consultation came down to just having good individuals on both sides of the table.

Despite some of these challenges highlighted above, many participants explicitly expressed overall positive perceptions of the consultation process (7 participants), found regulators to be reasonable individuals to work with (9 participants), or were able to discuss examples of positive consultations they've been through (15 participants). This is important to note; while there were challenges identified, they were never unsurmountable challenges in the realm of development. For example, one developer said about the consultation process: "[Regulators] are experts in their field, and they know what potential issues there may be in an area… The resource agencies know what the issues are, and they can tell us right up front" (Developer 4). Another developer noted "I think the industry would be much better off if we all kind of approached regulators a lot earlier in the process and treated them more as stakeholders" (Developer 7).

A common theme amongst participants when discussing positive consultation experiences was an emphasis on collaboration, engagement, and feeling like everyone was on the same page. Participants emphasized the importance of building and maintaining relationships

when it came to success in the consultation process. Participants discussed things like formulating field survey plans together and discussing results, hosting site visits to talk through particular issues, and talking through project design to reduce impacts and expedite construction timelines. Participants recognized that these types of collaborative consultations helped to keep their projects on track and schedule; good relationships for many equated bringing a project to construction and then operation with limited delays. One developer said, "…Early coordination with the state helped us design the project in a way that, you know, helped achieve really aggressive construction schedules and really aggressive commercialization schedules" (Developer 5). Institutional work is being performed collaboratively here, where regulations and guidelines are being adjusted in a manner that meets the expectations of all stakeholders involved.

The phrase "early and often" has become common for the industry in recent years to describe engagement with different stakeholders (Moy, 2024; Wright, 2024). Many participants took this one step further in emphasizing the idea that these consultations need to be an ongoing conversation. Participants gave the idea of early and often context by discussing the need to communicate with agencies at all stages. As one developer put it, "I like the question [referring to being asked about an example of a positive consultation] because it assumes that we're done with consultation, and I say it that way because it does feel like consultation goes on forever" (Developer 14). This participant goes on to emphasize that this consultation needs to be long-term coordination and that regulators, as previously mentioned, need to be considered stakeholders of the project.

Overall, many of the challenges developers face in the consultation process are contingent on the individuals implementing regulations and guidelines. Because of this, many

participants emphasized how important relationship-building and collaboration are for successful consultation and implementation of regulations and guidelines.

4.5 Challenges and opportunities for the industry

Participants were also asked what they saw as some of the challenges and opportunities for the industry, both within and beyond the environmental spectrum. Most participants highlighted challenges and opportunities that are deeply engrained in the environmental considerations of renewable energy development.

The three most commonly mentioned challenges among this group were: space for development (7 participants), challenges with transmission (9 participants), and impacts to wildlife as well as listing of more species (8 participants). Conversations around space for development typically came back to the idea that "all easy spaces for development are gone," meaning development is beginning to occur in what is perceived as more ecologically diverse and complex areas as well as closer to higher population areas, which may result in more local opposition. The second most mentioned challenge was transmission, which connected back to locations for development – transmission needs to be built before development can continue in some spaces. Lastly, many participants discussed the challenges they will face as more species are listed under the ESA. One developer said, "It's like the earthquake has happened and the wave is coming… [Species listings are] going to change the nature of how the build-out occurs, how quickly it can happen, and how smoothly it can happen" (Developer 5). Many participants also pointed out the challenges these listings will pose in terms of existing regulatory capacity, coming back to many of the other themes already discussed.

Participants also identified potential opportunities which could help to overcome some of these prominent challenges. Of relevance to this exploration of environmental considerations for

projects, some participants saw real opportunities in building more responsible siting practices (4 participants) as well as avenues for collaboration and coordination in research and regulation (3 participants). For example, one developer identified the benefits of collaborative guideline development in the face of species listings as an opportunity for the industry: "[Collaboration between regulators and industry] is a huge opportunity for an important part of the country to conserve some keystone species while still meeting our renewable energy targets as a country" (Developer 5). Another developer confronted the idea of greenwashing in renewable energy development, talking about the opportunities for building projects with diverse habitats:

> "[Big renewable energy companies] are disproving that greenwashing is happening. They're actually putting some usable, high-quality habitat into their facilities. I think, in the renewable market, that is the way that we distinguish ourselves as more than just another energy generation industry. By putting out valuable habitat and proving that we've lived up to our commitments" (Developer 9).

Overall, many participants appeared optimistic that there's space for innovation in conservation practices, to both move renewable energy forward and integrate smart siting decisions.

5. Conclusions

Our research sought to examine the experience of renewable energy developers in the environmental permitting and planning of projects in the Great Plains region, where there are limited regulatory frameworks in place to guide their behavior. We saw this reflected in our data – most participants, when asked about specific regulatory requirements, were focused on federal policies with limited discussion of state-specific requirements or processes. When discussing those policies, participants mentioned frequently the uncertainty caused by the flux in regulations and different interpretations or implementation in different regions. A few participants also

discussed local permitting requirements; participants who did discuss local permitting emphasized how important it has become to their project timeline and that communication and coordination with local county officials have become a priority. The trend of increasing local ordinances, moratoriums, and overall permitting requirements at the county-level emphasizes that local-level institutions are becoming increasingly important (Eisenson et al., 2024; Lopez et al., 2023).

Our research also focused on the idea that much of what renewable energy developers choose to do in terms of environmental compliance fits the category of beyond compliance, as the regulations requiring behavior are limited or non-existent. Participants confirmed this idea of beyond compliance as an expectation, emphasizing that they pursued environmental actions beyond regulatory requirements to protect their firm reputation, to be a good neighbor to the community, or because of other societal pressures. Participants also highlighted that this expectation was unique to the renewable energy industry (or organizational field) and that oil and gas developers, in particular, did not face the same level of expectations. The idea of beyond compliance and associated behaviors within the renewable energy industry emphasizes how powerful social institutions can be in some contexts.

Our research also emphasizes that renewable energy developers are a diverse set of actors, with varying approaches to how they develop projects, their process of environmental planning for a project, and their overall perspective of the process. While all participants indicated that consultation with wildlife agencies represents a key piece of their due diligence process, the level of communication and the timing of communication depended on the firm. While some firms pursued consultation and communication early in the project process, others waited to approach agencies once they had more data to provide. Developers engage in the

process of institutional work in almost every project they pursue. For some, that process is collaborative, where they work in concert with the agencies to apply guidelines to their projects in a way that helps to move the project forward in a timely fashion.

It is important to recognize the limitations of this research. Our sample of developers represents a diverse range of firm development goals, current firm portfolio size, and experience of staff members, and overall can reflect some of the general trends and sentiments for development specifically within the Great Plains region. Given the diverse regulatory environments of other regions within the United States and abroad, lessons learned for this region may not be directly applicable to other regions. In addition, we acknowledge that our sample of developers potentially represents the perspectives of those firms that at least perceive themselves as being more environmentally responsible and conscious when developing projects. Firms that have an internal process that does not prioritize environmental considerations of a project may be less willing to participate in this area of research. Despite these limitations, we argue that this research contributes a series of valuable takeaways for consideration as renewable energy deployment continues.

First, whether a firm has specific environmental policies (both internal or publicized) or environmental concerns were more a normative expectation did not seem to impact the level of effort a firm put forth in the environmental permitting and planning of a project. Motivations for environmental behavior vary but fit the standard economic, social, or normative motives identified in the literature, with risk aversion, investor expectations, and firm reputation tending to be the most predominant motivations for environmental behavior. Within the organizational field, building environmentally responsible projects is a common thread that underlies the operations of many renewable energy developers, driven by economic-related concerns. While

developing the "right way" may become more prominent as development continues and societal expectations increase, the economic incentive of being able to sell a project quickly and with little risk was a big driver for the environmental due diligence many firms complete.

Second, the biggest hurdle for renewable energy developers in the environmental due diligence space currently is the changing regulatory requirements, content, or timelines as well as the variation of regulations between regions, states, and even counties. Given the long timeline for project planning, ten or more years in some cases from project conceptualization to when a project becomes operational, the fluctuations in regulatory requirements make long-term planning challenging. Developers are working within a constantly changing institutional environment and attempting to adapt their approach to fit the individual context of each project. They are sometimes in a constant state of institutional work. Consistency between federal and state agencies as well as between state agencies, at least in terms of the guidance or best management practices, could help with reducing some of the uncertainty in developing projects.

Third, this research examined the relationship between renewable energy developers and regulators, to understand how regulators and the regulated interact in a context with limited environmental compliance behavior. Overall, the relationship is often a positive one built on collaboration and communication. Staff turnover represents a significant challenge, both in being able to build relationships and positive communication as well as being able to engage in consultation in the first place. Staff capacity was identified as a reason why some developers waited until they were further along in a project before reaching out. One participant (#7) noted the idea of a fund that renewable energy developers could contribute to support hiring more agency staff members, which could help reduce turnover and increase capacity to build long-term relationships. Interpretation and implementation of regulations and guidance also varied,

both within and between agencies and regions. Firms may find themselves having to constantly adjust their approach to meet different expectations, which can contribute to how willing they are to go above and beyond to meet regulator expectations in some contexts.

Lastly, reflecting on the challenges and opportunities for the industry moving forward, space for development, transmission, and impacts on wildlife were the most prominent. These three challenges are all intimately connected to the environmental planning of a project, and as renewable energy moves into more complex environments and more species are listed with regulatory protections, environmental permitting will only become more challenging for the industry. As mentioned in the introduction, location will continue to choose the project (Gross, 2020). Conversely, there are opportunities for collaboration in research as well as building responsible siting practices which could help to alleviate the challenges around environmental planning of future projects. Overall, the challenges and opportunities as seen by renewable energy developers include issues that will have an impact or be impacted by the environmental planning of projects.

Overall, the results of this research contribute to the conversation currently happening regarding the environmental regulatory environment for renewable energy development. When discussing permitting reform or additional regulations, it is important to understand what mechanisms are currently working, what firms are currently doing under existing regulations, and what contributes to firm behavior. This research provides insight into how development firms currently view their consultation and compliance behavior, how they feel they approach consultation, and what they see as roadblocks moving forward. In the eyes of developers, it feels as if the beyond compliance approach is an expectation in the industry, and this will impact how they respond to a changing regulatory environment moving forward.

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CHAPTER TWO

More then a box to check: the experience of state and federal wildlife regulators in the renewable energy development process

1. Introduction

The environmental permitting process for large infrastructure projects has become a topic of increasing interest in recent years. The permitting around renewable energy projects and other technology that is intended to mitigate climate change or combat the impacts, in particular, are experiencing significant delays because of inefficient permitting processes (Ulibarri et al., 2017). At the same time, however, concerns surrounding the potential or realized environmental impacts of renewable energy projects are a consistent source of project delay or cancellation. In their paper reviewing current sources of opposition to renewable energy projects, Susskind et al. (2022) highlight the challenges in navigating often conflicting federal and state regulations laws. They succinctly summarize this conflict: "Our analysis raises a fundamental question about whether the regulatory system in place in the U.S. are suited to reviewing the rapidly growing number of new, utility-scale renewable energy projects" (p. 13). It is within this unique regulatory environment that our research is situated.

The environmental policies that govern renewable energy development add a level of complexity, as there are limited opportunities for required consultation with environmental regulators, especially as it relates to the potential impacts on flora and fauna. While federal wildlife agencies have authority under federal policies such as the Endangered Species Act (ESA), Bald and Golden Eagle Protection Act (BGEPA), and the National Environmental Policy Act (NEPA; in limited cases where project funding or location triggers it), mechanisms which create requirements for consultation are sparse (AFWA, 2024; Loveless et al., 2021). These federal policies are left to state field offices to enforce, and additionally, each state may include a separate set of environmental requirements outside the federal regulatory requirements (Arnett, 2019). Because environmental policy is often left in the hands of regulators:

> "…through the selective enforcement of specific environmental measures, regulatory agencies may either weaken the measures or expand their scope and effectiveness. Some statutes actually allow the regulator to negotiate with the source to determine the form and extent of compliance" (Oates & Portney, 2003, p. 6).

This can lead to differences across states in how regulators handle environmental compliance and associated relationships. The regulatory literature has also predominantly focused on emission control and reduction, which has different requirements than monitoring impacts on wildlife and landscape. This research delves into what we argue is a unique subset of regulatory environments, where impacts are often more difficult to monitor and consultation with government agencies (at the state and federal level) often relies on voluntary action (AFWA, 2024; Loveless et al., 2021). Not only does this regulatory environment present unique challenges for regulators but it also creates a unique set of relationships between the regulators and the regulated.

The literature has historically treated the relationship between the regulated and the regulator as fairly simplistic, relying on enforcement style or external factors to explain the success or failure of regulatory enforcement (Pautz & Rinfret, 2016). The assumption is that the regulatory process is straightforward and that noncompliance simply results in punitive action (Heyes, 2000). With the environmental regulations of interest in this research, however, it is not always easy to identify when noncompliance occurs. As highlighted by Arnett (2012), while one company may invest in environmental practices, a "less conscientious company [may continue] to develop unhindered… its only risk at this point is likely to be if it were to actually take a listed species and then, even less likely, be caught doing so" (p.228). We saw a recent example of this when a series of eagle fatalities went unreported at wind farms in eight states (The Associated

Press, 2022). This leads to questions such as how regulators navigate these types of nuances and how they build a relationship of compliance built on self-reporting.

Drawing on interviews with individuals who work with renewable energy projects and navigate the regulatory environment for development, we examine how state and federal regulators implement current environmental regulations and build relationships with renewable energy developers to protect the local environments they work within. This research pulls from the existing research on regulatory relationships and seeks to expand that body of literature to include the regulator/regulated dynamic in a more unconventional regulatory environment and look at how self-reporting is incorporated as a main mechanism for compliance behavior. We also explore the relationship between regulators and the general public using the idea of the street-level bureaucrat. We argue that, with a lack of a strong environmental regulatory framework in place, how regulators enforce environmental protections in renewable energy development represents a unique case study of environmental regulation outside pollution and emission control.

2. Literature review

Approaches to environmental protection can be grouped into three broad categories: regulatory or a stick-based approach, economic or a carrot-based approach, and the sharing of information or a "sermon"-based approach. In the context of pollution control, the most predominant regulatory environment explored in the literature, governance behavior tended to be measured on a scale of coerciveness from information-sharing or more voluntary approaches to more coercive or regulatory-based approaches (Pacheco-Vega, 2020). In more recent years, there has been a recognition that the more command-control, or regulatory-based approaches, are not as effective in maintaining business compliance. There has been a shift to calling for more collaborative

approaches that emphasize a better working relationship between the regulator and the regulated (Pautz et al., 2017). Regulators are often negotiating with the regulated to find a solution that works for all parties involved, and not only are they enforcing regulations, but they may also be changing business behavior in these negotiations (Curtis & Kaufman, 2020; Raaphorst & Loyens, 2020). While the literature has historically focused extensively on the enforcement approaches of regulators to compliance and how they intervene in business practices, there is a shift to recognizing the relationship component of environmental governance and the regulatory environment (Heyes, 2000; Pautz & Rinfret, 2012).

2.1 Regulatory relationships

The regulatory interactions and the activities of regulators on the front line of implementation are important to consider because it is these interactions that often determine how a particular policy is carried out (Oates & Portney, 2003). As mentioned above, research has begun to focus less on the enforcement strategies of regulators and more on their relationships with the regulated. The common conception of this relationship between regulators and the regulated (largely within command-control environments) is that it is based on mistrust and adversarial (Pautz & Rinfret, 2016). In their study on trust in regulatory relationships, Pautz and Rinfret (2016) found that, despite the common outside perception of the adversarial relationship, a majority of the regulators in their study had significant levels of trust in the communities they regulated. They found that overall perceptions of the regulatory relationship were fairly positive, challenging common conceptualizations of this relationship.

The importance of understanding the relationship between regulators and the regulated is clear. Nielson's (2007) study of the differential treatment of regulated firms by regulators within a single agency emphasized the importance of exploring the relationship between individual

regulators and firms. Raaphorst and Loyens (2020) focus on the social context within which individual regulatory scenarios occur and how that context may impact the decision-making of regulators in those instances. Curtis and Kaufman (2020) expand on the idea of responsive regulation, which recognizes that regulators may have to apply different intervention strategies when working with different firms. In general, there are often no formal institutions guiding the behavior of either party during regulatory interactions, so they are creating their own informal, social institutions to guide these interactions (Nielsen, 2007).

These relationships, however, are not straightforward and uniform across the regulatory environment. Within the context of relationships in the regulatory environment, Pautz and Rinfret (2012) emphasize that enforcement styles and approaches cannot be neatly categorized and instead propose a continuum of interactions that may occur. The four categories they identify are: adversarial, cordial skepticism, cautious cooperation, and partnership. They found that, overall, very few participants defined their relationship with regulated businesses as adversarial. A majority of respondents fell into the cautious cooperation category, where their general experience was cooperation but there were still negative interactions. Overall, Pautz and Rinfret (2012) found that regulatory relationships tend to be more positive than negative. This could indicate an impactful shift from the traditional command-control approach often associated with negative relationships to a more collaborative approach based on positive relationships. This emphasis on positive relationships and collaboration is a key piece of this research, as renewable energy development exists within an environmental governance framework that could rely on relationships and cooperation.

2.2 Self-reporting

The other important component of environmental governance and regulation relevant to this research is the idea of self-reporting as a compliance behavior of businesses. Many environmental governance programs rely on some form of self-reporting, either through an explicit requirement that firms self-report compliance or more so through expectations of enforcement (Heyes, 1998, 2000). Command-control regulation has been criticized for its associated costs and rigidity, and the idea of voluntary programs or approaches (largely in the context of pollution abatement) means that businesses would commit to improving their environmental performance beyond what was required by law (Lyon & Maxwell, 1999). Pautz et al. (2017) found that in scenarios where businesses had a practice of self-reporting violations, regulators perceived that current relationship as more cooperative. Self-reporting is a key component of the regulatory environment for renewable energy development; as we've noted, many of the regulations that exist to monitor the environmental impacts of deployment are reliant on self-reporting (Arnett, 2019).

2.3 The street-level bureaucrat

While this research largely focuses on the relationship between regulators and the regulated, it is also important to acknowledge that regulators are government employees ultimately serving the good of the public in their role. Much of the literature on these individuals who are regularly interfacing with the public every day, known as street-level bureaucrats, focuses on the implementation of public goods and services, such as how eligibility rules are implemented for particular government programs (Bruhn & Ekström, 2017; Cohen & Aviram, 2021). Holstead et al. (2021), argue that the street-level bureaucrat experience in environmental governance is underrepresented in academic literature but is an important realm of regulation to understand.

Regulators are operating on the "street-level" in environmental governance,

implementing environmental policy at the ground level and often determining how environmental governance is experienced by the public. The idea of the street-level bureaucrat also acknowledges that policy implementation is often shaped by local contexts. Street-level bureaucrats are often adapting policies to fit local circumstances and expectations, even if they are not always directly interfacing with the public (Holstead et al., 2021). Sevä and Sandström (2017) argue that while environmental agency staff may not fit the standard street-level bureaucrat mold, they have "more or less discretion and autonomy [at the end of the policy chain], clearly resembling that of street-level bureaucrats" (p. 76). This relationship between regulators and the general public in the development of renewable energy projects is an important facet to understand.

2.4 The regulatory environment for renewable energy

In this context, renewable energy development and the regulatory environment surrounding the environmental governance of project development add additional layers of complexity. Renewable energy development creates a unique scenario of multilevel governance, where there are not only potentially differing goals for deployment at all levels of governance but also different types of policies regulating deployment (Koelman et al., 2021). Many environmental policies leave implementation up to the state or individual state offices of federal agencies, and there can be immense variation in the commitment of states to environmental protection (Konisky & Woods, 2012). Individual regulators are left to adapt policies and frameworks to fit the local context they are working within for each project they are reviewing (Holstead et al., 2021).

Some states, such as New York and Illinois, have a state permitting framework in place that governs how renewable energy development is sited, approved, and constructed; other states

like Oklahoma and Texas have limited requirements at the state level as it relates to environmental impacts of renewable energy development (AFWA, 2024; Enterline et al., 2024). Most state wildlife agencies currently lack the regulatory power to require avoidance of particular species or habitats and rely on voluntary guidelines (Loveless et al., 2021). Federal policies such as the ESA, the Migratory Bird Treaty Act (MBTA), and BGEPA, provide an overarching framework but leave room for discretion in how individual regulators approach implementation as well as relying on self-reporting behavior by developers (Arnett, 2012, 2019). The overall regulatory environment for renewable energy varies, and this can create challenges in how regulatory relationships play out.

2.5 This research

The literature as described in sections 2.1 through 2.4 provides a basis for understanding the context of the current environmental regulatory context, by building off the existing literature on regulatory relationships and the role of self-reporting in a unique regulatory context. This research also seeks to incorporate the experience of individuals interacting with the public, examining an under-represented street-level bureaucrat experience.

This research is based on the idea that renewable energy development does not fit the model of the traditional pollution monitoring and compliance literature, as the policies governing the environmental considerations of development may be more difficult to enforce. This particular regulatory environment relies much more on the partnership side of the regulatory relationship spectrum and the willingness of parties to self-report and engage proactively with regulators. We also show that regulators in renewable energy occupy a unique space where their most common street-level bureaucrat experience is hearing from communities with concerns about the environmental impacts of projects. These communities may also rely on regulators to

provide information and education on the impacts of projects. Environmental concerns have been identified as a leading cause for the delay or cancellation of renewable energy projects in many instances, and in some cases, the environmental risks are perceived risks versus actual risks brought to fruition by a lack of access to information on project risks and impacts (Susskind et al., 2022).

Overall, this research seeks to understand what the experience is of regulators in a realm of environmental regulation largely reliant on voluntary consultation, compliance, and reporting of impacts. This research provides a perspective on how regulators navigate the relationship with renewable energy developers and how they operate within the current regulatory context for renewable energy development, both with regulated parties and also with the public.

3. Methods and Data

For this research, we focus on utility-scale solar and wind energy as our renewable energy technologies of interest. They are currently governed under many of the same policies, with solar development often being guided by current wind energy regulations given the infancy of utility-scale solar compared to wind. We interviewed federal and state environmental regulators in the Great Plains region, and we sought out individuals in these agencies who worked specifically on reviewing renewable energy projects or engaged with renewable energy developers in their role. We purposefully selected seven states as our area of focus: North Dakota, South Dakota, Nebraska, Iowa, Kansas, Oklahoma, and Texas. These seven states are predicted to see continued development of both wind and solar and have similar ecosystems and environmental concerns (Larson et al., 2021). These states also have a similar level of state regulatory power, except North Dakota, which does have an approval process that includes potential environmental concerns of projects (AFWA, 2024; Enterline et al., 2024).

To explore the experience of regulators in the environmental permitting and planning of renewable energy development, we conducted confidential, semi-structured interviews with agency staff members from state and federal environmental agencies (interview guide included in Appendix). This research and the associated interview material were approved by the University of Oklahoma's Institutional Review Board (#14823). We requested participation from any staff member who felt that they could speak to their agency's development and implementation of environmental regulations in the renewable energy sector. We did not specify what specific experience staff members needed to have and interviewed any staff member willing to discuss their experience with us. All interviews were conducted via Zoom to increase our geographic reach, and interviews were recorded with the consent of participants. If a participant did not consent to recording, detailed notes were taken and analyzed along with the interview transcripts.

These interviews were conducted in March through October of 2023. We used a snowball sampling approach to recruit participants, reaching out to contacts in agencies and then asking them to refer others upon completion of the interview (Frankfort-Nachmias et al., 2015). We then expanded our reach by: posting on LinkedIn requesting participants and submitting contact form inquiries or sending e-mails to organizations which we did not have contacts for. In total, we contacted 19 agencies (either state agencies or state or national offices of federal agencies) to ask if they would be willing to participate; for some agencies, we contacted multiple individuals. Our final participant group consisted of 18 state and federal regulators. We talked to staff members in a multitude of different roles, from biologists working on specific projects or policies to scientists, individuals in advisory roles, and directors of divisions.

The final participant group consisted of six men and 12 women. A majority of participants were white, and the average age of respondents was 42. 16 participants had some sort of graduate degree, with a majority having either a Master of Science or a doctoral degree. Degree programs were all related to environmental science, biology, or wildlife/natural resource management. Nine participants had worked at their current agency for five years or more. Of those who had less experience at their current agency, three of them had not worked with renewable energy before their current role.

To analyze the interview data, we coded our transcripts in NVivo™ using an inductive coding approach, where we began with a few coding themes identified from the literature on regulatory relationships and the regulatory environment but added to the codebook as additional themes emerged from the data (Frankfort-Nachmias et al., 2015). One member of the research team was the primary coder, but the codes and associated themes were reviewed by all members of the research team. All quotations have been anonymized to protect participants; identifying information has been removed and quotes are attributed using a number system.

It is important to note that the viewpoints expressed during these interviews are the viewpoints of the individual participants and do not represent the state or federal agencies of which they are employees. This research and its description of agencies and participants have been generalized as much as possible to protect the anonymity of participants.

4. Findings and Analysis

We break our findings into four main sets of themes. First, we explore the specific relationship that regulators have with renewable energy development firms, both looking at their perspective of engagement as well as key themes for compliance identified by participants. Next, we look at the overall perspective of regulators on the environmental permitting and planning of renewable

energy development, including the frameworks in place that guide development currently. We then seek to understand the relationship that regulators have with citizens in their region of operation. Lastly, we delve into challenges and opportunities for the renewable energy industry as identified by our participants.

4.1 The regulatory relationship

A majority of each interview was spent discussing the experience of regulators working with renewable energy developers. It is first important to highlight the general process identified by participants as to what a typical consultation with a renewable energy developer looks like (Figure 2.1). For most participants, either a renewable energy development firm or a consulting firm hired to help the developer with their project reaches out to the agency office to schedule a preliminary consultation meeting. At this meeting, the developer shares the preliminary plans for the project as well as any surveys they may have already completed regarding the various natural resources within the project site. Most of the time, the developer does not share any specific spatial data with the regulators outside of what is presented during their meeting. Six participants noted that they feel that, during a consultation and associated communication, developers were concerned about data confidentiality, and this is why often limited information is shared with them. The lack of data sharing and confidentiality represents a challenge in the consultation process for some regulators. The regulator then follows up with a series of recommendations and best management practices, and whether or not there is any follow-up depends on the individual development firm. Six participants explicitly said that developers don't follow up after this initial consultation in their experience, and four participants shared uncertainty as to whether or not any of the recommendations they provided were implemented.



Figure 2. General process for renewable energy consultation.

Three participants, when discussing the nuances of consultation and consultation approaches, identified a difference in consultation between large and small firms. Regulator #11 gave an example of a small development firm ("a couple of brothers") who appeared unconcerned in consultation regarding the potential impact of their proposed wind project on eagle populations in the area. One regulator (#3) felt that larger, more global firms were more resistant to state-specific guidelines: "They want to be able to use a one-size-fits-all type of stuff, so they oftentimes will say well, we're just going to use the national guidance." When discussing motivations for going through the consultation process, six participants mentioned economic motivations, two participants mentioned normative motivations (internal firm norms), and two participants mentioned social motivations (external social pressure). The main economic motivations mentioned were: competitive advantage or disadvantage depending on investment in mitigation or offset costs, the risk adverse profile of particular firms, or the potential cost savings of compliance. A specific example of normative motivations provided was in the context of a firm being upset by having bald eagle mortalities on site and immediately contacting the regulatory agency to find a solution (#18): "There was a serious moral and ethical vein that went through their efforts. They were mortified." When talking about social motivations, one participant specifically discussed how a firm's reputation can impact community acceptance

(#18): "…Those that defend their homes always win, they stand with more to lose. The citizenry gets very involved in these permits."

Concerning the consultation experience, participants identified a few different ways in which they felt that developers engaged in the process and how much they engaged. Five participants discussed how some developers are interested in more in-depth engagement and relationship-building in consultation. One participant (#10) specifically felt that it was newer firms (newer to the state but not necessarily to development in some cases) that took this engaged approach: "[The newer companies] are the ones that are more like tell us what we can better. For example, with a solar project, what species would you have us plant underneath the solar panels?" Another participant (#12) discussed how some firms may have money set aside for conservation: "…But there's a lot of companies that are like, OK, lets see how we can benefit the species and work on that."

Six participants discussed how, for some consultations, it felt as if the developer was only there to check a box versus engage in meaningful discussion surrounding the project. Participant #4 compared the two general categories of approaches: "…They really want to do as much as they can, so that affects the relationship and moving forward on a project. Where there might be some other companies that are really just trying to do the bare minimum to get their permit at the cheapest cost." Along those lines, another participant (#10) connected it to the amount of information shared: "There are some companies who are less inclined to share more information than they feel like they have to. They're very by the book, and I guess by that I mean, they do it a very specific way. Here's our information. Give us your information. OK, thanks for your time, done."

Seven participants mentioned that they saw a difference in consultation and engagement depending on what the regulatory hook or requirements were for a particular project. Participant #14, when talking about their workload in terms of renewable energy projects they review, said, "Maybe 20% of what we see in a year, you know, because we don't have any regulatory authority. So if we did and there was some sort of nexus for those particular projects where they had to engage with us… it would probably be a greater proportion of what we do." As participant #18 put it: "If they're on fully private land, they often won't go for permits and bank on the fact that we'll never find out." Overall, the consultation experience presented a full spectrum of engagement and participation, from a "check the box" approach to engaged conversation and an openness to learn from regulators.

One thing mentioned most frequently by participants was the idea that it was often clear during a consultation that developers and regulators had different priorities. Regulator 15 states this difference well:

> "[Our] agency is charged with conserving species and we have a framework to allow these projects that do impact species. And project proponents, like they have a mission as well, so I think we're coming from different perspectives but with an ultimate goal of getting a project done quickly that meets ESA compliance needs and migratory bird needs, and eagle needs. And that takes work from all parties."

Talking about the outcome of consultation, one participant (#2) said, "Typically there are points of disagreement between the parties involved and I don't know that everyone is always totally comfortable with the final design or the final location that is selected." Other participants emphasized that for developers, making a profit was the ultimate goal, and environmental issues felt like they were further down the list of considerations. The difference in priorities often

seemed to contribute to more cautious cooperation relationships versus complete partnership in the consultation process; as indicated by participant #2, sometimes consultation never reached a true consensus.

Another common theme in the discussion about consultation and success was an emphasis on the role of individual personalities or biases (eight participants). This connects back to some of the previous themes discussed, in that personalities impact how willing a developer or a particular staff member is to engage in the consultation process in a manner the regulators see as meaningful. As #15 said, "Consultation takes work from all parties, and there needs to be a willingness to work from all parties." This variance can occur between companies but also within companies (#2): "There are certainly people who seem more willing to engage in the process than others, and there's certainly companies more willing to engage in the process than others." The relationship individuals have within each consultation are clearly important.

Given the differences in priorities and personalities that participants discussed, another common theme that occurred was how important a sense of collaboration, relationship-building, and genuine engagement was to a successful consultation experience (nine participants). Participant #12 sums this up well:

> "I think there's this stigma that regulators are against renewable energy and want to stop projects. And then I think on our side, we have some people that are like they're going to do all these things, they're going to call all these species… and just kind of coming in with those preconceived notions. So I think that kind of developing those relationships and [providing as much information as possible] seems to be working better than some."

The idea of building trust and communication is essential in creating positive consultation experiences for both parties involved.

Lastly, it is important to highlight when discussing the regulatory relationship and environment that for some participants, they are the only individual in their office reviewing renewable energy projects and communicating with renewable energy developers. In other cases, participants are one of only a few reviewing projects and are responsible for a large geographic area. Participants noted that they have access to experts on particular species (whooping cranes or bats, for example) but they are the ones responsible for managing the consultation process. Regulator #15 specifically identified time and capacity of their agency as a current challenge in the consultation process: "This is a heavy workload. It's a high priority. So that's probably one of the biggest drivers from the agency side is just having the staff capacity to address the workload." As renewable energy deployment continues, it will be essential to consider staffing capacity at the state and federal levels for reviewing renewable energy projects.

4.2 Perspective on development

When asked to discuss their general experience with the environmental permitting and planning of renewable energy projects, ten participants brought up the voluntary nature of the regulations currently guiding development. They emphasized that it was on the developer as to whether or not they communicated with regulators and went through the consultation process and how challenging that can be. Seven participants specifically discussed the USFWS *Land-Based Wind Energy Guidelines* (USFWS, 2012). Five participants also discussed the idea of beyond compliance behavior by firms and the fact that beyond compliance is an expectation within the industry. As participant #11 put it: "…There's this kind of expectation that [the wind energy guidelines] are going to be conducted, and I know that sometimes when a wind company wants

to buy [a project from another company], I've heard that they want to know that the wind energy guidelines have been followed."

When discussing consultation and communication timelines, some participants felt that being engaged earlier on in the planning process would be beneficial, but this was not a perspective shared by the majority. Two participants noted that they did not think being engaged any earlier would have any impact, and three participants discussed their influence in the siting process (or lack thereof). For those who felt that getting engaged earlier wouldn't be impactful, the main reason was that they felt that their agency provided a wealth of guidance that wasn't currently being followed by developers. Those who felt that it would be beneficial to get engaged earlier discussed a recognition of the investment developers put into these projects and planning them and would like an opportunity to be able to raise a red flag about particular sites sooner, before significant investment. An interesting point brought up by two participants was the idea that regulators should be involved in earlier transmission planning, to provide input when energy infrastructure planning is still high-level.

When asked about the current frameworks in place guiding development, five participants felt that the current regulations in place are not enforceable or are just not being followed by developers. In talking about the wind energy guidelines, participant #11 said, "It would be really great if somehow the guidelines could be less 'guide-y' and more thou shalt not, because they talk about avoiding these areas, but then they don't." Regulator #18 noted that they felt that there were enough regulations in place but that there's just currently a "lack of enforceable angles within what exists." Another participant brought up the challenge of so much development being on private land in this region and the lack of power to monitor what happens on those lands.

Five participants, in a similar vein to discussing transmission planning, felt that there was a need for more long-term or proactive planning to avoid impacts on wildlife and habitat with renewable energy deployment. Participant #1 discussed a need for "a more educated policy or plan for wind energy siting" that is not reliant on individual local county boards deciding where turbines can and cannot go. Participant #2 highlighted that "proactive siting of where [transmission] lines occur into low-impact areas would actually ease the process of bringing new development online with less local pushback." Earlier and more collaborative planning could help expedite consultation.

Overall, the challenges associated with a largely voluntary regulatory framework were made clear by participants. Participants shared mixed perceptions about the efficacy of current consultation and whether or not being engaged more by renewable energy developers would be beneficial. In addition, not many participants expressed an explicit need for more regulations in place nor did they want to see more regulations developed. The overarching sentiment was that current regulations needed to be improved in how they are implemented and enforced and there needs to be more long-term planning to help integrate concerns about projects earlier on in the process.

4.3 Interactions with the general public

Regulators in the renewable energy space have a non-traditional street-level bureaucrat experience, in that they are often not directly engaging with the public in the regulatory process in most cases but may still be engaged in hearing concerns or complaints. Ten participants confirmed that individuals from the general public have reached out to them to share concerns about projects. Five participants shared that they felt disheartened after having these

conversations, mainly because they felt there was not much they could offer individuals who reached out. Regulator #10 shared the impacts on the well-being of regulators:

> "It contributes significantly to this feeling of burnout and hopeless because when I get a call from a landowner who's like we have an eagle's nest and my neighbor, he's going to lease to this wind farm… It's just hard to take those calls and from people who you can tell really care about the environment and want to do the right thing."

Four participants indicated that they would direct people to the appropriate resources, whether that was a state agency (if it was a federal employee) or specific information about projects when publicly available. Three participants shared some concerns about the nature of the concerns being brought forth. For example, one participant (#11) said, "I'm sometimes a little leery of people who don't show any interest or care about endangered species or anything like that until there's a project that they don't want in their backyard."

It is important to note that while many participants felt disheartened by the interactions, three participants shared positive feelings about these interactions overall. Participant #11 shared about these interactions, "And I'm always grateful when I can have the opportunity to express what we do and share what we do and also just express my passion for what I do, you know. I work for the resources and I work on behalf of the United States." Five participants also emphasized that ultimately they felt that local communities and governments had more power to influence projects than they did, through various channels like county commission boards or utility commissions.

A majority of participants did hear from individuals regarding concerns about specific projects and their potential impacts (participants who did not directly engage with the public tended to be in more leadership- or research-oriented roles). Some participants expressed a

feeling of powerlessness in that they could not address concerns while others appreciated being able to engage in the "public servant" aspect of their role as a government employee. As renewable energy projects continue to be built, these regulators will likely be on the frontline of hearing concerns from communities more often.

4.4 Challenges and opportunities

When asked about challenges for the industry moving forward, the biggest concern for this group was wildlife impacts and potential uplistings (ten participants). Within these conversations about wildlife impacts and uplistings, most participants were focused on either the potential impacts on bats and the upcoming listings or broader concerns about the cumulative impacts of renewable energy projects on the landscape. As noted by participant #16, "It's not just that one project, it's how that project fits into this broader scope of stressors impacting [species] populations." Five participants mentioned transmission and transmission capacity as another challenge. Other challenges mentioned less frequently were space for development (two participants), technology capabilities (two participants), and community engagement and perspective of the industry (two participants).

In terms of opportunities, there was not one opportunity that seemed to have a consensus. Four participants shared optimism regarding new technology, largely in the space of wildlife impact mitigation. Three participants saw opportunities in pathways for new research, both related to renewable energy development but also just being able to focus on species more broadly. Regulator #5 talked specifically about bat research opportunities: "So the fact that there's money being held up like the developers are being held up endangered bat concerns means that money goes into research and money goes into funding techniques and technologies that make studying bats a lot easier and a lot more effective." Three participants talked about

opportunities surrounding dual land use, particularly for solar and siting in brownfields or agricultural lands. Participants overall shared optimism in how some of the environmental challenges could be addressed in some capacity.

5. Conclusions

Our research examined the experience of state and federal regulators in the environmental permitting and planning of renewable energy projects in the Great Plains region, where there are limited regulatory frameworks in place for implementation. We looked at the relationship that regulators have with renewable energy development firms, or the regulated, as well as their perspective of the environmental permitting and planning process. We applied the concept of the SLB to this research and expanded upon the traditional applications by recognizing that these regulators working on renewable energy projects often interact with the general public in unique ways. Overall, we found that the participants of this research approached their relationship with the regulated in similar ways but had a range of differing views as to their overall current and potential roles in the environmental planning of projects.

Our research was oriented around the idea that renewable energy development creates a unique regulatory environment, in that much of the consultation that regulators are involved in is voluntary and at the discretion of the regulated. Participants shared concerns about the lack of data sharing during consultation, which they could not require and which often left a gap in understanding the full breadth of a project. Some participants also shared uncertainty in whether or not the recommendations they provided were ever implemented on a site; there is a clear gap in communication between regulators and some developers once a consultation is perceived to be complete. This research also emphasizes how diverse this group of regulated parties is; participants identified differences between firms of different sizes or U.S.-based versus

international firms, as well as differences between individuals within the same firm. Overall, the lack of clear regulatory guidelines creates variation in how developers approach consultation and how engaged they are in consultation, which can impact how regulators feel about the process overall and the rate of success in terms of best management practices and recommendations being implemented at individual projects.

We also dug into how regulators perceived the environmental permitting and planning process for renewable energy development, given the regulatory environment they are working within. Participants confirmed what we argue as a basis for this paper, that much of the regulations currently guiding development are voluntary. Participants discussed the beyond compliance behavior of firms and the idea that documents like USFWS' *Land-Based Wind Energy Guidelines* are expected to be followed even though nothing within those guidelines is required (USFWS, 2012). Participants shared mixed sentiments about their overall impact on the planning and siting of projects; while some felt that if they were consulted earlier, they could have an impact, this was not the consensus. This is an important sentiment to share, as it emphasizes the lack of power some regulators feel in this regulatory relationship. In addition, much of the land within the region of interest for this research is privately owned, further limiting the power that regulators have beyond voluntary best management practices and recommendations.

It is important to recognize the limitations of this research. Our sample of regulators represents a diverse set of divisions and prerogatives as well as individual experiences, and overall can reflect some of the general trends and sentiments for development specifically within the Great Plains region. Given the diverse regulatory environments of other regions within the United States and abroad, lessons learned for this region may not be directly applicable to other

regions. In addition, while we recruited participants to the full capacity, we recognize that we may not have captured every agency experience. We also focused on one subset of agencies for this research and recognize that environmental agencies with different regulatory prerogatives will have a different perspective and different experiences. Despite these limitations, we argue that this research contributes a series of valuable takeaways for consideration as renewable energy deployment continues.

First, a key piece of the regulator and regulated relationship emphasized by many participants was the importance of relationship-building, collaboration, and trust. Those consultations where regulators felt that the developer was actively engaged, willing to learn, or open to having a dialogue about potential issues with a project were the ones that regulators highlighted as positive experiences. Participants discussed the challenges associated with two parties with different priorities trying to find common ground, and the idea of having a good relationship and a level of trust in consultation contributed to success in finding points of agreement. For this particular relationship, these findings emphasize that a traditional command and control-type approach only leads to animosity and that relationships that are built on cooperation or partnership are more impactful (Pautz & Rinfret, 2012). Challenges like a lack of data sharing and concerns about data confidentiality make consultation difficult and potentially unimpactful, and building trust and collaboration could create more favorable data-sharing environments. Organizations like the Association of Fish and Wildlife Agencies have put together working groups focused on communication between state regulators and renewable energy developers for both wind and solar development, and the associated reports and frameworks represent an important step towards building collaboration and consensus (AFWA et

al., 2024; AFWA & ACP, 2023). As renewable energy development continues, these relationship-building opportunities will only become more important.

Second, the current regulatory frameworks in place are reliant on voluntary compliance, especially when development happens on privately-owned land. Participants expressed concern about the reliance on voluntary guidelines and the idea that while the regulations are sufficient, the lack of enforceable angles of these regulations makes their work difficult. Participants emphasized proactive planning as a solution to the current regulatory framework, such as through more thorough planning of the siting of wind or solar or a focus on transmission planning, which ultimately guides where wind and solar are developed. As renewable energy development continues, the current lack of power to ensure siting and operation match regulator expectations could lead to conflict between regulators and developers. The conversations currently happening regarding permitting reform around renewable energy development would benefit from more engagement from ground-level regulators versus relying on agency leadership to understand how these policies are implemented in practice.

Third, this research looked to understand how regulators in this regulatory environment interfaced with the public. We expand on the traditional framing of the SLB, which focuses on the implementation of social policies, to understand how regulators interact with the public on policies that are not directly applied to the general public but may have outcomes that do impact the public (Sevä & Sandström, 2017). Participants do have the general public reaching out to share concerns about projects, and participants discussed the emotional consequences of hearing these concerns but not having the authority to address many of them. For regulators, hearing these public concerns is part of their job as a "public servant," and these interactions will likely become more common as renewable energy development continues. These interactions and their

emotional consequences will become increasingly important, in conjunction with the heavy workload highlighted by some participants. The risk of burnout should be recognized as a serious concern for regulators. One participant (#12) suggested a fund or reimbursable agreement option where renewable energy developers could contribute money to an agency to support hiring more staff members; this could represent a viable solution to staffing challenges.

Lastly, reflecting on the challenges and opportunities for the industry moving forward, the biggest concern for participants was the impact on wildlife and the potential uplisting of multiple species. In particular, some participants discussed the concept of cumulative impacts and the potential impact on species of multiple wind and/or solar farms on a landscape. Throughout the interviews, many participants connected this concern of the long-term impacts of multiple wind and/or solar farms in a particular area to their jobs and how they view the permitting and planning of projects. Participants saw opportunities in new technology to help with mitigation of impacts to wildlife as well as pathways for new research both in regards to renewable energy development and also increasing general understanding of various species' ecologies. For regulators, the future of renewable energy development and balancing impacts on wildlife was both a challenge and an opportunity.

This research provides insight into how regulators navigate a unique regulatory environment. Environmental considerations and concerns are becoming a predominant reason for project delay or cancellation (Susskind et al., 2022). There has been increased attention on the currently challenging and often clunky environmental permitting process currently in place for large infrastructure projects in general (Ulibarri et al., 2017). For many working in the sector, the environmental permitting process is top of mind. To consider permitting reform, it is important to understand how our current regulatory regimes work in practice. Understanding the translation of

big policies and frameworks into individual regulatory relationships and actions is a key component of building out more efficient permitting frameworks for the industry moving forward.

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CHAPTER THREE

The role of environmental non-profit organizations in the renewable energy-environment interface

1. Introduction

While it may seem as if non-profit organizations (NPOs) play a tangential role in the implementation of environmental regulation, the literature recognizes that these groups can influence policy and the implementation of policy. As noted by Dahan et al. (2010) "Nongovernmental organizations…have become important actors influencing the conduct of business, including business-government interactions and the broader role of business in society" (p. 20). NPOs can play several different roles in this interface between business, government, and society. NPOs can build bridges to link diverse stakeholders, such as through report writing or model-building actors (Brown & Timmer, 2006). NPOs can amplify public visibility and the importance of issues. In particular, they can "lend legitimacy" to issues to bring them to the attention of key actors (Brown & Timmer, 2006). Within this particular role, we can conceptualize NPOs as a "manifestation" of the concerns of the public and use them as a proxy for public sentiment in environmental governance (Levy et al., 2010). They can also monitor problem-solving performance and serve as a "watch dog" in many cases (Brown & Timmer, 2006).

This research is interested in a specific subset of NPOs, environmental NPOs (ENPOs). ENPOs can work on a range of scales, from focusing on small-scale or local changes in environmental quality or addressing local environmental challenges to pushing policy implementation at the state or federal level to bring about more broad-scale changes (Lyakhov & Gliedt, 2017). ENPOs played an active role in promoting the deployment of renewable energy development as early as the 1970s after the oil embargo in 1973. As highlighted by Sine and Lee (2009), "in the case of wind power, environmental movement organizations played a pivotal role in disrupting the status quo of energy production by constructing and propagating the 'problem'

of environmental degradation and industrial pollution and the 'solution' of renewable energy" (p. 128). Now that renewable energy deployment is more common and policies exist to support future development, ENPOs find themselves confronted with a disconnect in priorities where now some organizations are concerned about the potential environmental impact of large-scale deployment of wind and solar. This balance between the climate mitigation benefits of renewable energy, which ENPOs historically rallied behind, and the local environmental impacts is termed the "green on green" conflict (Warren et al., 2005). As Warren et al. argue, the green on green conflict represents a complex challenge where there are valid "green" arguments on either side of the debate. ENPOs may find themselves advocating for renewable energy because of its climate change benefits, opposing renewable energy because of its landscape impacts, or in an awkward middle ground where they support the general deployment of renewable energy but oppose it in particular contexts (Warren et al., 2005). While the history of environmental advocacy has been largely pushing forward renewable energy development, the present-day situation is different.

Our research uses interviews with individuals who work within ENPOs on renewable energy to examine how different ENPOs work within the sector, what they see as their role in development, how they view development, and what their relationship with other stakeholders in development looks like. We focus on the traditional roles conceptualized for ENPOs in business and governance and apply them to a sector that has not been explored in-depth but in which we believe their role will become increasingly important. We also examine how ENPOs navigate the green on green conflict and how it manifests itself in organizational goals and approaches to renewable energy development engagement strategies. We argue that the renewable energy sector, with its unique regulatory environment and complex set of challenges related to siting and

development, represents a valuable case study to understand the role of ENPOs in business and governance relationships.

2. Literature Review

2.1 NPOs and the business/government interface

The literature explores the relationship between businesses, governments, and non-profit organizations in several ways, but they can be broadly grouped into three categories of relevance to this research: broad motivations for the relationship (den Hond et al., 2015; Lyakhov & Gliedt, 2017), the role of NPOs in the regulatory environment (Harangozó & Zilahy, 2015; Laasonen et al., 2012), and NPO contributions to corporate social responsibility (Dubbink et al., 2008; Rondinelli & London, 2003). These three themes in the literature each provide a valuable piece of the framework to understand how ENPOs engage in the renewable energy sector.

2.1.1 NPOs and their relationship with businesses

There is a robust body of literature that focuses on the benefits businesses see in engaging NPOs. These benefits identified in the literature include:

1. Engaging with NPOs can help businesses gain a "stamp of approval" or increase their legitimacy (Dahan et al., 2010; den Hond et al., 2015; Lyakhov & Gliedt, 2017).
2. Businesses can use NPOs to respond to various societal pressures in their competitive environment (den Hond et al., 2015).
3. Engagement with NPOs offers the opportunity for businesses to gain new knowledge or learn new skills (Rondinelli & London, 2003).

According to den Hond et al. (2015), several motivators may drive businesses to engage with NPOs and what that engagement looks like. These include whether or not a business has internal programs to encourage engagement, if NPO goals are a strategic fit, a business' trust in an NPO,

past experiences with the NPO, and outside pressure to engage with NPOs. While the reasons and motivations for business engagement with NPOs have been explored in depth, the reasons NPOs may engage with businesses and what they see as the challenges and/or benefits are studied much less.

The literature on why NPOs may engage with businesses includes the following reasons:

1. NPOs can gain access to a "seat at the table" or visibility and power in certain situations, increasing their legitimacy in the business world (Dahan et al., 2010; Lucea, 2010; Lyakhov & Gliedt, 2017).
2. NPOs can gain access to financial resources (Lyakhov & Gliedt, 2017; Milne et al., 1996).
3. NPOs may fill a "regulatory vacuum" in sectors where they perceive a lack of regulations, serving in a "watch dog" role (Dahan et al., 2010; Laasonen et al., 2012).
4. NPOs gain access to information sharing and new skills in addition to businesses (Lucea, 2010; Lyakhov & Gliedt, 2017).

Nahi (2018) identified, in their study on NPOs and businesses in sustainability, a series of factors that bound the capabilities of NPOs to engage with business. These factors include the breadth of experience and knowledge of the NPO, the power relations between the NPO and the business they're working with (especially when the business contributes funding), sectoral differences (of particular relevance when thinking about the engineering aspects of renewable energy), and overall trust from both sides (Nahi, 2018). Given that environmental problems are becoming much more complex and not easily answered by a single stakeholder group i.e. businesses or government cannot handle them alone, it is important to understand why ENPOs might engage with businesses in solving these complex problems.

2.1.2 NPOs and environmental governance

There is a growing interest from various regulatory bodies to shift from command and control approaches to environmental compliance towards more flexible, volunteer-based programs (Potoski & Prakash, 2004). This is particularly relevant to regulations within the renewable energy sector, where much of the regulations already rely on voluntary behavior (Arnett, 2019). This dichotomy in regulatory approaches can be thought of as a "regulatory dilemma," which Potoski and Prakesh (2004) define as the choice between "deterrence and flexibility" of regulators and "evasion and self-policing" for businesses. From the perspective of ENPOs, this can result in the belief that firms will take advantage of the flexibility and a concern for the potential environmental impacts of more flexible policies. When the regulatory environment is viewed as this dichotomy, it connects to the traditional way in which the role of ENPOs has been framed in environmental governance, as a "watch dog for society" (Laasonen et al., 2012).

In their review of the academic literature, Lasoonan et al. (2012) found that this idea of an adversarial or pressure-based relationship between business and NPOs in the regulatory environment was the predominant framing in the academic literature. They note, however, that there are additional new, more problem-oriented relationships being recognized that focus on collaboration as partners versus adversaries. The authors highlight that, in some cases, an adversarial relationship could be beneficial, and that we cannot focus only on "win-win-win" type scenarios, which romanticize collaboration. Sometimes, conflict within a relationship can be beneficial. This is a particularly valuable point as this research seeks to explore the role of ENPOs in the renewable energy sector. NPOs, in general, can serve in multiple other roles beyond being a watchdog.

As mentioned previously, beyond a watchdog role, there are two other roles NPOs can play in the regulatory environment of relevance to this research. NPOs can link diverse stakeholders, and they can amplify public visibility and the importance of issues. They can "lend legitimacy" to issues to bring them to the attention of key actors, representing the public in a way (Brown & Timmer, 2006; Levy et al., 2010). While the watchdog role may be important in various contexts, it is important to recognize that the role and relationship of ENPOs and businesses in environmental regulation can go beyond simply ensuring businesses are limiting environmental impacts.

2.1.3 Corporate social responsibility and NPOs

In considering the role of ENPOs in the environmental governance of renewable energy development, some of the concepts associated with the idea of corporate social responsibility (CSR) are also a useful framework. While our research does not directly focus on CSR, efforts of ENPOs in the context of CSR, or the CSR practices of business, the broader themes related to environmental responsibility and the behavior of businesses are relevant to the context of this research. Many of the environmental regulations currently in place do not always ensure that all operational impacts are accounted for. CSR emphasizes that businesses need to take accountability for the impacts of their operations (Dubbink et al., 2008). Stakeholders today have higher expectations of businesses; it is no longer simply economic responsibility and success that is important but also social and environmental behavior and impacts (Harangozó & Zilahy, 2015). Businesses have come to recognize that engagement with NPOs represents a key piece of their CSR strategy (Rondinelli & London, 2003). As has been discussed, NPOs may have the tools and knowledge to help firms reduce their impact (den Hond et al., 2015; Harangozó & Zilahy, 2015). NPOs can play a role in shaping and measuring the social and environmental

responsibility of a firm, and CSR programs may be a big motivator for firms to engage (den Hond et al., 2015). The CSR literature emphasizes that NPO relationships can lead to creative thinking, problem-solving, and innovative solutions to address stakeholder concerns.

2.2 The green on green conflict

The other core theme of this research is the green on green conflict in renewable energy development. This conflict was first outlined by Warren et al. (2005), which they described as a "new kind of environmental controversy." This conflict is particularly unique because there are valid "green" arguments on both sides of the debate – a global reduction in greenhouse gas emissions versus local environmental concerns such as species and habitat impacts (Warren & Birnie, 2009). While this conflict has been presented in academic literature, it is also present within popular media. In particular, this conflict is often portrayed as dividing environmental activists and leading to unproductive conflict over renewable energy projects. One editorial from the Wall Street Journal in 2020 noted that "not in my backyard" (i.e. NIMBY) has become "build absolutely nothing anywhere near anything" or "BANANA" (Tarnawskyj, 2020).

The environmental concerns that may surround a project are often a leading reason that projects are delayed or canceled (Susskind et al., 2022). As renewable energy development continues, these environmental concerns and the associated conflict of development versus the environment will only become more pronounced. This conflict is amplified within renewable energy development given the scale and spread of energy infrastructure, which results in multiple governing authorities and actors at a variety of scales, all with different perspectives on the environmental regulation of renewable energy. The environmental impacts of energy transitions represent a unique governance challenge, as they require a balance between large-scale infrastructure required for energy production and distribution with local and contextualized

solutions (Goldthau, 2014). In a paper highlighting the siting challenges of renewable energy projects, Kahn (2000) says: “For a public official, hearing environmentalists savage renewable energy projects is like witnessing a family feud… They are surprised to find wind, biomass, and geothermal projects under attack by erstwhile allies” (p. 29). ENPOs are in a unique space where they are trying to navigate a balance between renewable energy deployment and other environmental concerns.

2.3 This research

The literature on the role of NPOs generally in regulatory contexts and the relationship between businesses and NPOs provides an overarching understanding of the complexities of this relationship and the potential contributions or points of contention between parties. This research expands the current body of literature on NPOs and businesses to add to the limited exploration of ENPOs and business relationships, within a unique regulatory environment. Given that regulations surrounding the renewable energy sector are limited and can vary immensely at the state and local level, the role of ENPOs in fostering environmental responsibility amongst renewable energy developers is likely to be very important and represents a valuable case study for more vague regulatory environments. This research also looks to understand what the balance between environmental concerns and renewable energy deployment looks like for ENPOs and how this impacts what their relationship with the renewable energy industry looks like, expanding on the current conceptualization of the green on green conflict.

Overall, this research seeks to understand the experience of ENPOs in renewable energy development and deployment, including how they engage currently in the industry and what they could potentially contribute to moving forward. This research provides a perspective on how

ENPOs navigate the challenge of the green on green conflict and what that could mean for engagement between ENPOs and renewable energy development in the future.

3. Methods and Data

For this research, we focused on utility-scale solar and wind energy as our renewable energy technologies of interest. They are currently governed under many of the same policies, with solar development often being guided by current wind energy regulations given the infancy of utility-scale solar compared to wind. We interviewed ENPOs who work or focus on projects or are based in the Great Plains region, and we sought out individuals who were engaged with renewable energy-related tasks or conversations within their organization. We purposefully selected seven states as out area of focus: North Dakota, South Dakota, Nebraska, Iowa, Kansas, Oklahoma, and Texas. These seven states are predicted to see continued development of both wind and solar and have similar ecosystems and environmental concerns (AFWA, 2024; Larson et al., 2021). These states also have a similar level of state regulatory power, except North Dakota, which does have an approval process that includes potential environmental concerns of projects (AFWA, 2024; Enterline et al., 2024).

To explore the role of ENPOs in the renewable energy sector, we conducted confidential, semi-structured interviews with staff members from various local, state, regional, and national ENPOs (interview guide included in Appendix). This research and the associated interview material were approved by the University of Oklahoma's Institutional Review Board (#14823). We requested to speak to any staff member who felt that they could speak to their organization's involvement in the renewable energy sector. We did not specify what specific experience staff members needed to have and interviewed any staff member willing to discuss their experience with us. All interviews were conducted via Zoom to increase our geographic reach, and

interviews were recorded with the consent of participants. If a participant did not consent to recording, detailed notes were taken and analyzed along with the interview transcripts.

These interviews were conducted in March through October of 2023. We used a snowball sampling approach to recruit participants, reaching out to contacts in ENPOs and then asking them to refer others upon completion of the interview (Frankfort-Nachmias et al., 2015). We then expanded our reach by: posting on LinkedIn requesting participants and submitting contact form inquiries or sending e-mails to organizations which we did not have contacts for. In total, we contacted 21 ENPOs to ask if they would be willing to participate; for some organizations, we contacted multiple individuals, especially for those organizations that had both staff in individual states and staff at the national level. Our final participant group consisted of 19 staff members representing 13 ENPOs. Our participant group represented a diverse group of ENPOs, including both state staff members and national staff members of larger organizations, state- or locally-based organizations, as well as some organizations with a more regional or landscape focus. We talked to staff members in a multitude of different roles, from associates working on specific projects or policies to senior staff members, vice presidents, and executive staff members.

The final participant group consisted of 15 men and four women. A majority of participants were white, and the average age of respondents was 49. 14 participants had some sort of graduate degree: a mixture of Master of Science, Master in Business Administration, professional Masters programs, Doctoral programs, and Juris Doctorates. There was a wide breadth of degree programs represented, including Environmental Science/ Management, Public Health, Political Science, and Business Administration. 11 participants had worked at their current organization for five years or more. Of those who had less experience at their current organization, five of them had not worked with renewable energy before their current role.

To analyze the interview data, we coded our transcripts in NVivo™ using an inductive coding approach, where we began with a few coding themes identified from the literature on ENPO engagement with firms and environmental governance but added to the codebook as additional themes emerged from the data (Frankfort-Nachmias et al., 2015). One member of the research team was the primary coder, but the codes and associated themes were reviewed by all members of the research team. All quotations have been anonymized to protect participants; identifying information has been removed and quotes are attributed using a number system, where any individual with the number format #.# was one of multiple individuals interviewed from a single organization.

4. Findings and Analysis

We break our findings into five main sets of themes. First, we look at what role participants identified as playing within the planning and permitting of renewable energy projects and how their organization approaches engagement in the renewable energy industry. Second, we look at the perspective of participants as to the current process of environmental planning for renewable energy projects and the regulatory frameworks that guide that process. Third, we dig into reoccurring themes around the role of ENPOs in environmental governance and their relationship with state and federal wildlife regulators and renewable energy developers. Fourth, we look specifically at what participants had to say about the green on green dichotomy i.e. climate change versus biodiversity concerns. Lastly, we outline some of the key opportunities and challenges for the industry moving forward, as identified by participants.

4.1 Role in development and organizational approaches

We first asked participants to discuss how their organization approaches engagement with the renewable energy industry. For two of the larger, national ENPOs, individual staff members

agreed that there was a difference in approach between the national organization and its state offices or chapters. These staff members felt that the national office was more focused on the general deployment of renewable energy while state chapters were trying to balance deployment with more local environmental concerns. It's important to note that these staff members did not frame this negatively; they felt as if they had the flexibility to be able to take national goals and craft them into tasks that aligned well with what they were doing in their state. For one national organization, a state office staff member felt that the mission of their state office aligned exactly with the national organization, as the organization had recently gone through the creation of a new strategic plan with an inclusive and collaborative process. Five participants said that their organization focused more on local environmental concerns and work, and one of these organizations noted that their organization does not currently have a particular stance or opinion on renewable energy at this point. One participant said that their organization was more focused on broader climate mitigation, including renewable energy, versus taking a more localized focus, and one participant felt that their organization balanced climate mitigation efforts with local environmental work. Overall, we found that more national organizations were heavily engaged with the industry while more local organizations were still trying to determine if they wanted to engage in the industry and how best to engage.

We also asked participants to identify how their organization currently works in the renewable energy sector or how they work with renewable energy developers or state and federal regulators. The most common item mentioned was creating tools or recommendations to help guide the siting of renewable energy projects, mentioned by nine staff members. Seven participants identified that their organization accepted money from developers for conservation projects as mitigation for development or that they connected developers to other organizations

where they could contribute mitigation money. Six participants identified advising or resource sharing as a main goal of their organization; this is considered separate from tools or recommendations as these are not formal documents created but may be, for example, conversations with developers about specific projects. Five participants discussed the various ways that they shared community concerns, engaged with communities, or overall worked to amplify public visibility surrounding renewable energy deployment. An important nuance when thinking about ENPOs and communities is that the reputation of some ENPOs in communities may not always be positive. As one participant (#1.1) put it, "There are people that may have heard something about ENPO out in California that doesn't align with their values here. And so the ENPO is a pretty strong political organization and those stances might have negative implications for a project in a different area." The community connection role may not be a good fit for every ENPO.

Six participants discussed the ways that they, or other staff members within their organization, helped to bring stakeholders together, either at higher levels for strategic planning or at the local level in making connections to community members. For example, one participant (#10) noted the benefit of stakeholder engagement, "We can help find that balance and work with several partners. I work with people all the way from the climate lobby to the Stockman's Association… So all across the spectrum, I'm able to work with people." In the realm of policy, six participants noted that their organization had lobbyists or engaged actively with legislators on developing policy related to renewable energy development, and two participants had testified about renewable energy projects at a local level. Only five participants identified that their organization actively worked with other ENPOs, which could represent a potential gap in communication amongst groups in this sector. Overall, the roles ENPOs currently play in

renewable energy development are diverse and vary based on organizational mission and capacity. They most commonly share information or knowledge but may also be engaged at the community level. Of note, the idea of ENPOs being watch dogs or pushing compliance behavior was not discussed explicitly by any participants, emphasizing that the roles ENPOs can play go beyond this traditional framing of their role and relationship.

4.2 Perspective on development

Throughout the interviews, participants had an opportunity to share their more general thoughts on the overall development of renewable energy projects as well as more specifically about the regulatory framework that currently exists to guide project development. Four staff members recognized that renewable energy developers were often balancing multiple priorities beyond just environmental concerns. One participant (#2.2) said about their experience working with developers:

> "Most of these renewable energy developers… they don't get into the business trying to cut down trees to put solar panels up… But they have other demands and priorities they have to work through. So yeah, it can be difficult sometimes if you're not coming in at the same level of information sharing or if your goals aren't 100% aligned."

Four staff members also specifically discussed ideas around finding ways to incentivize smart and responsible siting of renewable energy projects. For example, some participants brought up the idea of incentivizing power purchasers or utility companies to incorporate higher siting standards into their requests for proposals for projects. Five staff members discussed current subsidies in place for renewables and ways to think about leveraging those subsidies to encourage responsible siting and development. "It's more of a carrot rather than a stick, that if you want this carrot, you need to go here or don't go there" (#2.4). Along those lines, while not a

prominent idea, two participants discussed the idea that developers could set a good example for other developers. One participant (#2.4) discussed the importance of peer pressure: "Peer pressure will be huge… That peer-to-peer pressure could really effectively change how folks do business." Participants thought about ways to push developers to include more environmental siting considerations in place of formal regulations requiring it.

When asked about the current regulatory framework, nine participants discussed the voluntary nature of the majority of current guidelines and how they are not enforceable to a large extent and are not being followed. One participant (#9) discussed how their engagement with developers and associated voluntary conservation contributions have declined over time: "In my view, I'd say it's degenerated into is it regulated or not? So we'll address eagles and bats and that's about it." Another participant (#2.1) said about the *U.S. Fish and Wildlife Land-Based Wind Energy Guidelines* (USFWS, 2012): "The wind energy guidelines, I think, was a really good effort. But it's fairly loosey goosey and a lot of times developers will say they're following those, but when you ask them how they can't give specifics."

Beyond the current regulatory environment, five staff members discussed how important long-term or proactive planning will be for the industry moving forward, as the space for development becomes more limited. As one participant (#13) put it, "I would like to see a more solutions-based conversation as opposed to all the reasons why we can't do it." One participant (#1.3) gave an example of when potential siting guidelines and regulations were proposed years ago and rejected by developers: "And [developers] also cited the fact that each county could offer their own guidelines. At this point, I'm thinking that, of course, hindsight being what is is…" Increasing state and local permitting frameworks or guidelines for development was only mentioned by three participants but an important point to consider moving forward. One

participant (#6) shared an interesting perspective as to why existing state frameworks may not adopted readily in other states: “If [state] were to borrow from [state], that wouldn’t matter right? But because these issues are politicized, they’re going to say, well I don’t want to follow such a liberal state.” Participants talked a lot about frameworks and ways forward, emphasizing the potential ENPOs could play in the environmental planning of future projects or the creation of broader frameworks to help guide (and often expedite) development.

There was robust discussion about the current regulations and often the lack of enforceable regulations to guide developer behavior. Three participants discussed the idea of beyond compliance or “above and beyond” behavior and obtaining a social license to operate. One participant (#4) gave an example of being able to participate in a site visit with a developer: “So I think that was the first time that we saw a company went beyond having a phone or Zoom conservation with us and sharing of data and actually invited us to a site to take a look.” Another participant (#1.1) discussed how the transparency of developers has increased recently: “We [the developer] want your buy-in and we’re willing to negotiate and be flexible on some of these rather than a company saying, we think we have the answers, we’ve been doing this a long time, all we need is for you to say yes or no.” There was a clear recognition by some participants that this voluntary behavior was becoming more prominent but perhaps not fast enough to combat growing opposition. As one participant (#2.2) put it: “The industry is actively losing its social license to operate in the communities that they need to be operating in. You know, these projects are being canceled at a higher rate.” ENPOs can play an integral role in encouraging beyond compliance behavior and translating that into community support.

4.3 Relationship of ENPOs with developers and regulators

Participants were asked to discuss their current relationship with renewable energy developers. Six participants, representing a mix of individual organizations as well as state offices of national organizations, said that they currently have no relationship with developers i.e. they do not engage with them. The reasons were a mix of the organization not having the capacity to engage more actively in the industry, developers have never reached out to them, or their organization does not see a particular need to do so. Seven participants identified that they currently advise developers in some instances or that they could but do not currently. Four participants discussed their relationship with developers and either the ENPO image or the developer image. For example, one participant said (#3), "There's bad press out there right now, you know, for renewable development. So the opportunities to head off some of this… [Developers] have an interest in maintaining their ability to at least always appear green at some level." Conversely, another participant (#7), when discussing interest in engaging more with developers, said, "One of our concerns is we don't want to greenwash things. So it has to fit with our mission and values." It is important to note that one of the challenges in trying to engage with developers is that due to 501(c)(3) status, these ENPOs cannot provide benefits to just one private entity, as stated by four participants.

Returning to the idea of firms balancing multiple priorities, as discussed earlier, five participants noted that they could see during their interactions with developers that their organizations and developers saw development differently. "I understand that companies probably have vast matrices of everything they're trying to dial in for cost and benefit, but for me, some of the larger questions have always been what is the net gain of siting a facility where it's been selected" (#13). This difference in priorities represented a challenge when trying to

reach a consensus or have a productive conversation. A minority of participants (3 individuals) shared thoughts about their engagement with developers that overall they were not positive experiences. I asked one participant (#10) if their organization found it beneficial to engage with renewable energy companies and if engagement was productive, and their immediate response was no. When asked to elaborate, they said:

> "In my view, they don't utilize the expertise that we have on the ground. On a recent call, I was on with the wind company, their main focus is their bottom line and they don't want to do anything that's going to take away profits, and they actually did say that... So I'm a bit jaded. I'm working with these companies and not to say that they're all bad players and not to say we haven't had success, we have but more and more, it just seems to be lip service."

Conversely, one participant (#4) shared the following about their experience with renewable energy developers, "We found that renewable energy developers, more so than oil and gas companies that we had done similar work with… they wanted to do the right thing, and so they are very happy to talk with us and very happy to share data with us."

Participants shared an overall range of experience in engaging with renewable energy developers. Participants' experience provided valuable insight into what may be preventing ENPOs from engaging further with developers in many instances or how narrow the lens of current engagement is. It is important to acknowledge that not every engagement is positive, and this emphasizes the need to think critically about what engagement between ENPOs and the renewable energy industry looks like moving forward.

Participants were also asked to discuss their current relationship with state and federal wildlife agencies. Six participants said that their organization currently has limited to no

engagement with these agencies. Five participants said that their organization's role was largely advisory or conversely, they were receiving advice, data, or guidance from regulators. For example, one participant (#10) noted that their state agency has done a large amount of research related to avoidance areas for renewable energy as well as research on potential impacts, and their organization utilizes this data or particular experts in their organization were consulted when the data was being compiled. Three participants identified that their only engagement was through working groups, where there were multiple stakeholders at the table. One example mentioned was the Association of Fish and Wildlife Agency's Energy and Wildlife Policy Committee, Solar Wildlife Working Group, and Wind Wildlife Working Group. Overall, from the perspective of ENPOs in this region, engagement with agencies is fairly limited at this point.

4.4 Climate change versus biodiversity – the green on green conflict

While participants were asked whether their organization was more focused on climate change mitigation and renewable energy deployment or local environmental concerns, they were not explicitly asked to compare climate change concerns versus biodiversity at any point during the interview. Despite this, six participants spent time discussing the dichotomy between climate change and biodiversity in their work. This experience is important to highlight because as renewable energy development moves forward, this particular narrative of renewable energy deployment for climate change mitigation at the expense of local environmental impacts has the potential to be damaging to future collaboration and relationships.

For example, one participant (#2.2) said about this dichotomy:

> "Sometimes it feels very gaslighty when you come in and say no, we know these projects are having impacts and they say well, no they're not. And guess what? If you

complain, you are stopping the world from solving climate… If that's the conversation we're going to have, lets just not have a conversation."

When talking about renewable energy as a part of the narrative on sustainability, another participant (#4) said:

"They're working to decarbonize the grid but at the same time, are they really going to adopt the sustainability principles of the triple-bottom line or are they really going to seek to maximize profits?... Are they going to see it through and really recognize that they need to have thise positive environmental and social impacts as well."

The green on green conflict represents a clear communication barrier for some individuals and could potentially represent a sticking point in building trust between ENPOs and developers. It is important to recognize that the narrative of renewable energy development over environmental concerns is alienating for some individuals who are not opposed to renewable energy development but have concerns about how it is sited.

4.5 Challenges and opportunities

At the conclusion of the interviews, participants were asked to reflect on what they see as some of the forthcoming challenges and opportunities for the industry. Six participants discussed how politicized renewable energy has become, and the challenges associated with navigating that. As one participant (#1.1) put it, "[Renewable energy] has become a political punching bag." Another participant (#11) noted, "At the federal level, the challenge is trying to keep what we already have. There's plenty of conservatives that are talking about, oh the Inflation Reduction Act is too much money that we've got to rein in the spending." Along those lines, five participants discussed challenges with community engagement and rising opposition to renewable energy development both in this region and in the U.S. One participant (#1.3) specifically noted the idea

that developers may be viewed as outsiders: “To the extent that wind and solar developers are viewed as outsiders, that’s another strike against them… I mean, when your representative of the developer flies in from Florida or Chicago or someplace and is there for two days and then flies back…” Another participant (#2.3) discussed the developer approach to communities:

> “Developers need to evolve in how they view community engagement and compensation for the projects that they’re putting on the ground… If those dots of community betterment can be connected through corporate engagement or developer engagement, I think that would serve in the long run to reduce or lessen some of the tension.”

Mentioned less often were challenges associated with the current regulatory environment (four individuals) as well as transmission capacity (three individuals). Facets related to acceptance and communities were clearly at the forefront of participants’ minds.

The most common opportunity mentioned was just an overall sense of opportunity for growth of the industry, through recent funding like the Inflation Reduction Act as well as state and local initiatives to increase renewable energy portfolios (six individuals). One participant (#2.2) said:

> “I think the opportunities are obviously huge in the sense of it has to happen and we are making policy assuming it will be the main energy infrastructure to power the United States moving forward. Whenever the US government puts its full shoulder behind things like, there's obviously huge opportunity there.”

Some participants discussed the overall potential for solar given its versatility in where it can be sited and the overall energy density compared to wind. Three individuals discussed the potential surrounding dual land use, through development on brownfields or through technology

approaches like agrivoltaics. One participant (#7) talked about the potential of farmland: “From a climate change perspective, land restoration and perennial ground cover can make a huge difference in sequestering carbon. So, for example, a solar field maybe does have more benefit to climate than a barren crop field with no perennial ground cover.” Other opportunities mentioned less often were avenues for collaboration and partnership (two individuals), advancements in technology (two individuals), and an overall increase in the potential for responsible siting (two individuals).

5. Conclusions

Our research examined the role that ENPOs currently play in the renewable energy sector, the roles they could play, and how they navigate the complex challenge of balancing climate change goals with local environmental protection. We used the existing conceptualizations of how NPOs interface with business and government to understand what niches ENPOs may fill within the renewable energy sector and found that most often, ENPOs were providing information or tools to help with the siting of renewable energy projects. Our research found that ENPOs are often not receiving funds from renewable energy developers to support conservation work and if they do, it is often in the context of mitigation funding for specific project impacts; financial resources are, therefore, not a strong motivating factor for engagement in this sector. While some ENPOs do engage in active conversations with developers regarding development, this was a role identified by other ENPOs as something they would like to do more of but don’t have the capacity of connections to do so. The ability to have access to a “seat at the table” was something they were interested in. The biggest barriers to entry for more in-depth engagement with the renewable energy sector were capacity (as mentioned above) or a lack of knowledge or

familiarity with renewable energy technology, which led to a level of discomfort in contributing to the conversation.

We also investigated how the green on green conflict manifests itself through the work of ENPOs in the renewable energy space. We first saw that this conflict very clearly played into the difference in how developers and ENPOs viewed the development process for renewable energy projects. Participants recognized that developers often have numerous priorities they are balancing but felt that environmental concerns existed pretty far down on the list. For some participants, this dichotomy between climate change versus biodiversity protections weighed heavily on how they viewed the industry and industry engagement. The stark dichotomy of one versus the other contributed to feelings of burnout and a decrease in interest in engaging in the sector. Participants felt that the work their organization was doing or the conversations they were trying to have were not impactful, which could lead to future disengagement by ENPOs in the renewable energy space.

It is important to recognize the limitations of this research. Our sample of ENPO staff members represents a diverse range of ENPO goals, scale of interest (national, regional, local), and experience of staff members, and overall can reflect some of the general trends and sentiments for development specifically within the Great Plains region. Given the diverse regulatory and development environments of other regions within the United States and abroad, lessons learned for this region may not be directly applicable to other regions. In addition, we acknowledge that our sample of ENPOs potentially represents the perspectives of those organizations that are more actively engaged in the renewable energy sector and have formulated a clear strategy regarding development or at least begun to consider it. None of the organizations interviewed for this research have a clear anti-renewable energy position, either, which

influences how they discuss development and their relationship with the sector. Organizations that may not perceive renewable energy as a main prerogative or impact of their work or which starkly oppose development are not represented in this group and may provide a different set of perspectives on development in this region. Despite these limitations, we argue that this research contributes a series of valuable takeaways for consideration as renewable energy deployment continues.

First, there are ENPOs actively engaged in renewable energy development and an overall interest in becoming more engaged with renewable energy developers and other relevant stakeholders. Despite the broad range of organizational focuses represented in this participant group, there was not a single participant who said explicitly that they did not want to engage with renewable energy development or that they did not see relevance in doing so in relation to their organization's work. Many ENPOs are still trying to determine what exactly the most useful role for their organization would be within the sector. Of note, the idea of ENPOs serving as watchdogs or pushing compliance was not something that participants identified as a role of their organization. While the predominant current role identified is providing tools or recommendations for siting, many participants emphasized their organization's capacity to bring together diverse stakeholders and build bridges. One avenue that we see becoming a particularly useful asset is in local community engagement; some ENPOs are more intimately connected with communities in their geography of interest and could help address local concerns and opposition.

Second, we found that not many ENPOs were collaborating with other ENPOs; the relationship between organizations appeared to be minimal. We see this as a gap currently in the sector, as a lack of coordination by organizations can lead to redundancy or even conflicts in the information being provided between groups. Consensus among ENPOs in a region could

increase buy-in in terms of engagement with other stakeholders in the environmental planning of renewable energy projects. Along these lines, there also appears to be limited engagement between ENPOs and regulators in this region. Improving communication to ensure that ENPO recommendations and tools match regulator expectations and regulatory requirements would also be beneficial to increasing consensus within the sector.

Third, we found mixed perceptions of the environmental planning process for renewables as well as the overall engagement with renewable energy developers. Participants discussed the voluntary nature of current frameworks guiding development and questioned the sincerity of some developers moving through the process. Engagement with developers among participants was mixed; about half of the organizations do not currently actively engage with developers for several reasons. Overall, we saw that those organizations that currently engage had mixed sentiments about the efficacy of engagement, and for those that did not, it was a mixture of capacity limitations and also lack of connections or opportunities to participate. All participants identified a suite of ways in which they felt their organization could contribute to the sector; this research emphasizes that there's a current gap between what ENPOs could contribute and what they currently have the opportunity to contribute.

Fourth, the dichotomy between biodiversity and climate change felt divisive for some participants. These organizations recognize that renewable energy development is a necessary tool in the tool belt for combatting climate change. It was clear, however, that they felt that this dichotomy discredited other concerns related to the missions or goals of their organization. This dichotomy connects to an attitude of developers identified in the literature referred to as "TINA" or "There Is No Alternative", which encompasses the attitude that some developers have towards social and environmental concerns raised about projects (Upreti, 2004). This dichotomy could

represent a serious sticking point in trust building between ENPOs and renewable energy developers and could inhibit collaboration in some spaces. It is important to recognize that renewable energy development and siting challenges are not black and white and that there is room for innovative solutions that can balance deployment with environmental concerns.

Lastly, reflecting on the challenges and opportunities for the industry moving forward, a majority of participants saw the increased politicization of renewable energy and the rise in local opposition as the two major challenges. Participants were focused on the overall environment in which renewable energy development operates, emphasizing the potential organizational capacity and knowledge of these ENPOs to contribute to helping connect stakeholders and reduce opposition. We found that, overall, participants were optimistic and excited about the trajectory of renewable energy deployment. The biggest opportunity they saw was just an overall sense of growth and potential for growth of renewable energy, between the increased funding opportunities and innovative solutions like agrivoltaics. This particular opportunity focus is important because it highlights that, at least for this group of participants, many share an overall positive view of the industry and recognize its potential to contribute to communities in many ways.

Overall, this research contributes to the conversation about the role that ENPOs can play in business and government relationships, specifically within the renewable energy sector. As renewable energy deployment continues to see increasing roadblocks in community opposition and the rise in local permitting requirements, we believe that ENPOs will represent a valuable ally in overcoming these challenges (Lopez et al., 2023). ENPOs can help align private sector goals and values with those of the general public (Cabral et al., 2019). Our research provides insight into the role ENPOs feel they currently play, the roles they could play, and what their

relationship looks like with other stakeholders in the industry. The current boundaries of the stakeholders involved in the planning of renewable energy projects – largely limited to the developers as an insular group with input from state and federal agencies – can limit and constrain the innovations possible in the space (Heikkila & Gerlak, 2019). Expanding participation to include ENPOs can lead to new solutions to the challenges renewable energy deployment faces currently. Our research also emphasizes the emotional side of collaboration and engagement in the space and the importance of open and honest conversations about differing priorities and the challenges that may arise from them. Finding common ground will become increasingly important in pursuing an equitable and successful clean energy transition.

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CONCLUSION

This dissertation focused on the experiences of renewable energy developers, state and federal regulators, and environmental non-profit organizations (ENPOs) to understand how the environmental permitting and planning process for renewable energy development plays out in practice. As renewable energy development continues in the Great Plains region, we need to understand how decision-making for projects unfolds. As has been mentioned throughout this dissertation, concerns about the potential environmental impacts of renewable energy development have become much more prevalent. This concern has been explored in the academic literature but is also becoming increasingly common in the public media (Bethell, 2024; Kraft, 2024; Peterson, 2024; Susskind et al., 2022). Space is becoming an increasingly restricting factor for renewable energy development, and as these projects begin to move into more sensitive environmental areas, these types of concerns are only going to continue to increase (Gross, 2020). Paired with the rise in local ordinances and restrictions, the permitting aspect of renewable energy development is increasingly becoming a pinch point for construction timelines or the overall feasibility of projects (Lopez et al., 2023).

This research was driven by questions surrounding how the environmental permitting and planning process currently guides development, what are the current obstacles within the process, and how the three stakeholder groups of interest interact with one another within the process. My overarching question for this research was: within environmental regulation, how do renewable energy companies, federal and state regulators, and environmental advocacy groups operate within, maintain, or attempt to change current institutions in place for renewable energy development?

1. Summary of findings

In chapter one, I focused on the experience of renewable energy developers in navigating environmental considerations of projects. This chapter was framed using theories of institutions and organizations, which allowed for a deeper understanding of not only how formal regulations guided behavior but also how informal institutions, like societal norms, impacted developer decisions (Scott, 2013). I also focused on concepts related to the idea of beyond compliance, which I argue in this chapter is an expectation of the renewable energy sector compared to more traditional sectors where beyond compliance ideas often refer to pollution control and emission reduction (Gunningham et al., 2004).

It is clear that renewable energy development is a unique organizational field from other energy sectors, where beyond compliance or voluntary behavior drives the environmental planning process. Economic considerations appeared to be one of the predominant reasons developers pursued environmental due diligence of projects, while societal pressure to develop the "right way" also contributed to their approach. Developers overall find navigating the regulatory environment for renewable energy to be difficult at times; the uncertainty associated with policy changes came up frequently as a challenging component of trying to plan project timelines. I found variations in how developers approached the consultation process with regulators as well as their overall perception of the consultation relationship. For some, it was more often than not a positive experience while, for others, it represented a difficult exercise in relationship building and navigating individual personalities. Overall, I found in this chapter that while the institutions that guide how developers approach environmental planning and what they prioritize differ, common themes of beyond compliance behavior, concerns about the economics

of a project, and the overall importance of relationship-building and collaboration were consistent across participants.

In chapter two, I explored the experience of state and federal regulators in the consultation process for environmental permitting and planning of projects. The academic literature has historically focused on regulatory relationships surrounding environmental concerns like pollution and emission control and has historically failed to delve into regulatory relationships that regulate a different set of environmental metrics. This chapter contributes to expanding the regulatory literature to a sector that is not served well by traditional command and control approaches, including the experience of a different set of street-level bureaucrats who may not engage with the public as often but are still translating policy into practice (Pacheco-Vega, 2020; Sevä & Sandström, 2017).

I found that, overall, many regulators questioned the impact that they had on project design and considerations during the consultation process. The voluntary nature of current regulations makes measuring and monitoring the impacts of a project difficult in practice, leaving many regulators uncertain of how their recommendations are being implemented in practice. For the region of interest for this research, much of the land is privately owned and this leads to additional challenges in the involvement that regulators can have in the process. Participants discussed staffing challenges and aspects of the work that can lead to burnout, emphasizing the potential mental consequences of the current frameworks in place. I also found that a majority of participants did interact with the general public occasionally, where individuals were reaching out to share concerns about particular projects; the overall sentiments towards this interaction were a mix of feeling like they couldn't do anything to address concerns as well as a sense of pride in being able to fulfill their duty as a public servant. I found, through these

conversations, that the overall engagement of state and federal regulators in the environmental permitting and planning process is highly varied, contingent on the interest of developers in engaging and providing information, and often challenging in terms of the impact they feel they can have on both a single project but also in more broad-scale thinking about renewable energy deployment.

In chapter three, I sought to understand the current role that ENPOs have in the renewable energy sector, how they feel they could contribute to the sector moving forward, and what their relationship is with other stakeholders in the environmental permitting and planning process. The literature has identified several roles that ENPOs can play in the interface between government, business, and society. These include building bridges to link stakeholders, amplifying public visibility, and monitoring the problem-solving behavior of businesses (Brown & Timmer, 2006; Levy et al., 2010). In addition to understanding how the current conceptualized role of NPOs applies to ENPO engagement in the renewable energy sector, this research also recognizes and explores the unique position ENPOs are in of both supporting renewable energy deployment while also being concerned about the potential local environmental impacts of development. The green on green conflict identified in the literature on renewable energy development recognizes the validity of the "green" arguments on both sides of the debate, and I sought to understand how this conflict manifests in practice (Warren et al., 2005).

I found that the most common roles that ENPOs played in the renewable energy sector were providing specific tools or recommendations for development or helping to connect stakeholders in discussions surrounding development. Interestingly, serving as a "watchdog" to monitor the behavior of renewable energy companies was not something mentioned by participants; this role may not be as relevant compared to the environmental behavior associated

with pollution emissions. Overall, some ENPOs were currently actively engaged in the sector and those who were not were considering the best way to become engaged. Participants shared mixed feelings about the current efficacy of regulations and guidelines surrounding renewable energy development and often felt that the lack of a more enforceable framework limited their opportunities to engage. To add to this feeling of limited opportunities in some cases, participants felt that they were often confronted with the green on green conflict as a divisive dichotomy where being concerned about local environmental impacts was framed as a hindrance to renewable energy development. ENPOs have the potential to contribute valuable expertise as well as create connections between private and public stakeholders to move renewable energy deployment forward. The experiences presented by participants emphasize that ENPOs can offer more than just the traditional watchdog conceptualization of their role in environmental governance.

Together, these three chapters provide a thorough exploration of the experiences of renewable energy developers, state and federal regulators, and ENPOs in the environmental permitting and planning of renewable energy development. They provide insight into the complex process that is the environmental planning of a renewable energy project and help to connect the experiences of three important stakeholders in the process. The research in this dissertation delves into how formal and informal institutions guide renewable energy development and how different actors operate within those institutional frameworks, and it contributes to expanding our knowledge of environmental governance and regulatory relationships beyond the traditional pollution and emission control literature. It also provides valuable, on-the-ground information about lived experiences which can contribute to the local,

state, and national conversations surrounding the permitting process for renewable energy development.

My research question for this dissertation was: within environmental regulations, how do renewable energy companies, federal and state regulators, and environmental advocacy groups operate within, maintain, or attempt to change current institutions in place for renewable energy development? Ultimately, the "how" was exemplified in the relationships these stakeholders built between each other as well as with other stakeholders not explicitly explored here. While there was no poignant "creation" or "change" of institutions that exist for renewable energy development, it was clear that all three stakeholders were changing institutions to fit local contexts, sometimes in concert with one another and other times in direct conflict. Most commonly, it was clear that participants were trying to operate within the current institutions that exist through internal policies and practices and, in some cases, through external collaboration, communication, and relationship building. In the section below, I will outline the more explicit key takeaways from these conversations, which all center around the institutions that currently exist and how they can be managed to better serve all parties. The key takeaways and interventions proposed here are also summarized in Table 1. Table 1 also connects these challenges back to the initial challenges in conceptualizing the energy transition.

Table 1. Summary of key findings.

Key Takeaway	Associated Challenges	Interventions	The Energy Transition Context
Regulatory environment for development – *a reliance on informal institutions*	Lack of uniformity – in regulations, staff interpretations, and developer approaches	Updated regulatory guidance or frameworks to reduce uncertainty – finding a common ground that both parties can live with.	Environmental concerns about renewable energy vary based on scale and context and are often governed through multiple regulatory levels. A one-size-fits-all approach for permitting and planning renewable energy projects will not be impactful in overcoming localized challenges.
		Long-term range planning conversations which involve multiple stakeholders	
	Staffing and consistency to maintain relationships	Investment in staffing at the state and federal level	
Local permitting and opposition are becoming increasingly difficult	Local power and discretion over projects are increasing	Community leaders may rely on agencies for information – developers need to engage agencies appropriately so they have the information they need.	The energy transition involves multiple actors and perspectives which must be accounted for in governance structures. The local scale is becoming increasingly important for the success of the energy transition.
	Local communities are creating and implementing guidelines for development	ENPOs can contribute to productive conversations with local leadership and help develop informed guidance	
	Current relationships between developers and communities are not often positive	ENPOs can help improve community engagement processes and serve as community connectors to build better relationships (when appropriate)	
Green on green conflict	Climate change versus biodiversity can create adversarial relationships	Reframe this perceived conflict as an opportunity for innovative solutions; ENPOs could serve as impactful boundary spanners to put science into practice.	The energy transition involves multiple actors who must come together to find innovative solutions to increase renewable energy deployment to meet climate change concerns.
Looking to the future	An overarching concern with where energy development will go and what the context of that development will be	Better communication and collaboration between these three stakeholder groups, focused on particular challenges or regions for the most impact.	Looking to the future of the industry emphasizes the variation in scale of the energy transition and the context in which it happens, the governance structures required, and the actors involved. Productive communication and collaboration, facilitated in things like impactful, more localized working groups can ensure stakeholder needs are met.

2. Key takeaways

While this research explored three diverse sets of stakeholders in the renewable energy sector, the perspectives they discussed often presented connections with another stakeholder group. These three groups often work together, and this research explored what those relationships looked like in many contexts. Beyond those relationships, however, the shared experiences of the participants in this research often presented synergies in which there are clear pathways forward to solve current challenges in environmental governance. Conversely, sometimes these experiences presented direct conflict or clear misunderstandings which could be addressed through more targeted and transparent conversations. Based on this research, five key takeaways connect the experiences of all 56 participants.

2.1 The regulatory environment for development

First, all three stakeholder groups consistently referenced the voluntary nature of many of the current guidelines that exist surrounding renewable energy development and environmental concerns. The U.S. Fish and Wildlife *Land-Based Wind Energy Guidelines* were frequently referenced as the go-to "manual" for evaluating both wind and solar projects (USFWS, 2012). For renewable energy developers, the voluntary nature of much of what is expected of them often leads to uncertainty. Different state agencies or state versus federal agency members may interpret regulations differently or have different expectations as to what best management practices should be, and this can lead to constantly having to adjust approaches to match varying expectations. The lack of uniformity, while beneficial in being able to adapt to local contexts, also contributed to challenges in the development process. For both regulators and ENPOs, the voluntary nature led to a questioning of the sincerity of follow-through from developers. These two stakeholder groups often felt that the environmental planning approach was simply to "check

boxes" because of the lack of requirements and the flexibility in the voluntary guidelines. While the stakeholder groups had sentiments associated with the voluntary guidelines themselves, the overall consensus seemed to center around an updated set of guidelines or regulatory frameworks to help reduce uncertainty and encourage further collaboration and consultation in the permitting process. While many participants were not asking for more regulations, there was a clear desire to see more explicit benchmarks to ensure everyone was operating on a level playing field.

Along the lines of regulatory frameworks, both developers and regulators discussed the staffing challenges experienced within state and federal agencies. Developers identified challenges associated with staff turnover and staff workloads, which made building collaborative relationships difficult and also contributed to a hesitancy to engage early in the project planning process. Regulators discussed their workloads and the challenges of being one or only one of a few to handle the consultation for renewable energy projects for larger geographic regions. As renewable energy deployment continues, the demand on agency staff members is only going to continue. It will be important to consider how staffing can be bolstered to support an increase in the project pipeline. For example, a few participants (both developers and regulators) mentioned the idea of a fund developers could contribute to, to support staff salaries as needed. This represents one viable solution to addressing staffing and turnover challenges.

When reflecting on how the permitting and planning process for renewable energy projects could be improved, both regulators and ENPOs often brought up the idea of long-range planning. This long-range planning was both concerning identifying priority sites for future wind and solar development as well as finding ways to become engaged in the transmission planning process. Long-range planning was not discussed in terms of formal regulatory tools, but more so in high-level discussions of priority areas for development or transmission buildout, for example.

Participants recognized that transmission is often what determines where wind and solar are sited, and once a transmission line has been sited and constructed, the power of agencies to suggest new sites becomes much more limited. Finding ways to facilitate the planning of energy structure, even at just a state level, could help regulators feel more engaged in the consultation process and provide an avenue through which to leverage the knowledge and expertise of ENPO staff members as needed. Long-range planning is a large task that will require a multitude of stakeholders at the table, and ENPOs could also assist in facilitating those conversations.

Overall, the regulatory environment for renewable energy and environmental planning is complex and context-specific in many cases. These conversations emphasized the contextual nature of the energy transition and the multiple levels of governance often present when navigating the process of technology deployment. The solutions presented by participants in these interviews encourage us to move away from trying to find concrete, one-size-fits-all approaches or models and instead think critically about how we might find more flexible or contextualized solutions that ensure all parties are on the same page and decrease the level of uncertainty in the planning process.

2.2 The local context

Local permitting and community perception of renewable energy development was a topic brought up by all participants in several different ways. Developers tended to focus on the local permitting challenges that are beginning to increase in certain areas, while regulators and ENPOs discussed community engagement challenges and opportunities as well as growing local opposition to projects. All three participant groups acknowledged the growing power that local communities hold in this process; a few regulator participants noted that they felt that local communities and community leaders had more power over project siting than they did. These

growing local challenges were something recognized by all groups and represented a challenge that cannot be solved by one group in isolation. This represents another facet of development to which ENPOs could contribute, especially those that are more locally or regionally focused. Some ENPOs have experience connecting communities to their environment and have a deep-rooted understanding of community concerns; this could translate into better communication between developers and communities. ENPOs may also be viewed as a resource when communities are considering how to create guidelines for their jurisdiction. Local community leaders also often rely on state and federal agencies in particular to understand potential project concerns, so it is therefore important that developers and agencies are on the same page about a project. Developers need to engage agencies early in their planning process so that an agency has all of the accurate information should they be approached by local leadership. The challenge of local community opposition represents an opportunity to build better relationships amongst all stakeholder groups and encourage more open and transparent planning processes.

Local governance improvements will rely on a shift in informal institutions (via social and industry pressures) that define the standard for community engagement in renewable energy development. Energy decisions should be promoting (Sovacool & Dworkin, 2015): 1) due process, by seeking to ensure that stakeholder participation matches the importance of the decisions being made; and 2) good governance, to improve accountability via access to high-quality information. The literature has shown that some of the critical factors for support of a wind energy project (which can also be applied broadly to renewable energy development) are open and transparent approaches to decision-making and citizens being heard by developers during the process (Firestone et al., 2018). Firestone et al. (2018) argue that local public attitudes will be the most significant barrier to wind energy moving forward, and the same is true with

solar. We can see from recent research that the community engagement practices of developers currently tend to rely on receiving input from communities but not necessarily integrating them fully into the decision-making process (Nilson et al., 2024). The energy transition and its success will rely on a more impactful incorporation of the multiple actors which are often impacted by its deployment; a shift in the norms that guide development practices will be required.

The added focus on the governance practices and community engagement approaches of renewable energy companies will lead to a shift in the normative systems that guide how renewable energy companies behave. It can, in part, be changed with pressure from ENPOs, which can serve as manifestations of the public's concerns (Levy et al., 2010). In addition to the pressure applied by environmental advocacy groups, there are likely already developers practicing stakeholder engagement in inclusive and effective ways. If the pressure applied by environmental advocacy groups can lend legitimacy to those developers pursuing community engagement, then institutional theory suggests that other organizations will likely pursue similar strategies to achieve the same legitimacy (DiMaggio & Powell, 1983). We begin to see the importance of a social license, which is not a formal institutional structure but instead constrains developers to meet the expectations of society – good governance practices in this case (Gunningham et al., 2004).

2.3 The green on green conflict

Regulators and ENPOs also discussed the divisive nature of the narrative of climate change versus local environmental impacts in the development of renewable energy development. These stakeholders felt that the narrative minimized their concerns or created an adversarial relationship in many instances. It's important to acknowledge that we cannot conceptualize opposition as blocking development. Instead, we should consider conflict as "political instances

that enable a wider discussion to occur on the ways such transitions should take place" (Avila, 2018, p. 613). Avila (2018) provides examples specific to wind energy generation, where opposition has led to better environmental assessments that adequately address concerns or consultations with previously excluded groups. Reframing conflict allows for more productive discourse between stakeholders and can lead to innovative solutions that serve multiple populations. In addition, Campbell (1996) suggests that planners should work to translate information between stakeholder groups.

I would extend this suggestion to introduce the concept of boundary spanners in sustainability conflicts. Boundary spanners can act as "knowledge sources and brokers" to help link problems and solutions (Gliedt & Larson, 2018, p. 149; Williams, 2002). For example, they can link science with policymakers by translating research into more familiar terms. Boundary spanners offer the opportunity to translate complex technical language to communities and other stakeholders, ensuring they understand what is occurring and their role in the process. Boundary spanners are a way through which to ensure multiple actor perspectives are considered and incorporated in energy transitions. ENPOs, in this case, can serve as an impactful boundary spanner in a variety of different contexts, and this translation of science into practice could represent a key role they could play in the energy transition.

2.4 Challenges and opportunities for the industry

Lastly, participants discussed a wide range of challenges and opportunities, which serve as indicators of what is on the forefront of their minds as they think about development in the coming years. For developers, the focus seemed to be on available space for development and what permitting challenges are going to arise from development in more environmentally sensitive areas. Regulators mirrored this concern and focused on the potential impacts to wildlife

species moving forward. Regulators, however, were somewhat more concerned about the cumulative impacts that we are beginning to see in regions with heavy wind and solar development – how do we understand and measure those large-scale impacts? For ENPOs, the biggest set of challenges discussed were around the politicization of renewable energy development and the rise in community opposition. These concerns are rooted in the active engagement some ENPOs have with communities as well as the overall role of ENPOs in working with and amplifying public concerns. Overall, the challenges highlighted here represent the challenges in how we conceptualize the energy transition in general and our traditional approaches to renewable energy deployment: lack of inclusion of spatial considerations and local contexts, a lack of recognition of the complexity of governance required for successful deployment, and simplification of the actors which are currently involved in the decision-making process.

While these challenges varied in focus, they all come down to where renewable energy development going to go, what impacts might we see at those locations, and what local community concerns will impact the success of that development. When we think about the potential battles ahead to build renewable energy development in some regions, all participant groups shared some positive outlooks on the path forward, emphasizing the potential for collaboration in the space, new avenues for research and development, and overall growth for the industry. While there are certainly challenges ahead for renewable energy development, there is a clear interest in collaboration and engagement, so how do we leverage that interest and make it a reality?

3. Next steps

My research provided insight into how a specific set of stakeholders view the environmental permitting and planning process for renewable energy development. I chose to focus on the three groups that I did because they are the three stakeholder groups most actively involved in the planning process as it stands currently. As has been mentioned throughout this research, the local governance facet is becoming incredibly important to the success of renewable energy development. A valuable extension of this research would be to interview county commissioners, zoning board members, or other local leaders who have had experience with renewable energy development in their communities. These local leaders can provide insight into how opposition could be confronted at the local level and what developers may need to consider integrating into their project planning process moving forward.

Along those lines, this research specifically focused on wind and solar development. I was asked many times during the recruitment phase of this research if my project included transmission planning and permitting. The challenges of transmission siting and permitting warrant an entire dissertation; this same approach could be applied to understanding what environmental permitting and planning look like for transmission only. Those lessons would be well-integrated with the lessons outlined here, to provide a pathway forward for electrification of the U.S.'s power grid. In addition, nuclear energy is becoming an increasingly important part of the energy transition conversation. Nuclear energy has its own incredibly unique set of environmental concerns and considerations, as well as a much more stringent and onerous existing process for permitting to bring a project to construction and then operation. In addition, this project does not include considerations related to offshore wind development. Offshore wind has, as with nuclear energy and transmission, a unique set of challenges related to the location,

the infrastructure required to build, and the governing authorities of development. The permitting and development of nuclear energy and offshore wind could both provide a series of interesting takeaways that may not necessarily align with what I have found in my research on wind and solar, which emphasizes the need for multiple permitting pathways for different energy sources. A one-size-fits-all approach is what has historically been applied in many cases but likely does not work as various clean energy sources are deployed moving forward.

Lastly, this research focused only on the Great Plains region of the U.S. While some of the general lessons provided throughout this research can apply more broadly to how we think about renewable energy development, each region of the U.S. comes with its unique ecosystems and associated considerations. While opposition to renewable energy has been growing in the Great Plains, it is much more prominent on the east and west coasts (Stokes et al., 2023). Many of the states further east and west also have much more comprehensive state permitting processes to guide development compared to those in my region of interest (Enterline et al., 2024). Exploring the permitting nuances in additional regions of the U.S. could provide additional insight to contribute to the current conversations regarding permitting reform, and the lessons learned from one region could be applied to others.

4. Concluding remarks

The goal of this dissertation was to begin to understand what synergies and points of contention exist within interactions between renewable energy developers, federal and state regulators, and ENPOs in the realm of environmental regulation. In the broader picture of the sustainability literature and energy transitions, this research emphasizes the importance of recognizing the context in which transitions are occurring and ensuring we are capturing all of the perspectives that should be included. Energy transitions are occurring in a multitude of different contexts, and

there is no silver bullet to successful development. With local permitting becoming much more common, the governance and decision-making surrounding energy transitions will only become more complex. This research, above all else, emphasizes how important communication and collaboration are not only in energy transitions but in pushing forward any sustainable technology. Participants shared specific moments where poor communication led to adversarial relationships and negative outcomes; when this proliferates into a multitude of negative experiences, it can hinder progress. Applying institutional theories to a specific facet of the energy transition – environmental governance in this instance – exemplifies how useful it is to consider the structures in place that guide a transition as well as how actors are influenced and influence those structures.

With this dissertation, I hope to contribute to the communication and collaboration between renewable energy companies, governing bodies, and other stakeholders in providing insight into what the perceived challenges are and where the disconnect exists in permitting and planning for renewable projects. Renewable energy is an important tool in the tool belt for confronting climate change and its impacts on society, but we mustn't discredit or ignore valid environmental concerns as deployment continues. We need to find ways to foster collaborative relationships, and open and honest conversations, and acknowledge that conflict isn't necessarily a bad thing - it can foster new approaches to these big questions.

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APPENDIX

INTERVIEW GUIDES

Renewable energy companies

1. Tell me about the types of projects your company works on.
    a. What states do you work in? Do you typically pursue wind, solar, or both? About how many employees does your company have working on developing projects? About how many projects has your company completed? Do you have many projects in the works currently?
2. How would you describe the amount of time and resources your company spends on environmental permitting and planning?
    a. Do you have dedicated employees who work on the environmental process? Does your company hire outside help? Do they do all of the work in-house? What does the structure of your environmental team look like? Does the process vary by project size or is it consistent across projects?
3. Do you think your company prioritizes environmental considerations of their projects?
    a. Why or why not? Is it a part of your company's strategic goals? Is it an expectation of the company? Is it pursued by individual employees or departments?
4. Tell me about your experience with navigating environmental considerations in developing a project.
    a. What state and federal policies are you typically concerned with? What do you find challenging? What works well? Who do you typically work with? Do you find wind or solar to be more challenging?
5. Tell me about how your company collaborates with agencies on environmental permitting and planning.

a. How are your relationships with wildlife agencies when working on projects? Are there particular project examples you can give me where the consultation went well? What are some of the challenges of working with agencies on these projects? What do you think could be done to improve the process?

6. Does your company work with non-profit organizations to improve environmental permitting and planning?
    a. How do you work with them? Do they provide tools or models for you to use? Do they assist with community outreach and engagement? Are they involved in discussion with agency organizations? Does your company find it beneficial to engage with conservation organizations? Are there examples of successful collaboration with these organizations? How might collaboration with conservation organizations be improved?
7. How does community involvement and engagement come into play during the environmental process of project development?
    a. Does your company actively pursue community engagement opportunities? What do those opportunities look like? Do you seek outside consulting to assist with community engagement? What have been some of the concerns you've encountered with communities?
8. What do you think are some of the forthcoming challenges and opportunities for renewable energy development?
    a. *Intended to be open-ended, asking them to provide what first comes to mind. Could be related to environmental concerns or other topics*.
9. Lastly, I just have a few statistical questions I need to ask everyone in this study.

a. How old were you on your last birthday?
b. What gender do you identify as?
c. What is your race?
d. Tell me about your educational background. (highest degree earned, discipline/degrees)
e. What is your title at your company? I will be more broadly categorizing positions and will not use your exact title.
f. How long have you worked at this company?
g. How long have you been in the industry? (Did you work in a different industry before moving to renewable energy?)

Regulators

1. Tell me a bit about yourself and the agency you work with.
    a. What is your area of specialization? What types of projects do you work on? How many individuals work on renewable energy projects?
2. Tell me about your experiences with the environmental permitting and planning process with renewable energy companies.
    a. Are there companies you work with often? Do you find that there is a difference in willingness between companies to work with you? Can you give me some examples? Can you give me an example of a consultation that has gone well? What are the challenges in working with renewable energy developers? Do you feel you are involved enough in conversations about project planning and siting? What could be done to improve the process?
3. Do community members ever approach you with environmental concerns about a project?
        a. Can you tell me what that experience is like?
4. Do you work with environmental organizations at all within the realm of renewable energy planning? How?
    a. What do those collaborations look like? Do you use tools or models they create to help guide consultation? Do they participate in conversations with developers with you? What is an example of a collaboration that you identify as being successful? Do you think environmental organizations should be more involved in the process? How do you think they could assist with the process?

5. Do you think there are enough formal policies in place when it comes to renewable energy projects and environmental considerations? *Challenges that can be overcome with regulatory changes*
    a. Are there policies that work well? What policies need improvement? Do you find the current regulatory environment difficult to work in? Do you think these policies are concrete enough or do they leave room for interpretation?
6. What do you think are some of the forthcoming challenges and opportunities for renewable energy development?
    a. *Intended to be open-ended, asking them to provide what first comes to mind. Could be related to environmental concerns or other topics*.
7. Lastly, I just have a few statistical questions I need to ask everyone in this study.
    a. How old were you on your last birthday?
    b. What gender do you identify as?
    c. What is your race?
    d. Tell me about your educational background. (Highest degree earned, discipline/degrees)
    e. What is your title at your company? I will be more broadly categorizing positions and will not use your exact title.
    f. How long have you worked at this company?
    g. How long have you been in the industry? (Did you work in a different industry before moving to renewable energy?)

Non-profits

1. Tell me a bit about yourself and the organization you work with.
    a. What particular topics/areas is your organization focused on? What types of projects does your organization work on? How many employees does your organization have? What is your area of specialization? What types of projects do you work on? How many individuals work on renewable energy projects?
2. Does your organization focus more on the climate mitigation benefits of renewable energy or the local environmental concerns?
    a. Can you give me some examples of how they focus on that topic?
3. Does your organization actively collaborate with renewable energy companies?
    a. How do you work with them? Do you provide tools or models for them to use? Do you assist with community outreach and engagement? Are you involved in discussion with agency organizations? Does your organization find it beneficial to engage with renewable energy companies? Are there examples of successful collaboration with these companies? How might collaboration with these companies be improved?
4. How does your organization work with state and federal regulators?
    a. What do those collaborations look like? Do they use tools or models you create to help guide consultation? Do you participate in conversations with developers with regulators? What is an example of a collaboration that you identify as being successful? How do you think you could assist regulators with the environmental planning and permitting process?

5. Do you think there are enough formal policies in place when it comes to renewable energy projects and considerations?
    a. Are there policies that work well? What policies need improvement? Do you find the current regulatory environment difficult to work in? Do you think these policies are concrete enough or do they leave room for interpretation?
6. What do you think are some of the forthcoming challenges and opportunities for renewable energy development?
    a. *Intended to be open-ended, asking them to provide what first comes to mind. Could be related to environmental concerns or other topics*.
7. Lastly, I just have a few statistical questions I need to ask everyone in this study.
    a. How old were you on your last birthday?
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    g. How long have you been in the industry? (Did you work in a different industry before moving to renewable energy?)