CO-OPERATIVE OR INVESTOR OWNED: HOW DOES THE STRUCTURE OF THE ELECTRIC WIND ENERGY FIRM INFLUENCE THE EFFECTS OF WIND ENERGY DEVELOPMENT ON COMMUNITY DEVELOPMENT?

BY

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DISSERTATION

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Abstract

Wind energy has consistently grown at a rapid pace over the last decade, doubling in total installed wind energy capacity roughly every two and a half years. Community and economic development externalities of wind energy development are presumed to contribute to community wellbeing through market-based mechanisms. The scholarship on the interactions between wind energy firms and their host communities has yet to critically analyze these presumptions despite the extraordinary importance of energy governance and development in current affairs. The status quo continues to be advanced in public policy with little assessment of the community outcomes, nor of the consequence of privileging a given institutional model (the investor-owned utility) over robust alternatives (electric co-operatives). By ignoring the effects of organizational structure of wind energy firms, government energy policymakers may be missing an opportunity to enhance potential community development outcomes.

Dominant theories of development – from the Wilsonian bureaucratic administrative approach to Hardin’s Tragedy of the Commons- claim that development is optimized when external, elite, centralized actors govern. But recent work by Elinor Ostrom and the Bloomington School finds that in many instances community development is optimized when resources users from the local community govern themselves.

What are the implications of applying Bloomington School policy to the wind energy sector? In order to address this, two questions are posed for analysis: How does wind energy development interact with community development? And what roles does the institutional model play in these interactions?
Comparative case studies were performed of two ownership models of wind energy firms and their host communities: Ward County, North Dakota’s co-operative-owned PrairieWinds wind farm, and McLean County, Illinois’s investor-owned Twin Groves wind farm. The Bloomington School’s Institutional Analysis and Development Framework informed the methodological approach to understand how wind energy development and operations interact with local level community development, how the ownership model influences the actions of the utility, and how the systems of endogenous and exogenous governance influence the overall interaction. Fieldwork, interviews, and archival analyses were used to gather the data necessary to inform these questions.

Findings indicate that the ownership model of the wind energy firm matters, namely that the co-operative firm exhibits a number of features conferring enhanced community development outcomes. In contrast to these findings, current wind energy development policy privileges absentee, private ownership and stewardship of wind energy resources. Public policy must allow for institutional diversity in order to guarantee optimal community development outcomes.
Dedicated to Rebecca for your love and enduring support. To my mom and my grandma for making the person I am today. And to all of those who strive to have a meaningful, fulfilling life.
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Chapter One: Introduction

The classical research on coal and oil boomtowns in rural American communities during the 70’s and 80’s highlights the chaotic possibilities of absentee-owned energy development on host communities. Today, rural communities are again at the center of another mass expansion of energy development (since the 2000’s), this time in the guise of wind turbines. The new energy boom is ushering in another transformative era for rural American communities rich in these resources. But this time, the outcomes may be different for those communities hosting this new infrastructure.

Wind energy “boomtowns” will look different from the coal and oil boomtowns of old. Wind, unlike coal and oil, is said to be an inexhaustible source of energy, meaning that once a wind farm is built, the infrastructure will remain rooted for a prolonged period of time, thereby providing host communities with a level of stable long-term planning capacity not found in other communities host to exhaustible energy sources. Additionally, firms and investors involved in wind energy development are differentiating themselves from so-called dirty energy producers, linking wind energy to social and environmental causes, promising a greater collective benefit. Finally, renewables such as wind (and solar) are advocated by the current Obama Administration as central to U.S. energy policy’s targeted goals of grid modernization and enhanced energy security (both in terms of energy independence and reliable energy sourcing), meaning there will be more—not less- wind turbines being erected across the rural countryside.

What do we know of the development claims of wind energy firms? Are they valid? And do the public policy pathways maximize community gains from this new
energy boom, or are alternatives obscured?

It is important to understand the trends in wind energy development, and contextualize why the wind energy development phenomenon may influence the day-to-day lives of those people living within the communities. Importantly, it is also important to understand the actors involved in wind energy development, and how their underlying motivations shape community development outcomes. This chapter will give a broad overview of the wind energy industry, followed up by questions essential toward understanding the community outcomes, the role of the ownership model of the firm, and the government and market policy pathways that play a direct role. The chapter then concludes with an outline of the dissertation itself.

The Growth in Wind Energy

The focus here is wind energy development. Wind energy development is the growth leader amongst renewables. On the outset of this study, carried out in 2011, wind energy was expected to grow at a projected annual rate of 39 percent over the next five years (“World Wind Energy Association,” 2010); this represents an expected doubling of total installed wind energy capacity every two and a half years (Madison, 2010). Actual global wind energy has been a bit slower than the estimate; it grew at 20.3 percent in 2011, and approximately 16 percent in 2012 ("World Wind Energy Association," 2012). Wind energy development, like large-scale economic development, is presumed to contribute to community wellbeing through market-based growth (McKibben, 2007; Miraftab, 2004b, p. 91; Pellow & Brulle, 2005). These suppositions are rarely measured against the reality of their claims, nor do the suppositions account for the perspectives of individuals who have firsthand exposure to wind energy development in their
By ignoring the effects of organizational structure of wind energy firms, government energy policymakers may be missing an opportunity to enhance potential community development outcomes.

The scholarship on wind energy development processes has largely been relegated to economic modeling with little attention paid to the social and community outcomes (Kildegaard & Myers-Kuykindall, 2006; Loomis & Carter, 2011). Data available mainly come from environmental, industry, or oppositional interests. That means community members have a narrow scope of data with which to inform wind energy development decisions. Additionally, little scholarly attention has been dedicated to energy governance “despite the extraordinary importance of energy in current” affairs (Aitken, 2010; Florini & Sovacool, 2009, p. 5240). The dissertation adds to the energy and policy development and institutional literatures through an institutional analysis of the community development outcomes arising from wind energy development.

The central hypothesis of this dissertation proposal is that the ownership structure of the wind energy firm will result in differing community development outcomes; specifically a community-based ownership model of the wind energy firm differs in community development influence from ownership by the absentee investor-owned utility (IOU¹). Of particular interest are the community governance implications of the rapid deployment of wind energy in rural communities. Preliminary research (Brockhouse, 2008) on community ownership models of wind energy has demonstrated an enhanced local economic multiplier effect and increased economic capacity when weighted against IOU development outcomes (Kildegaard & Myers-Kuykindall, 2006):

An increasing body of empirical research indicates that corporate and community

¹ IOU is an industry standard acronym used when referencing investor-owned models of energy utilities.
wind development structures are not equal in terms of their local economic impacts, not limited to the owners themselves. In particular, mounting evidence points to the idea that community wind has greater economic impacts on local economies during the operational phase of the project, due to local spending multiplier effects associated with the higher income streams (p. 1).

One electric utility model has received little attention in the scholarly literature: the co-operative model. Co-operative-owned businesses have, in general, been linked to enhanced development outcomes, particularly in regions with robust co-operative economic sectors (Deller, Hoyt, Hueth, & Sundaram-Stukel, 2009; Fazzi, 2011; Putnam, Leonardi, & Nanetti, 1993; Restakis, 2010). However, almost all of the rapidly expanding wind energy industry is investor-owned, with only two utility-scale co-operative wind farms existing in the entire USA as of 2013. Neither model of wind energy ownership (co-operative or IOU) has been critically analyzed for its community development effects. The intent of this dissertation is to fill that gap and increase understanding of the implications of this rapid rate of growth on the wind energy host communities.

The author carried out case studies of two organizationally-different wind energy firms and their host communities: Ward County, North Dakota’s PrairieWinds wind farm, co-operatively-owned and operated by the Basin Electric Power Co-operative, and McLean County, Illinois’s Twin Groves wind farm, operated by the investor-owned Horizon Wind. The two cases were chosen in part for a number of attributes based on data culled from the outset of the research in 2010. Illinois was of interest because the state was nationally ranked 16th in total wind energy resources, but 6th in actual installed wind energy generation capacity ("American Wind Energy Association," 2012a). North

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2 This dissertation is focused on only utility-scale wind farms. Community-owned wind farms are typically 20 megawatts (MW) and below. Kildegaaard and Myers-Kuykindall (2006) classified wind farms with a capacity of 50 MW and above as corporate-scale. For the purposes of this paper, a wind farm meeting that criteria is more accurately labeled a utility-scale wind farm.
Dakota on the other hand was ranked number one nationally in terms of total wind energy resources, but 10th in actual installed wind energy generation capacity ("American Wind Energy Association," 2012a). Despite North Dakota’s status as 10th in actual installed capacity, the state is host to one of the nation’s two co-operatively owned, utility-scale wind farms, adding a further element of interest.

The North Dakota case of Ward County is particularly of interest because of its status as host to the first co-operative-owned wind farm. The community of McLean County, Illinois, in contrast, hosts an investor-owned wind farm in a state with only IOU wind farms. While the firms both operate with the same federal laws and regulations, the case of Illinois’ McLean County serves as a comparison, used to assess how the social norms, markets and local laws vary and influence the outcomes of wind energy development.

This study takes an institutional approach to understanding how wind energy development and operations interact with local level community development, how the ownership model influences the actions of the utility, and how the systems of endogenous and exogenous governance influence the overall interaction (Ostrom, 2005). The Institutional Analysis and Development Framework (IAD), crafted from the foundational work of the Bloomington School political economists (Aligica & Boettke, 2009) will be utilized to better contextualize the interplay amongst these community-based social systems through analysis of the multilayered interactions between communities, wind energy organizations, governance institutions, and individual actors (p. 13).

The IAD framework is in part a diagnostic developed through decades of empirical analyses of over a thousand case studies (Poteete, Janssen, & Ostrom, 2010) in
an effort to understand the impact of countervailing forces on a specific case or action situation. IAD is a rigorously tested framework incorporating three broad levels of analysis (operational level, collective-choice level, and constitutional-choice level (Aligica & Boettke, 2009, p. 85-86)), harnessing the power of the iterative analytical method inherent to the case study methodology. The IAD as a diagnostic can be used to deconstruct and reconstruct numerous variables to enhance our knowledge of institutional design, socially ordered relationships, and how rules-in-use and human behavior applying those rules impact outcomes in a specific case (p. 13).

The central research question - “how does wind energy development influence community development?” - requires an in-depth analysis of a number of socially ordered relationships. The action situation of interest in this study is the interaction between a wind energy utility and the host community. The institution to be assessed is the wind energy firm. Further impacting the local processes and the institution being analyzed are other connected, adjacent social processes (the market, government regulation, public support, and other prevailing trends and policies) (McGinnis, 2011a). The actors are then incorporated in the analyses.

Three tiers of questions arise out of the central research question. The three questions follow in numbered order of importance to this research project:

**How Does the Ownership Model of the Wind Energy Firm Affect Community Development (Operational Level)?**

IOUs are typically owned by a broad number of investors, typically from outside of the local host community. Utilities had sited their operations in host communities out of the local host community. Utilities had sited their operations in host communities out of

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3 The central focus of this research is the community and wind firm interaction, not a complete assessment of government and market actors. For the purposes of this research, Chapter Six will present a short, concise analysis of the layers of governance as opposed to a total treatment of federal and state governance.
financial—not social—motivation, with little concern for the wellbeing of local residents (Adamson, 2008; Freudenburg, 1984, 2008). The absentee ownership model of IOUs has been one of the focal points of criticism in the energy boomtown literature.

Proponents of community owned and governed energy generators, such as claim the shift toward direct, community ownership should result in more desirable social outcomes ("Mission," n.d.; "Windustry," n.d.b). Advocates of locally rooted firms point to the evidence of community-owned enterprise offering greater benefits to their local host communities than do investor-owned firms (Kildegaard & Myers-Kuykindall, 2006; Tolbert, Irwin, Lyson, & Nucci, 2002). Yet the lion’s share of wind energy development is being undertaken by transnational IOUs due in part to the privileging of the IOU model through policy mechanisms, meaning policy may be promoting the least community-optimized type of wind energy firm (Finzel & Kildegaard, 2013).

Co-operative business models have received relatively favorable acclaim in various literatures as a form of social enterprise (Gonzales, 2010; Hazen, 2010; Ki-moon, 2009) for their community-building attributes and democratic governance structure (Brennan, 2009). Despite testimonials and scholarship of the beneficial community character of co-operatives (Malone, 2010), a critical analysis of co-operatives, particularly electric co-operatives, has yet to be performed methodically across sectors and across ownership models. Compounding the problem is that little attention has been paid to the patterned processes of co-operative business development (Zeuli & Radel, 2005).

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4 The community-ownership model of wind energy is found predominantly in states such as Maine, Minnesota, and Oregon, though the co-operative-ownership model is rarely applied.

5 In fact the United Nation’s website for the 2012 the Year of Co-operatives begins with a quote by Secretary-General Ban Ki-moon stating "Cooperatives are a reminder to the international community that it is possible to pursue both economic viability and social responsibility" (Ki-moon, 2009), which no doubt helps to reinforce the relatively favorable perspective of co-operatives.
Electric co-operatives comprise a significant share of the electric utility. The USDA ("USDA Rural Development," n.d.) claims the U.S. electrical energy sector is comprised of 3,150 utilities nationally. According to the National Co-operative Business Association ("NRECA International," n.d., p. 32) 220 out of the 3,150 are electric IOUs, and 905 are electric co-operatives. Co-operatives own and operate almost half of all electrical distribution lines, delivering 10 percent of the nation’s electricity to 37 million people in 47 states, with a total workforce of 70,000; the co-operative electric power sector is no niche player.

Unlike electric IOUs, federal statutes leave many of the regulatory responsibilities up to the co-operative’s membership under the presumption that the incentives for self-monitoring are evident due to the ownership model and democratic governance mechanisms (though the national government does defer regulatory authority to the states should they wish to regulate electric co-operatives). However, noteworthy anecdotal evidence portends to bigger systemic concerns related to the economic and social integrity of the co-operative electric sector and its ability to self-govern (Cooper, 2008). There are journalistic accounts of co-operative boards receiving excessive compensation, management gaming the by-laws to limit democratic participation in the co-operative, and other actions contrary to the co-operative principles. Understanding the social dilemmas facing electric co-operatives could not only benefit the communities hosting them, but also inform stakeholders and enhance policy seeking to optimize community orientation of electric co-operatives.

This study will begin filling the literature gap on wind energy and electric co-operatives by comparing the community interactive aspects of investor and co-operative
owned wind through a critical comparison of the two cases. The study is designed not to presume that one ownership model has greater value than the other, but will address questions such as the following: How does the ownership structure of the firm influence the community outcomes? Does the firm’s ownership structure impact the capacity of individuals to act collectively to meet their common ends (Ostrom, 2005), and if so, how? How does the firm work with the local elites and marginalized populations?

The questions posed at the collective choice and operational levels of analysis attempt to aid understanding of community interaction and engagement through the perspective of the firms: how does the utility’s ownership engage the community that is hosting the wind energy generation assets and why? How do the internal institutional logics influence the level of community development (a question of interaction)? How do the owners of the firm view their responsibility to the community in which the generation assets are located, and can we discern why their perceptions are such?

**How Does Wind Energy Development Influence and Interact With Local Community Social Structures (Collective-Choice Level Or Action Arena)?**

The classical energy boomtown literature dealt primarily with carbon-emitting sources of energy generation. This body of research critically assesses industry claims of enhanced material well being within host communities via job creation, enhanced local tax revenue, and economic development in disadvantaged rural areas (Bacigalupi & Freudenberg, 1983; Black, McKinnish, & Sanders, 2005; Freudenberg, 1979). A few decades later, the U.S. is in another boom cycle of energy development pushed simultaneously by the need to expand electric generation and transmission capacity while converting to more environmentally sound sources of fuel; the energy industry and its advocates are making similar claims (Vilsack & Chu, 2010) yet again, despite scant
research on the community development outcomes from wind energy development.

Much of the advocacy on behalf of wind energy has emphasized issues related to environmental and economic social justice (issues of concern for community development scholars and practitioners). Evidence is emerging that these arguments for development have been appropriated for predominantly market ends, becoming a very lucrative growth machine absent of socio-cultural values like so many other facets of the growing “green” economy (McKibben, 2007; Pellow & Brulle, 2005; Szasz, 2009). The process of wind energy development exhibits many traits similar to the fossil fuel boom, though with some as yet not understood deviations.

Recent studies from the Center for Renewable Energy at Illinois State University (Loomis & Carter, 2011) and the University of Minnesota (Finzel & Kildegaard, 2013) on the community impact of wind farms indicate that the economic boost given to communities is front-loaded, having the biggest effect during the construction phase. The long-term operations phase, while contributing to the local tax base and land-lease payments, provides relatively few jobs and results in capital flight due to absentee investor-ownership concentrating revenues elsewhere. Additionally, longitudinal analyses are unavailable since the industry is in its relative infancy; this is problematic for communities pressured into making long-term development decisions (land leases contracts for turbines can range from 20 to 50 years) based on company assurances and short-term “return-on-investment” projections.

The critical community influence of wind energy development will be best understood primarily through exploration of localized social structures (a central component of community interaction field theory which posits that a community is itself
the smallest observable, complete social structure (Wilkinson, 1991)) and the actors embedded within. The emphasis is on how the wind energy utility interacts with the community social structure, how the social structure is altered by the development and operations phenomenon, and the tension redirected back at the utility by the community actors in the interaction process. The studies will then incorporate the perspectives of those who live within the host community to paint a more complete picture of the interactive processes and community outcomes (Poteete, et al., 2010, p. 52).

**How Do the Multi-Layered Governance Systems of the United States Influence Local Level Wind Energy Development (Constitutional-Choice/Policy Level)?**

The rapid pace of growth in the wind energy industry has not occurred within a vacuum. Wind energy development, by and large, is a creature of private-public partnerships, requiring significant capital investment. According to the website of the Database of State Incentives for Renewables and Efficiency (http://www.dsireusa.org/), the wind energy industry receives substantial federal and state subsidies in the name of promoting national energy independence from “foreign” energy sources. The U.S. Energy Information Administration website notes (http://www.eia.gov/todayinenergy/detail.cfm?id=4850) that many states have established aggressive renewable energy portfolio standards (RPS), mandating that a given portion of electricity be generated from renewable sources by a given timeframe, further stimulating demand for wind energy. But wind energy companies do not interact only with government only on matters of financing, but also matters of regulation, land management, and grid connectivity.

How do the policies of the market, state, and other governance institutions influence or privilege the ownership model of the wind energy firms? To what extent can
the firm utilize extra-community mechanisms of power and influence to subvert local policymakers (“level-jumping” behavior (McGinnis, 2011b))? What are the unique impediments to development faced by the two ownership models of the wind energy utility (the IOU’s for-profit status verses the co-operatives not-for-profit categorization)? How do these policies determine how the wind energy firm operates at a local level? Further, how do other exogenous individuals or groups exert influence on wind energy development at the local community level?

Of additional interest is the co-operative question, namely what discourages development of co-operative-owned wind farms? If indeed the co-operative model of community wind is demonstrated to offer enhanced local community development outcomes, it is critical to understand why is there only two industrial-scale co-operative wind farms in the United States as of 2013, lest policymakers lose out on a robust tool and communities are denied the potential to reap the full potential rewards of wind energy development.

**The Structure of the Dissertation**

As has been noted throughout this chapter, wind energy is a rapidly growing industrial sector, yet little is known about the community development implications of this growth. More to the point, the research has yet to assess the community and economic development differentials of privileging one ownership type over another (the investor verses co-operative owned question). The dissertation intends to address the three broad sub questions posed in an effort to evaluate the implications of the current policy and market orientations, as well as assist community leaders, development
practitioners, and policymakers in making choices better suited to the needs of those most impacted by wind energy development.

The dissertation is structured as follows. Chapter Two reviews the literature within which the broader analysis is couched. Chapter Three lays out the methodological approach to how data were collected and analyzed in this study. Chapters Four and Five present the two case studies, each study covering how national and state energy policy and investment phenomena propel wind energy development. Chapter Six will compare the two case studies, analyzing the potential influence of the wind utilities on their host communities, while concluding the dissertation with final thoughts on the research findings, as well as proposals for future research on renewable energy and co-operative businesses.
Chapter Two: Literature Review

An understanding of the community development implications of the wind energy boom requires an understanding of the types of wind energy institutions, the actors comprising the institution, how those actors interact with their host community, and the public policy the enables or constrains these interactions. Since the community implications are of central concern, it is also important to conceptualize community, as well as what it means to undertake community development. Therefore, the theoretical lens used to analyze these variables must account for interpretation of institutional design, the impact of government and market policies, and put forth a conceptualization of the community itself.

This review begins with a discussion of the theoretical literature on community development, stressing the Bloomington School’s institutional perspective on complex, dynamic social systems and development. The review then moves to a critical analysis of top-down development approaches, with an emphasis on how these systems influence a community’s capacity to self-govern, particularly during periods of state and market failure when such capacity is of critical necessity for individuals to thrive in times of crisis. Attention then pivots to the theoretical premises, which undergird the development potential of the co-operative model, as well as the breadth of the U.S. electric co-operative sector. The review necessarily concludes with a discussion of the limited scholarship on co-operatives as community-building institutions.

Community Development

The capability to choose to enter or exit an action arena, to act collectively when needed, is an essential prerequisite for democracy (Aligica & Boettke, 2009, pp. 24–25).
The community and the community “space” is the action arena where collective action plays out; the structure of that space is a critical determinant for a robust democracy.

First, we must understand what community is, and how institutions of governance (managed concentrations of power) are utilized for community development and how a community’s social structure is nested within a socio-ecological system (SES).

Community has been conceptualized as identity, solidarity, or place. Some scholars take a somewhat cynical view of community as lost by claiming that community cannot be clearly defined, that it is an amorphous, shifting concept (Bauman, 2001). The concept of community remains unsettled, yet there are a number of theories that exhibit a level of overlap.

Most people and institutions are rooted to a place and meet their everyday needs within a more or less physically bounded environment. Michael Taylor (2006) identifies key attributes useful for pinpointing a community. A community is a

…group of people with durable, multiplex and direct relations. They expect to continue to interact for some time to come (so group membership must be fairly stable); they interact on several fronts, not in a specialized sphere; and their relations are not mediated, in particular by central government agencies (pp. 199-200).

Community is not solely the purview of the market or the state, but is necessarily comprised of an amalgamation of social fields that cannot be said to be limited to just economics or coercive authority (Flora & Flora, 2008, p. 14). This follows in the Bloomington School tradition wherein Vincent Ostrom makes an impassioned plea for policymakers and scholars to understand that community and civil society conceptualizations are about more than state, state-recognized jurisdictions, or markets (Aligica & Boettke, 2009; Ostrom, 1997); it is collective action, people working
spontaneously on an as-needed basis to address their common concerns. The crosscutting commonality amongst these conceptualizations of community is that “the substance of community is social interaction” (Wilkinson, 1991, p. 13). And this social interaction can take many institutional forms.

The interactional perspective sees community as a complete, general-purpose social field, “a place-oriented process of interrelated actions through which members of a local population express a shared sense of identity while engaging in the common concerns of life” (Stedman, Lee, Brasier, Weigle, & Higdon, 2009). The field orientation of the interactional perspective is why the formal theoretical title is called community interactional field theory (CIFT). The community field is not merely a map of predefined boundaries complete with roadways and well-designated grids. The general-purpose community field arises from this “pattern of individual and organizational interactions” (Sharp, 2001). Here is Wilkinson explaining the relevance of the “field” concept in CIFT:

The actions of this field serve to coordinate other action fields, organizing them more or less (through an unbounded, dynamic, and emergent process) into a whole. The community field has actors, association, and activities, as any social field does.

The community field differentiates from a social field along important lines, and results in the vying for influence, struggles for power, and attempts at varying forms of collective action. This action situation is where culture arises and the tendencies of social systems are observable (Flora & Flora, 2008; Zacharakis & Flora, 2005).

The community field can serve as a node that strengthens the centralizing tendencies of a larger social order or as one of a number of points diversifying society. Community members strengthen the community field (Stedman, et al., 2009, p. 182)
when they interact not just within their private-interest social fields (such as a small business), but also across linked social fields to distribute benefits throughout the community (Wilkinson, 1970, 1972). The community field itself can be identified by how the local population addresses any one of the following problems occurring during an action process: “problems of awareness, organization, decision making, resource mobilization, and resource application” (Wilkinson, 1991, p. 89). Communities commonly utilize more formal mechanisms for addressing such problems (such as police enforcement of evacuation from an impending forest fire, or community mobilization centered around building a multi-purpose community center), though adaptable, robust communities also exhibit tendencies to mobilize, ad hoc, should the need arise.

The “place” or territory where major policy and economic development often intersects is at the community level, the community being the smallest, complete social unit nested within the larger social structure (Wilkinson, 1991). The features that comprise a community should not be conflated with community development. Community development orients the “developer” toward the social structures as opposed to the atomized projects in an ongoing social maintenance process. Community development requires a critical understanding of who wields control and influence – power – over vital resources (pp. 94-95).

Community development entails more than strengthening the community field. Community development is itself the practice of identifying and attempting to change the actual social structure underlying the community field itself (Wilkinson, 1991). The…
…interest that guides this field is an interest in structure rather than in specific goals such as economic development or service improvement. The structural interest in the community field is expressed through linking, coordinating action, action that identify and reinforce the commonality that permeates the differentiated special interest fields in a community (p. 90).

What matters for community development in practice is the attempt to alter the social structure; should the social structure remain unchanged is not a sign of failure, but an opportunity for community developers to regroup and innovate new approaches toward those ends. In other words, a failed attempt at changing the social structure is still community development in that an attempt is a step toward changing the social order.

Forms of development, even if they might be termed community development, do not meet the basic criteria if the approach does not attempt to change the local level social structure; even though the community field is the intersection of the public economy, nature, civil infrastructure, markets, and state, it is the social structure that in the end determines elements of control and access to resources, hence the central importance of “structure” to CIFT. What follows is a discussion of the two divergent tendencies of social system structure -centralized verses decentralized- the tendencies that these structures exhibit and the implications the tendencies have for collective action.

**Social system structure and order.** Top-down development (colonization, consensus capitalism, neoliberalism and bureaucratic administration to name a few typologies) is justified on a number of grounds. Host populations have been deemed chaotic, disorganized, or backwards by some authority. Host populations are promised shared prosperity so long as the population acquiesces to the grand designs of the development power (be it a corporation or occupation force). Reflective of the growth

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6 One can coach this in terms of the recent Iranian “Green Revolution” where the citizen uprising—the first in many years—exposes individuals to activist tactics never before witnessed. Viewed through this lens, one can call the initial activists early adopters, taking on greater risk than future innovators who can avoid costs incurred by the first generation of activists.
machine concept (Molotch, 1976, 1993) community is enabled only insofar as to allow local elites to control the economic process, not to actually govern for the broader community. More to the point, these methods of development tend toward centralization, contributing to a bureaucratic administrative paradigm in which alternative, innovative governance structures are derided as ineffective or unproven due to the “known” efficacy of predominant decision-making processes. Alternatives to such systems are then crowded out (Miraftab, 2004a, 2004b) in favor of the elite perspective:

The entire exercise comes to be power-centered in ways that may become extreme and limiting. Choices, decisions, rules, preferences, ideas, values become secondary. They are just inputs or outputs in the power process or, even worse, a “veil” that is clouding the view of “reality” (i.e. power and its workings) (Aligica & Boettke, 2009, p. 3).

Advocates of centralization presume social order and stability, influenced by staunch market theorists, Taylorite scientific management, and the supposed necessity of Woodrow Wilson’s administrative paradigm (the Hobbesian Leviathan). Critics of the one-size-fits-all approach highlight the susceptibility of centralized social systems to be captured by a select few (Aslanbeigui & Summerfield, 2000; Miraftab, 2004b; Ostrom, 2005), be disrupted, and operate with an immense amount of inefficiency in the form of socialized costs (Carson, 2008; North, 1990); the more centralized and larger the scale, the greater the cost or “tax” involved in shoring up proverbial chinks in the institution’s armor (Assange, 2006; Robb, 2008). Centralization –even in more benevolent systems such as Post War era consensus capitalism –often intersect with systems of dependency, weakening the capability of actors to govern in times of crisis (Gaventa, 1982). Marxist scholars refer to the outcomes of centralizing processes as hegemony, a complete system that attempts to push down the social system hierarchy (Duménil & Lévy, 2004),
culturally inculcating the population into accepting the legitimacy of the ruling powers (Bourdieu, 1986). Dependent host populations are then highly susceptible to system shocks should extra-local authorities be derelict in their responsibilities to that community during times of crisis (Martinez, 2009).

Vincent Ostrom applied the term monocentricity as a label for contextualizing the processes of social system centralization and the tendencies inherent within that system (Ostrom, 2010). Monocentricity adds to our understanding of social system structure and cultural inculcation by explaining the underlying mechanisms enhancing hierarchical power through a critical analysis of the weaknesses of centralization, namely in the lack of choices, lack of information and knowledge flows, and lack of new innovative ideas and approaches (institutional monocropping (Evans, 2004)). Authority figures in centralized social systems tend to create power structures that do not ask if local citizens can manage their own affairs, presumes passivity (Ostrom, 1972), do not view capacity-building toward self-governance ends as a necessity, and may actually harm community governance by limiting interaction and dialogue over issues of vital collective necessity (Flora & Flora, 2008; Martinez, 2009). Corporate and state strategies of community atomization, for example, hurt the capacity for collective action by limiting the flow of information, interaction and trust amongst community members and exogenous institutions (Ahn & Wilson, 2010). We know that if people cannot cooperate or work together, collective action becomes more difficult (Martinez, 2009). What results is a public service paradox in which those who pay for or have a right to a given service are

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7 We saw this during the aftermath of Hurricane Katrina in which the Federal Emergency Management Agency, federal and state governments failed to adequately coordinate critical disaster mitigation efforts.
not given voice to the process to enhance the product provision of public goods (Aligica & Boettke, 2009, p. 33).

Monocentric governance then furthers a process that pushes social systems toward centralization, reducing the variety of institutional arrangements. Ever increasing centralization creates a downward spiral of systemic crisis tendencies. This then further complicates not only initiatives for reform by reducing the potential for alternative, diverse institutions, but also by developing restrictive, monopolistic social structures that fail to teach new entrepreneurs from experiential learning.

Scholarly understanding of social dilemmas faced a number of constraints in the social sciences during the era when Vincent Ostrom conceptualized the harmful impacts of monocentric governance. Action situations observed by policymakers that seemed to be de-linked from centers of power were “neglected” or “considered marginal” (Aligica & Boettke, 2009, p. 3). Hardin’s classic work (Basurto & Ostrom, 2009) *The Tragedy of the Commons* is oft referred to as the operational and scholarly standard of the era, presuming top-down centralization was needed in order to maintain social order and sustained resource allocation. Social systems were assessed in isolation, separating an action situation from other adjacent action situations. Analytically, monocentricity situates social systems as stemming outward from a locus of power, problematic in that it presumes central power structures as a prime mover of sorts; everything is generated or stimulated by the core. Structural concepts were overly simplified, tying private solely to “the Market” and public solely to “the State.”

The inability to see alternatives means that users and administrators of institutions may not observe obvious structural problems in their institutions, and fail to adapt when
needed most. Former change agents are co-opted, subdued, and slowly diminished in stature and capacity as they become dependent on the status quo, reducing overall effectiveness of a given social cause\(^8\) (Aligica & Boettke, 2009; Ledwith & Campling, 2005; Santos, 2012). The squeezing out of alternatives and discouragement of civic participation is troubling.

Systems are in a sense about coping with “the threats of uncertainty” (Aligica & Boettke, 2009, p. 65) through “a set of ordered relationships that persists throughout time (p. 19). Institutions structured on broad, inclusionary citizen participation have been shown to prevent elite capture of power and resources (Dasgupta & Beard, 2007) and sustain system shocks. While civic engagement will not always be the answer –and in some cases may not be desirable for short durations of time- it certainly plays a critical role in community development.

Monocentricity as an end is a flawed premise –as are all panaceas, according to the persistent caution of Elinor Ostrom- in that it presumes there are no other existing solutions or functional alternatives. Solely market or state orientations toward development then trend toward monocentrism due to their emphases toward singular solutions. These models of economic development are problematic due to the propensity of development to be usurped for decidedly non-collective ends. The orientation of the public as “the” state or as “the” market is stifling to innovation, experimentation, adaptation, and even subversion of existing social systems. A result is a state-supported system privileging a few, fostering dependency upon market actors in the name of shared

\(^8\) The demise of the community-organizing group ACORN is particularly prescient. ACORN was initially a group steeped in the Alinsky model (Alinsky, 1971) of community organizing and agitation, funded by member-dues and organized labor. As their power increased, the group began offering critical member services through state-funded grants. ACORN became so dependent on this singular, large source of state funding that they collapsed almost overnight when a scandal prompted the US Congress to pull all sources of federal funding, thereby destroying a community-building group critical to many individuals and families in hard hit inner cities, all with a singular legislative action.
material prosperity. These actors choke out alternative approaches. Institutions that would have been innovated by those at the bottom of the power pyramid are stymied through denial of viable, complementary alternatives to the state-market dichotomy. How can development be reoriented to hedge the outcomes toward community ends?

Despite the perceptions of monocentric theorists and policymakers, multiple centers of power are always at play, running parallel, competing, or intersecting with existing systems. New Institutionalist perspectives (North, 1990) are challenging this reliance upon blueprint thinking. They criticize the policy and scholarship that ignores the rich alternatives to this limiting state-market dichotomy. Elinor Ostrom and Vincent Ostrom, two scholars whose work is exemplary of—though much broader than—New Institutionalism, have

…explored a new domain of the complex institutional reality of social life—the rich institutional arrangements that are neither states nor markets. They are small and large, multi-purpose or just focused on one good or service: suburban municipalities, neighborhood organizations, condominiums, churches, voluntary associations, or informal entities like those solving the common-pool resources dilemmas they studied and documented around the world. Yet, once the functional principle behind them was then identified, the very diverse forms could be understood as part of a broader pattern, and the logic of the institutional process involved could be revealed with relative ease. They could be seen as a “third sector” (“public economy” was one of the suggested names for it) related to, but different from, both “the state” and “the market”. Irrespective of what we call these domains, the fact is that a theoretical perspective that takes it into account is substantially different from the one based on the classical dichotomy (Aligica & Boettke, 2009, p. 6).

New Institutionalists hypothesize that a part of the solution to pitfalls of monocentricity is the diffusion of power into multiple systems that may compete, cooperate, or coexist within a social system. Most importantly, this perspective offers individuals and institutions alternatives through autonomy yet remain interdependent.
This diffuse system of alternatives is referred to as polycentricity (Aligica & Boettke, 2009, p. 3).

No single center of authority is responsible for coordinating all relationships in such a “public economy”. Market-like mechanisms can develop competitive pressures that tend to generate higher efficiency than can be gained by enterprises organized as exclusive monopolies and managed by elaborate hierarchies of officials…” (p. 7).

In other words, when opportunity structures are not unduly hindered and when certain conditions exist, people can act collectively to find common solutions to social dilemmas that are outside of just “the State” and “the Market” perspectives (p. 6). Diffusing power away from these actors and into the hands of multiple stakeholders is a viable approach to combatting the deleterious effects of monocentricism, advancing more options available for the administration of public goods (pp. 38–39).

An alternative should be constructed, “suggesting that a system of ordered relationships underlies the fragmentation of authority and overlapping jurisdictions that had frequently been identified as chaotic”: a polycentric political system viewed as “a set of ordered relationships that persists through time” and “having many centers of decision making that are formally independent of each other (V. Ostrom [1972] in McGinnis 1999b, 53).

Poorly stewarded institutions are capable of sustaining themselves for great periods of time with the assistance of external actors and their resources (North, 1990). Institutions and communities were able to justify dependence on state and federal governments for critical necessities during an era when governmental entities were more capable of providing vital resources (Adger, 2000). But the capacity and the role of the state are rapidly changing as socio-ecological issues continue to play out across state boundaries (Flora, 1998; Florini & Sovacool, 2009). Dependency on centralized institutions then makes actors more vulnerable to a loss of livelihood and diminished security during times of system disruption when the chances of state failure become
palpable (Adger, 2000; Gaventa, 2002), as is painfully obvious from the aftermath of Hurricane Katrina in New Orleans (Horwitz, 2009). It is critical to understand that in this era of impaired government, *self-governance* has been and can be achieved through a variety of institutional arrangements (Florini & Sovacool, 2009; Ostrom, 1991).

Analytically, polycentricity then reorients research and practice toward a robust social systems perspective, “disarming simplicity” (Aligica & Boettke, 2009, p. 4; Ostrom, 2005; Poteete, et al., 2010), putting social dilemmas in a more complex feedback loop by engaging the “consumers” or citizens not as mere recipients of a product from the state or market but as engaged co-producers of the good or service (Aligica & Boettke, 2009). Social systems are seen as nested and interactional. Such institutions then have an incentive to work with the community to meet mutual ends, unlike extractive enterprises having a singular bottom line as the desired outcome:

Multiple centers of power, overlapping in competition and cooperation, individuals acting in specifically defined social and institutional settings – ecological rationality, emphasis on dynamics that takes place between ideas-rules-decisions-learning. All these as part of an effort to reject the vision behind the (Wilsonian) mainstream approach and indeed as an attempt to contribute to the growth of an alternative to it (Aligica & Boettke, 2009, p. 4).

Scholars of the Hobbesian-Wilsonian tradition are wary of the propensity for chaos stemming from decentralized, multiplex, redundant social systems. (Aligica & Boettke, 2009). But just because a polycentric system lacks a central head does not mean it is incapable or ordering itself (Poteete, et al., 2010, pp. 39–41). The institutionalist approach is reoriented toward a more complex perspective on social systems that sees their stability and progression as emerging from innovations in multiple types of institutions, and not necessarily reliant on the state-market dichotomy. Indeed the “state and market” need not be presumed a prerequisite for a robust civil society to flourish,
particularly when one considers the recent attention paid to so-called “alternative” institutions embedded within what proponents call the solidarity, social, or public economies.

Innovative institutional arrangements (social-purpose businesses, non-profits, etc.) for collective action arise when certain prerequisites exist. These polycentric approaches require a foundation with which to prosper (Aligica & Tarko, 2011). Without certain pretexts, functions like basic interaction, information sharing, trust, contractual obligations, and sustained collective action are unlikely to endure (Poteete, et al., 2010, pp. 100-101). Individuals must be aware of boundaries, processes must be accessible, fair and cautious of rigidity, legally recognized, and connected to other similar institutions in order to adapt to best-practice approaches. Barring such prerequisites makes systemic innovation and adaptation more difficult and therefore prone to the pitfalls of monocentricity.

Individuals must have the space to be able to work collectively, build new institutions, and challenge centralized power by aggregating up the existent social hierarchy or having the tools necessary to create their own social structure. A powerful approach toward building a prosperous polycentric system, to build and challenge overbearing hierarchies, is at its base embedded within the capacity of individuals to interact at the smallest identifiable emanation of a complete society: the community. Researchers must better understand what makes community governance work optimally in given settings, how such governance structures arise, and who participates in these processes. A discussion of the critical importance of community governance follows.
**Community governance.** Development of the community field is by its very nature not a private endeavor, but one that enhances the “common concerns of life” through interactive processes. These common concerns of life occur both spontaneously in daily interactions and through an orderly, intentional social process, also known as community governance.

Community governance is “the structure of small group social interactions—distinct from markets and states—that, along with these more familiar forms of governance, jointly determines economic and social outcomes” (Bowles & Gintis, 2002). Community governance “is an amalgam of specific practices that make the difference between stagnating and flourishing communities” (Stark, 2007), providing an engagement process for “citizen participation beyond voting” (Gaventa, 2002, p. 29) in which citizens are not viewed merely as electors or consumers; community governance also provides a “flexible structure by which communities can respond to challenges and opportunities” (Flora & Flora, 2008). Studies of community governance then move away from a monocentric statist perspective toward a polycentric, collective action orientation.

A discussion of community, development, and governance necessarily draws us back to the issue of social structure. Scholars in social network analysis are necessarily interested in how the structure of these processes influences an actor’s capability for action (Sharp, 2001, p. 422). The focal level, the community action arena (Martinez, 2009, p. 3), may operate in such a manner that encourages or discourages individual participation. Actor agency is neither isolated nor absolute, but shaped by individual capability, social interconnectedness, and access to resources, which has significant ramifications in terms of control and power (Burt, 1992; Flora & Flora, 2008; Freeman,
The individuals and networks within their social fields may try to change the community action arena by gaining control at a different level outside of but adjacent to the community field (such as within social groups in the community, or attempting to use the state for influence). Therefore a system can be structured in such a manner as to prevent individual and collective action for purposes of atomization or centralized power, or to subvert stifling social systemic concentrations by entering into voluntary collective action arrangements elsewhere.

Social network research has consistently demonstrated that individuals and community actors with a balance of strong (family and close friends) and weak (work acquaintances, civic associations, etc.) social connections or ties generally do better, are more prosperous, live longer lives, are happier, and more prone to contribute back to the community and its field (Christakis & Fowler, 2009). Granovetter (1973) wrote about the resource potential of weak ties in networks (the “strength of weak ties” concept). Freudenburg’s (1986) research of a rapidly changing boomtown assessed how an influx of job seeking immigrants moved to the community for new opportunities at the recently built power plant causing a cell division of sorts within the preexisting community networks. The division diminished longstanding residents’ access to community resources, the density of acquaintanceship decreased (the amount of actors comprising a network), community trust and capacity for collective action diminished, and individuals erected barriers based on cliques. And yet network disruptions may offer new opportunities as well. Burt’s (1992) elaboration on Granovetter’s weak ties proposition builds theory around the manner which actors gain structural advantages by connecting
weak ties over structural holes (non-linkages between network clusters) or “brokering” linkages to other networks.

A community’s governance structure can catalyze adaptability via interactive processes linking diverse actors with multiple interests, strengthening the community field. Nurturing a community space helps to encourage a wide array of community participants that reinforces polycentric governance and innovative institutions (Bowles & Gintis, 2002; Ostrom, 2005). The empirical work demonstrates that for conditions relevant to community robustness to arise, governance structures must allow for inclusive, redundant, social institutions of a number of varieties so that optimal institutional types may arise and adapt to unique, local SES features (these variables are the commonly utilized design principles of robust common resource regimes (Poteete, et al., 2010)).

Theoretically, the optimized polycentric community structure is coalitional, (illustrated in Figure 1) in which an abundance of local social networks are adequately linked (brokerage) while retaining their identity (closure). Such a structure provides moderated access and reasonable boundary maintenance to material and social resources, exhibiting great capacity to adapt to change processes (Flora & Flora, 2008, pp. 129–133).
One must be cautious of treating social system structure as a panacea or the answer. Polycentric systems are not an end to themselves. A community may be highly polycentric, but lack adequate coordination mechanisms (amorphous) or purposefully isolate themselves from other groups (siloed or factional), as illustrated in Figure 1. In cultures and societies that lack the capacity to interact and communicate (for example, in instances of internal strife) top-down governance (pyramidal) may be necessary to preserve social order. Even then such an approach should be seen a short-term solution in critical, fleeting moments (Poteete, et al., 2010). These processes are unending, forever requiring the policymaker to reflect critically and adapt whenever new social dilemmas arise.

Orientations of structural “centrism” are theoretical devices used to assess a social system; in some instances, monocentricity is a temporary though beneficial stopgap, whereas in most instances polycentricity is something to aspire to for enhanced development, though structure and connectivity tell only part of the story. Individual actors can wield significant control or power over a given situation due in part to their connectivity, but also because of their access to resources not necessarily confined to social structure (leadership capacity, access to natural resources, knowledge skills, or
understanding of local history and culture). How people interact, and how those interactions facilitate transference of trust, knowledge, and other resources are crucial to better understanding both the impediments to community development, as well as how to better develop the community field; the flatter or more accessible the governance institutions, the greater the potential for individual and community-wide collective action through interaction (more recent work finds the social order itself is maintained when the gap in inequality is lessened, for example) (Ostrom, 2005). Therefore it is critical to understand the social structures of the local community “to recognize how resources and information flow within the community, to determine who does and does not have access to these resources and this information, and to identify” structural attributes “that enhance general capacity for local action” (Sharp, 2001, p. 423). Social network theory is therefore an appropriate theoretical framework for conceptualizing actor interactions that affect the community field so long as actor attributes are factored into the analyses.

Vibrant, active communities serve as incubators of democracy by giving actors the ability to see how governance works, participate in the process, and work with others who also desire to govern themselves. These participatory communities are more adaptable to change and system shocks, and actors are likely equipped with greater capacity to steer change into a positive direction for community development, enhancing collective agency and local control (Emery & Flora, 2006; Shragge & Toye, 2006). Therefore social structure matters, but so too does the manner in which collective action occurs within that structure and for whom those actions endow benefits. So then if polycentricity is the optimal social structural approach for avoiding capture and
enhancing resource creation and distribution, how might institutions\(^9\) enhance polycentric systems through sustained community-oriented collective action and development?

**Institutionalizing Community Development; The Co-operative Business Model**

The scholarship on community has thus far failed to advance “implementation strategies” for community development. A hypothesis of this study is that co-operative business development is itself an under looked community development implementation strategy (Zeuli & Radel, 2005). “The potentials for cooperatives as a strategy” fall “under three contemporary community development paradigms: self-help, asset-based, and self-development” (p. 44). The tangible benefits of economic opportunities, job creation and community-cohesion are obvious (Brennan, 2009; Ki-moon, 2009), and so too are the little understood entrepreneurial and self-governing processes. But what precisely are the features of a co-operative that gives it a community-orientation, uniquely differentiating it from the traditional corporation, and how then might co-operatives be used for community development?

The features of an institution determining their value proposition are informed partly by the institutional logics, defined as:

the socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality... Institutional logics are both material and symbolic—they provide the formal and informal rules of action, interaction, and interpretation that guide and constrain decision makers in accomplishing the organization’s tasks and in obtaining social status, credits, penalties, and rewards in the process... These rules constitute a set of assumptions and values, usually implicit, about how to interpret organizational reality, what constitutes appropriate behavior, and how to succeed (Thornton & Ocasio, 1999).

\(^9\) Institutions are human-constructed constraints or opportunities within which individual choices take place and which shape the consequences of their choices (McGinnis, 2011a).
A fundamental goal of the modern day corporation is wrapped in the institutional logic of markets (Thornton, 2002), whereas the institutional logics of member-service or need are a foundation of the co-operative. A co-operative is an inherently political form of institutionalized collective action (Mooney, 2004), a common-property regime that according to the International Co-operative Alliance’s website (http://www.ica.coop) is “an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations, through a jointly owned and democratically controlled enterprise.” The co-operative model of business, like the corporation, is utilized in virtually every industrial sector but operationally functions much differently (Brennan, 2009; Restakis, 2010).

10 This is true for most co-operatives. However, utility co-operatives typically service their region in a monopoly capacity; meaning membership is compulsory, not voluntary.
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Corporation</th>
<th>Co-Operative</th>
</tr>
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<tbody>
<tr>
<td><strong>Economic System</strong></td>
<td>Market Capitalism</td>
<td>Distribute Products as a Service</td>
</tr>
<tr>
<td><strong>Organizational Identity</strong></td>
<td>Products as a Business</td>
<td>Member Service Needs</td>
</tr>
<tr>
<td><strong>Legitimacy</strong></td>
<td>Increase Organizational Robustness</td>
<td>Increase Member Service Needs</td>
</tr>
<tr>
<td><strong>Authority Structure</strong></td>
<td>CEO, Member-Ownership</td>
<td>CEO, Member-Ownership</td>
</tr>
<tr>
<td><strong>Mission</strong></td>
<td>Build Market Position of Firm</td>
<td>Build Market Position of Firm</td>
</tr>
<tr>
<td><strong>Strategic Focus of Attention</strong></td>
<td>Account for Market Failure</td>
<td>Member-Focused</td>
</tr>
<tr>
<td><strong>Logic of Investment</strong></td>
<td>Capital Committed to Firm and Member-Owners</td>
<td>Capital Committed to Market Return</td>
</tr>
<tr>
<td><strong>Governance</strong></td>
<td>Weighted by proportion of voting shares</td>
<td>Democratic (one member, one vote)</td>
</tr>
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**Source:** Adapted from Thornton, Ocasio, & Lounsbury, 2013.
The divergent institutional logics results in a number of differential processes, the ramifications of which should be on the radar of any policymaker when assessing aligning policy to desired outcomes (Table 1\textsuperscript{11} outlines some of the key differential institutional logics between the co-operative and investor-owned corporation). Whereas the corporation ties control to an investor’s share of total investment, voting rights in a co-operative are equitable (one-member, one-vote) providing for a more representative governance structure; whereas the board of a corporation is mostly staffed by the largest investors, the board of a co-operative comes from and is elected by the ranks of the membership; whereas corporations produce profits (and pay dividends on stocks), co-operatives produce patronage refunds\textsuperscript{12} or surplus wealth that is distributed back to the membership based on the level of patronage\textsuperscript{13}, creating an environment of shared prosperity and enhanced individual opportunity; whereas corporations seek value appropriation and profits (Flora & Flora, 2008, p. 15), not value creation (Santos, 2012), co-operatives generate value in the form of collective wealth stewarded with guidance by the seven Co-operative Principles\textsuperscript{14}, principles that actively acknowledge “the link between cooperatives and the institutionalization of community development” (Zeuli & Radel, 2005, pp. 45-46), creating value by linking the Principles to governance and operations; whereas corporations are associated with capital flight, co-operatives are known to invest their financial wealth back in their host communities, closer to the member-owners (p. 50); whereas corporations build selected capacity amongst a marginal

\begin{itemize}
\item Table 1 inspired by a similar chart listed in Thornton, 2002, p. 85.
\item Co-operatives operate on an at-cost basis, meaning they are member-need oriented, not profit-oriented.
\item Note that law or institutional governance policy typically caps patronage dividends in order reduce the potential of one member receiving a grossly inordinate amount of benefits above the general membership.
\item The seven Principles listed on the website of the International Co-operative Alliance (“Co-operative identity,” n.d.) are: 1) voluntary and open membership; 2) democratic member control; 3) member economic participation; 4) autonomy and independence; 5) education, training and information; 6) cooperation among co-operatives, and; 7) concern for community.
\end{itemize}
spectrum of institutional stakeholders, co-operatives generally build community capacity (human, social, political, and financial capital), serving as incubators of democracy fostering local leadership and educational opportunities for virtually all stakeholders of the co-operative (members, managers, employees and the broader community) (p. 48).

Taken together, the features of a co-operative foster civic interaction by providing a venue for assembly, creating new reasons for otherwise disconnected, segmented populations to come together, which then facilitates the building of norms, trust, and relationships (Putnam, 2000; Small, 2009; Tolbert, et al., 2002). The co-operative business model then serves a pedagogical and cultural reproduction function by instilling self-governing, democratic values into its membership and partner organizations through practice, operations, and trainings. The underlying Co-operative Principles and values lay the foundation for organizations with a strong social-tilt to use market-like features (i.e. revenue streams from services rendered) to sustain prolonged struggle against the fluctuations in resources that other organizations (such as non-profits) most acutely face from state and market forces (Brennan, 2010, p. 2; Mooney, 2004).

The co-operative business model, on paper, parallels Elinor Ostrom’s prescriptive Design Principles for enduring sustained collective action through robust institutional arrangements (Poteete, et al., 2010, pp. 100-101). In this manner, co-operatives should mitigate disempowerment, alienation, and dependency-building mechanisms of monocentric systems and enhance the potential for the development of polycentric self-sustaining, self-governing institutions with a community development bend. Yet despite all of these positive community development features, there has been a reluctance by scholars to outright claim co-operatives as community development institutions, due in
part to a body of academic literature that narrowly defines and treats co-operatives as a “business first and foremost” (Zeuli & Radel, 2005, p. 48) run predominantly for the direct benefit of the membership.

No doubt some co-operative models that have evolved in the last decades present challenges for community development purposes (co-operatives such as REI sporting goods cross state boundaries, complicating place-based development by separating member-owners over a large distance). The explicitly stated purpose of the co-operative and the actors operating it all determine the member and community-orientation of the co-operative (bottom-up, top-down, or peripheral (Zeuli & Radel, 2005, p. 48)), meaning the community aspects of co-operatives are certainly not predetermined. Consider that some communities may not even have the basic capacity to act collectively and sustain a co-operative, nonetheless start a new one (p. 51). And even though US co-operatives predominantly adhere to the Co-operative Principles, they typically specialize in the provision of a singular service unlike their social co-operative counterparts in Great Britain, Sweden, Canada, and Italy (Fazzi, 2011; Zeuli & Radel, 2005), potentially limiting their socio-community reach. It could be that the pervasiveness of the corporate system has instilled a dominant logic in co-operative organizational governance and operations, weakening the influence of the Co-operative Principles. Scholarship must then be directed toward understanding the exogenous and endogenous dynamics of the co-operative institution to better contextualize the value-orientation, and how that orientation impacts community development.
Advancing Understanding of the Development Impacts of Institutional Models

Much is not known about the outcomes of co-operative development, particularly outside of the agricultural economic literature on the agri-foods sector. The accessible literature by and large presumes co-operatives maintain adherence to the Co-operative Principles underlying the co-operative enterprise; yet the literature says nothing about this. How can an understanding of the institutional logic, design, and implementation give us insight into how co-operatives—and other types of firms—interact with their communities? There is a presumption that co-operatives are local businesses since they are often situated within spatial proximity of their member-ownership. But do locally rooted co-operatives act in a manner comparable to other types of local enterprise (Tolbert, et al., 2002)? We know that in the U.S. some co-operative firms are grouped together with corporate models in terms of state regulation (such as is the case with credit unions), whereas co-operatives in the electric industry are left to be regulated by market actors, individuals, states, and the membership served by the co-operatives; how do these diverse governance arrangements influence the operational attributes and processes of co-operatives?

Significantly, little attention has been given to utility co-operatives, particularly in the energy sector, despite their penetration into vast swaths of the U.S. and their central importance to the livelihoods of over 40 million Americans. Whereas the literature has addressed many community aspects of investor-owned hydrocarbon energy development, the critical literature is sparse on the community outcomes of renewable energy, particularly wind.
The dissertation research focuses on contextualizing the community development outcomes of wind energy development by both co-operative electric utilities and IOUs. While IOU wind energy has been touted for its community development capability, institutional theory posits that community-based wind power development could serve as a new, community-enhanced model of ownership for rural development. This has been mentioned in the community wind literature from organizations in Minnesota, Oregon, and Maine, in treatments by a few scholars, as well as analysts at USDA. Most studies however, focus primarily on municipal or collective arrangements of wind power ownership as opposed to co-operative models. There still remains an overall lack of diverse implementation strategies for community development (Zeuli & Radel, 2005). This dissertation seeks to address these gaps while advancing new contributions to how policymakers, leaders, and researchers think about the intersection of government policy and community development.
Chapter Three: Methodology - A Comparative Case Study of Two Wind Power Communities

Analyses of social dilemmas cannot be left to analytical methodologies that condense complex phenomena into overly simplistic understandings of social processes. A robust methodological approach is needed to understand the firm, policy, and community interactions. The dissertation is in part an exploration of the co-operative organization model as well as the firm’s potential influence on community development outcomes. This will be performed through a critical analysis of the co-operative and investor-owned (a control variable) wind energy utilities in these two case studies. Therefore, the emphasis of this project is to better understand how the stakeholders (community, the firm, and extra-local actors) interact, what the products of these interactions are, and the applicability of the given ownership model to the resource system (electric energy).

This chapter will justify the utilization of the case study methodology as an optimal fit for better understanding the social phenomena at play in the interactions between the wind energy firm and the community. The justification is followed by a discussion of the utilization of Bloomington School analytics for optimal data exploration and evaluation (the analytics allow the institutional analyst to understand system structure, as well as the robustness of a given institution). Finally, the chapter concludes with some identified threats to validity.

The Case Study Methodology

A comparative case study methodology is utilized to address the broader question “how does wind energy development interact with community development?” Case studies are “chosen for the likelihood that they will offer theoretical insight” (Eisenhardt
& Graebner, 2007, p. 27) from an observed phenomenon or case, “bounded by time and activity” (Creswell, 2008, p. 15; Yin, 2008). The rise and fall of a boomtown (Broadway & Stull, 2006) or the outcomes of a community development project (Zacharakis & Flora, 2005) are examples that might serve as the unit of analysis for such studies. The case study method is a nonrandom empirical research strategy (Yin, 2008) used by scholars seeking to analyze complex system processes through the triangulation of the broad range of data collected and the incorporation of actor perspectives (Tellis, 1997).

The interest here is primarily in the structural attributes of the community, the wind energy utility and the community outcomes of these interaction processes. These three units of analysis will be assessed through two cases: the co-operative PrairieWinds wind farm in Ward County, North Dakota, and the IOU Twin Groves wind farm in McLean County, Illinois. The broad question being researched could then be rephrased from a more technical perspective: “how does wind energy development interact with local social structures (the community or action situation)?”

The underlying hypothesis is that the community development outcomes vary dependent upon the ownership model, hence the subquestion “how does the ownership model of the wind energy firm interact with community development?” Though there exists a number of wind energy ownership models, only two are compared in this study: the investor and the co-operative owned utility. While there is an abundance of investor-owned wind farms in the United States, researchers have a much smaller population of co-operative-owned wind firms to choose from: currently there exist only two utility-scale co-operative wind farms, both of which are owned by Basin Electric Power Cooperative. While this study is like many case studies, a small N, there is a great deal that
can be learned—and theory advanced—from the study of an extreme outlier, providing differential findings in the subject matter (though theory can also be advanced from case studies with consistent findings, which advances research hypotheses toward verification).

A thorough analysis of the complex levels of social systems at play is critical for understanding the outcomes within the community (Miraftab, 2004b, p. 92). The case study methodology lends itself to better understanding community power dynamics by discerning “socially structured and culturally patterned behavior of groups, and practices of institutions” (Lukes, 2005, p. 26). And since case studies attempt to be thorough in “observation, reconstruction, and analysis” (Tellis, 1997, p. 3), incorporating the voices of actors embedded in the case, the methodological approach will be to use IAD to analyze the interactions between the wind energy firm and the community (Ostrom, 2005).

**Data Collection and Analytical Methodology**

Data sought and collected are predicated on an IAD-informed systems approach, meaning the community and the wind firm are not isolated, but instead nested within a complex social structure, each level having an impact on the interactive processes. The attributes of an given case, the contextual realities, and the participants (see Figure 2 for a visual representation) operate to varying degrees at multiple levels of analysis.
There exist three levels of analysis utilized under IAD (Figure 3): “(1) Operational level, the level of day-to-day decisions made by participants in any institutional setting” (i.e. the wind firm); “(2) Collective-choice level, the level determining the operational activities and results through specific, domain-focused institutional and organization structures and operational rules” (i.e. the community), “and (3) Constitutional-choice or policy level, the level that defines the broad parameters of social action and social order creating the foundations for the institutional arrangements and the rules to be used in crafting the set of collective-choice rules that in turn affect the set of operational rules” (Aligica & Boettke, 2009, p. 86).
Figure 3. Levels of analysis and outcomes

Source: Ostrom, 1999, p. 60.

Understanding the contributions and costs of an electric utility requires attention to extra local actors. The very design of the national electric grid overlays every municipality in the U.S. And the capital-intensive nature—as well as the national characteristic—of the grid means electricity generated is hardly if ever of endogenous origin. These constitutional and collective-choice levels (external of the community/action situation) are analyzed through an assessment of government energy policy and relevant market actors. This is then triangulated against the findings from the
field to assess how these social forces influence aspects of the community development process.

The community members or actors can be represented as individuals, groups or organizations, but they are all characterized “by four clusters of variables” which can be utilized to understand an actor’s development role in the community (Poteete, et al., 2010):

1. the way actors acquire, process, retain, and use information and knowledge about contingencies;
2. the preferences of an actor related to actions and outcomes;
3. the conscious or unconscious processes actors use for selection of particular courses of action; and
4. the resources that the actor brings to the situation.\(^{15}\)

These characteristics are used to analyze the data and ascribe the motivations and level of influence given actors has within the action situation.

From the perspective of the Bloomington School, an action situation broadly is comprised of seven attributes affecting the “actions of participants” though to differing degree based upon contextual realities (Poteete, et al., 2010):

1. the set of participants confronting a collective-action problem.
2. the sets of positions or roles participants fill in the context of this situation,
3. the set of allowable actions for participants in each role or position,
4. the level of control than an individual or group has over an action,
5. the potential outcomes associated with each possible combinations of actions,
6. the amount of information available to actors, and
7. the costs and benefits associated with each possible action and outcome

(See Figure 4, which represents a detailed “zoom” of the “action arena” of Figure 3).

\(^{15}\) As noted by Poteete, et al., (2010), “The first three” of these four cluster variables “are the core working parts of any theory of human behavior, while the fourth is situation-dependent.” This is critical for scholars to be cognizant of so that a number of variables may be factored in to analyses, building toward a comprehensive theory of human behavior.
Data collected from participants were analyzed based upon these seven participant attributes in an attempt to reconstruct the action situation and weave a cogent narrative that addresses processes and patterns relevant to the research questions (more on that below).

The action situation (here it is the interaction between the wind utility and the community) is contextualized through archival analyses and semi-structured interviews either in person, via phone, or email. An archival analysis was utilized to explore official organizational documentation (agency or business literature), how local media outlets depicted wind energy development processes, and other relevant archival documentation. This then set the tone for entry into the field.

Fieldwork is time-consuming and requires a social skill set to gain access to critical gatekeepers (Taylor & Bogdan, 1998, pp. 24-27). Being in the field added a level
of access to on-the-ground realities that would have been missed offsite. The relative scarcity of such research endeavors focused on wind farms (Poteete, et al., 2010, p. 88), coupled with other sources of data collected for analysis, means that such data are of critical importance to furthering our knowledge of SES’s so that researchers might have access to richer, more complete information with which to draw scholarly conclusions.

A total of four weeks of fieldwork was carried out in the two communities (roughly two weeks in each community). Fieldwork in Ward County, North Dakota occurred in August of 2011, whereas fieldwork in McLean County, Illinois was spread out over late summer, early fall of 2011. Purposive access was sought in order to interact with national and local level actors through gatekeepers in academia (initially through university extension offices) and the researcher’s own contacts in the wind and co-operative energy sectors. Fieldwork was comprised of observation of and interviews with participants in the action arena (reputational leaders, landowners, government officials, wind energy developers, and other wind energy related stakeholders that snowballed on an as-needed basis). The semi-structured interviews were carried out with these individuals in an attempt to assess local power structures, community interaction processes with the wind energy firm, how governance functions, and how critical material and social resources are distributed locally. The University of Illinois at Urbana-Champaign Institutional Review Board (IRB) approved the interview protocol as minimal risk to the participants.

The research then incorporates the perspectives of those who live within the host community to paint a more complete picture of the interactive processes and community outcomes (Poteete, et al., p. 52). 86 total interviews were conducted with 49 people. Of
that, 34 interviews were conducted with 15 national-level actors at co-operative business associations, the Department of Energy, and the United States Department of Agriculture (the nationally-oriented, investor-backed wind energy associations was not accessible for this research project despite a number of attempts). Illinois interviews were carried out 32 times with 20 participants in the investor-owned wind energy sectors, agricultural interests, developers, landowners, and local public officials. North Dakota interviews were conducted 20 times from a pool of 14 participants in the co-operative, wind and public sectors.16

Some of the interviews were audio recorded with the approval of interview participants, taking 30-60 minutes to complete; confidentiality is provided through pseudonyms, and the process conformed to the IRB agreement. Field notes were taken throughout the entire fieldwork process and archived on a secure University of Illinois server.

The questions in the interview protocol were geared toward an assessment of the local community social structure (Zacharakis & Flora, 2005). The questions it turns out did not provide the anticipated outcomes, but instead elicited responses oriented toward identifying locally oriented actors with direct involvement in the wind energy development process; the responses provided additional insight useful for further analyses. The data here were used to assess the actors engaged in the localized wind energy development process. The interconnectedness and characteristics of the community-level actors are weighted against the patterns of structured interactions to better assess who most benefitted from the structural and material returns.

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16 While a greater number of participants were interviewed in Illinois, interactions with North Dakota participants were on the whole longer in duration, many who spent hours or the entire workday discussing the topic of this research.
Data collected from interviews have been criticized due to the expression of individual values and capacity for subjectivity. Yet this is not to say that interview data have nothing to offer; semi-structured interviews allow for open discussions and greater discovery of new phenomena (Hatton-MacDonald, et al., 2013). This study highlights specific quotes that when triangulated with other findings from the field help to highlight key facets of the case whilst maintaining validity of the intended meaning conveyed by the interview participants.

The contextual realities matter as well (listed under “External Variables” on the left side of Figure 2) in further triangulating findings from the action arena. Institutional analysts may use any combination or all three of these exogenous, contextual variables in their analyses (listed below in numbered order (Ostrom, 2005, p. 16; Poteete, et al., 2010, p. 41)):

“(1) the structure of the resource system involved (size, complexity, predictability).”

Electric power generated from wind is part of a complex biophysical system that entails not only natural resources, but also built infrastructure that is constrained by the next contextual variable. This research focuses primarily on wind and the complementary resources necessary (land for the siting, access to transmission lines, capability of local actors to interact with the electric power system).

“(2) [T]he rules used by participants to order their relationships.”

Wind power infrastructure is typically sited on a mix of private and public property arrangements, and formally regulated by regional transmission organizations, state law, and private contractual agreements. This entails norms, laws, regulations, and agreements, both formalized through contract and informally through basic
understandings built upon trust and reciprocity. The electric power is then sold and transmitted to the grid infrastructure through a tightly managed market regime discussed within each case study.

“(3) [T]he structure of the more general community within which any particular arena is placed.”

The research design is concerned not only with the structure on the community, but how actor networks interact with the wind firm and the community in order to tease out if there exist any tensions or complementary benefits. Data collected from archival analyses, participant observation, interviews, and social network analyses are applied toward identifying the distinct community field and how it interacts with the wind energy utility.

**Analyzing the data.** Taking a bird’s eye view, the data analyses applied to this research can be summarized thusly:

1. Perform a snapshot assessment of the polycentrism of the IOU and co-operative wind energy systems;

2. Contextualize the host communities, and;

3. Critically analyze the interactional patterns observed between the host communities and the wind firms.

The IAD framework (a visual representation of the diagnostic elements is found in Figure 2) is used for analytic triangulation. IAD is a consistently tested and utilized framework\(^\text{17}\) embracing the inherent complexity of institutions and social systems

\[^\text{17}\] What makes case study design particularly difficult is the lack of resources available on design, and the differentiation of design techniques that are dependent upon the phenomenon studied and the “quasi-experimental situation” (Yin, 2008, p. 20). The strength of the IAD framework is that it was crafted through decades of inductive analyses of 1000s of case studies, creating a scalable template of sorts that can be consistently applied across a number of disciplines. This then allows small N studies to be grouped together into large N meta analyses.
(Ostrom & Kiser, 2000; Poteete, et al., 2010). In this case, the study uses the Wilkinsonian theoretical conceptualization of community as a structured interactional social field and plies those concepts to the action situation within IAD (in Figure 2, this is represented as “Evaluative Criteria”). The CIFT is useful for understanding both the exogenous variables that interact the community field and the endogenous community interactions, specifically the interaction of wind energy development with the community field.

CIFT is employed to understand how individuals interact through their relevant social fields, how they are structured, and how these collective interactions impact the community field. CIFT posits that interaction amongst social fields is a critical component of community. Social structural impediments are of central concern to community development; therefore understanding the local social structure is critical. Contextualizing the structure of the community helps to assess if the community and the wind energy actors have polycentric or monocentric tendencies, and what that means for the livelihoods of people living there. Here interest is acutely focused on how the community interacts with the localized wind farm, and if that interaction lends itself to community development. Methodologically, data collected are used to discover the structure of the social field that interacted with the wind utility with the partial assistance of a simple social network analysis. Additionally, the system itself is further analyzed to assess systemic tendencies toward polycentrism or monocentrism.

Aligica’s and Tarko’s (2012) logic structure of polycentric systems (p. 257) complements the structural analyses of the wind energy system. The logic structure accounts for the three basic features:
1. the multiplicity of decision centers,  
2. the overarching system of rules, and  
3. the spontaneous order generated by evolutionary competition between the different decision centers’ ideas, methods, and way of doing things (p. 257).

**Figure 5. Logical structure of polycentricity**

A polycentric logical structure (see Figure 5. *Logical structure of polycentricity*) elaborating the three basic features provides the systems or institutional analyst with an additional diagnostic to assess “nine fundamental ways in which polycentricity may break down:

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**Source:** adapted from Aligica & Tarko, 2012, p. 257.
• “Multiplicity of decision centers breakdown:
  o Non-P1: active exercise of diverse opinions eliminated;
  o Non-P2: the system becomes hierarchical; and
  o Non-(A1 # A2): the activity becomes considered meaningless (the goals disappear, the polycentric system disappears because it no longer serves a function).

• Overarching system of rules breakdown:
  o Non-P3: rules no longer considered useful by agents;
  o Non-(B1 # B2): agreement about territoriality disappears (decision centers fight over territorial authority);
  o Non-(C1 # C2): no agreement about rule design (rules are no longer considered legitimate and their enforcement becomes difficult to impossible); and
  o Non-(D1 # D2 # D3): the rule of law breaks down—power-based decisions (authority rule).

• Spontaneous order breakdown:
  o Non-(E1 # E2 # E3): no entry (monopoly);
  o Non-(F1 # F2): the constituency of the system is unclear (some decision centers accept X as part of the system while others do not);
  o Non-(G1 # G2): no available information relevant to decision making (random decisions, relation between consequences and rules unclear, spontaneous order turns into drift)” (p. 258).

The diagnostic will be used in this research to assess the structural features evident within the wind energy sector, and if that structure allows for institutional innovation (getting at the “why does only one co-op own a wind farm” question).

The paths available for alternative institutions within the rapidly growing wind energy sector are important to understand as absentee firms—or outsiders—have been linked to community atomization. Aligica and Tarko (2012, p. 254) note one potential explanation in that “‘outsiders’ are those agents who are not subjected to the same system of rules as ‘insiders’ are”; the potential for disruption is evident. Certain institutions may be a better fit with regards to community development, and social systems may be a determinant for the institutions applied. Therefore, an assessment of the centricity of the wind energy industrial social system allows for enhanced capacity to analyze and assess the state of the community field, the local dimensions of power.
(Brennan, 2009; Lukes, 2005), and how key institutional actors develop the community field.

Finally, it isn’t enough to assess systems; one must assess the organizational manifestation itself, the wind firm. The Ostrom “Design Principles” are utilized to enhance analyses of each of the wind firms (listed in Table 2).
Table 2. *Ostrom Design Principles*

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
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<tbody>
<tr>
<td>1A</td>
<td>User boundaries: Clear boundaries between legitimate users and nonusers must be clearly defined.</td>
</tr>
<tr>
<td>1B</td>
<td>Resource boundaries: Clear boundaries are present that define a resource system and separate it from the larger biophysical environment.</td>
</tr>
<tr>
<td>2A</td>
<td>Congruence with local conditions: Appropriation and provision rules are congruent with local social and environmental conditions.</td>
</tr>
<tr>
<td>2B</td>
<td>Appropriation and provision: The benefits obtained by users from a common-pool resource (CPR), as determined by appropriation rules, are proportional to the amount of inputs required in the form of labor, material, or money, as determined by provision rules.</td>
</tr>
<tr>
<td>3</td>
<td>Collective-choice arrangements: Most individuals affected by the operational rules can participate in modifying the operational rules.</td>
</tr>
<tr>
<td>4A</td>
<td>Monitoring users: Monitors who are accountable to the users monitor the appropriation and provision levels of the users.</td>
</tr>
<tr>
<td>4B</td>
<td>Monitoring the resource: Monitors who are accountable to the users monitor the condition of the resource.</td>
</tr>
<tr>
<td>5</td>
<td>Graduated sanctions: Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and the context of the offense) by other appropriators, by officials accountable to the appropriators, or by both.</td>
</tr>
<tr>
<td>6</td>
<td>Conflict-resolution mechanisms: Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.</td>
</tr>
<tr>
<td>7</td>
<td>Minimal recognition of rights to organize: The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.</td>
</tr>
<tr>
<td>8</td>
<td>Nested enterprises: Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.</td>
</tr>
</tbody>
</table>

*Source: (Cox, Arnold, & Villamayor Tomas, 2010, p. 15)*

The Ostrom Design Principles serve as a diagnostic to assess organizational robustness or the ability of the firm to adapt to disturbances (Ostrom, 2005, p. 258). This
is critical for several reasons. Government-driven wind energy policy may be privileging
one type of institution over another. Perhaps that particular institution may be more
prone to poor owner governance or market shocks. Should that be the case, “we can
conclude that there are ways of organizing governance that increase the opportunities for
adaptation and learning in a changing and uncertain world with continuing advances in
knowledge and technologies” (p. 257). In doing do, we can bring about greater stability
in policy and development, while enhancing the day to day lives of the people on the
ground that intersect with these dynamics.

**Threats to Validity**

The threats to validity relate primarily to persisting criticism of the case study as a
methodological approach. The case study is oft-criticized for an inability to draw
generalizations due to the uniqueness of each case, selection bias and related
nonrandomness of the subject, and therefore its inability to contribute to the scientific
literature (Flyvbjerg, 2006). But a case is a subject of interest that does not
delegitimize the necessity for understanding the underlying, nonrandomized
phenomenon.

Such ascribed weight given to randomness over “convenience” fails to account for
the potential of the case study to introduce controls for the participants within the
methodological design, maintaining internal validity, reducing threats to external validity
(the scholars misinterpretation of findings), while accounting for the nonrandomness of

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18 What is left for nonrandom data collection purposes is typically referred to as a convenience sample, a somewhat misleading term
than could imply lack of scholarly rigor, or as noteworthy methods scholar John Creswell declares: “a convenience sample makes it
difficult to randomly assign individuals to groups, a hallmark of a true experiment” (2008, p. 164). Oddly enough, Creswell
recognizes the broad usage of the case study in the study of processes and events earlier in his book (2008, p. 15, p. 91),
acknowledging its potential for scholarly pursuit. He falls into the common trap of tying the case study to the exploratory phase of a
major research endeavor (Flyvbjerg, 2006; Yin, 2008, p. 12) when he explains the experimental design processes available to
researchers, forgetting his earlier postulate that the case study stands on its own as a complete research strategy (Creswell, 2008, p.
168), including experimentation (Eisenhardt & Graebner, 2007). Creswell’s stance becomes somewhat confusing in this context.
the subject under study (Eisenhardt & Graebner, 2007). Furthermore, it fails to acknowledge that a properly controlled or justified convenience sample may offer credible explanatory power comparable to a randomized sample. However, the plying of the IAD framework and transparency in data collection and analysis are intended as a stopgap measure to addressing many of these criticisms. The attempted transparency of this project ideally allows for critics to assess the quality of the data collected as well as the fairness of the analysis. Furthermore, the framework used (IAD) was created with the intention to enhance these attributes, while allowing for replicability.

Because of the complexity of SES’s, we must be comfortable knowing that many of the results plucked from empirical research are not necessarily precise, but instead reveal a pattern of behavior and outcomes in a given context (Ostrom, 2005, p. 10). This holds just as true with co-operative business models, operating across multiple market sectors and in varied community contexts; just because a co-operative grocery store works well in one community, such an endeavor may be doomed for failure in another community. A case study methodology may lead us to new discoveries and research trajectories, as well as contribute to scientific development through an element of generalizability by applying empirical observations to the greater bodies of literature (Eisenhardt & Graebner, 2007; Flyvbjerg, 2006, p. 225), which is exactly what Natural Resource Council committee demonstrated in their assessment of hundreds of case studies (Poteete, et al., 2010). More importantly, the acquisition of knowledge is still a fundamental feature of science, even if it “cannot be formally generalized” (Flyvbjerg, 2006, p. 227). This research is not seeking to generalize so much as to study relatively unexplored facets of wind energy development.
The case study methodology imposes natural limits regarding the choice of randomized samples. This is particularly true when analyzing smaller communities or emergent development phenomena such as the green economy. The two cases of interest here no doubt can be assessed under such a lens, considering that while there exist numerous corporate wind communities, the North Dakota wind farm is one of two co-operative, utility-scale wind farms in the nation, hence the purposive sampling. PriairieWind’s relatively short operational life thus far makes a longitudinal analysis impossible at this juncture, further limiting our understanding of long-term impacts.

However, the uniqueness of this case is demonstrable of a phenomenon-driven case study (Yin, 2008), a phenomenon being what typically draws the attention of the researcher in the first place, since, as stated at the beginning of this chapter, case studies, like lab experiments, are “chosen for the likelihood that they will offer theoretical insight” (Eisenhardt & Graebner, 2007, p. 27). After all, the case study is the study of a particular case of interest, thereby necessitating analysis of a nonrandom sample of participants or phenomenon (Eisenhardt, 1989; Flyvbjerg, 2006, p. 229). This of course can draw allegations of selection bias, and if true does not diminish the merit of the research endeavor so long as the justification matched legitimized needs. Recall that one of the questions of this research is “why has only one co-operative developed co-operative-owned wind farms in the United States?” For us to be able to answer that question, it follows that direct inquiry of the co-operative wind farm is of necessity. And since it would be virtually impossible to study the entire co-operative population, we must delimit a methodologically useful sample.

Criticisms of the case study methodology include the notion that context-
independent theory is more valuable than the empirically-driven theory embedded in a case study (Flyvbjerg, 2006, p. 221); this is a flawed criticism stemming from a misunderstanding of the methodology’s capacity to contribute to scientific knowledge. Empirically testing theory for validity is vital for assessing a theory’s inherent applicability to explain social phenomena; the case study methodology is equipped to do just that. Precision in theoretical application to scholarly inquiry is therefore key since lack of exactitude may lead to invalid findings. Being that co-operative owned wind energy is a relatively new phenomenon, a case study may offer a significant amount of insight into the questions posed.

**Concluding Thoughts on the Methodological Approach**

Complex social dilemmas require sophisticated tools for analyses. Bloomington School analytics were designed for that exact reason. IAD allows for input-output analyses (the social forces which interact with the community), whereas the polycentric logical structure diagnostic allows for a refined evaluation of the social systemic attributes (the question of government policy and market influence). The Ostrom Design Principles then allows the analyst to better understand how the structured design of the firm may interact with the host community, contributing to enhanced knowledge of the institutional design of the wind energy firm.

Embedding these analytics within the case study methodology is a potent approach toward the exploration of heretofore little-understood social dilemmas. The emphasis on outliers or uniquely interesting social phenomena allows the analyst to observe noteworthy social processes that may be obscured in large N studies.
Chapter Four: Case Study - The Investor-Owned Wind Farm

Wind energy is the fastest growing segment of the electric energy generation market. This is in part due to two factors. First, the uncertainty of proposed emissions regulations—as well as political pressure groups—have made it increasingly difficult to build new coal, natural gas, and nuclear power plants. Wind energy bypasses many of the debates associated with these more traditional, exhaustible energy sources. Second, wind energy development is further propelled by subsidies at the federal and (some) state levels. The most advantageous subsidies are only available to those entities and investors with a tax appetite.19

Historically, federal incentives for renewable energy development in the United States largely consisted of the investment and production tax credits (ITC [investment tax credit] and PTC [production tax credit]) and the accelerated depreciation benefit for renewable energy property [the Modified Accelerated Cost Recovery System (MACRS) and the bonus depreciation]. Both the ITC and the PTC provide financial incentives for development of renewable energy projects in the form of tax credits that can be used to offset taxes paid on company profits. Given that many renewable energy companies are relatively nascent and small, their tax liability is often less than the value of the tax credits received; therefore, some project developers are unable to immediately recoup the value of these tax credits directly. Typically, these developers have relied on third-party tax equity investors to monetize the value of the main federal incentives for renewable energy project development (Steinberg & Porro, 2012).

The tax-equity partners are by and large major financial firms, incentivized by government energy policy to invest in wind energy.

...a so-called "tax-equity partner," usually a bank or other large company with a hefty tax bill, that can take advantage of the tax credits and either provide a loan for the project or buy it. Bank of America, U.S. Bancorp and other banks, and corporations like Google Inc. have used the tax-equity structure to invest in solar power and other renewable-energy projects (Tracy, 2012).

19 “Income from certain types of investments qualifies as passive income. Tax paid on this income is considered passive tax. To take advantage of the Federal Production Tax Credit (the PTC) and Modified Accelerated Cost Recovery System (MACRS), you or a project partner must be paying taxes that fit into this category of tax liability” (“Windystry,” n.d.a).
The tax equity partnership allows a wind company to partner with a large firm with a significant tax liability. The tax liability is reduced via tax credits (not grants or direct subsidies in the form of cash payouts) provided by either the PTC or ITC. The federal government reduces potential tax revenue generated from new renewable energy production, incentivizing investment in and growth of wind energy by profit-driven firms. Some wind energy companies profit further from this policy by monetizing the tax credits through an overhead fee for the privilege of partnering on the project (Association Official, personal communication, November 3, 2010). In an era of energy market volatility, wind serves as a safe tax shelter and investment hedge for deep-pocketed investors from the financial sector. Unsurprisingly, 98 percent of all wind farms are structured as for-profit in order to utilize the tax credits to create sources of capital (Cooperative Association Official, personal communication, September 8, 2010).

The first case study presented below examines Illinois’ McLean County, host to three major wind energy farms, all of which are investor owned. The case study analysis focuses on one of the wind energy firms, the investor-owned Horizon Wind Energy, a subsidiary of the Portuguese EDP Renewables. As will be discussed, Horizon is noteworthy because it is the first wind energy developer in McLean, and helped lay the foundation by which future prospective wind energy developers operate under within the County. The purpose here is to analyze and assess the development implications of the investor-owned wind farm within its host community. It is therefore important to understand the social forces that compelled Horizon to be the first wind energy developer in McLean (the local community, market drivers, and government policy pathways) and

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20 It should be emphasized that local, national, and global interests drive the wind energy arena. The wind energy development incentives found in a number of countries has created a global network of wind energy firms capable of developing and operating wind farms across numerous national boundaries.
how the community at large responded to the prospects of a major wind energy project being located in their community. Fieldwork and archival analysis was performed on Horizon and McLean County to assess how the wind farm has influenced local level community development. The chapter ends with some concluding thoughts on the policy and firm’s ownership design implications interact with the local community social structure.

**McLean County and the Horizon Wind Energy Corporation**

McLean County in central Illinois shares many of the characteristics of other U.S. counties with metropolitan centers (Isserman, Feser, & Warren, 2009). There is a relatively prosperous urban-city core, surrounded by a rural region experiencing population flight and a diminishing tax base (Local Official, personal communication, September 5, 2011). The rural areas are in a state of relative decline as the urban core of Bloomington-Normal consolidates regional resources within its borders. Much of the rural decline has to do with complex economic phenomena that are difficult for rural communities to harness in order to guarantee enhanced social wellbeing. A local university extension official noted: “Outer lying areas feel left out of development. The area is becoming urban… diverse. It’s where urban and country meet” (Extension, personal communication, October 24, 2011).
Table 3. *Comparative economic data*

<table>
<thead>
<tr>
<th></th>
<th>McLean County</th>
<th>Illinois</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>6.30%</td>
<td>8.60%</td>
</tr>
<tr>
<td>Estimated Population Growth Rate</td>
<td>1.60%</td>
<td>0.30%</td>
</tr>
<tr>
<td>Percent Below Poverty Rate, 2007-2011</td>
<td>13.40%</td>
<td>13.10%</td>
</tr>
<tr>
<td>Per capita money income in the past 12 months (2011 dollars), 2007-2011</td>
<td>$29,425</td>
<td>$29,376</td>
</tr>
<tr>
<td>Median household income, 2007-2011</td>
<td>$59,410</td>
<td>$56,576</td>
</tr>
</tbody>
</table>

Source: [http://quickfacts.census.gov/qfd/states/17/17113.html](http://quickfacts.census.gov/qfd/states/17/17113.html)  

McLean County is not defined by an economic miracle nor a boom. Instead, what makes McLean County interesting to this analysis is the relative economic stability brought upon the community by a diversified mix comprised significantly of transnational firms. McLean is a county with a significant deal of wealth, and as Figure 6 shows, it results in a higher median income than the rest of the state of Illinois. The local economic council has been marketing McLean from this vantage point for decades: “Endowed with excellent location and transportation, advantages, diverse population and employment sectors, and enviable community assets, the area has become a sought-after site for commercial and industrial development” (“Economic Development Council,” n.d.). Diversified public infrastructure makes McLean amenable to large-scale economic development initiatives. The development profiles listed on McLean’s Economic Development Council’s (MEDC) website go on to note McLean’s centrality to six major roadways, four railroads, and a regional airport.
Spatially and culturally, agriculture plays a major role in the lives of McLean County residents; this is reinforced by the local presence of the headquarters of the Illinois Farm Bureau, which is quite active in local civics. McLean’s support for commodity agriculture has granted it the distinction as the highest corn and soy producing county in Illinois (Steever, 2011). The biotech giant Monsanto has set up a high-tech agricultural research station to advance new biotech with local farmers (Local Official, personal communication, September 5, 2011).

Agriculture’s prominence is further secured by a county zoning ordinance, which inhibits the encroachment of urbanization and sprawl on the existing stock of farmland in the county.

In 1974 a zoning ordinance placed severe restrictions on residential zoning in the ag district. It’s been a bit of a problem for some people in the city who want to live in the country. They buy up land undesirable for farming for the purposes of building their country home, only to find out they’re prohibited from building out there (Local Official, personal communication, December 13, 2010).
Another local public official, when asked about the effectiveness of the zoning ordinance agreed that it generally preserves farmland, but offered a caveat:

Bloomington-Normal is in Veterans Parkway\textsuperscript{21} mode. We have sprawl. We have malls. If you have a major project with a lot of money attached, the ordinance all of a sudden becomes more flexible (Extension, personal communication, October 24, 2011).

Despite the general effectiveness of the ordinance in preserving the local farmland, the agricultural scene employs relatively few people comparable to other local industrial sectors (roughly 2 percent during peak farm season (“United States Department,” n.d.)), and has been steeply declining since the 1970’s. The institutional logic underpinning McLean County’s agricultural scene adheres to many of the features of large agribusiness enterprise. While the land may be preserved by local ordinance, the ownership or usage is for extra-local actors and global markets.

Much of day-to-day life and the economic activity happen in McLean’s twin cities of Bloomington and Normal where the business community plays a significant leadership role. The Chamber of Commerce is very influential (the originator of the Economic Development Council), perceived as the go-to group for jump-starting any local business initiative (Local Official, personal communication, September 5, 2011).

Economic growth seems to be a driving force in McLean County. The Chamber “crowd” is comprised of very large corporate partners and established local business people (Extension, personal communication, October 24, 2011). The headquarters of State Farm Insurance is located in Bloomington-Normal, employing almost 16,000 local residents. Transnational corporations such as Country Financial, Mitsubishi Motors, Bridgestone/Firestone, and Verizon collectively employ over 5000 workers from within

\textsuperscript{21} This is in reference to the sprawling commercial district, replete with strip malls and corporate coffee chains.
the twin city boundaries. The twin cities also serve as a regional hub for medical
treatment at its hospitals (Local Official, personal communication, September 5, 2011),
which employ almost 3000 whilst providing specialized medical care to individuals
throughout the region.

While locally produced commodity-agriculture may have limited communitywide
economic impacts, interstate agribusiness interests help to bolster the area’s affinity with
agriculture. The Illinois Farm Bureau’s headquarters are in the area, as is the Illinois
Agricultural Association, and the ag-supply provider GROWMARK, one of the nation’s
largest ag-supply co-operatives.

McLean’s economy is further assisted by government investment in human
capital and public services for the County’s 172,281 residents (“US Census Bureau,”
n.d.). The University of Illinois, Illinois State University, Illinois Wesleyan University
and Heartland Community College are major drivers in cultivating the human capital
necessary for the community to compete in a global marketplace (over 25,000 students
enrolled during the 2011-2012 academic year). Combined, these entities employ over
6000 high-skilled workers within McLean and ensure workforce regeneration.

McLean has a thriving food service sector. Local residents (Local Resident,
personal communication, September 6, 2011) emphasized McLean’s place as the
“Restaurant Capital of the World” based on per capita saturation of restaurants locally
(though numbers were not discovered which backed the assertion).

Taken as a whole, locally situated industry seem to be able to handle
Bloomington-Normal’s population growth rate as well, which outpaces the Illinois state
rate, providing jobs that pay more than the Illinois median (see Table 3). These
organizations (listed in Table 4. *Major McLean County employers*) provide a diversified mix of quality jobs for the region through their involvement and positionality in the global marketplace, stable tax liability, and an engaged workforce involved in local civic life (there exists a corporate culture in McLean which encourages and incentivizes professional development by way of involvement in local charities, sitting on non-profit boards, and running for local level political office). (Extension, personal communication, October 24, 2011; Association Official, personal communication, November 11, 2011).
Table 4. *Major McLean County employers*

<table>
<thead>
<tr>
<th>Major Employers</th>
<th>2012 Total FTE's</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Farm Insurance Companies</td>
<td>14,528</td>
</tr>
<tr>
<td>Illinois State University</td>
<td>3,275</td>
</tr>
<tr>
<td>COUNTRY Financial</td>
<td>2,049</td>
</tr>
<tr>
<td>Unit 5 Schools</td>
<td>1,754</td>
</tr>
<tr>
<td>Mitsubishi Motor Manufacturing</td>
<td>1,270</td>
</tr>
<tr>
<td>Advocate BroMenn Medical Center</td>
<td>1,157</td>
</tr>
<tr>
<td>GROWMARK, Inc.</td>
<td>932</td>
</tr>
<tr>
<td>OSF St. Joseph Medical Center</td>
<td>832</td>
</tr>
<tr>
<td>McLean County</td>
<td>806</td>
</tr>
<tr>
<td>Afini, Inc.</td>
<td>778</td>
</tr>
<tr>
<td>City of Bloomington</td>
<td>755</td>
</tr>
<tr>
<td>District 87 Schools</td>
<td>693</td>
</tr>
<tr>
<td>Illinois Wesleyan University</td>
<td>527</td>
</tr>
<tr>
<td>Town of Normal</td>
<td>478</td>
</tr>
<tr>
<td>Bridgestone/Firestone Off-Road Tire Co.</td>
<td>408</td>
</tr>
<tr>
<td>Nestle USA</td>
<td>380</td>
</tr>
<tr>
<td>The Snyder Companies</td>
<td>370</td>
</tr>
<tr>
<td>Illinois Agricultural Association</td>
<td>274</td>
</tr>
<tr>
<td>Heartland Community College</td>
<td>230</td>
</tr>
<tr>
<td>The Baby Fold</td>
<td>227</td>
</tr>
</tbody>
</table>

Source: Individual companies

FTE = Full-time equivalent position

It comes as no surprise that with McLean’s mix of corporate and state investment, the county may boast of a stable economy with good jobs. But that wealth is not one based necessarily on local robustness. McLean’s prosperity is increasingly embedded in and dependent on global markets. Even the dark, fertile farmland, often mentioned as a core identity of the community (Extension, personal communication, October 24, 2011; Local resident, personal communication, September 6, 2011) is embedded in global commodity markets. A local university official stated: “We are proud of having some of
the world’s most fertile farmland. We rank toward the top in the world in productivity per acre” (University Official, personal communication, September, 2011). The area’s row-crop farmers in general bypass local markets, taking their commodities to the global marketplace (“University of Illinois,” n.d.).

Recently, younger, non-traditional farmers and members of the professional business community have taken steps to start a new grocery co-operative, as well as a local foods hub. This is development is politely challenging the community’s deep dependency on global market economies. A regionally sourced dairy farmer notes: “Local foods are a niche. A nice niche, don’t get me wrong. But corn and soy certainly dominate. I would say 99.9999999 percent of the ag-base here is corn and soy” (Business Executive, personal communication, December 1, 2011).

Interestingly, many of the core supporters come from the nested transnational business community. Generally speaking, the farmland itself is treated not as a source of local subsistence to guard against larger social system shocks, but as something geared toward financial outcomes via exporting product to global commodities markets.

Globalization has worked for many of the residents of McLean for decades. The wind farms dotting the farmland and lining the highways are yet another emanation of transnational markets rooting themselves in fertile Midwestern soil. Horizon Wind Energy is itself part of EDP Renewables, a corporation headquartered in Portugal. The local wind farms do not represent a normative shift so much as a continuation of long established local economic development policy.

Despite the absentee ownership of Horizon, there is a great deal of boosterism locally for wind (Miller, 2007b). The wind energy companies continue to fuel the
boosterism (Ford, 2006a) by tapping into local desires for increased economic
development. From the vantage point of local policymakers, absentee ownership is not
viewed as exploitive or even extractive, but as a contribution to prosperity via utilization
of cropland to produce electricity (instead of food), jobs, lease payments, and an
enhanced tax base.

In other words, the wind farm plays a part in the social life of McLean County,
but not a wildly influential role. The wind farm is but one set of social processes playing
out in a much larger arena, rife with numerous other interactive social processes, wind
energy production is an extractive process in that the value of localized natural resources
are maximized for consumption and profit elsewhere (though wind energy extraction is
more subtle and less agitating, with a cleaner façade than industries, such as coal). Wind
is rarely viewed as a resource in and of itself, meaning contestation over harnessing the
energy from wind would be a relatively new phenomenon. So long as the wind energy
company can align its values orientation with the host community, individual
landowners, and political leadership, there isn’t a great deal a wind farm will need to do
to interact with the local community once built and operational. The turbines become
just another part of the local landscape, quietly generating revenue for the investor-
ownership, landowners, and taxing bodies. And the small, locally based Horizon
workforce plays a role in enabling the continued development of wind energy in McLean.
The wind farm doesn’t appear to be extracting anything from the community; wind farms
like Horizon can appear symbolically as net community builders, converting a previously
unused resource into something productive. The argument exists that there is a level of
exploitation, but with wind it is shrouded in subtle complexity (“wind-theft” would be a
difficult accusation to prove).

While McLean has relative prosperity, a high level of education and trained
workforce, those factors aren’t what primarily attracted Horizon to the area. A mix of
plentiful wind, abundant and open land, easy access to the transmission lines, and
government-generated market demand helped pave the way. Arguably the only
prerequisite that a wind resource rich area like McLean needed to meet was to be
welcoming, with a favorable business environment based on tax incentives and subsidies.

Building and operating a wind farm is a long, drawn out process for the
uninitiated, and ever changing for the seasoned wind energy development professional.
The electric energy sector is a complex amalgamation of capital-intensive investor-
owned, municipal, and co-operative businesses interacting through tight regulatory
bodies, necessitating the use of legal experts, engineers, and politically influential
individuals. But the development outcomes of wind energy are subtler than one might
presume with such a visual spectacle requiring massive coordination efforts and infusion
of upfront capital. Elaboration of the development processes will help to tease out
pertinent information.

**How the transnational Horizon wind farms came to be.** The case here focuses
on Horizon alone because the goal is to analyze one specific organization and its affect
on community development. In addition, Horizon is a major player in this particular
case. Horizon was first to the area in 2001, the first to break ground and become
commercially operational in 2007, and the first working with local administrators to
clarify zoning ordinances, invariably clearing the way to make additional local wind
energy development easier and more likely. Horizon is the company that helped to set the bar locally.

Horizon has been ambitious in McLean. Two of Horizon’s 27 U.S. wind farms are in McLean. Horizon operates 240 turbines in McLean; moreover, they have proposed hundreds more and another 200 turbines in surrounding counties (Ford, 2010). However, Horizon isn’t the only player in the region. PPM Energy out of Oregon has explored development of 337 turbines in the same service area. There have also been major proposals put forward by Navitas (143 turbines) and Invenergy Wind LLC (100 turbines) (Shults, 2006). A local zoning official believes it’s feasible that 400 turbines will go online in the next couple of years. This has the potential to change the landscape, culture, and tax revenue base.

Nationally, there is a rush of sorts to occupy areas where the development processes have been formally incorporated into local public policy (Sapochetti, 2010). If the socio-political mood is amenable, the land, wind and grid are finite and may be consumed by a competitor; speculators must strike when the stars align.

McLean was attractive to Horizon for a number of reasons. Initially the county met many of the biophysical prerequisites necessary for speculative development to begin. 1) The average wind speed in the vicinity met the calculations to make a wind farm viable. As turbines grow increasingly more efficient, wind energy developers will be able to utilize resources in regions with lower wind speeds (Loomis & Carter, 2011, p. 12). 2) Existing transmission lines had excess capacity. The costs of developing a wind farm are expensive enough without the added burden of building new transmission capacity. It becomes ideal to find a wind regime as close as possible to transmission
capacity to limit infrastructural investment needs. Fortunately for wind energy developers, the Illinois electric grid was designed primarily to send power from the rural countryside to be consumed by the Chicago electric market (Association Official, personal communication, November 3, 2010). Illinois transmission was designed for growth. Transmission infrastructure spiders-out from the Chicago area southward, intersecting with wide-open spaces and blustery wind. McLean happens to be one such area in which this intersection of transmission and wind regime occurs. 3) Large tracts of relatively contiguous plots of land must be available. The closer the turbines are to the transmission infrastructure, and to each other, situated on vast tracts of empty parcels of land, the better to reduce connectivity overhead costs.

Beyond the biophysical prerequisites, there are a number of adjacent social processes that play into the wind energy development process. Since electricity generated locally is most often transmitted to the national grid, a number of socio-political considerations come into play at varying scales of action.

**Enabling Wind Energy Development**

Speculative wind developers don’t have to guess as to where wind energy resources may be in abundance. A broad array of wind data have been publicly accessible through the Department of Energy (DOE) National Renewable Energy Laboratory (NREL) where the wind data estimates are kept up to date on a regular basis. Communities such as McLean are in prospective wind energy developer’s databases, waiting to be assessed for development potential.

While NREL’s wind energy datasets are useful for wind energy speculation, developers must still collect on-the-ground data to assess operational feasibility. The
wind energy developers undertake localized precision testing to isolate ideal conditions for wind farm infrastructure. The testing assesses if the land is capable of hosting a large wind farm. If so, developers must make sure the wind patterns align with available land through exacting measurements. This is done through the utilization of a meteorological or “MET” tower over a one to two year time period to better isolate the ideal placement of the wind farm with respect to a reliably productive wind flow at the local level.

As the biophysical requirements are being assessed, the wind energy developers may begin the speculative land development process should the investment projections bear out in favor of such a project. This is the second tier. Wind developers begin the long process of cultivating the community (opinion leaders, policymakers, and landowners) by preparing the population to understand what hosting a wind farm entails, as well as the material benefits they can expect.

Typically before the wind developers spend the time to deploy a MET tower or hire a contractor to assess overall transmission grid accessibility, they assess community sentiment. A feasibility prerequisite is determination of the community’s willingness to host a wind farm; if outright, mobilized hostility is apparent; the wind developers are likely to look elsewhere toward a more welcoming community. Should initial contact with the community look positive, a two-tiered process begins locally.

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22 Individuals in rural communities throughout Illinois, buoyed by the perception that wind energy development offers economically depressed regions new sources of jobs and revenues, are performing some of the prospecting for wind energy companies on a pro bono basis. McLean County’s Center for Renewable Energy (based out of Illinois State University) and Macomb’s Illinois Institute for Rural Affairs (based out of Western Illinois University) enable these “wind prospectors” by providing them with a limited number of MET towers to assess local wind resources (University Official, personal communication, May 10, 2010; University Official, personal communication, May 12, 2010). The data collected are then housed on publicly available websites and used by these prospectors to entice wind energy developers. According to an official in one of these programs: “These projects have caught the attention of some companies. The Rail Splitter wind farm on your way in to town came about because a prospecter collected the data, and worked with us to talk to a wind company. See, they demonstrate not only feasibility, thereby lessening the wind company’s development overhead, but also a welcome feeling by the community” (University Official, personal communication, May 10, 2010).
Horizon began publicly speculating McLean for wind energy development in 2001 and talking with the community with its first turbine “going live” in 2007. The wind farm achieved commercial operation in June 2007 and was financed through an investment by the commodities division of Goldman Sachs, and the energy utility FirstEnergy procured a PPA for the energy generated by the wind farm. “Horizon had years of broad community conversations before they committed to the wind farm (they were clear they were non-committal)” (Local Official, personal communication, December 13, 2010).

As is typical, a multi-pronged, parallel process began in which Horizon developers started talking to two groups serving as critical determinants of development: local government officials and landowners. Any major wind farm will need access to land, most often owned by a collection of local landowners. The development staff must know first that a group of landowners are open to sign long-term leases and that the local government bodies are willing to issue new building and zoning ordinances to accommodate the unique attributes of a wind farm. According to a zoning official:

We worked hard to make this happen. We had to learn a great deal about what wind energy projects would do in the County. But now we get a lot of calls from other communities being approached to build out wind farms. It was a long ordeal, but we have become experts in the field (Local Official, personal communication, December 13, 2010).

Horizon hired two individuals from within the local community to serve as their lead project developers. They were seen as young, ambitious, and knowledgeable of local socio-cultural specifics. These professionals are project-dedicated, expected to devote 2 to 5 years to seeing a given project to fruition. The individuals chosen to be
local level developers must by the very nature of the job be highly entrepreneurial, so as to be able to adapt to sudden changes on the ground.

Despite the significant amount of capital wind energy development, and the precision engineering studies, wind energy developers are still developing best practices. When Horizon’s development staff was asked about the extent to which developers shared best practices amongst other developers, one staffer responded: “Well, all developers share information with corporate, and corporate then shares it with us. We follow trade publications, the news, and we even apprentice new developers from other wind energy companies” (Wind Developer, personal communication, November 9, 2011). When one of the local developers was asked about the best practices they used for community organizing around wind energy, the response was “do you have a development handbook? I would love to have one of those!” (Wind Developer, personal communication, November 8, 2011).

It seems as though there is not an official “how-to” guide yet developed for individual wind energy developers. But the interactive, iterative processes crafted by staff working across firms signals there are some best-practices arising. Successfully developed communities like McLean serve as valuable learning experiences, enhancing the development capabilities of wind energy firms.

The staff seemed to view themselves more as economic development professionals seeking broad-based buy-in as opposed to community organizers advocating for social change, specific events seem to support that assertion. It was interesting that in conversations with the development staff specific community
organizing strategies or techniques were never mentioned, even though many of the mechanisms utilized were reminiscent of traditional mobilization techniques.

The Horizon developers set up community dinners with prospective local landowners, who were by and large from the farming community. Horizon asked committed landowners to host neighbor open houses in an attempt to trade in on brokered social capital, also hosted open houses for the community at local schools and firehouses (Ford, 2010) in which they handed out packets of literature and gave PowerPoint presentations. The use of respected individuals and civic institutions for meeting locals proved to be a solid approach to harness social capital, to creating buy-in and engendering trust.

Transparency with the local community is seen as essential by Horizon. A Horizon wind developer stated:

Transparency is crucial. Everything has to be above bar. Perception is everything. No meetings are done on short notice. All of our meetings, we give plenty of notice. We make sure to note that everyone gets the same amount for their leases (we have to avoid any inference of favoritism), and if in the future we build another wind farm with a more favorable lease agreement, then existing landowners will also get that (Wind Developer, personal communication, November 8, 2011).

A second Horizon developer noted: “the more community outreach, the more you reduce lawsuits. Our practice is at least four public events” (Wind Developer, personal communication, November 9, 2011).

Community interest appears to have been substantive on the outset, with turnout for initial public forums reaching 300+. The content of these initial community meetings typically covered the number of turbines, the impact on day-to-day life, and the new financial benefits for the community. The numbers quickly tapered off as it became
obvious that only a handful of locals would be directly interacting with the development project and receiving material benefit (Local Official, personal communication, December 8, 2011). Indeed, interviews with key leaders involved in wind energy development demonstrated that the breadth of stakeholders involved in the standard wind energy development project is relatively narrow (pictured in Figure 6).

As the wind farm went from vision to reality, the wind energy developers are typically tasked with providing a number of reports to not only meet regulatory requirements, but to appease local critics and mitigate the strength of organized opposition. In this manner, Horizon builds ever-greater trust in that it demonstrates concern for a number of local issues by spending a great deal of time and money on these reports.

As the project advances beyond prospecting into actual development, the developers seek options contracts with landowners to guarantee that once build-out begins, the wind firm has approval to build on desired parcels of land. From Horizon’s website (http://www.horizonwind.com/about/landowners/optionleaseagreement.aspx):

Horizon works with landowners who are interested in long-term business relationships. There are two phases to these relationships: the option phase and the lease phase. During the option phase, Horizon has the flexibility to execute the lease once the project is ready to be constructed. The option phase usually lasts approximately five to seven years and gives Horizon the time needed to measure the wind, secure access to transmission and obtain permits. In some cases, an extended option phase is necessary due to regulatory variations at the state or federal level or slower growth of the wind energy market in the region.

While developers from Horizon would not divulge the terms of an option, other wind developers claimed that many of these contracts are for five to ten years, providing annual retention stipends of one to ten dollars a year per proposed turbine (Wind Developer, personal communication, March 25, 2010).
Horizon did eventually exercise its options in 2006 and locked in a lease rate of $10,000 a year per turbine per year, during the life of the contract. [Neighbors directly adjacent to a parcel of land hosting a turbine were given the option by Horizon to receive “good neighbor agreements,” a $1500 annual payment. The payment is to compensate landowners for the burden of being near a turbine, and serves as a waiver of legal liabilities related to shadow-flickers, noise pollution, and other common complaints]. Once Horizon locked in the necessary options, they were then able to move into procuring the capital to purchase the infrastructure.

**Mandates, subsidies, and market demand.** There must be demand for wind energy to encourage its development in a market economy. Typically such market demand for wind energy comes from one of two sources. First, there is the consumer demand, usually stemming from environmental or price-oriented consumer preferences. Broad consumer demand for renewable energy is substantive. Recent cost reductions in wind have made it more attractive as well as higher gas prices: “Three-dollar gas contributes to more wind energy. Political and policy issues also provide incentive. Energy is expensive and it's not going to get cheaper” (Anderson, 2006). But consumer preference alone is considered a poor indicator in the electric energy sector. Wind may not be cheap relative to other sources of energy, particularly during the infancy of the industry (Regulatory Official, personal communication, October 25, 2010). Wind must be cost competitive to be effectively marketable. The same consumer who agitates for wind energy may become less demanding should wind energy prices increase and competing

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23 What is oft misunderstood is that a local wind farm does not produce energy for local community consumption (Local Resident, personal communication, September 6, 2011; Business executive, personal communication, December 1, 2011). The grid is designed on a spoke and wheel system, centralizing power generation in pockets, which then is directed outward toward the grid and end consumers. Once transmitted to the grid, the energy is distributed mechanically, arranged through market transactions or contractual agreements. In virtually all situations, wind energy produced locally is likely transmitted elsewhere regardless of local demand, just the same as coal, nuclear, and other energy generation source.
energy sources become cheaper, such as is the case with the recent supply glut of natural gas. The fleeting desire of consumers to be environmentally friendly is not enough to justify major capital investment in wind energy if prices cannot be contained.

Another effective venue with which to drive up market demand for wind energy is with government regulation ("American Wind Energy Association," 2012b). Currently, the regulatory environment for coal and nuclear generation (Illinois has a state ban on new nuclear development) has made investment in more traditional energy sources unattractive, which then pushes electricity generators to look toward alternative sources to meet consumer demand.

Another form of energy regulation relevant to wind is the continuing emergence of government renewable portfolio policies (RPS). A mandated standard…

…requires electric utilities and other retail electric providers to supply a specified minimum amount of customer load with electricity from eligible renewable energy sources. The goal of an RPS is to stimulate market and technology development so that, ultimately, renewable energy will be economically competitive with conventional forms of electric power (“US EPA,” 2009).

Such a policy then promotes one source of energy over another, critical for an industry dependent on finite resources contributing to climate change. Figure 7 illustrates the current national state of RPS standards in the USA (highlighted within the yellow box positioned over Illinois). Illinois is one of 31 U.S. states and territories with an RPS. The Illinois Power Agency Act created a RPS of 25 percent, 75 percent of which must come specifically from wind (Loomis & Carter, 2011, p. 6). Energy distributors are responsible for meeting the RPS, which they can do from purchasing wind energy from within or outside of the state border.
Wind developers (Wind Developer, personal communication, March 25, 2010; Association Official, personal communication, August 9, 2011, Wind Developer, personal communication, November 9, 2011) were keen to point out that RPSs have the positive externality of mitigating market volatility when wind energy is part of the mix (Association Official, personal communication, November 3, 2010):

Wind is an inexhaustible energy source and it is free from fuel price volatility, which can contribute to the nation’s energy security. Because of fuel price uncertainty, electricity supply portfolios need to be diversified. Wind power can help diversify electricity supply portfolios, which then can lead to relatively more stable energy prices, which benefits ratepayers in the long run (Loomis & Carter, 2011, p. 10).

The volatility of the energy markets plus the financial crisis of the late 2000s has made investors skittish of investing in capital-intensive energy projects left to strictly market forces. Most new wind energy generating facilities are addressing concerns about the volatility of the market and injecting stability by securing power-purchase agreements
(PPAs) before build out begins, which is increasingly becoming the standard practice of wind and solar energy companies. This then reduces risks for businesses investing in wind energy generation. A state association spokesperson for the wind energy industry noted:

A PPA is a great hedge for investors in a volatile energy market. It used to be that coal was the cheapest energy source, and now it’s natural gas thanks to new fracking technologies. But both of those energy sources will grow volatile again. A PPA locks in a guaranteed source of revenue for 10 to 20 years (Association Official, personal communication, November 3, 2010).

Wind energy becomes a hedge for investors who want a stable return on investment and utilities wanting to be able to project costs into the distant future.

Further incentivization is done by the federal government to encourage capital flow from investors, while driving the wholesale cost of wind energy down to make it attractive to price conscious consumers and competitive with traditional sources of energy. The federal government has created a number of incentives that encourages further growth in the wind energy industry by complementing cost-competitiveness. This is done primarily through the MACRS and PTC.

The MACRS is a subsidy in that it allows the wind firms to accelerate depreciation, allowing wind companies to write off more from their tax burden sooner than other types of energy generators and business:

Qualifying components of a wind farm are eligible for greatly accelerated depreciation deductions, typically over a five-year period based on the double declining balance method of depreciation (Stoel Rives, 2010, p. 78).

The MACRS is one manner by which wind companies can retain their taxed earnings to either pass on cost-savings to the consumer, provide a greater return on investment to the financiers or invest in infrastructure.
The most important tool at the disposal of wind energy developers is the PTC. The PTC is intended to drive the purchase cost of wind energy down through a tax credit—or tax reduction (Association Official, personal communication, November 3, 2010; Association Official, personal communication, August 9, 2011). “The federal renewable energy production tax credit is an inflation-adjusted per-kWh credit that is applied to the output of a qualifying facility during the first ten years of operation” (Lomis & Carter, 2011, p. 9).

The tax credit (which is $.022 per kilo Watt hour) serves two purposes. First, it lowers the cost of energy to the wholesale purchaser. Second, it creates an incentive for investors to infuse a project with capital; if the investor—who happens to be Goldman Sachs in the case of Horizon—has a large tax liability, that tax debt is reduced through investing in wind energy generation via this tax credit. The rapid rate of development into new locales is heavily dependent upon the continuation of the PTC federal subsidy.
Table 5. Types of direct employment from project development and construction

<table>
<thead>
<tr>
<th>Utility and Power Engineers</th>
<th>Truck Drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geophysical/Structural Engineers</td>
<td>Tower Erection Crews</td>
</tr>
<tr>
<td>Site/Civil Engineers</td>
<td>Crane Operators</td>
</tr>
<tr>
<td>Concrete-Pouring Companies</td>
<td>Backhoe Operators</td>
</tr>
<tr>
<td>Wind Energy Project Developers</td>
<td>Interconnection Labor</td>
</tr>
<tr>
<td>Developer’s Construction Management</td>
<td>Earthmovers</td>
</tr>
<tr>
<td>Clerical and Bookkeeping Support</td>
<td>Excavation Service Labor</td>
</tr>
<tr>
<td>Developer’s Legal Team</td>
<td>Electricians</td>
</tr>
<tr>
<td>Road Builders/Contractors</td>
<td>Wind Farm Operators</td>
</tr>
<tr>
<td>Site Safety Coordinator</td>
<td>Site Administrators</td>
</tr>
<tr>
<td>Environmental and Permitting Specialists</td>
<td>Maintenance Mechanics</td>
</tr>
<tr>
<td>Microelectronic/Computer Programmers</td>
<td>Field Technicians</td>
</tr>
<tr>
<td>Operations and Maintenance Personnel</td>
<td>Construction Crews</td>
</tr>
</tbody>
</table>

Source: Loomis & Carter, 2011

The American Wind Energy Association (AWEA) is mobilizing industry and environmental interests to lobby for an extension of the PTC beyond its expiration at the end of 2012. As Figure 8 illustrates, growth in wind energy is heavily dependent upon the PTC; wind energy faces persistent boom and bust, up and down cycles when developers cannot rely on consistent public policy propping up the growth of the sector. Communities dependent upon manufacturing facilities and building tradespeople who install the infrastructure will be hardest hit in the years in which the subsidy lapses. This certainly provides political leverage to the wind energy industry to harness for advantageous public policy. Indeed the wind energy industry enjoys the support of red and blue state politicians who view the sector as a net plus for job creation.
Local level wind energy regulations and incentives also contribute to the environment that promotes or discourages wind energy development. Illinois provides two programs utilized by wind energy developers to reduce developer costs and encourage investment by wind energy firms in the state. This is done primarily through two programs: Illinois Enterprise Zone, and the High Impact Business designation. Illinois’s Department of Commerce and Economic Opportunity describes the Enterprise zone as such:

The Illinois Enterprise Zone Act was signed into law December 7, 1982. The purpose of the Act is to stimulate economic growth and neighborhood revitalization in economically depressed areas of the state. Businesses located (or those that choose to locate) in a designated enterprise zone can become eligible to obtain special state and local tax incentives, regulatory relief, and improved governmental services, thus providing an economic stimulus to an area that would otherwise be neglected.
Businesses located or expanding in an Illinois enterprise zone may be eligible for the following incentives: an exemption on the retailers’ occupation tax paid on building materials, an investment tax credit of .5 percent of qualified property, and an enterprise zone jobs tax credit for each job created in the zone for which a certified dislocated worker or economically disadvantaged individual is hired. Additional exemptions, such as an expanded state sales tax exemption on purchases of personal property used or consumed in the manufacturing process or in the operation of a pollution control facility and an exemption on the state utility tax for electricity, natural gas and the Illinois Commerce Commission’s administrative charge and telecommunication excise tax are available for companies that make the minimum statutory investment that either creates or retains the necessary number of jobs ("Department of Commerce,” n.d.a).

Horizon lobbied and received the enterprise zone exemption. Horizon used this designation to waive its sales tax obligation, which incentivized the firm to purchase a large share of its building materials from within the state, the argument of proponents being that such a capital intensive project would create a number of economic opportunities for local merchants (McLean’s wind farm sector has been a major boom for a gravel pit located in nearby Pontiac which provided hundreds of tons of gravel for the concrete foundations for the turbines (Dodds, L.K., personal communication, February 18, 2011; Loomis & Carter, 2011)). Horizon qualified for the Enterprise Zone designation even though the location of the wind farms is in rural agricultural areas that were not economically depressed. This is a common application of the Enterprise Zone that benefits wind energy developers, which speaks to the growing clout of the industry (Regulatory Official, personal communication, October 25, 2010).

More recently, Illinois has added another stackable tax credit/exemption with its High Impact Business (HIB) designation:
The HIB program is designed to encourage large-scale economic development activities, by providing tax incentives (similar to those offered within an enterprise zone) to companies that propose to make a substantial capital investment in operations and will create or retain above average number of jobs. Businesses may qualify for: investment tax credits, a state sales tax exemption on building materials, an exemption from state sales tax on utilities, a state sales tax exemption on purchases of personal property used or consumed in the manufacturing process or in the operation of a pollution control facility. The project must involve a minimum of $12 million investment causing the creation of 500 full-time jobs or an investment of $30 million causing the retention of 1500 full-time jobs. The investment must take place at a designated location in Illinois outside of an Enterprise Zone. The program has been expanded to include qualified new electric generating facility, production operations at a new coal mine or, a new or upgraded transmission facility that supports the creation of 150 Illinois coal-mining jobs, or a newly constructed gasification facility as a "Coal/Energy High Impact Businesses".

A qualifying High Impact Business may be eligible to receive the following: sales tax exemption on building materials, an investment tax credit, an exemption from state gas and electric tax, and a state sales tax exemption on personal property used or consumed in the manufacturing process or in the operation of a pollution control facility ("Department of Commerce," n.d.b).

Horizon’s first two wind farms did not qualify for this program since construction began in 2007:

In 2009, the program was further expanded to include wind energy facilities. The designation as a Wind Energy/High Impact Business is contingent on the business constructing a new electric generation facility or expanding an existing wind power facility. “New wind power facility” means a newly constructed electric generation facility, or a newly constructed expansion of an existing electric generation facility, placed in service on or after July 1, 2009, that generates electricity using wind energy devices. “New wind energy device” means any device, with a nameplate capacity of at least 0.5 megawatts, that is used in the process of converting kinetic energy from the wind to generate electricity.

Beyond the more formal subsidies offered by the government, Horizon received an additional grant from the state of Illinois for $2.2 million after the project had been finalized and financed (Coulter, 2006). The grant was more of a gift from the state than an incentive grant. Perhaps Horizon’s capacity to pull down further “incentives” after they had committed to construction has to do with the affinity of growth machine
coalitions; the wind industry has a lot of support from stalwarts in the business community, such as the Chamber of Commerce (Association Official, personal communication, November 3, 2010).

Illinois-based wind energy developers get access to federal, state, and local subsidies. Taken together, these incentives:

1) create market demand for wind through mandates as well as market demand through;
2) artificially reduce costs to the wholesale purchaser;
3) reduce the tax burden of the wind farm and its investors, thereby increasing margins which;
4) increase the return on investment;
5) entice large infusions of capital from major firms;
6) create a hedge against volatile energy markets, while creating a sure-bet investment, and finally;
7) increase the growth rate of the wind energy industry and its economic impact.

There is a great deal of opposition to wind energy subsidy from given political and economic ideological perspectives, often coming from established oil and coal lobbies. The narrative focuses on the privileging of wind and other renewables above and beyond “the establishment”:

Tea Party groups and others, including The Heartland Institute and Americans for Prosperity, note the tax credits exist only to favor renewable energy over more traditional sources of power generation and are thus an obvious government manipulation of the market (Glans, 2012).

If the argument is about subsidizing an energy source that is more expensive than other existing options, then yes, wind energy at spot market rates usually will cost more than other forms of energy generation, particularly coal and natural gas (though PPAs help to control volatility and costs, making wholesale prices more competitive, predictable, and attractive). This is not necessarily because wind is inherently more expensive nor is it necessarily privileged relative to “establishment” energy regimes. One must consider the
decades of subsidy that went into building legacy electrical generators such as coal and nuclear (and nuclear’s government-provided insurance), not to mention the subsidization of rail transportation infrastructure which externalizes a portion of the cost of coal distribution (Carson, 2010) (coal companies account for almost half of all freight rail traffic in the USA (Stagl, 2012)). Also, there are various externalities related to coal (health concerns from air and water pollution, and environmental degradation from mountaintop removal as well as ash-waste ponds) that are rarely if ever factored into the real cost of coal. Opponents of the “establishment” energy regime claim that federal subsidy estimates adds up to over $50 billion annually, eclipsing the annual subsidy allocated to wind, solar, and other renewables (“Oil Change International,” n.d.); it seems as though the organized opposition to renewables has more to do with protecting legacy energy industries from new competitors than fiscally responsible public energy policy.

There do exist some legitimate concerns about how wind energy is subsidized. Wind energy development is pitched to a community as a net benefit. Yet many of the local subsidies (enterprise zones, MACRS) are aimed at reducing the wind farm’s tax liability. These profit maximization techniques are in direct conflict with the wind developer’s claims of net community benefit; if given the opportunity, the developer will trim as much of it’s overhead as possible. Accelerated depreciation reduces the tax burden at just the time that the wind farm is paying down its debts, thus having greater capacity to financially benefit a community. But contracts with communities don’t address profit-sharing, so the potential is lost. Plus, subsidies such as the enterprise zone, while marginal to the developer, is another missed opportunity for the local governments to benefit from wind farm tax revenue. In the case of Horizon, these two subsidies in
Illinois seem to have done little to incentivize wind farm development and instead allowed Horizon’s financiers to reduce the total expenditures that many other businesses tasked with paying to local taxing bodies. While this may not be the case in other wind energy development scenarios, one can observe that issues of fairness and equity certainly exist and promise to add to tensions with other local taxpayers who feel left out.

**Accessing the markets, accessing the grid.** A wind firm will need to access the electric grid, which is the mechanism by which electricity generators access the market. This situation runs parallel or adjacent to other relevant socio-economic processes (securing capital, seeking tax benefits, and community organizing). The grid is itself a national construct, a common resource regime financed by a mix of private and public dollars, governed by a complex array of property arrangements. A grid, a commons, requires monitoring of quantity of electricity transmitted from a number of actors, since there is no way to isolate where an end-user’s electricity originated from (one may think of it as water; once it’s pooled together in a reservoir, the end user cannot request specific point of origin). 24

All new energy generators in the region must establish a grid node by lining up a queue position through the Midwest Independent Systems Operators (MISO) to connect to the electric grid. The MISO is one of the nation’s ISOs that regulates access to their designated regional grid. The MISO serves as gatekeeper, a monitor of the grid, as well as arbiter of disputes. The remaining regulatory responsibilities, like retail sales, are left to state regulatory utility commissions unless it is interstate, then it falls under North American Electric Reliability Corporation (NERC). MISO is a creature of FERC, the

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24 Once electricity is dispatched to the grid, it becomes part of an indistinguishable mix. There are seemingly common misconceptions amongst consumers related to how the grid itself delivers energy to the end-user. The electricity delivered to one’s home comes from a mix of sources that cannot be isolated (one electric co-operative CEO noted: “There isn’t such a thing as brown or green electrons. They’re all electrons” (Co-operative Official, personal communication, May 23, 2012)).
Federal Energy Regulatory Commission. FERC is a major regulator of the grid, moderating interstate commerce of electricity.

The Federal Power Commission (FPC) was created in 1920 under the Federal Water Power Act for the purpose of regulating construction and operation of nonfederal hydroelectric projects. In 1977, when the U.S. Department of Energy was created, the FPC became the Federal Energy Regulation Commission (FERC) (“Oil Change International,” n.d.).

The Department of Energy (“Department of Energy,” n.d.) describes the system as such:

There are many individuals involved in running the grid. There are generator operators and transmission owners. But from a system perspective, one of the most critical entities is the independent system operator or regional transmission organizations (ISOs and RTOs). They monitor system loads and voltage profiles; operate transmission facilities and direct generation; define operating limits and develop contingency plans; and implement emergency procedures. Reliability coordinators also play an essential role. For instance, NERC (North American Electric Reliability Corporation) develops and enforces reliability standards; monitors the bulk power system; assesses future adequacy; audits owners, operators, and users for preparedness; and educates and trains industry personnel.

Horizon applied for access to the transmission line from MISO (MISO takes these queue requests on a first come, first served basis). The transmission line most accessible to Horizon in McLean is owned by ComEd. Legally ComEd is not in the business of approving or denying access to their transmission line; the MISO plays the role of arbiter. ComEd’s transmission subsidiary collects rents in a non-discriminatory manner on the usage and maintenance of the available capacity. Horizon, in initiating request to access a transmission node, agrees to enter into a number of engineering studies to make sure the grid can handle the increased capacity. The studies divulge the capacity of the transmission line at that node, and the necessary upgrade needs for connectivity. Once an interconnection agreement is finalized, Horizon is assessed a transmission access fee (the
cost to ComEd to maintain the line,\textsuperscript{25} and MISO to regulate the energy coming from Horizon over the grid)

**Smooth sailing locally, bumps in the road nationally.** To finalize the project, Horizon had to go through the formal permitting process with McLean County’s Department of Building and Zoning and their board, secured a PPA with an energy distributor (“Exelon purchases power,” 2008), then purchased the infrastructure to begin build out of the farm (Ford, 2006b). Horizon, like every other investor-owned wind firm prospecting for ideal development, had all of the requisites necessary to chase the investment capital (provided by their tax equity partner Goldman Sachs). By 2006, Horizon had made substantial investments and progress. Millions had been spent, the community tentatively organized, and national, regional and state actors approved of the wind energy generator’s access to the grid.

Illinois law requires a number of public hearings four to six months before permits are issued to allow for public input. The McLean County board has end authority over whether or not to approve or deny the zoning permits, but the zoning board oversees a state mandated, formal process in which they host public hearings, take public testimony, and forward recommendations to the county board (Local Official, personal communication, December 13, 2010); the zoning board is seen as the official public representation and expert in best practices and government regulation, hence their authority. The venues chosen for public hearings are geared toward ease of access, and to meet attendance estimates. In the case of Twin Groves, McLean’s County Zoning

\textsuperscript{25} ComEd’s transmission towers were built to accommodate the projected electricity flows. The addition of the wind farms in McLean has added so much unexpected new energy to the lines that it has caused the lines to heat up and sag. ComEd has had to raise the height of the towers (Association Official, personal communication, November 11, 2011), part of the unforeseen costs of maintaining transmission infrastructure.
Board of Appeals held twenty public forums at ten locations (such as the Bloomington Center for the Performing Arts).

During such public hearing a number of issues arise. The zoning board may take public comments and spin them into a prerequisite for the wind firm to agree to in order to secure the zoning board’s endorsement. But the developers also use these hearing to better assess how to build community buy-in.

The wind developers at Horizon go into a community with a number of company approved “gifts” they may contribute to the host community if prompted in order to allay concerns and gain broad based popular support. One Horizon developer noted they were approved to offer a fund in which they share a portion of their revenues with the community for economic development purposes (Wind Developer, personal communication, November 8, 2011). In McLean’s case, Horizon offered to create an escrow account to cover the costs of decommissioning the wind farm in the distant future, but did not provide for a community development fund since such a request was not made.

Horizon had sought building permits extending a total of five years beyond McLean’s standard two-year window. This is to account for hiccups along the way (cost increases and access to capital supply, expiration or extension of federal and state subsidies, and allowable time to make a case with the local landowners and community members) (Ford, 2010). Horizon was wise to make such a move as a number of problems arose before and during the construction process (Miller, 2006c).
The Central Illinois Regional Airport (CIRA) was concerned about the how the flashing red strobe lights would interfere with pilots arriving and departing from the airport. Horizon appeased the CIRA management’s concerns of interference with takeoffs and landings, radar, and even local crop-dusting operations (Riopell, 2009; Shults, 2006). Horizon built the wind farms an amenable distance away from the Airport, and agreed to coordinate the strobes so they all flashed at the same time, thereby limiting disorienting distractions and immediate dangers to pilots.

“The U.S. Department of Defense and the Federal Aviation Administration issued stop work orders to several wind farms around the country,” including Horizon’s project in McLean, “worried the massive turbines could interfere with military radar and national security” (Miller, 2006a). The two Illinois Senators stepped in to remove this barrier to development (“Durbin, Obama criticize wind farm orders,” 2006).

The U.S. Army Corps of Engineers investigated Horizon and a number of other wind farms under construction to guarantee the projects weren’t harming wetlands (Miller, 2006b). During the investigation, Horizon was limited in what they could do on site until the study was complete. Horizon was cleared to fully reengage with the McLean wind farms a few months later.

Despite the stops and starts, Horizon was on a path toward completing their Twin Groves wind farm projects by 2008.

**Build out: planting turbines, producing commodities.** The phase of wind energy development in which impact is most obvious is the construction phase. Table 5
lays out the range of technicians and laborers employed for constructing a wind farm. Massive pieces of capital infrastructure are produced and shipped across road and rail. Cranes and trucks (semis, cement mixers, pickups, and gravel) dotted the landscape and crowded roadways. Restaurants and hotels were packed with an influx of temporary trade workers. Horizon did actively attempt to hire as many relevant laborers as possible from the central Illinois region. But in the end, many laborers came from a construction firm out of Terre Haute, Indiana specializing in wind farm construction. So while money was spent locally, many of these laborers spent a sizable portion of their income outside of central Illinois, in their home communities.

The labor-power and equipment necessary to construct wind farms is significant, requiring coordination from a number of indirect actors. Public safety officials got involved to assure safe transit. Public works agencies assessed the capacity of the roads to bear the weight of the infrastructure. Many of the leases are on agricultural property accessible only via township roads, known for being paved with an annual application of gravel and road-oil. Horizon worked with elected local township officials and agreed to not only repair the roads they damage, but to upgrade those frequently used for the wind farm. A local school administrator (School Official, personal communication, November 11, 2001) noted that the township roads are in some of the best shape he had ever seen (one can easily see the improved roadways touched by Horizon, many of which appear to be of higher quality than state highways). Said a local farmer: “the turbines created nice access to the farm fields. They built nice roads!” (Business Executive, personal communication, December 1, 2011). This certainly engenders goodwill amongst local officials responsible for the roadways and the farmers who use them on a regular basis.
Access to the building site requires not only the landowner’s approval, but also the approval for right-of-way access across adjoining neighboring properties. Cranes and other pieces of construction equipment are massive, needing to maneuver across large tracts of land. “Good neighbor agreements,” secured access to adjacent land (such agreements in McLean were priced at $1500 per year, though Horizon sets the prices on a community by community basis, meaning Horizon is flexible on what they may pay (Wind Developer, personal communication, November 8, 2011)).

We know that as a wind energy company speculates on a given area, the process of development is long and arduous. Wind energy developers seek enabling forces early and often. In this way, wind energy companies interface with the local communities, but specifically the formal local branches of government as well as the landowners. In total, Horizon would spend over five years preparing the project. Build-out drew in hundreds of temporary laborers. Mobilization required the organizing of key landowners, state and regional regulators, and the final cost added up to more than $500 million dollars. But by 2008, Horizon had completed the build out of 240 wind turbines capable of generating 396 megawatts of electricity at peak capacity.

**Harvesting The Wind: The Development Implications of an Operational Wind Farm**

While the wind farm itself cost half a billion dollars, local labor accounted for an estimated $50 million (Loomis & Carter, 2011, p. 23). Keep in mind that this labor force is fleeting, lasting only the duration of construction. Clearly an immense amount of financing and human capital is infused into the project during the planning and construction processes. Throughout the process, the developers interact with a number of community groups in what appears to be a more or less predictable manner (Figure 6).
An operational wind farm by many accounts is an anti-climactic experience. Scholarly or journalistic accounts of wind farms and their longitudinal operational impacts are lacking and would be useful. McLean was left with a relatively docile set of 240 immovable turbines.

Interviews conducted during the study of Horizon revealed that many of the public officials who participated in the wind energy development process were by and large relatively dismissive of the wind farm having any deep community impact. A local economist with the McLean’s economic development arm, when asked about the long-term impacts of the wind farm, responded: “It’s really a rural development-type thing. It doesn’t do much. It’s a temporary shot in the arm. Just another industry coming to the area.” A local farmer hosting a wind farm said: “It’s a non-event” (Business Executive, personal communication, December 1, 2011).

There was no substantive discussion of wind energy development reducing chronic social problems or benefitting the marginalized within McLean. Criminal activity, minority populations, the poor, youth and elderly were never mentioned with relation to the wind farm unless prompted. Even then, interview participants noted local civil society groups such as the United Way, MarkFirst, Project OZ, and Sweet Home Ministries as the groups most appropriate to address such issues. An economist from the Economic Development Council noted:

There is an issue locally with poverty. But because of the countywide wealth, McLean qualifies for very little from the state (we are a $9 billion economy). Since we don’t get the basics available to other counties, it makes poverty worse (Local Official, personal communication, September 5, 2011).

Horizon developers had no involvement with those groups (Wind Developer, personal communication, November 9, 2011). This begs the question of boosterism, or
why are people so supportive of wind energy development? But even beyond Horizon, it seems as though the development emphasis in McLean has more to do with growing their way out of various social ills through market development than intentional community development aimed at addressing these heady topics. The mindset is summed up as “some development is better than no development.” Though some measure of local economic impact certainly helps to make the case for IOU wind energy development.

Tax revenue was frequently mentioned as a major benefit to the area. The wind farm has financially benefitted a number of taxing districts within McLean (fire protection, public library, townships, community college, parks, and county). Altogether, McLean’s wind farms –not just Horizon- have created a taxable $600 million property base generating over $4 million in annual tax revenue that previously did not exist (School Official, personal communication, November 11, 2001). The local Economic Development Council was able to create a microenterprise Loan Fund from extra county tax revenue generated.

The wind farm subsumed a large share of the area property tax burden, thereby lowering existing resident’s total tax bill. Tax rates did decrease for residents in these areas and the estimated assessed evaluation of the property hosting the Horizon wind farms increased dramatically (from $60 million in 2008, to $105 million in 2010); wind turbines seem to either do nothing to property values or increase their worth despite what some opponents claim (Carter, 2011). That means the wind farms have added fiscal value, and have taken on a greater share of the community’s tax burden, no doubt a

\footnote{The Fair Market Value per turbine in the area was assessed as $360,000 per MW, per turbine. The formula then is $360,000 * 1.65 * 240 = Fair Market Value of $142,560,000 (1.65 represents the MW capacity of each turbines, and 240 represent the total number of turbines). Each 1.65MW turbine was assessed at a value of $594,000, or in other words was taxed as if it were a house with a valuation of $594,000. Each turbine also gets an annual depreciation of 4 percent over 25 years, which is plied toward reducing the wind company’s tax liability. This means the value of the turbines will reduce as well (School Official, personal communication, November 11, 2001).}
benefit to property owners (though the benefits to renters and non property owners must be marginal, and the urban taxing districts benefit not at all) and local governments.

Representatives of educational institutions are major boosters of wind farms (Coulter, 2009). Indeed, educational institutions in McLean may be the biggest beneficiaries of the passive wind energy development.

Illinois State University (ISU) has cultivated a strong relationship with Horizon due in part to the close ties of one of ISU’s prominent professors to the wind energy industry. The professor was able to translate his political capital with the Department of Energy to start the Center for Renewables via a large seed grant supported by Horizon. The Center not only serves the purpose of working with the industry, but also of educating the general public on matters pertaining to wind and solar energy (Association Official, personal communication, November 3, 2010). The website for the Center claims three major functional areas:

- To enhance the renewable energy major at Illinois State University.
- To serve the Illinois renewable energy community by providing information to the public.
- To encourage applied research concerning renewable energy at Illinois State University and through collaborations with other universities ("Center for Renewable," n.d.).

The Center does this by organizing thematic conferences, taking policymakers to wind and solar production facilities, and producing reports and research. The Center also collaborates with Western Illinois University’s Illinois Institute for Rural Affairs in building a wind energy curriculum for teachers across the state, setting up weather
stations to assess the viability of a wind turbine, locate grants for renewable energy
development, and to help site a potential turbines on the ground of K-12 schools. The
area’s community college, Heartland, started and runs a turbine tech program with the
intent of creating “green jobs.” Heartland has teamed up with the local building trades
groups to enhance the regions workforce capacity for wind energy development.

Higher education institutions receive a bulk of their government funding from
state sources. Local K-12 institutions, funded largely by property taxes, stand to benefit
most from wind energy development. And nowhere is that truer than in the case of the
rural Ridgeview CUSD #19.

An administrator for Ridgeview was emphatic about the material benefits of the
wind farm. A former school board member claimed this district received the lion’s share
of the benefits from the wind farm. Indeed, no other government institution received as
large of an increase in revenue than Ridgeview. A study by the Center for Renewables
(Loomis & Aldeman, 2011) found Ridgeview received an $800,000 bump in total annual
property revenue despite a decrease of $754,779 in state aid for the three years prior to
2011 (p. 16).

Horizon [EDP] has been great to work with. Athletics are big in these rural
districts. We have been able to expand our educational programming and keep
athletics. For a rural school district, we’re doing better than a lot of the others
(School Official, personal communication, November 11, 2001).

These passive development outcomes are a result of existing local structures that
seek to benefit from certain market activity. The mere existence of the wind farms has
stimulated local public entrepreneurship and strengthened the existing local institutions.
Higher education facilities are taking advantage of having accessible facilities nearby
through the creation of new programs. Government taxing bodies are best positioned to
take advantage of Horizon’s presence in the area. Officials with these local taxing bodies are pleased with the influx of additional revenue, particular during an economic downturn that has dinged the revenue of their counterparts that are not playing host to such infrastructure. Fire districts aren’t downsizing, and the township roads are in the best shape they have ever been. Plus, the Ridgeview school district is expanding rural education when national trends are encouraging austerity and consolidation. However, the direct impacts of Horizon’s activities on local community governance are less clear as examined in the following section.

**Direct, active involvement.** Horizon, like many other wind energy firms, is transnational in nature. These companies develop partnerships with other major corporations for financially beneficial relationships. These relations come about due in part to federal and state subsidies that incentivize such partnerships. But interactions do go beyond this to other groups within the local community.

A pattern culled from the interviews with community members is the seeming disappointment in economic outcomes, particularly with regard to employment. Many of the interview participants noted that job creation was much lower than anticipated, and a few cautioned that other communities should be made aware of that fact. During the fieldwork for this study in McLean in 2011, Horizon went from two developers to only one on staff who divides his time between emergent projects in Ohio, Indiana, and Illinois. Horizon indirectly employs a local workforce, contracting out through General Electric to provide maintenance services. According to the developer, they typically have 13 General Electric workers on contract.
Horizon’s active involvement in the local community life is non-existent outside of furthering wind energy development interests. Horizon is typical of wind energy firms that are capital intensive and profit oriented. They seek out communities in order to extract value for their investors. Wind energy firms are positioned best to “sell” their project on a fiscal basis. The ability to talk dollars and cents and rapid introduction of capital infusion means their value proposition synchronizes well with communities playing host to a growth machine coalition. And that makes sense when one considers Horizon and the other actors in McLean.

McLean exhibits many of the characteristics of a growth-machine oriented community. Governance regimes appear to be well established. The Chamber of Commerce, Economic Development Council, planning commission, Farm Bureau, and city and county governments were oft cited as the enabling and disabling forces within the community. These institutions are all inclined to support economic development endeavors with little regard to the social dimension so long as lucrative property development and fiscal streams seem a likely outcome. Development is geared toward material aspects of life. Jobs were persistently noted as important policy outcomes, and none of the discussions brought up a desire to empower the marginalized or even go so far as to mention their existence.

Material benefits largely went to landowners with significant plots of land; the total annual lease payments amount to over $1 million. The landowners who are party to such lease agreements are more often than not row-crop farmers with well-protected territory and significant influence in local institutions. The wind farms did more to
enable this status quo than to open existing social systems or build new institutional access points.

Surprisingly, the major corporate interests in McLean had little to do with the growth machine. A number of the interviewed residents noted that the corporations and associations headquartered in the county were important in terms of contributing to local civil society functions. Companies were known for allowing and encouraging their employees to do volunteer work, as well as non-profit or government board work on paid company time. When asked about the type of work, many respondents were vague about the emphases, but a lot of their efforts appeared geared toward professional, resume-building endeavors (volunteering with the local hospitals came up often) in the market and to a lesser extent the civil society realm.

It was also remarkable that in many of the interviews, when the question was asked, “who would I contact to get things done or to block a project?” the responses never mentioned the large firms headquartered in the community. What makes this remarkable is that these firms could wield significant local influence if they so desired. But it makes sense that they do not, probably because their areas of emphasis are most often focused outside of the community on their core competencies at a broader socio-economic scale. From this perspective, McLean County becomes just another place to do business, not necessarily a community necessitating power contestation. While some of the professional staff from these businesses may be involved in the growth machine coalition, the institutions from which these individuals are primarily associated with are not positioned to govern locally over community life. Indeed, should these corporation face local conflict, they could either threaten to leave the area along with their economic
clout, or “level jump” to change regulations in their favor, a practice more in line with corporate institutional logic.

**Considering Horizon’s Institutional Logic**

The wind farm certainly enhanced the fiscal position of local landowners and critical local taxing bodies. Horizon’s benefits from a select few well-established property owners (330 property owners signed leases, good neighbor agreements, and easements (Loomis & Carter, 2011, p. 16)) and the local social structure controlled by a pro-growth coalition doesn’t mean the development outcomes are negligible or even undesirable. Local taxing bodies, particular K-12 school districts, were major beneficiaries, allowing public services to avoid austerity measures during the Great Recession (and in most instances, the services were enhanced).

Yes, the development of the wind farm is of a more passive variety, stemming from the wind farm being embedded within a number of institutional arrangements (FERC, MISO, big-finance, etc.) thereby spreading the operational focus thin. But recall that for the wind farm to be marketable, it must connect with the national electric grid. The utilization of PPAs as a standard for bringing wind energy to market certainly is a benefit to consumers in that it decreases overall price volatility (Association Official, personal communication, November 3, 2010). And one would be remiss not mentioning the obvious: wind energy production does not pollute. For every wind farm, the need to utilize carbon-emitting coal-fire power plant is diminished. Those situated within the lower economic strata -the working poor and individuals impacted by environmental racism- would no doubt find these incremental material developments to be a positive outcome.
Wind energy clearly offers broad socio-ecological benefits beyond greenhouse gas reduction. Horizon’s wind farms in McLean will make it harder for sprawling strip malls to develop over dark, fertile soil (no one wants to build parking lots underneath wind turbines, especially in the winter when they’re known to fling large icicles). Wind farms may then serve the purpose of fighting urban encroachment while sustaining rural landscapes through the formation of green belts. In this way, wind farms could be used as a market-based approach to regulate land use, save green spaces or farmland, and contain sprawl. But for this to occur, development must be intentional. Local policymakers and leaders cannot presume that the mere construction of a wind farms will result in a number of positive spin-offs; they have to make it happen by design. This is a lesson learned from the case of McLean and Horizon.

Surprisingly, environmental impact was never mentioned as one of the development outcomes in interviews despite the environmental angle being at the forefront of the wind energy developers’ marketing campaign. A state regulator summed up his take on wind energy simply while rubbing his fingers together: “Money. This is big business. It ain’t as cuddly as they want you to think it is” (Regulatory Official, personal communication, October 25, 2010).

The wind farms also brought out a new arena for contestation in the community. Opposition, while mentioned only amongst three interview participants, was dismissed as misguided and somewhat disruptive: “It’s too bad that wind farms can divide a community” (Business Executive, personal communication, December 1, 2011). Other interview participants dismissed opposition figures as inexperienced and out of the local

The common defense amongst these interview participants was essentially why not develop a wind farm? What’s it matter to them? But the perception of the opposition seems to have been shaped from observations of the one-way relationship between key community leaders who supported the project and the Horizon developers. In an interview with a Horizon developer, it was openly noted that the development team utilized tactics to identify their support base and subvert opposition:

Long-time residents typically have no problem with turbines. Long-standing locals are the best… but the new folks are different to work with. It’s the new rural folks, the people who treat the area like bedroom communities that we have a problem with (Wind Developer, personal communication, November 8, 2011).

According to the developers, residents who spoke out against the wind farms typically were not farmers, owned small 1 to 2 acre parcels, and were not generating revenue from their land. Opposition figures wanted to maintain the rural character of their community, to be untouched by the overwhelming visuals of hundreds of spinning turbines (Local Official, personal communication, September 5, 2011; Association Official, personal communication, November 11, 2011).

The Horizon wind developers have done their best to avoid the smaller villages where opposition actors were mobilized, and instead directed their attention toward those locales with a strong support base. The opposition saw these approaches as subversive. But the opposition narrative was mitigated by the control of key governance institutions by wind energy supporters and the opposing community’s lack of longstanding civic action and mobilization around big picture issues. A persistent, successful growth
machine coalition can build broad based acquiescence. Over time, people forget how to *do* opposition.

As wind energy infrastructure occupies more and more of the rural landscape, groups such as Information is Power will increasingly challenge wind energy development through a number of formal procedural mechanisms (Brady-Lunny, 2007). The rise of exogenous opposition groups influencing local collective action may actually be beneficial to civic life in a place like McLean in that these external groups may reorient people as to how to work collectively for mutual ends outside of the dominant social system. An outstanding question is whether or not those groups can convert from an oppositional force to one furthering civics and community development.

Importantly, the spatial layout of wind energy infrastructure has the potential to democratize energy governance. The sprawling nature of the infrastructure means that unlike a centralized coal-fire power plant, a wind farm will interact with far more people in its host community, at least in the development stage. Additionally, consider that the deployment of clean, renewable energy is of increasing necessity. Recent research has highlighted the rapidity of global climate change; we have a limited timeframe with which to reduce or eliminate greenhouse gas emissions (McKibben, 2007). But as the situation in McLean seems to demonstrate, systemic problems of inequity may be one of the biggest impediments for deploying wind energy. This is where the democratization element comes into play. If people don’t have some sense of ownership over the energy development and climate change processes, we can expect a lack of civic engagement or outright hostility toward perceived enrichment of a few at the expense of the many.
The Horizon wind farm isn’t so much a mixed bag as it is a continuation and mild strengthening of the local status quo. Horizon is not completely transparent in what they can do for a community unless they are asked (and community leaders have to know the rights questions to pose in order to uncover this information). Illinois installed more new generation capacity\textsuperscript{27} than 48 other states in 2011 (Loomis & Carter, 2011) and Horizon looks to be a big part of future growth in Illinois (Miller, 2007a; Sapochetti, 2010).

Considering the amount of subsidies that are injected into investor-owned wind energy for private gain, Horizon and other investor-owned generators bear a public responsibility to speak openly with their host communities about the range of development services and outcomes they could offer; but unless they are prompted, the chances are they will not openly divulge such information.

It’s questionable whether an investor-owned wind farm, under current multi-level government policy arrangements, can really contribute much to a community outside of material enhancement. Granted the material element may be to increase funding to local community development groups, but these interests will always be at tension. Community development will ideally break dependency, whereas a profit-seeking firm will seek to maximize political advantage and value extraction, meaning that deepening dependency on the investor-owned firm may be a predetermined design feature that is nonetheless detrimental to community governance.

There is then a built in, self-replicating dependency mechanism that bolsters the importance of large firms like Horizon. Community reliance on these types of firms could be disastrous if national or global markets collapse. Part of the reason these firms

\textsuperscript{27} A wind farm is capable of generating a maximum amount of electricity (capacity) but a number of factors limits the actual output, such as the available wind and the market demand. So while Horizon may say that Twin Groves is capable of generating 396 megawatts of electric energy, the actual amount generated is highly variable.
are able to contribute so much human capital locally is because of the wealth they extract from other areas and concentrate back to their central headquarters. In an era of state austerity measures, it is not far-fetched to consider a perfect storm of state failure might occur in which promised subsidies are not paid to the wind energy company, thereby destroying the firm’s bottom line. What options does the community have to weather such events?

It appears that if left to the desires of the wind firm, wind energy developers would seek the path of least resistance toward the end goal of a fully operational wind farm. This runs the risk of excluding marginalized segments of the local community, driving further divisions into the local social fabric. What is more is that without the active input of the local community, specific concerns may not be addressed and accounted for (such as the possible utilization of the wind farm to curtail urban sprawl onto local farmland). The community simply must be involved in conceptualizing long term ramifications, and participating in the planned build out in order to maximize the “public good” created by a new wind farm.

Uncertainties remain about how to influence development outcomes from wind energy. There are dependency pitfalls that arise when community stakeholders lean on federal and state policymakers to create criteria for the wind energy companies to receive various subsidies. Perhaps opposition or social justice groups at the community level could mobilize to better guarantee host communities are not exploited and receive a just share of newly created value.

Attention now turns toward the co-operative business model of wind energy ownership.
Chapter Five: Case Study - The Co-operative-Owned Wind Farm

The wind energy industry is predominantly investor-owned. As of 2013, there are only a handful of public or community-owned wind farms, and only two co-operatively-owned utility-scale wind farms. These wind farms are relatively isolated, with the lack of linkages making it difficult for actors to pool resources and replicate such an ownership model. That means policymakers at the local, state, and national levels have relatively few examples with which to assess the optimal institutional arrangements possible to maximize community development outcomes from public investment in wind energy. The efficacy of public ownership models of ownership is difficult to ascertain at this juncture.

Since wind farms are heavily government subsidized, an argument could be made that a responsibility exists for those wind energy firms benefitting from the subsidy to contribute back to the public good. What could –or should- be expected of a wind firm, particularly in terms of how the organizational structure affects its interaction with its host community? Would it be desirable with respect to implications for community development for the community to have a greater ownership stake in the wind farm?

These questions are what make PrairieWinds ND 1 Inc. in Ward County, North Dakota of particular interest. The arrangement serves as an outlier because PrairieWinds, a subsidiary of Basin Electric Power Co-operative (Basin) that was opened in 2009, is the nation’s first utility-scale co-operative wind farm.28 The question posed in Chapter One, “what happens to a community playing host to the nation’s only co-operatively-owned wind farm?“ is of interest because of the institutional design of co-operatives. The

28 Since the completion of PrairieWinds ND 1 Inc in 2009, the parent co-operative, Basin, has opened the nation’s second co-operative wind farm in South Dakota.
defining feature of the co-operative institution is that a co-operative is “an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise” (“Co-operative identity,” n.d.). Chapter Two (p. 33 & 34) addressed the institutional logical rationale for the efficacy of the structure of the co-operative as a community development institution:

Taken together, the features of a co-operative foster civic interaction by providing a venue for assembly, creating new reasons for otherwise disconnected, segmented populations to come together, which then facilitates the building of norms, trust, and relationships (Putnam, 2000; Small, 2009; Tolbert, Irwin, Lyson, & Nucci, 2002). The co-operative business model then serves a pedagogical and cultural reproduction function by instilling self-governing, democratic values into its membership and partner organizations through practice, operations, and trainings. The underlying Co-operative Principles and values lay the foundation for organizations with a strong social-tilt to use market-like features (i.e. revenue streams from services rendered) to sustain prolonged struggle against the fluctuations in resources that other organizations (such as non-profits) most acutely face from state and market forces (Brennan, 2010, p. 2; Mooney, 2004).

The co-operative business model, on paper, parallels Elinor Ostrom’s prescriptive Design Principles for enduring sustained collective action through robust institutional arrangements (Poteete, et al., 2010, pp. 100-101). In this manner, co-operatives should mitigate disempowerment, alienation, and dependency-building mechanisms of monocentric systems and enhance the potential for the development of polycentric self-sustaining, self-governing institutions with a community development bend.

Any utility-scale wind farm such as PrairieWinds will be a major, capital-intensive project; it may temporarily draw in hundreds of workers, cost hundreds of millions of dollars, and change the face of the rural landscape (Horizon fits that mold in Chapter Four). Any type of utility-scale wind energy development might appear to cause a great deal of transformation within a host community. But the governance structure of
Basin that owns PrairieWinds, government and market incentives, and the socio-ecological features of Ward County, North Dakota all interact to influence the development outcomes of the wind energy development project.

This chapter contextualizes the case: Ward County, North Dakota, and the PrairieWinds wind farm. While Chapter Four centered on understanding how the IOU wind farm Horizon Energy operated within the electric energy system and its implications for the community in Illinois, the co-operative is the institution of interest in Chapter Five and must occasionally be contrasted with IOUs. This is because of the dominance of IOU actors in shaping the market and regulatory apparatuses to their advantage. In other words, electric co-operatives operate within an IOU system, and must be understood from that vantage point.

The chapter then addresses the development processes and governance initiatives that made the wind farm a reality. The chapter provides an analysis of development implications and concludes with a discussion of the research findings.

**Ward County, North Dakota: Robust Organizations within a Boomtown**

At the time of the fieldwork in 2011, two things stood out about Ward County where the wind farm is located: it had been an oil boomtown since the mid-2000s and it was flood-ravaged in 2011. A lifelong resident described the county before it became a boomtown: “The community before the oil boom was more stable, it’s focus was more rural, more on agriculture. Ag-related processing (a mill for pasta, another place for beans, lentils) really drove the area” (Local Resident, personal communication, December 8, 2011). Another lifelong local resident notes the rural proximity of Ward County: “The County is very rural and urban at the same time and touches the Mandan,
Hidatsa and Arikara Nation on its Southwest border. It had always been a good place to live, start a family, and have a career” (Local Resident, personal communication, August 8, 2011). Other interview participants noted the isolation and stability built in a sense of strong local and state identity. Steady economic growth meant that people could count on an ag-driven economy that provided for individuals and their families.

Enduring civic cultures coupled with the brutal seasonal swings in the weather instill a sense of collective responsibility amongst North Dakotans. One prominent statewide economic development professional stated that:

If you’re pulled over the side of the road, I guarantee that the first person who comes up on you is going to pull over and help you. No one wants to be left to fend for themselves when they’re stuck in a ditch during the North Dakota winter29 (Local Resident, personal communication, August 8, 2011).

The same economic developer spoke to this in his own experience with flooding in nearby Bismarck:

The river was coming up over the bank right toward our house. We busted our tails to put up a makeshift levy. But—and this speaks to the character of the people in these parts—some of our neighbors showed up with a semi full of city sand and a backhoe, without being asked! He saved us hours, maybe days of work. And he refused to be paid! He just wanted to help out his neighbors. But that’s not all. The Bobcat Company lent out tractors and loaders to use to fight the floods...for free. What other state do you know that has that sort of social capital?

When looking for the loci of activity in Ward County (population of 61,675), one necessarily turns toward the county seat, Minot, the largest city in Ward and fourth largest in North Dakota at 40,888 total (“Minot Area Chamber of Commerce,” n.d.) (the Mayor believes Minot’s population has exceeded 50,000 since the 2010 Census

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29 My own car broke down on an isolated road outside of Bismarck, North Dakota. This researcher can report that, anecdotally and thankfully from his own experience, there is an element of truth to this statement.
(Zimbelman, 2013)). Minot is where people meet many of their day-to-day needs, serving as a central hub of vital collective pursuits.

The last few years have situated much of North Dakota—and particularly Ward County—firmly within a swirling vortex of global forces (Schramm, 2012). Agricultural markets and federal subsidies are enriching local farmers who are adapting to new crops (corn is replacing lentils and sunflowers in some areas) and farming practices. The energy boom has brought in a great deal of in-migration and economic development. U.S. foreign policy has spurred growth in the local Air Force Base’s facilities and personnel. Long-term residents expressed concern and anxiety that things are changing in ways that will forever reshape the uniqueness North Dakotan culture (Local Resident, personal communication, November 1, 2010; Local Resident, personal communication, December 8, 2011).

The Minot Air Force Base (MAFB) has done its part for economic development. The Department of Defense (DoD) allocates resources spent locally by servicewomen and men, as well as the support personnel necessary to run the facilities that traditionally served as the home of a B-52 bomber. In a sign of the times, MAFB is one of the command centers for the DoD’s unmanned drone warfare program. As drone warfare expands, so too will the personnel at military bases like MAFB. Expansion of DoD resources at the MAFB would normally be a noteworthy story on its own. However, the shale oil boom over the Bakken and Three Forks deposits creates a lot of white noise while turning the volume down on everything else.

The Bakken and Three Forks oil deposits are thought to join up with lower Canada, and reach through northwestern North Dakota, into parts of Montana.
Development of these resources seems to be taken for granted, along with a change in local culture, as expressed by a local laborer: “North Dakota will become the next Texas. We have so many energy reserves that it will reshape this state.” He then went on to caution: “And I don’t know if it’s for the better” (Co-operative Official, personal communication, December 8, 2011).

The boom touches virtually all of the communities within close proximity to the oil deposits. According to the Minot Area Development Corporation (MADC), exploitation of the shale has turned North Dakota in a net energy producer, sending 75 percent of energy reserves out of state (“Minot Area Development Corporation,” n.d.).

The rush for shale-enriched land by companies such as Chesapeake Energy, Haliburton and Marathon has brought in a great deal of investment, heavy equipment, and migrant laborers. While the oil deposits mostly surround Ward County, Minot’s position as a regional hub makes it an attractive area for oil-related business activity, as well as housing and recreation for the labor force.

A persistent narrative running through the interviews was the extent to which key leaders in the region were ill prepared for the boom. The sheer volume of migrant labor and heavy equipment has taken a toll on the region’s infrastructure and service industries. Sewer and water lines are increasingly stressed. Montrail Williams, a rural electric co-operative servicing surrounding counties, is stringing up three miles of electric line daily to meet the needs of the energy companies (Schramm, 2010). The country roads, originally built to handle the occasional piece of farm machinery, are now dealing with an endless barrage of semi-trucks. “The driving is difficult. Some days just trying to get
off the bypass seems impossible” (Local Resident, personal communication, December 8, 2011). A local community leader noted:

> The country roads went from asphalt to mud. The truckers are driving their payloads long distances at 15-25 miles an hours because the asphalt isn’t there anymore. But that’s just the thing. It doesn’t matter if the roads are paved or not. Nothing’s going to stop them from transporting the oil. It’s literally 24-7, rain, snow, or shine (School Official, personal communication, August 16, 2011).

The area is underequipped to deal with the rapid increase in trucking. Truck stops are at capacity. The bathroom facilities and staffing aren’t adequate; there are stories of truckers being handed buckets to use as makeshift toilets while overnighting. Even the harsh winters seem to be no match for the oil boom: “During the snows, people stayed in more. Outdoor type things were at a standstill. With the boom, people will be more involved outdoors during the wintertime” (Local Resident, personal communication, August 10, 2011).

Auto repairs shops are beyond capacity to meet the needs of locals. The mechanics are servicing not only longstanding residents, but also the rigs and pickups used for working on the shale. The result is that regional auto mechanics are servicing Ward County as well. “If I need a car repair, it’s just easier to pay to have it hauled 80 miles away to Bismarck. I’m not gonna wait weeks to be able to drive again. You need a car in these parts” (Local Resident, personal communication, December 8, 2011).

Nationally, anti-fracking tales are being told through widely distributed documentaries like Gasland, as well as highly organized environmental campaigns. But the companies operating in North Dakota have gone relatively undisturbed in their business operations. It was only recently that the oil companies were restricted by state governments in what fluids there were able to use for fracking, but that was not born out
of opposition so much as a proactive initiative by the oil companies to shield themselves from future litigation (“Proposed oil and gas rule changes now final,” 2012).

Perhaps the economic impacts of the oil boom have mitigated potential fallout from the pitfalls of the boom. The influx of external investment from the oil and gas industries has brought with it an employment boom that seems to have shielded North Dakota from the Great Recession. Table 6. Minot, ND economic indicators drives home the extreme economic impact the oil boom has had on the community.
### Table 6
Minot ND economic indicators, year-end 2012

**Workforce** (Source: Job Service North Dakota)

<table>
<thead>
<tr>
<th>Year</th>
<th>Minot Employment (Ward County)</th>
<th>Minot Unemployment</th>
<th>ND Unemployment</th>
<th>US Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec. 2012</td>
<td>29,662</td>
<td>2.80%</td>
<td>2.80%</td>
<td>7.60%</td>
</tr>
<tr>
<td>2011 Annual</td>
<td>29,550</td>
<td>3.60%</td>
<td>3.50%</td>
<td>8.90%</td>
</tr>
<tr>
<td>2010 Annual</td>
<td>29,280</td>
<td>3.60%</td>
<td>3.80%</td>
<td>9.60%</td>
</tr>
<tr>
<td>2009 Annual</td>
<td>28,695</td>
<td>3.80%</td>
<td>4.10%</td>
<td>9.30%</td>
</tr>
<tr>
<td>2008 Annual</td>
<td>28,544</td>
<td>2.90%</td>
<td>3.10%</td>
<td>5.80%</td>
</tr>
</tbody>
</table>

**City Sales Tax Collections (Source: State Treasurer’s Office)**

|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|

**City Sales Tax Collections (Source: State Tax Commissioner’s Office)**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 2012</td>
<td>$434,443,169</td>
<td>$1,443,645,118</td>
<td>$1,072,382,163</td>
<td>$906,784,178</td>
<td>$841,067,276</td>
<td>$451,426,155</td>
<td>$1,505,846,697</td>
<td>$1,124,212,220</td>
<td>$952,338,748</td>
<td>$885,195,620</td>
</tr>
</tbody>
</table>

**Building Permits & Valuation (Source: City of Minot)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total units</th>
<th>Single family homes</th>
<th>Multi-family units (Apts., etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>1,419</td>
<td>363</td>
<td>1,056</td>
</tr>
<tr>
<td>2011</td>
<td>1,132</td>
<td>292</td>
<td>840</td>
</tr>
<tr>
<td>2010</td>
<td>652</td>
<td>138</td>
<td>514</td>
</tr>
<tr>
<td>2009</td>
<td>400</td>
<td>151</td>
<td>249</td>
</tr>
<tr>
<td>2008</td>
<td>366</td>
<td>151</td>
<td>215</td>
</tr>
</tbody>
</table>

### Notes
- All data is as of December 31, 2012, unless otherwise noted.
- Unemployment data includes both Minot and Ward County.
- Taxable sales & purchases data includes both Minot and Ward County.
- Building permits data includes both Minot and Ward County.
Table 6. (continued)

<table>
<thead>
<tr>
<th>Cost of Living Index (Source: ACCRA)</th>
<th>Residential Valuation</th>
<th>Commercial Valuation</th>
<th>Total Valuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3 2012</td>
<td>$147,205,336</td>
<td>$157,742,100</td>
<td>$304,947,436</td>
</tr>
<tr>
<td>Q2 2011</td>
<td>$88,325,200</td>
<td>$116,235,000</td>
<td>$204,560,200</td>
</tr>
<tr>
<td>Q1 2010</td>
<td>$52,021,800</td>
<td>$48,181,000</td>
<td>$100,202,800</td>
</tr>
<tr>
<td>Q4 2009</td>
<td>$34,583,900</td>
<td>$31,378,300</td>
<td>$65,962,200</td>
</tr>
<tr>
<td>Q3 2008</td>
<td>$39,362,518</td>
<td>$40,888,000</td>
<td>$80,250,518</td>
</tr>
</tbody>
</table>

*Unemployment figures are not seasonally adjusted


2007 Job openings in Ward County January 2013 (Source: Job Service North Dakota)

2,057 Job openings in Ward County January 2013 (Source: Job Service North Dakota)

*Unemployment figures are not seasonally adjusted

<table>
<thead>
<tr>
<th>Cost of Living Index (Source: ACCRA)</th>
<th>2008 Annual</th>
<th>2009 Annual</th>
<th>2010 Annual</th>
<th>2011 Annual</th>
<th>2012 Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health care</td>
<td>107.2</td>
<td>103.6</td>
<td>99.9</td>
<td>97.1</td>
<td>95.5</td>
</tr>
<tr>
<td>Transportation</td>
<td>126.5</td>
<td>107.3</td>
<td>95.6</td>
<td>90.4</td>
<td>86.8</td>
</tr>
<tr>
<td>Utilities</td>
<td>73.8</td>
<td>76.2</td>
<td>73.7</td>
<td>71.9</td>
<td>89.2</td>
</tr>
<tr>
<td>Housing</td>
<td>111.5</td>
<td>108.4</td>
<td>100.2</td>
<td>92.8</td>
<td>91.8</td>
</tr>
<tr>
<td>Grocery items</td>
<td>91.5</td>
<td>96.8</td>
<td>98.3</td>
<td>97.6</td>
<td>94.6</td>
</tr>
<tr>
<td>100% Composite Index</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost of Living Index (Source: ACCRA)</th>
<th>Q3 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Valuation</td>
<td>$147,205,336</td>
</tr>
<tr>
<td>Residential Valuation</td>
<td>$88,325,200</td>
</tr>
<tr>
<td>Commercial Valuation</td>
<td>$157,742,100</td>
</tr>
</tbody>
</table>

The high rates of employment do have downsides for economies reliant on a wage labor force. The oil boom has resulted in a massive labor shortage throughout the region despite the rapid in-migration of laborers. Service and support job openings are plentiful. These laborers are in need of basic services, stimulating a boom in retail industries such as grocery and restaurants. Businesses are finding that the regional labor force is in demand, meaning workers can job-hop, increasing workforce turnover (Business Owner, personal communication, August 16, 2011). In the midst of this uncertainty, business owners of traditionally low-wage jobs are offering pay rates upward of $15/hour, signing bonuses, and above standard benefits packages (which include health care and vacation time) no matter the prospective employee’s level of education or experience.

It used to be that the jobs I would offer in manufacturing were the ones people wanted. Now I have to compete with the McDonalds on wages and benefits. I just don’t see how we’re going to adjust to this mess. It’s a real strain on my resources (Business Owner, personal communication, August 16, 2011).

Many fast food restaurants are so understaffed that they have closed down their indoor seating and only service drive up. A chain housewares retailer, “Menards, is a madhouse” (Co-operative Official, personal communication, December 8, 2011). Even Wal-Mart has to adapt, pulling pallets of product onto the sales floor instead of putting items on the shelf due to heavy sales volume and limited staff.

The energy companies have set up temporary labor or “man” camps for their employees. The in-migration has resulted in a regional housing shortage. Laborers willing to pay for housing outside of the camps have occupied virtually all of the existing hotel rooms in the region, necessitating a growth in hotel construction (ten hotels are being built as of the time of this research (Co-operative Official, personal
communication, August 15, 2011). But many of these laborers are men, mostly young and single, working overtime with excellent pay packages; they can afford to pay inflated prices for the enhanced amenities incurred from living in the city.

Speculation on development property is occurring as the willingness of prospective tenants to pay inflated rents increases (School Official, personal communication, August 16, 2011; Local Resident, personal communication, December 8, 2011). Increasingly, out of town investors are seeking to profit from this. Interstate landlords are purchasing local apartment complexes, and converting hotels to long-term, temporary-stay facilities. The result? Rent and property values are skyrocketing. A recent journalistic account finds rents on par with New York City rates (Johnson, 2012). The willingness to pay a premium for standard housing in Minot is driving up the cost of the entire housing stock, inflicting pain on the pocketbook of long-term local residents as cost-of-living has increased.

The people who are local are having big problems with landlords who are jacking up rental prices. The homelessness is a different problem. But people who have good jobs are unable to get a place. One-bedroom apartments are going for around $1200 a month (Co-operative Official, personal communication, December 8, 2011).

The local resident had an example of an apartment complex that was purchased from an out of town corporation. The corporation sent a notice to current occupants that the rents would triple. He went on to wonder: “…what happens when this boom is over, and the locals have been forced to move out?” Retirees and other individuals on fixed incomes
living in rental properties are being squeezed out of the housing market, and increased wages earned are sapped to cover additional cost-of-living expenses.\textsuperscript{30}

Rapid in-migration is beginning to build mistrust, another indication that the community is going through growing pains:

The influx of people has pushed an increase in police calls and things like that. People are concerned about it, and you hear rumors about things that happen in the parking lot of Wal-Mart, but the police department downplays it.

While crime trends are difficult to find, one website notes a significant uptick in violent assaults in Minot. More recently, the state’s Attorney General released a report which concluded increases in crime rates were negligible (Preskey, 2012). However, enhanced fear of outsiders and the perceived increased potential for random criminal victimization will make collective action more difficult due to diminishing trust. This is troubling for a community enduring rapid transformation; stable, long term planning will be critical to insure a smooth, stable transition.

The spring of 2011 saw record rainfalls hindering local crop planting. The record rainfall continued to pour over already saturated ground, causing the regionally-oriented Sauris River to rise over it banks. Initially, a few critical interstate highways were closed down due to flooding’s effect on structural integrity and transit safety. But the rains kept coming. Large-scale flooding hit the region. The record flooding of the Souris River “left about 11,000 people -- more than a quarter of Minot's population -- effectively homeless” through the destruction of over 4000 housing units (Bailey, 2011). The flooding had compounded the chaos in Ward County: “There isn't any place to stay in Minot with 10,000 people displaced by flooding and with the oil workers occupying

\[^{30}\text{One must note that the phenomena of increasing rural property values are not restricted solely to Ward County, North Dakota or other regions experiencing a rush on oil and natural gas assets. Rural regions with rich agriculture are also impacted by speculation on property due to the increasing growth in commodity agriculture and biofuel development.}\]
every hotel room in town” (Local Resident, personal communication, November 1, 2010). The oil reserves driving the boom had always been located outside of the flood zone. The flooding left the energy boom to continue unabated, which only compounded the necessity of accessible housing for newly homeless residents. A housing report before the flooding estimated that Minot would need some 5000 new homes by 2023 (Ondracek, 2011). Now Minot would need to replace 4000 homes from its existing housing stock, a virtual overnight doubling in demand. The flood had also hit the region surrounding Minot, compounding resource shortages.

In Burlington, a town of about 1,000 people a few miles upstream on the confluence of the Souris and Des Lacs rivers, city officials abandoned sandbagging as hopeless and sent people to Minot to help out. About a third of the town's 320 houses are expected to be lost (Kolpack, 2011).

The flooding of the region’s Amtrak rail line further constrained newly homeless residents without reliable personal transportation from leaving the area (“Minot recovery information,” n.d., KFYR-TV, 2011).

The disaster recovery process further complicated the housing shortage. Many of the properties damaged within the Souris River flood zone are in a holding pattern. Minot city officials must decide if the area is safe for continued residential zoning, or if the properties should be converted into a green zone or park to mitigate the impacts of future flooding on residential housing stocks. “Minot is trying to come up with a plan for flood protection which involves property buyouts. People are not rebuilding their homes until they find out what happens” (Co-operative Official, personal communication, August 15, 2011). Since the close of the fieldwork phase of this research, Minot has implemented a voluntary property buyout plan, utilizing over $60 million of state government monies.
The Federal Emergency Management Agency (FEMA) is actively involved, funneling critical federal resources locally setting up temporary housing units. However, these housing units went severely underused. A significant number of local residents felt uncomfortable moving into government provided housing and instead moved in with friends and relatives (Co-operative Official, personal communication, August 15, 2011; Local Resident, personal communication, December 8, 2011). It wasn’t an uncommon site to see tents pitched in the yards, sheds, and garages of Ward County residents occupied by flood victims.

Disaster recovery efforts have further escalated the demand for laborers in the building trades. Yet tradespeople are increasingly difficult to come by. Their skills are needed to not only rebuild Minot, but to service the oil boom (Minot’s city government has issued building permits for projects valued at $100 million in 2010, $200 million in 2011, and $300 million in 2012, a rapid growth in built capital) (Zimbelman, 2013). The stock of credentialed tradespeople is being stretched to its absolute capacity in North Dakota, unintentionally made worse by the state’s licensing requirements. Even in times of crisis, out-of-state tradespeople must still go through North Dakota’s credentialing process in order to legally practice their craft within the state. The pressure on the state has sped up the licensing process for out-of-state contractors. Hundreds of contractors are coming into the area to help rebuild (the city had licensed over 650 new contractors since January 2012 alone);

“To help put that number in perspective, the normal amount of electrical contractors in Minot is believed to be about 30. There are 170 now. The number of licensed plumbing firms has increased from 11 to 55, excavators from 10 to 105” (Fundingsland, 2012).
Even if new contractors make it to the region, they are finding living accommodations to be virtually non-existent; many are camping or sleeping in their work trucks (Local Resident, personal communication, December 8, 2011).

The energy boom has not approached a predictable, stable equilibrium. One in three businesses are hiring, and it is estimated 1500 laborers are needed for 2013 alone (Strasburg, 2012). Industry executives, laborers, and support teams will continue settling in the region. There is explicit concern that Ward County will look significantly different within the span of a few years. According to a prominent Red Cross volunteer, about 80 percent of flooded residents were without flood insurance (Local Resident, personal communication, August 10, 2011). One interview participant claimed this was a result of local realtors guaranteeing prospective homeowners in the flood plain that the river’s three dams would forever guard against potential flooding (School Official, personal communication, August 16, 2011). What will happen to those who lost everything? Can the actors in the region adjust and return to a level or normalcy?

The city’s resources are stretched thin. The oil money has generated tax revenue for state coffers with incidental revenue (sales and property taxes) captured by the local governments. North Dakota is one of the few states to have the good fortune of a budget surplus during the recession in the late 2000s. But the national wave of newly elected austerity-oriented politicians elected to state governments has complicated the distribution of resources to the disaster area (the state is in tax-cutting, not tax-spending, mode (Local Resident, personal communication, August 8, 2011)).

The character of the community will no doubt change rapidly in the near-term. The boomtown atmosphere, the escalating economic tensions on the long-term residents,
and rapid in-migration are forces chipping away at the community’s foundation.

According to a number of interview participants, these changes are prompting a number of long-time local residents to leave as they seek out more stable communities.

The entire makeup of the area I grew up looks different. It's changed everything. The community isn't the community I remember. We don't even want to go into Minot anymore. It's just a different place. The character of the area has changed a lot (Local Resident, personal communication, December 8, 2011).

Local policymakers are now being forced to deal with all of the issues of a boomtown and disaster zone concurrently and with little preparation. Interview participants expressed a desire for stability. People are vulnerable and desperate to see an end to the crisis atmosphere. This seems to have cemented the economic planners and policymakers as a de facto force in community vision and economic development. They have the resources, time, and community support as knowledge leaders entrusted with steering Ward County through these crises. In this environmental, co-optation and capture by a select few is certainly a real possibility.

Nested within this swirling vortex of socio-ecological forces –before the floods- a major $240 million investment in wind energy infrastructure was made by the nation’s largest generation and transmission (G&T) electric co-operative, Basin. Typically, such a large investment ("Department of Commerce," 2009) in localized infrastructure would be a noteworthy event in a relatively isolated county the size of Ward. Proponents of co-operative development point to claims of enhanced community outcomes. Yet prominent local residents seemed somewhat dismissive of the substantive development outcomes of co-operative development. Considering the major socio-ecological forces, what are the implications of the co-operative institutional design of the wind farm for the local

31 The crisis atmosphere made it difficult to interface with key public officials for the purposes of administering interviews.
community? How did this rare, co-operative wind farm come to be? Are the perceptions of co-operative development consistent with findings from on the ground fieldwork?

**Basin Electric Power Co-operative: A Legacy of “Giant Power”**

The standard IOU is profit-oriented, with the goal of maximizing and returning value to the shareholder. (S)he who has the most voting shares in an IOU more than likely can command the greatest voice. A co-operative, unlike IOUs, are almost always operated by those who use them: the consumers or member-owners. Shares of stock do not dictate influence over the governing process as each single member is granted the same statutory rights of governance (the mantra amongst many co-operatives actors is *one member, one vote*).

From their very inception electric co-operatives designed member-owner governance into the model, providing venues for member-owner input and participation. The 900+ electric co-operatives are mostly electrical distributors, meaning they’re servicing their member-owners within their community; in this manner, the co-operative is spatially accessible (comparatively, many IOUs encompass patchwork tracts of land over regional service territories). Surplus resources (profit, labor, or otherwise) could then be harnessed by the co-operative member-ownership for critical public entrepreneurial endeavors.

Despite the seemingly populist elements of electric co-operative governance, electric co-operatives didn’t come about solely as a result of a social movement dedicated to community ownership of electric systems. In fact, the existence of electric co-operatives is more a result community-based collective action to address the failure of IOU market actors to meet the electrification needs of rural locales than with political
opposition to the status quo of IOUs. This community-need orientation has deep cultural
implications within the electric co-operative community that will be addressed later.

While many electric co-operatives are relatively small in comparison to typical
IOUs, there exists an anomaly amongst electric co-operatives playing a major role in the
lives of many North Dakotans. Nestled within the state capital of Bismarck, some 80
miles south of Ward County, is the headquarters of the nation’s largest electric co-
operative, Basin. Basin is a vertically integrated power generator and transmitter (one
executive likes to say “Basin goes from mine, mouth to meter” (Association Official,
personal communication, August 9, 2011)). Basin covers nine states, stretching from the
Canadian and Mexican borders, and “owns 2,165 miles and maintains 2,250 miles of
high-voltage transmission” (“Basin Electric,” n.d.b) through joint pacts and ownership”

Basin Electric operates four baseload coal-fired power plants, and three gas
combustion sites (9 turbines), two natural gas turbine units, and a two-unit, oil-
fired plant as peaking units. Basin Electric owns, but does not operate, 40-MW of
a natural gas/oil-fired combustion turbine, also used as a peaking unit. In Basin
Electric's renewable energy portfolio, we currently own and operate wind turbines

While the scale of Basin is staggering, it’s the ownership and governance of the
institution that makes it noteworthy.
Basin is what is known in the electric co-operative sector as a G&T. Basin is a third-tier co-operative owned by other smaller second tier co-operatives (also G&T’s), and first-tier distribution co-operatives. These first-tier co-operatives initially joined together to form regionally based G&Ts (second tier co-operatives). These G&Ts eventually joined together to form Basin (see Figure 9). Under Basin, these networked co-operatives pool together to aggregate their resources to own and operate capital-intensive transmission infrastructure, build electric generation capacity, and increase their wholesale market power through bulk purchasing and coordinated bargaining. Basin generates over $1 billion annually in revenue, operating on an at-cost, not for profit basis. “Profits” are either retained for research and development, as self-insurance, or distributed back to member-owners as capital credits (co-operatives in other industrial
sectors refer to this line on the balance sheet as dividends, patronage, or capital credits). Basin then provides a number of services for the entirety of their co-operative ownership outside of just generating and transmitting electricity (monitoring, coordinating energy supply, marketing, and as we will see, community and economic development functions) (Co-operative Executive, personal communication, October 26, 2010).

Distribution co-operatives— not the G&T- are tasked to directly interact with the member-owners (the consumers) through the procurement and provision of electric energy to end consumers. Those households, business and entities that receive electricity from the distribution co-operative are considered member-owners. These member-owners then have a right to run for positions on the board of their particular co-operative and cast votes when called for. Electric co-operatives are then representatively governed by an elected few from the ranks of the member-ownership. These distribution co-operatives may purchase their energy from investor-owned generators, or ideally own a part of a G&T like Basin that procures energy on behalf of those distribution co-operatives.

Basin is much different from McLean County’s Horizon. Investor-owned wind generators like Horizon are heavily regulated and specialize in a singular aspect of the electric energy market: wholesale power. The wholesale power is sold via market mechanisms with little to no interaction with consumers and their community (market logic dictates extreme specialization). Basin, representing the vision of a more complete co-operative electric energy system, is relatively unregulated by government actors and has the intent to operate a complete electric grid. The historical trajectories that brought distribution co-operatives to existence have shaped the manner with which electric co-
operatives join together to provide scale and agility in the broader energy marketplace of which electric co-operatives seem inextricably embedded. The market-based core of electric co-operatives also influences and clashes with the organizational value proposition, and in part determines how the co-operative interacts within the local community.

Market failure, community gain. Electric co-operatives are typically referred to as rural electric co-operatives. This is in part tied to the origins and identity of the sector.

During the Great Depression, only 10 percent of rural America was wired for electricity. The public policy, which breathed life into the electric co-operative sector, was intended to modernize the American rural countryside. During the Presidential Administration of Franklin Delano Roosevelt (FDR), absolute rural electrification was viewed as a major complement to New Deal reforms intended to rectify the economy during the depths of the Great Depression. It was believed that if rural America were modernized through electrification, innovation and industrialization would advance rapidly, helping to lift the national economy via the utilization of electrified energy, which would enhance rural public entrepreneurship (Davis, 1986, pp. 491-492). The problem was that the IOUs, which were best equipped to implement these policy goals, didn’t want to participate (“Basin Electric,” n.d.f). It therefore becomes critical to understand how it was that the non-participation of the IOUs propelled the federal government to create an alternative to the dominance of the for-profit electric utilities.

The IOUs had worked from their inception aggressively to secure their position as the sole local and regional monopoly providers of electricity by codifying their practices under the guise of government regulatory oversight. This then gave the appearance of a
publicly accepted “regulatory compact,” which was in reality political gamesmanship.

Samuel Insull, an electric utility executive presenting at a conference of IOUs,

suggested that competition was not in their best interest, and that the companies should together promote the idea of state regulation of utilities in return for the granting of monopoly service territories. Insull felt that this would ensure rapid industry growth with minimum duplication of physical plant (Lowery, 2010, p. 5).

While the intervention of the government into the electric power industry might seem like a cessation of power, it was a high-stakes game of chess meant to cement market dominance. Again, Lowery:

Investor-owned companies were able to establish virtual control over state regulators; and with the guaranteed income of protected monopoly service, they proceeded to build major enterprises through the use of holding companies (p. 6).

The bargain the IOUs made with the government paid off handsomely. IOUs were rewarded with monopoly service territories and locked in a cycle of guaranteed margins and profit maximization. Urban-dwellers could benefit from all the services and conveniences electric energy had to offer, and the IOUs could focus on the dense, profitable cities, turning their backs on the development of the low-density countryside which would significantly reduce their return on investment. The political calculations of the IOUs would end up creating the political backlash and determination necessary to initiate government policies addressing major urban and rural development deficits and, ironically enough, creating a populist challenge to the investor-ownership model of public utilities.
Mobilizing community and government resource to industrialize rural America. The federal government policy advancing public ownership of electric systems was founded against the backdrop of government support for utility monopolies, corporate influence over the political process, and wealth divides between urban and rural populations. The FDR Administration sought a utilitarian approach to bridge the urban-rural divide in industrialization: subsidization of the existing IOUs into the rural countryside. But the IOUs were averse to contributing to FDR’s New Deal policy of absolute rural electrification, seeing the inevitability of reduced margins from the diversification of service territory and wary of further government reach into their affairs. Indeed, an early report by the IOUs to the FDR Administration sought a “no pain, all gain” policy in return for their participation (Lowery, 2010). This rejection of REA incentives by IOUs and lack of corporate buy-in propelled the FDR Administration to create infrastructural and capital investment capacity necessary to encourage publicly owned electric utilities to emerge and account for market failure.

The concept of publicly owned electricity grew out of recognition that the monopoly utilities were not only falling short on their social compact, but also stymying the potential of national electrification. The broader concept grew out of a synthesis of social movements, economic stimulus policies, and prescriptions to pragmatically address core rural needs.

Electric co-operatives in particular had existed in the U.S. since the late 1800’s. President Theodore Roosevelt noted the value of co-operative entrepreneurship 1909:
The co-operative plan is the best plan of organization wherever men have the right spirit to carry it out. Under this plan any business undertaking is managed by a committee; every man has one vote and only one vote; and everyone gets profits according to what he sells or buys or supplies. It develops individual responsibility and has a moral as well as financial value over any other plan (Lowery, 2010, p. 6).

Despite the explicit acknowledgement of the capacity of co-operatives to build community, electric co-operatives wouldn’t emerge as a significant organizational force until the 1930’s due in part to the necessary alignment of socio-economic forces and the backing of the federal government.

Actors within the Progressive Movement had for years advocated for the grassroots ownership of electric systems. The Public Ownership League influenced a number of core policy solutions adopted by prominent legal figures, its influence being quite profound in electrified energy. The 1920’s saw Pennsylvania’s Governor Gifford Pinchot advocate for “Giant Power,” whereby power generation and transmission would be centralized at the mouth of coal mines, and “transported” over vast expanses of transmissions lines, everywhere (this is also called the spoke and wheel system, in which a central generator would spider transmission lines outward for great distances, looking much like a spoke and wheel on a bicycle). This challenged the decentralized, regionally oriented, monopoly hold of energy generators that stymied access to the infrastructure needed to produce and transmit electricity outside of metropolitan areas (Hughes, 1976). The expressed purpose would not be for profit, but for the public good (“University of Wisconsin Center for Cooperatives,” n.d.).

A number of policies were implemented in order encourage the growth of electric utilities into the countryside. Those oriented toward public ownership were incentivized much the same as IOUs not necessarily due to their at-cost, member-service orientation
but for the mere fact they were able to meet the goals of rural electrification. Economic efficacy was the driving rationale behind government policy, not so much social change.

By the time of the FDR Administration, public power had grown from an idea to a reality (Greer, 2008).

Expanding government finance access beyond IOUs to co-operatives enabled public power, and through major public works projects. Preference power, the policy giving co-operatives and municipal utilities privileged access to electricity produced from a handful of these public works projects. One prominent preference power public works project, the Tennessee Valley Authority (TVA), made “Giant Power” a reality through a demonstration of a proof of concept. Communities looking to start electric co-operatives could count on a ready source of affordable energy to distribute throughout the rural countryside.

The U.S. government’s electrification policy goal of 100 percent electrification was a success. The combination of readily available low-interest financing from the REA, generation and transmission capacity from Giant Power projects, and public entrepreneurs in the rural countryside stimulated the growth of the electric co-operative sector. It was estimated that by the 1960’s all corners of the United States were electrified either by an IOU, municipal, or a co-operative. What’s more, the federal monies provided to the co-operative sector were paid back with interest, accruing a net profit to the federal government (National Rural Electric Co-operative Association, 2011) (the model would serve as a justification for the rural co-operative telecom movement as well). Just as government power was used to stabilize investor-owned electric utilities,
the New Deal era of government saw a pendulum swing toward empowering public ownership options.

**The emergence of Basin.** A small portion of the American countryside was electrified at the outset of the Great Depression. The Great Plains region was particularly neglected, with only 3.5 percent of the region being electrified ("Basin Electric," n.d.f). Power plants handled local to regional baseloads and would need significant capital outlays to supply the demands of residents in the rural regions through new system build outs. The small scale and decentralized nature of the existing electric power plants meant that even if the Great Plains were to get wired, utilities faced an obstacle in procuring affordable electricity and transmitting it across vast expanses of land.

Initially, distribution co-operatives were able to count on the expansion of the federal government’s “Giant Power” policy, allowing the movement to flourish:

The construction of Missouri River Dams to make electricity and control flooding was promoted for years by President Franklin D. Roosevelt (FDR) and studied by the U.S. Army Corps of Engineers, but it took the flood of 1943 (estimated damage: $26 million) to convince Congress to take action and build the dams. With the exception of Fort Peck (a Depression Era project), the Missouri River dams were built in the mid-1950s to the mid-1960s and were the main source of power for regional distribution cooperatives ("Basin Electric," n.d.d). However, federal policymakers made it clear that it was only a matter of time before the federal government would wind down its involvement in the expansion of preference power capacity.

The distribution co-operatives needed a way to transmit the electricity over great distances while keeping consumer costs down absent of Giant Power initiatives. In order to do this, distribution co-operatives pooled resources to form a variety of G&T’s in the
region, each G&T being owned by the member-co-operative organizations. This allowed
distribution co-operatives to purchase large quantities of electricity at wholesale.

A select group of G&T’s began constructing additional electric generation
capacity to break their complete dependency on federally owned electric generators.
These G&T’s coordinated and managed the expansion of the co-operative-owned electric
grid infrastructure. But the capital intensiveness of such projects was cost-prohibitive to
a number of the smaller G&T’s who were left to wholesale power purchasing agreements
with IOUs as opposed to the expansion of their own generation capacity (“Basin

The breadth of co-operative and government collaboration began to draw down
by the 1950’s. The G&T’s of the Great Plains went through a major strategic shift during
this era. Leland Olds, a visionary in the evolution of the U.S. electric co-operative sector,
and the Federal Power Commissioner under the Administration of FDR

...spoke publicly to cooperatives about abandoning the idea of building smaller
generation facilities to provide power for individual G&Ts, and endorse the
construction of a large or "super G&T." This super G&T could build huge, coal-
fired power plants that would provide power for an entire region of the country

The idea was a co-operative implementation of the federal government’s “Giant Power”
policy. The purpose was for the electric co-operative system to reach such a scale that
allowed co-operatives to participate in the vertical integration of industrial segments that
fed into the electric grid. Once this scale is reached, co-operatives might become
systematically interdependent on themselves instead of the federal government while
better controlling for market-based volatility (Hughes, 1976). The idea took hold:

The governance structure of such a co-operative could have been a messy affair should the plan called for the consolidation of individual G&T’s into a larger, singular super co-operative. Organizational sovereignty could have been sacrificed for the seeming elegance of unified administration via consolidation. Instead, the prospective member-owners of the new super G&T crafted a less disruptive solution that allowed individual co-operatives to continue to exist, giving that local member-base a more democratically accessible, representative super co-operative. The existing G&T’s and distribution co-operatives would remain, and the super G&T - Basin - would be layered on top of that system (Figure 9). In this manner, co-operative management and boards expressed a desire to maintain overlapping responsibilities, a decidedly “uncorporate” decision in its seeming inefficiency (whereby efficiency is measured merely by the singular bottom line of profit or cost reduction in the case of government regulated utilities).

**Electric co-operative and vertical integration within the Great Plains electric grid.** The planning, build-out, and operation of Basin’s first power plant serves as a remarkable example of how individuals can work collectively across multiple scales to steward complex projects themselves (first and second tier electric co-operatives, as well as integrating into government and IOU owned electric grids). The story of Basin’s first power plant is demonstrative of the public entrepreneurial capability of individuals outside of the perceived expert classes:
[Basin], after securing the financing for a power plant, the focus became finding an adequate site to build a power plant. Adequate water supply was needed, using existing federal power lines instead of building a lot of new transmission, and securing low-cost fuel were important factors in determining the plant's site. North Dakota received immediate consideration because of its abundant lignite coal and the mine-mouth-to-meter capability. "Minemouth-to-meter" means that all elements for producing baseload electricity are in one place: the water, the coal and WAPA's transmission system. Only 12 miles of transmission had to be built to connect LOS to the Federal power grid ("Basin Electric," n.d.e).

Actors with Basin harnessed a complex socio-technological system (comprised of systems at multiple scales) in order meet a single goal: provide stable, affordable electricity for their member-owners.

The level of sophisticated planning has continued to evolve. Basin would build-out additional coal-fire power plants, peaking\textsuperscript{32} facilities and transmission infrastructure. The organizational emphasis on vertical integration resulted in a complete electric energy system for Great Plains residents. The website of Basin explains their operational model as followed: “Basin Electric is a generation and transmission co-operative with a three-tier delivery system: We sell wholesale power to our Class A members and others.”

Class A members are comprised of G&T electric co-operatives.

The Class A members sell power to their distribution cooperatives (Basin Electric classifies distribution cooperatives as Class "C" members) who, in turn, sell power to retail customers. There are also special membership categories entitled Class B and Class D members (“Basin Electric,” n.d.c).

Basin’s member-ownership is its customer base (however, when surplus energy is produced, Basin will sell it on the spot market, broadening to potential customer pool to other wholesale buyers while increasing marginal returns). Figure 10. Basin Electric member system maps Basin’s service territory. Basin’s 135 member-owner co-operatives

\textsuperscript{32} Peaking plants are power plants meant to rapidly deploy energy to the grid when standard base load electricity levels are not meeting projected demand.
are divided into districts by regional orientation, with each district receiving a seat on the Basin’s board of directors. The governing board structure (Figure 9) assigns specific regions to specific seats on the Basin board.

Figure 10. *Basin Electric member system*

Source: [http://www.basinelectric.com/About_Us/Members/Map/index.html](http://www.basinelectric.com/About_Us/Members/Map/index.html).

**Enhancing the capacity for collective action.** The emergence and organizational robustness of Basin demonstrates the immense capacity of individuals to work collectively to meet common ends. More to the point, these ends (a unified, commonly-owned electric energy transmission system) are extremely complicated: electricity governance intersects with market and state regulatory forces; energy investment often capital-intensive, demanding rigorous project planning and implementation; and when all is said and done, basic operational functionality is a technically laborious endeavor all on its own.
Key leadership expressed a need (rural electrification), and mobilized essential constituencies to procure the necessary resources. Those constituencies came from rural and agricultural sectors (the Farm Bureaus played a major role in parlaying their political capital (Local Official, personal communication, July 6, 2012)) to pressure the federal government for the capital necessary to kick-start the electric co-operative sector.

This process took decades, and was probably assisted by the political perfect storm of the Great Depression and New Deal era politics that brought the will necessary to make the vision a reality. Relying on the government or other centralized political forces may be time-consuming, cumbersome, and in the end relatively risky. That’s not the point. The point here is that communities of individuals, even marginalized communities, have great capacity to perform critical, complicated development initiatives. And further to the point there exist a number of paths communities may take to achieve remarkable development feats. In this vein, stymying public entrepreneurship to benefit a few to the detriment of the many should not be viewed as optimal public policy.

That said, any institution will have its shortcomings; even well meaning institutional design may result in a destructive enterprise. Institutions crafted and shaped by fallible human beings. Robust institutional design accounts and mitigates for such fallibility (free-riding, corrosive actors, and institutional capture to name a few such dilemmas). Electric co-operatives are just as susceptible to these dilemmas as any other institutional form.

The member-orientation of Basin –and electric co-operatives in general- translates to a relatively conservative, risk adverse entrepreneurial culture (Finzel & Kildegaard,
Capital works projects are planned years if not decades in advance, with the fate of the co-operative’s member-ownership at stake. The meticulous, methodical nature of electric co-operatives is set against a core premise that has been with the sector since its inception: “our mission is to provide the highest quality electricity at the lowest price” (Local Resident, personal communication, August 8, 2011). That cost-based emphasis means that some electric co-operatives miss the proverbial forest for the trees. When a sudden shift in public political sentiment or ecological change occurs, electric co-operatives tend to be reactionary. On issues such as climate change, air and water pollution, and responsible operational governance, the sector has endured harsh scrutiny from consumer, environmental, and demutualization advocates (Regulatory Official, personal communication, September 9, 2010). Addressing external pressure (be it from government or media) is often assessed from a narrow financialized perspective, and seen as a regulatory threat directed at self-governance and institutional sovereignty. One CEO of an Illinois G&T co-operative summed it up this sentiment: “co-ops could rather do it on their own than be government regulated” (Co-operative Executive, personal communication, October 26, 2010).

Further compounding the dilemmas that electric co-operatives face is the so-called “favorable” tax status, derived in part from the not-for-profit, member-owner orientation. Co-operatives are often conferred this status because they are service over profit oriented. IOUs point to this tax advantage as an unfair policy privilege. But the exclusion of co-operatives from various tax liabilities means co-operatives are also excluded from a substantial government policy portfolio based on offsetting tax liability. Electric co-operatives have little federal tax liability, essentially isolating the entire sector
from accessing advantages available to IOUs alone. Consider that virtually any project requiring financing for an electric utility will be relatively significant. As noted in Chapter Four, IOUs may then leverage the federal tax benefit to procure capital investment with large financial firms as a lending incentive (if you lend to us, not only will you get a favorable rate, but you can also offset your taxes). A Basin official summed up the implications: “what co-ops gain in tax exemptions, they lose in government subsidy” (Association Official, personal communication, August 17, 2011). Indeed, reputable research from the Congressional Research Service has found that the government gives greater support to the IOUs than the co-operatives (Co-operative Association Official, personal communication, September 8, 2010).

Electric co-operatives want to be seen as different and unique, but they are embedded in a system that is inordinately influenced by the investor-owned utilities. This makes co-operatives more beholden to government policy developed by powerful, for-profit interests, thereby weakening their value proposition potential. If electric co-operatives had sought simple solutions to complex problems, path dependency would dictate that the profit motive would have implanted itself into the system to entice the necessary investment capital. Lending costs would have skyrocketed, workforce development would have been cut, and the cost to rural consumers would not be on parity with their urban counterparts (Co-operative Association Official, personal communication, September 8, 2010). And while electric co-operatives have mostly fended off these opposing forces, the sector must guard against the potential for the institutional logics of IOUs from taking home.
Co-operative advocates in government, as well as institutional actors, have mobilized a great deal of resources to address both the conservative culture and structural impediments. The pragmatic design surrounding these resources that have arisen over the course of the 20th century have attempted to strike a balance between respecting the core co-operative values (that may be partially to blame for the system’s conservative, reactionary tact) while promoting responsible entrepreneurship against a hostile policy and market environment.

Key actors in the electric co-operative sector have intentionally embedded the system in a number of networks that helps to provide the capital necessary for growth, while also guaranteeing varying levels of best practices are followed. Virtually all of these networks regulate electric co-operatives on the basis of participation, the idea being: if don’t want to be regulated, then you don’t have to work with us (Co-operative Association Official, personal communication, September 8, 2010). Regulation is basically voluntary. Both the federal government and co-operative organizations play overlapping, redundant roles in this, layering a number of governance mechanisms that build monitoring and robustness into the sector.

The USDA’s RUS has for decades existed as an enabling force for growing the electric co-operative system, providing critical loans during the sector’s early years. Taking out a loan with the RUS requires reporting on key performance indicators as part of the loan terms. This soft regulatory mechanism is particularly useful in those instances when electric co-operatives seek loans to stem budget shortfalls due to poor management practices. A Basin executive thought this to be a positive feature of the RUS: “RUS is like a mother. They make sure you don’t go too deep” (Association Official, personal
communication, August 9, 2011). Another major electric co-operative lender, CoBank, a co-operative bank that provides loans for utility and agricultural co-operatives, has also used the model of soft regulation developed by the RUS. This model of soft regulation continues to be an important feature of the electric co-operative system to this day.

There are a number of other actors within the system who have this “parental” role. But the component of interest to this research is where the key actors within the electric co-operative system have been instrumental in intentionally developing system-wide robustness for their member organizations. Had electric co-operatives remained reliant solely on bank or government lending, they would have been at a severe disadvantage in comparison to their IOU counterparts. Influential lenders like the RUS and CoBank aren’t tied specifically to the electric co-operative system; they also lend to other sectors, and –the RUS in particular- are more prone to shift with the prevailing political winds. A number of electric co-operatives, in need of a lender tied closer to their unique needs and separated from the political fluctuations of the RUS, founded the National Rural Utilities Cooperative Finance Corporation (NRUCF) in the late 1960’s (“National Rural Utilities,” n.d.b). NRUCF has positioned itself to take the reigns from government lending and enhance the electric co-operative system’s ability to meet its own capital investment needs.

Investing in infrastructure is not the only means by which electric co-operatives flourish. Actors within the system have worked to enhance support services for the electric co-operative sector, to guarantee constant workforce development, strong member-owner engagement, and institutional innovation through specialized service providers. The electric co-operative organizations are quite aggressive at purposefully
designing redundant mechanisms throughout the system that build-in robustness amongst the organizational membership.

The National Rural Electric Cooperative Association (NRECA) – the premier electric co-operative federation - is clearly the leader in this arena, providing government relations, member-services and promoting standards and best practices by which all of the member-co-operatives adhere to. The NRECA is able to pool their member-co-operative’s employee benefits monies to provide benefits competitive with the corporate and municipal sectors (“National Rural Utilities,” n.d.a). NRECA has also created healthy retirement programs in which their member-co-operatives may opt into on behalf of their operational staff. Electric co-operatives are then able to participate in a networked system that builds in the capacity necessary to compete with the larger private sector firms for qualified specialized employees.

The NRECA, keen to leverage collective messaging and public outreach, started Touchstone Energy, the premier marketing arm for electric co-operatives which

…provides innovative resources and the strength of a national network to co-ops, helping them enhance their unique relationships with their local member-owners. More than 710 Touchstone Energy cooperatives in 46 states deliver energy and energy solutions to more than 27 million members every day. 

**Touchstone Energy helps its cooperatives communicate the cooperative difference to business and residential member-owners, large and small, all across the country.**

Touchstone Energy, as noted on the NRECA website (http://www.nreca.coop/programs/touchstone/Pages/default.aspx), reinforces the necessity of value beyond profit alone:

Four values are the foundation of every Touchstone Energy co-op's service to its members. These values represent the cooperative difference and how Touchstone Energy cooperatives connect with and earn the trust of millions of people, every day.
The values proposition (innovation, accountability, integrity, and commitment to community) reinforces those previously mentioned Principles perceived as central to the effectiveness of the co-operative model.

The NRECA also worked with a number of their G&T member-co-operatives to create an energy wholesaler, the Alliance for Cooperative Energy Services Power Marketing (APM). According to the APM website:

Since its formation in February 1999, APM has become a nationally recognized wholesale energy trading and risk management firm that has maintained its client-oriented focus of providing quality service. Today, APM is one of the largest physical electricity traders in the nation (“ACES,” n.d.).

Not only does APM purchase wholesale power on behalf of its member-owner organizations, but it also seeks to enhance the capabilities of the staff of those organizations to better interact in the energy marketplace, particular with regards to risk management, a critical skill for co-operatives at the mercy of a volatile energy market. The capabilities enhancement is yet another example of how co-operative support systems build robustness.

One of the criticisms of the electric co-operative sector has been the inordinate role that coal plays in the overall energy generation portfolio. Some circles have called for the corporatization (or demutualization) of those electric co-operatives slow to adapt (Cooper, 2008). Yet that prescription does not account for the structural deficits facing co-operatives in comparison to their IOU counterparts. The long-term reliance on coal has created a number of structural deficits. This has furthered dependency on coal as a predominant energy source complicated the capability of electric co-operatives to develop renewable energy projects. NRECA was involved in the creation of another
association, intended to fill a systemic need to grow the share of renewables in the portfolio of the electric co-operative sector: the National Renewables Cooperative Organization (NRCO). The NRCO fills the renewable energy development gaps of many co-operatives by specializing in the arena, relieving individual electric co-operatives of the burden of spreading scarce resources thin to explore new, costly ventures.

Virtually all of these affiliated organizations require adherence to set standards, as well as reporting on those ends. The electric co-operative sector is working actively on optimal fiscal governance, marketing, and community relations, enhancing the diversity of their energy source portfolio, and maintaining a significant market presence. This is a critical, self-regulatory mechanism of electric co-operatives by their peers, encouraging entrepreneurship and innovation at multiple scales of the system itself. Systems-level entrepreneurship has been a critical element of the success of the electric co-operative system. Indeed, as discussed throughout this chapter, electric co-operatives don’t have the luxury of not being entrepreneurial. Fostering a strong culture of best practices (healthy governance, appropriate margins, and member democratic participation) is essential for the electric co-operative system to break its historic dependencies and address substantive criticism.

Path dependency, specifically with regards to government privileging of IOUs for service territory and access to capital, has hampered overall adaptive capacity. Many electric co-operatives waited decades before building counter or alternative organizations meant to enhance the system. While actors with the electric co-operative system are on a purposive path to building those necessary self-help enhancements, it may take some
time for electric co-operatives to operate on a level playing field with their IOU counterparts.

Considering the structural impediments to electric co-operative development of renewable energy generation, as well as the conservative institutional culture of electric co-operatives, what factors propelled Basin to construct the nation’s first co-operative-owned wind farm? Were pressure groups in part behind the endeavor? Did competitive activity by the IOUs play a role? Did the electric co-operative support system facilitate this project?

**Sowing the Seeds for the Nation’s First Co-operative Wind Farm: Collective Action and the Importance of Leadership in the Electric Co-operative System**

Basin—and electric co-operatives in general—are rarely forced into new projects or initiatives by government mandates like the RPS. Electric co-operatives covet their culture of self-regulation. They are engaged in influencing government public policy, playing the role of the fierce opposition to virtually all mandatory regulation on the electric co-operative sector (Regulatory Official, personal communication, September 7, 2010). As mentioned in the previous section, this tactic does have systemic disadvantages that in the end may do more to harm the sector than benefit it due to the opening left to competing institutional models of electric energy governance (namely the IOUs) to game the system. Government-driven market incentives rarely influence electric co-operatives for the simple reason that such incentives are most often directed at market or profit-oriented firms. Electric co-operatives have a difficult time conveying to government policymakers both the necessity of the tax exemption and the importance of putting electric co-operatives on parity with IOUs.
Individuals in the electric co-operative sector persistently note that their organizations are member-oriented, and that members dictate change. However the change typically comes through the formal channels of representative democracy (i.e. via elected members and executive staff), and rarely through direct democratic mechanisms, particularly at the annual membership meetings. Indeed, some public advocacy groups have chastised what they characterize as the undemocratic nature of specific electric co-operatives. The research in this area is seemingly non-existent. But there is anecdotal evidence that electric co-operative actors do pay close attention to a number of other signals that indicate a desire for change amongst the owner-membership. One such signal that carries weight is the observed patterns of state regulation -pending or otherwise- on their IOU counterparts. The phenomenon of state-level RPS is particularly relevant to this case study.

**Basin and co-operative wind energy development.** Seven of the nine states Basin and its member-co-operatives operate within have an RPS, of which five are mandatory for IOUs, though not applicable to electric co-operatives. Electric co-operative representatives from these states felt pressured to add renewable energy to their portfolio in an effort to at least keep up with their IOU counterparts (Association Official, personal communication, August 9, 2011). The Minnesota member-co-operatives, for example, were under intense pressure as the state’s largest IOU, Xcel, is mandated to have 30 percent of its energy sourced through renewables (“DSIRE,” 2012). Allowing IOUs, who already carry a great deal of political clout, to gain a greater foothold in favorable public relations from marketing their substantial investment in renewables could reinforce certain public perceptions of electric co-operative as out-of-touch or
dependent on dirty technologies (Association Official, personal communication, August 19, 2011). The member-co-operatives of Basin are very aware of the potential for public relations disaster, and have taken steps to address this dilemma.

Basin’s co-operative-ownership convened a meeting in 2005 in part to discuss increased ownership in renewable energy generation ("Basin Electric," 2009). The agenda item was a reaction to the growing list of state mandates. After decades of existence, the percent of coal and natural gas comprising Basin’s energy generation portfolio exceeded 70 percent (“Basin Electric,” n.d.a). Without wind energy generators, the only option left to Basin’s co-operative-ownership wanting to purchase wind energy would be to purchase it either on the spot market (which is very expensive) or via a PPA (long term contractual obligation) with an IOU. This meant that money from the co-operative system would go into the accounts of the investor-owned system. The whole purpose of a super G&T like Basin is to create and sustain a vertically integrated electric co-operative system; every time a distribution co-operative does business outside of that network, the integrity of the co-operative system is slowly undermined in some manner while conversely reinforcing the IOU model. Basin’s co-operative-owners resolved via the formal governing processes that Basin is to build and own new generation capacity to voluntarily meet state standards and stay on parity with their IOU counterparts.

**Overcoming structural barriers to co-operative wind energy.** Basin was formally obligated by its co-operative-ownership via directive by the board to build, own and operate Basin-owned wind energy generators. The task of creating a financially viable wind farm was complicated by federal government tax incentive structures. As noted earlier, entities chartered as not-for-profit or as co-operatives don’t qualify for a
broad array of state and federal incentives due to their lack of “tax appetite” or tax liability. However, unlike many other electric co-operatives, Basin had its own assets to leverage to take advantage of federal subsidies, putting them on par with their IOU counterparts.

Basin’s “asset,” the Dakota Gasification Company is a for-profit subsidiary owned and operated by Basin. Originally owned by the Department of Energy as part of a settled foreclosure from a private firm, Dakota Gasification was purchased by Basin in 1988 for $85 million, significantly under market value. The facility produces natural gas from coal, serving as both a peaking plant to ensure grid reliability, and as a hedge against volatile natural gas prices (Bettenhausen, 2011). The coal is sourced from a nearby mine owned by Basin, which allows the electric co-operative to produce natural gas at fixed cost.

Dakota Gasification has been extremely aggressive in capital investments directed at controlling input costs and driving down their overall production costs (the plant is one of the few facilities globally that captures CO2 emissions, which is then sold to Canadian firms who use the waste product to extract oil from the Alberta tar sands). This forward thinking has allowed the synthfuels facility to produce healthy margins in an otherwise volatile natural gas marketplace. Dakota Gasification remains structured as for-profit, so as to have a tax appetite. This allows the facility to utilize a number of tax advantages reserved for coal-to-natural gas and carbon sequestration innovation. The result is an end product with remarkable price stability; in bust times, gas prices come below market costs, and in boom times the profit margins are exceptional. The facility has served three
advantageous purposes for Basin as they began the development phase of their new wind farm.

First, the facility serves a backup power role to back up the wind farm whenever the turbines fail to generate per forecasts. The peaking role provides additional system reliability. Plus the infrastructure can withstand sporadic utilization:

The existing conventional plants provide system reliability, and there is no cost associated with additional backup for system reliability. The only incremental costs are those associated with minute-to-minute and day-to-day operation, generally referred to as ancillary services costs (Demeo, 2003).

The utilization of natural gas generation and outdated power plants is a standard practice used by energy generators to leverage low-margin, older generation facilities for systemic redundancy.

Second, Basin has a co-operative institutional responsibility to provide wind energy at rates competitive with their IOU counterparts. Basin engineers and planners are keen to point out that when it comes to any major capital investment, they explore all available options, including the purchase of profit-oriented firms. The government incentives available for co-operatives to develop wind energy are not on parity with what is available to IOUs. Since end-consumer cost was of utmost concern, Basin was able to use their experience running a for-profit subsidiary, Dakota Gasification, and to structure their wind farm as an IOU. The only way for Basin to take advantage of government subsidies was to exhibit a tax liability. The obvious choice was for Basin to structure PrairieWinds as a for-profit, limited liability corporation. Basin would be the sole owner of the wind farm, but the subsidiary is structured as a profit-generating investment for tax purposes. When asked how this would impact the integrity of the co-operative model, a Basin official noted:
Oh, there’s no concern there, whatsoever. It’s all managed under the same governance structure, which is a co-op. Everything housed under it has to follow those guidelines. The co-op will always have the final say.

The wind farm would have to adhere to Basin’s standards. And those standards dictate that all services underneath Basin’s operational umbrella are owned in common by the co-operative-membership. This arrangement provides Basin with all of the advantages of a firm with a tax liability while remaining nested and governed within a co-operative organization.

Third, Basin was also able to take the taxable earnings generated by Dakota Gasification (hundreds of millions) and invest it in PrairieWinds. The PTC allowed Basin to maintain a sizeable share of their taxable earnings and direct the retained capital as an investment in the wind farm. The PTC, coupled with the MACRS, significantly drove down costs, attracted capital from within Basin’s subsidiary, lowered their tax burden, and enabled Basin to justify the construction of the nation’s first co-operative wind farm (Association Official, personal communication, August 9, 2011).

**Federated governance, trust, and the principle of subsidiarity.** Operating a super co-operative like Basin could feasibly result in organizational crisis due to a number of collective action dilemmas. Basin is comprised of over 135 member-co-operatives, any one of which could act in accordance with its own organizational interest. The siting of transmission lines and generators is placed-based, meaning a host community will reap some level of benefit with regards to jobs, leases, and property tax revenues (and incur some conflict from various local opposition groups). Member-co-operatives, acting individually or in coalitions, could organize to wield inordinate
influence over any number of Basin’s operational decisions. Yet it seems as though conflict is non-existent or at least went undetected to this researcher.

It would be a misrepresentation of the electric co-operative system to claim electric co-operatives operate within a hierarchy; that would imply domineering actors with authority over other co-operatives. Directives come about via collective action practices that have evolved and adapted over decades. Polycentric governance is an appropriate label. Each organization has a structured governance system, designating clear roles and responsibilities, while attempting to maximize the various specializations inherent in a given co-operative. Member-co-operatives remain interdependent, yet sufficiently autonomous.

Basin is capable of providing a gamut of services to the broader co-operative system. But Basin runs most efficiently when they can contract specific services out to a member-co-operative, thereby reducing redundant service provision. The entire co-operative system benefits when each co-operative is collaborative on one hand, but is also individually entrepreneurial on the other. Basin could harm innovation if they were to get overly involved in their member-co-operative’s functions. This principle of subsidiarity is critical for optimal operations within the electric co-operative system in that the practice promotes polycentric approaches (what one co-operative creates, literally hundreds could learn from). The polycentric approach respects autonomy of the member-co-operatives, and reinforces self-governing capacities by internalization of entrepreneurship.

Basin is tasked with providing wholesale energy on behalf of the co-operative-ownership, and has cultivated decades of trust by amiably meeting those ends. The past
experience of a past North Dakota electric co-operative association official dictates that Basin will do its best to ensure various beneficial development externalities are spread throughout its member-co-operative system and their communities. Broadly speaking, electric co-operatives have cultivated a culture respecting operational specialization and service territory (another emanation of the conservative, risk adverse culture stemming from longstanding, traditional practices). Prior experience and positive outcomes means that Basin member-co-operatives have vested a great deal of trust in their super G&T to meet organizational needs.

An institutional logic seems to have developed around electric co-operatives where at-cost energy production is the primary operational mission driving outcomes, furthering adherence to bureaucratic and operational efficiency. This core mission helps electric co-operatives to focus intently on optimizing core competencies. “The highest quality at the lowest cost” is the oft-repeated mantra observed across a number of electric co-operative interviews. While this mantra was repeated by many of the electric co-operative representatives at a number of levels (distribution, generation and transmission, super G&T co-operatives, and associations), the variation of interpretation depends on the level or specialization of the electric co-operative. Those electric co-operatives closer to a place-based service territory - distribution co-operatives - see providing cheap electricity, along with community and economic development services, as the cost of meeting the needs of their member-owners (individuals, families and businesses within their service territory). This contrasts with those co-operatives operating within a larger scale and different service orientation -such as Basin- who view cost from a much narrower vantage point; producing energy and marketing services to their owner-co-
operatives. This is due to Basin’s specialized responsibility of providing competitively priced wholesale services to electric co-operative institutions. Basin member-co-operatives add value to the commodity and distribute the procured goods to their member-owners within a given service territory.

Co-operatives serve their members, not a bank or shareholders. Basin services direct organizational needs of representatives of groupings of electric co-operatives, spatially situated across vast terrains. Basin’s field of membership is the electric co-operatives themselves. Basin’s primary concern is to then meet the needs of their co-operative-owners, not necessarily the local communities within its service territory. It is then incumbent upon the intervening owner-co-operatives to transmit and transform those assets. The individual co-operatives then are tasked to package and distribute these assets within the identified value proposition of their member-ownership.

This dynamic helps to explain the differing emphases of the co-operative organizations nested within a shared, coordinated systems: the emphases need not be contentious. In actuality, the design of the system and rules in use – particularly the principle of subsidiarity - seems to enhance the development functions of electric distribution co-operatives. Basin-owned projects such as PrairieWinds are designed to capture as much value as possible for the member-co-operatives, while limiting risks, externalities, and reducing wholesale costs of electricity. The owner-co-operatives are able to receive those optimized services by letting Basin laser-in on Basin’s core competencies. Basin in essence is a capacity-builder, providing assets that enable their member-co-operatives. If Basin is driven to spread development benefits widely, they must have a process justifying where to expend resources and address why one member-
co-operative benefits above another. What led Basin to site PrairieWinds in the backyard of one of their member-co-operatives, Verendrye Electric Co-operative (VEC)?

**With Nine States, 135 Member Co-operatives, and One New Wind Farm, Why Minot North Dakota?**

Basin officials noted (Association Official, personal communication, August 9, 2011) that North Dakota’s enabling policy environment makes the state a friendly place to develop wind. State policy, expressed by the North Dakota Industrial Commission (NDIC), views North Dakota energy reserves as a source of economic development. NDIC’s aggressive internal goals “of increasing North Dakota’s installed capacity of wind generation to 5,000 megawatts by 2020” ("North Dakota Transmission Authority," 2009, p. 2) and various tax incentive mechanisms means the state is fully behind increasing the means of resource extraction and export. NDIC is also actively involved in extracting the region’s oil and wind resources for export. The signal of political will and desire to see such projects proliferate within the state has played a role in limiting public opposition while gaining the attention of global energy development firms.

A Basin official, when asked why Ward County, North Dakota was chosen as the host community of PrairieWinds, noted that the biophysical attributes of the area played as role. North Dakota is resource-rich territory for wind energy: the land is flat and expansive (Association Official, personal communication, August 9, 2011). Ward County’s elevation is the highest in North Dakota contributing to a robust wind regime (North Dakota is ranked as the state with the most capacity for producing wind energy ("American Wind Energy Association," 2012a)). Cultivation of Ward County’s wind regime could be readily harvested and transmitted over Basin’s nearby transmission lines, limiting extensive infrastructural investment. It also didn’t hurt that Ward County is a
little over an hour’s drive from the Basin headquarters in Bismarck, North Dakota, so the wind farm would be within quick driving proximity of key staff. But perhaps the most important factor has to do with the perceived strength of public entrepreneurship by one of Basin’s member-co-operatives.

The story of PrairieWinds is really the story of a co-operative partnership: Basin and VEC. Organizational leadership and entrepreneurship were cited as key factors in siting PrairieWinds in Ward County. Basin officials knew they could count on the leadership of VEC for a myriad of challenges that might arise. Indeed, a number of state and local official who are heavily involved in electric co-operatives claimed VEC to be one of the most progressive, entrepreneurial electric co-operatives in the nation (one prominent co-operative developer suggests VEC is “the most progressive electric co-operative in the U.S.”).33

VEC has a champion-type leader as their general manager (GM). He is held in high esteem by his peers: “VEC’s General Manager was easily one of the key factors in choosing Minot. He kept pushing that member service territory is where the wind infrastructure should go to capture and maximize the economic benefits for co-op members” (Association Official, personal communication, August 9, 2011). VEC’s GM is a second generation electric co-operative GM, his father having preceded him (and served as one of the original founders of the co-operative). The GM noted: “Co-ops tend to stay in the family. It’s in the blood.” No doubt this long-term exposure to electric co-operatives has helped this GM see the potential capabilities of electric co-operatives. Having grown up in a household supported by career in the sector, VEC’s GM possesses

33 VEC partners with the U.S. Department of Energy on Smart Grid technologies, and participates in a pioneering hydrogen-fuel program.
a great deal of historical and logistical knowledge. VEC is then more likely to try new initiatives that might otherwise dissuade the newer, more cautious electric co-operative leaders.

A third critical factor for Basin decision to build in Ward County was a wind farm proof of concept, carried out by VEC. Basin speculated in the 90’s that wind would become a necessary part of their generating portfolio and wanted to be prepared to act when their member-co-operatives demanded it of them. VEC has an aggressive track record of being an early adopter of new technologies. As wind energy became a likely Basin venture (thanks in part to favorable cost projections), VEC’s GM set staff to assess Ward County’s wind regime, recruiting the use of MET towers in the early 2000’s to measure the local wind regime. The positive results allowed Basin to justify the construction a pilot project (the Minot Wind Project’s two turbines). VEC not only procured a PPA on behalf of Basin (the MAFB became the sole long-term purchaser of the wind power), but also agreed to maintain the turbines (Co-operative Official, personal communication, August 15, 2011), alleviating excess burden from Basin. Once constructed, the two turbines operated with no identifiable controversy, created a curious site on the landscape, and provided lease and property tax revenue in a “dying” rural township and school district (the initial two test turbines raised significant revenue: 1st year at $50,000; 2nd year at $120,000; 3rd year at $400,000).

**Developing the nation’s first utility-scale co-operative wind farm.** VEC plied their deep political and social capital within the community toward the initial project, and the wind energy development paid dividends (no doubt, the involvement of the MAFB added an element of legitimacy to the project as well, engaging a number of tangible and
symbolic trust and reciprocity elements). The initial success of the Minot Wind Project cultivated a community perception that wind energy development would be a net gain (Local Resident, personal communication, December 8, 2011). Prior success then allowed VEC to take on riskier projects with their member-ownership’s consent.

Once Ward County became the obvious location for Basin’s utility-scale wind farm, the adherence to the principle of subsidiarity played a critical role for the advancement of PrairieWind. Basin partnered with VEC and capitalized on VEC’s social and political capital to prosper efforts toward the realization of the PrairieWinds project. In fact, Basin stepped back and let the GM—an actor with a great deal of local knowledge and community trust—perform a large amount of the community organizing work. Basin came to Ward County when VEC’s GM needed additional support (typically in a supplementary or contract-related manner, and never for damage control purposes).

A constant throughout the interviews was the lack of expressed concern by actors within the two co-operative organizations that the efforts in Ward County would be perceived as a solely VEC or Basin project. The subsidiarity principle, as practiced by these two institutions, means that -amongst the pool of participants interviewed in this research- Basin and VEC are often perceived by local residents as virtually the same entity. A Ward County resident noted, “Basin is as well liked as VEC” (School Official, personal communication, August 16, 2011). Both co-operative actors built trust and operated with the perception of integrity, mutually reinforcing public perception of the two co-operatives.

Going into the project, VEC’s GM did indeed capitalize on the earlier success of the Minot Wind Project. The proposed addition of 70 turbines (115.5 megawatt)
promised to exponentially enhance prior outcomes. Community meetings were organized by VEC to spread awareness and built consent around the development of the wind farms. The meetings were often held at the local school that stood to benefit the most from the tax revenue from the new wind farm, serving as symbolic reinforcement of “things to come.”

VEC went about a strategy intended to further build trust and create buy-in. A VEC executive expressed a central rationale for the adherence to transparency: “There are a number of fly by night operations muddying the picture. We didn’t want to misrepresent the project or get people’s hopes up” (Association Official, personal communication, August 17, 2011). The GM set up landowner meetings, making connections with local regulatory officials to speed the process along. Basin, directed by VEC’s GM, built even greater linkages amongst the stakeholders of the project, meeting privately and publicly with local landowners, township and city officials.

Early on, VEC reached out to local hunting, wildlife and environmental interests, relegated largely to birders, hunters, and Sierra Club members. The GM was aggressive in preempting local protestation (no organized opposition was documented in this field research). One local birder explained succinctly how the GM earned his trust: “The co-op management lives here, so they care more about the community” (Local Resident, personal communication, August 10, 2011).

While no names were offered up, a few interviewees claimed that a number of locals didn’t want the turbines. The claims from two interviewees were that a lot of the property applicable to wind energy development is absentee-owned farmland. The farming interests are not necessarily in alignment with the interests of residential
landowners within the vicinity of the development. Farmland owners viewed wind as yet another source of revenue from the land. The explicit negative feedback from the interviewees was constrained largely to aesthetic issues. One local farmer hosting two PrairieWinds turbines on his farmland noted that with regards to the changing landscape, the formerly endless blue sky is now dotted with turbines “but you get used to it.”

An executive from VEC noted that one of the leading farmer proponents who leases land for two Basin turbines is now regretting his decision. The executive suggested that farmer’s voice be incorporated in this research. When this particular farmer was asked about his regrets; he stated, “oh, I wouldn’t go that far. If I had to do it all over again, I probably would.” When this anecdote was relayed back to the VEC executive, his response was “well, what the Hell? I suppose he just doesn’t want to start any trouble. Well, ok…” The farmer did sign a contract with a trusted local leader. Perhaps the farmer didn’t want to be seen as feeling betrayed or lacking trust, particular after the public efforts put forward by the co-operatives to secure his buy-in.

Basin officials frequently hosted public educational events on potential legal and technical issues. Basin exhibited remarkable openness with regards to community dialogue, getting in front of controversial issues related to wind energy development (turbine noise, shadow flicker, electro-magnetism, etc.); anecdotally, this researcher had not observed such dialogue in analyses of four other IOU wind energy development projects. The two co-operatives used these presentations for informal assurances that were parlayed them into formal assurances and agreements. A Basin official noted: “Have you seen how much up front money we spend on impact assessments?! Well over $1 million” (Association Official, personal communication, August 17, 2011).
Basin and VEC officials would often contrast their practices to those of the IOUs speculating on wind energy development in the region. Basin officials were quick to compare how the speculators treated local landowners (Association Official, personal communication, August 17, 2011). Basin officials were proud to note they paid prospective lessors $10 an acre for a three year speculative lease, plus a thousand dollar stipend for a lawyer to review the lease terms. VEC would encourage the landowning lessors to work together, pool their money, and hire a shared legal team. In comparison, the IOUs were known for 10 to 20 year-long speculative lease terms at $1 a year with no legal stipend.

Basin—and VEC—had complete buy-in from their identified landowner base. Basin was keen to accommodate, working intently with local landowners as to where to locate the roads and access points. The co-operatives noted the importance of limiting the disturbance to local landowners, expressing extreme caution has been extended toward the maintenance and upkeep of turbine access roads and security gates. Even then, the best-laid plans don’t always work out accordingly. A Basin executive:

You know, we sat down with all of these guys and ran a number of scenarios as to where to situate the access roads (we did not want to interfere with the crop harvest). Now we have a couple of these guys who call us up and moan about how the access roads are a pain for their harvesters to get around. I mean, they told us to build the road in the same spot they’re now in a fit about! Thankfully, I can point to the minutes of these meeting and locate where they told us to build a given road (Association Official, personal communication, August 17, 2011).

The early preparatory work paid off. Basin performed the due diligence, and lined up the access agreements to the grid, procured investment monies from their subsidiary Dakota Gasification, and set VEC to work on cultivating the host community. VEC made quick work of local government regulators, and rapidly built up the
community trust and landowner buy-in necessary to deploy the infrastructure. The long-running cultivation of the community by VEC meant that from start to finish PrairieWinds took eight months to complete, whereas Horizon in McLean County, Illinois took years. Long-term trust building, and strong relationships made for rapid deployment of the $250 million project ("Basin Electric," 2009).

**Direct Development Outcomes of PrairieWinds**

Measuring the long-term development outcomes of any wind farm is difficult to do; there is no coordinated effort to track the longitudinal outcomes on local communities. PrairieWinds is no different. That said, interviews uncovered five areas of development the PrairieWinds project has contributed to: a short burst of local economic stimulus, price stability for VEC’s member-owners, lease agreements, jobs, and the area property tax base.

PrairieWinds, like other wind farms, appears to have a significant upfront impact during the construction phase. The wind farm represents a $250 million investment in a relatively small area. Building-tradespeople came from all over North Dakota and surrounding states. Hotels were booked up, and eateries were at capacity. As time elapses, and PrairieWinds shifted to an operational wind farm, the direct outcomes became further muted. The grandeur of the oil boom has quickly diminished the perceived impacts of PrairieWinds; to many in the community, it was just another energy project. Local taxing entities and a select few property-owners benefit the most from new revenue streams via lease agreements, and a handful of jobs are created.

VEC’s local member-owners benefit financially, though only marginally. PrairieWinds produces electricity at a very stable, competitive rate thanks in part to the
PTC and a secured PPA. Like many co-operatives, VEC returns excess margins or “capital credits” to their member-owners as opposed to distributing the profits to outside investors (“Recognize any names,” 2009, p. 7). As consumers, the member-owners are further shielded from volatile electricity prices, and their co-operative network become more independent from external rent-seeking actors.

The landowners receive a guarantee of $4000 per turbine per year. These leases are secured by Basin for 40 years. Note that the duration of the lease agreements are longer than McLean’s Horizon wind farms, and the lease agreements are significantly less. Additionally, Basin did not offer good neighbor agreement like Horizon. This is because Basin was not seeking acquiescence nor attempting to maximize profit, so much as keeping their overhead costs low: “Remember, the IOU’s owners are the shareholders, not the consumers. The co-op’s concern is also for their owners, who are the consumers. Our goal is high quality at the lowest price for everyone” (Association Official, personal communication, August 17, 2011).

Basin executives are quick to point out that a co-operative-owned wind farm will have lower lease rates but a higher number of employees (PrairieWinds directly created 8 new jobs to maintain the turbines). A corporate wind farm will attempt to keep labor costs and total employment down yet pay higher value leases to gain acquiescence. In order to do this, these IOUs will contract out to firms that specialize in maintaining wind farms. To maximize profits, these firms operate with a barebones staff and constrain services (Wind Developer, personal communication, November 8, 2011). So, up front, the co-operative wind farm does provide more direct employment from the co-op itself, but pays out less in lease agreements over longer periods of time. The co-operative’s
emphasis here is on optimizing operating costs to lower overhead while enhancing service and decreasing retail costs to the co-operative’s member-ownership.

Local government also benefited from the development of PrairieWinds, with Ward County receiving a modest increase in revenue. The rural township hosting PrairieWinds captured a great deal of new tax revenue as well as new infrastructure built by Basin. But it was a local school that benefitted most.

The South Prairie Public School District used to be considered Ward County’s “poor”  K-8th grade school district (the principal insisted this label stuck for over 50 years). The District was experiencing a steady reduction in rural residents and a parallel decrease in property tax revenue. But the oil boom and the construction of PrairieWinds has changed all of that. The one-building school now has an enhanced stream of revenue from PrairieWinds (and the new residential properties being built to house in-migrants). The District recently completed over $5 million in new renovations. The School’s principal was emphatic that the wind farm has been a substantial net benefit to his District.

PrairieWinds has certainly contributed to the material betterment of actors within Ward County. There are new jobs, new sources of income for landowners, and significantly increased revenue streams for local government agencies. But looking at a co-operative’s impact based solely on financial measures obscures the organizational outcomes. The standardized financialization of performance indicators does a disservice to understanding the complex patterns of activity performed by a co-operative (Borzaga & Galera, 2012). This is where the incorporation of actor voices from the field matters.
Through these methods of inquiry, a number of noteworthy co-operative development activities were uncovered.

**Indirect development outcomes: Enhancing the capacity of electric co-operatives to build community.** North Dakota has a legacy of aggressive co-operative development. During one particularly aggressive era of development led by the North Dakota Association of Electric Co-operatives (in the late 80’s and early 90’s), a number of successful co-operatives stimulated significant economic growth. (One of those successful co-operatives, Dakota Growers Pasta, would eventually be privatized by their producer-owner farmers for over $240 million.) This era of rapid growth in co-operatives was dubbed “Coop Fever” and received the Associated Press Story of the Year in 1991 (Patrie, 1998).

The legacy of co-operative entrepreneurship appears culturally important. Stable, long-lasting co-operatives in North Dakota seem oriented toward more than just maximization of the bottom line: prominent North Dakotan co-operatives have a broader community orientation. Basin and VEC are two leading organizations with these regards.

PrairieWinds is directly owned by Basin. But VEC –via the principle of subsidiarity- represents and is empowered by Basin within Ward. VEC knows their community far better than Basin, and Basin would therefore rather VEC performs community and economic development on their behalf. For the purposes of analyses, it’s important to realize that Basin builds capacity for VEC, and VEC converts that capacity into development and mobilization within their community. Institutional logic and practice matters.
These electric co-operatives are mature, and always adapting. PrairieWinds - or any other major development initiative for that matter - did not necessarily stimulate new development endeavors so much as enhance the capacity of VEC’s culture of community engagement. The GM sees VEC as more than just an electric utility, and PrairieWinds enriches that value proposition.

The VEC distribution co-operative is widely respected within Ward County, throughout the region, and by its peers in the electric co-operative sector as one of the most progressive electric co-operatives in the nation (Co-operative Association Official, personal communication, September 8, 2010; Local Resident, personal communication, August 8, 2011). The obvious reason why an electric co-operative like VEC garners such deep respect is due to the level of tangible, material development performed.

Were it not for VEC dynamism, the PrairieWinds wind farm may have been constructed elsewhere. VEC has been an aggressive early adopter of renewable energy and next generation electric energy technology. VEC has partnered with the U.S. Department of Energy on a hydrogen energy vehicle project, as well as Smart Grid technologies allowing them to provide enhanced cost-savings to their member-owners through remote management of water heaters. VEC’s entrepreneurship puts them on the forefront for testing and deploying new technologies from Basin and DoE.

Interviews and interactions with the GM exhibited a broad ranging perspective of the operational and community development activities a co-operative is capable of performing. VEC’s GM’s entrepreneurial acumen is recognized amongst colleagues (Association Official, personal communication, August 9, 2011); VEC is seemingly always looking toward new endeavors, and engaged in organizational development of its
staff and member-ownership. Organizational leadership plied to a vision for the community is a critical component to the development impacts of PrairieWinds and VEC. One part of that vision is the growth of new organizations to meet local needs.

The state’s largest telephone co-operative, SRT, was founded in the 1950’s by the board of VEC ("History," n.d.). As alluded to earlier, VEC was actively involved in the “Coop Fever” era, helping new co-operatives form around the state via financial and technical assistance. VEC, using its extensive network to procure resources, worked in nearby Berthold, North Dakota to procure USDA Rural Development grant funds ($300,000) to help build a new child care center ("USDA Rural Development," 2012). VEC also worked with regional co-operatives to help fund the Quentin Burdick Center for Co-operative Studies at North Dakota State University (Co-operative Official, personal communication, August 15, 2011), which focuses largely on agricultural issues over co-operative issues.

VEC’s influence is also felt directly in local civic activities. Organizationally, VEC engages and encourages its labor force to participate in local civic groups; VEC employees are reimbursed for their membership fees in local organizations. Civic engagement endeavors also extends to the member-ownership.

VEC makes a good-faith effort to involve their member-ownership in participating in co-operative governance; transparency is critical. The website and new member-ownership orientation material comes with an Owner Guide, detailing how member-owners can get engaged (Borzaga & Galera, 2012). In recent years, VEC has gone so far as to create a Member Advisory Committee, open to the public. The purpose of the committee is to build new venues to engage the member-owners in an iterative
dialogue that builds organizational policy. The Committee began with 12 participants in 2007, and has recently grown to over 80 active participants, a number of which have since run for and won positions on the board. As a final note, VEC’s annual general membership meeting pulls 3500 people from their base of 8800 households. When the GM was asked how he achieves significant turnout, his response was simple: “A carnival and raffle for TVs and such. We make it a fun, family affair. That gets them out every time” (Co-operative Official, personal communication, August 15, 2011).

These features of VEC are important. Observations of VEC demonstrate the organization’s development potential. The co-operative is directly engaging their member-ownership –and by extension the community- in tangible civic endeavors. The Member Advisory Committee not only fosters a “farm team” for new board members, but also elevates the member-ownership into the decision-making apparatus of the co-operative. Whereas an IOU treats their consumers as passive, VEC is cultivating actors in governance, entrepreneurship, and development. Or to put it another way: Democracy. “Learning to craft rules that attract and encourage individuals who share norms of reciprocity and trustworthiness, or who learn them over time, is a fundamental skill needed in all democratic societies” (Ostrom, 2005, p. 133). VEC serves as a stabilizing force for community governance. Community wealth and decision making authority is rooted locally. This is of critical importance for a community enduring a series of disruptive events (the energy boom, the flood, in-migration, etc.).

What the co-operative is doing appears on its face to be the necessary requisites for building civic actors and enhancing community governance. But just how
empowered are the newly initiated to contribute significantly to the local social system? Is structural change possible? Or might another impediment be at play?

**Co-opting governance: What role has the growth machine?** Social systems are complicated. There is no doubt that VEC is building the capacity of actors in their community work collectively. But VEC is nested in a number of networks. And those networks determine the types of resources available, as well as the constraints and capabilities of VEC and those that VEC seeks to empower. But might VEC limit the extent to which the organization would support substantive, and possibly necessary, social structural change?

Figure 11. *Ward County local level actors with wind energy developers*

If the two case studies in this research are any indication, the vital, local groups VEC and Basin interfaced with may be part and parcel of the standard wind energy development processes. These are the key actors (Figure 11) which regulate and interact
with a wind farm once construction is completed and the wind farm is operational. The
issue here is two-fold. First, the actors in this network represent the textbook growth
machine coalition, individuals with strong incentives to prosper economic growth.
Property-owners and local business owners are in growth mode, seeking to capitalize on
the oil boom and other development endeavors. The agricultural community sees
farmland as a revenue-generating commodity. The local governmental bodies have a
revenue incentive to see more property development (property tax revenue), so their
values are also in line with these groups.

All interview participants in these groups noted that the Minot Area Development
Corporation (MADC) is the prime mover of development endeavors in Minot. MADC
appears to be a bridging or brokering organization, connecting the growth machine
interests to critical resources. Indeed, the MADC board is comprised of government,
agricultural, financial, commercial, property, and energy interests, *including the GM of
VEC*. Interview participants widely viewed MADC as an aggressive force for local
prosperity, noting their central role in driving the oil boom (“Minot Area Development
Corporation,” n.d.a). But one local had strong misgivings about the direction of the
community under the vision of MADC: “It’s mad. People don’t see that they are digging
their own graves. They are selling this community to extractive industries that could give
a damn about our livelihoods. The chickens are going to come home to roost” (Local
Resident, personal communication, August 8, 2011).

Second, many of the organizations in the community’s growth machine network
have representative figures serving on VEC’s board of directors (“Verendrye Electric
Cooperative,” n.d.). Some of these directors have multiple growth machine connections.
Six of the nine directors have agricultural interests, two of which are involved in
government, and one in homebuilding.

The underlying logic of the growth machine perspective is that the logic of actors
within these groups tilts toward a profit orientation through capture of the instruments of
governance. It would seem to be evident that prominent local organizations interacting
with the development and operation of PrairieWinds and VEC are indeed governed by
these interests. As one farmer noted about the wind farm: “The wind isn’t for ND. It’s
for export” (Local Farmer, personal communication, August 14, 2011).

The VEC is stewarded by a number of actors (the staff, the GM, the board, and
the member-owners) representing any number of interests. What if the growth machine
plays in an inordinate role in stewarding the direction of Verendryre? There is no doubt
that as the oil boom continues unabated; the growth machine coalition seems to gain
greater control over stewarding local resources. Growth machine organizations such as
MADC and the Chamber of Commerce are leading. The policies the growth machine
coalition is pushing seems geared toward growth and bureaucratic efficiency. The
principal of the South Prairie Public School District noted that despite his district’s recent
resurgence and robustness, the business logic of centralizing governance permeating the
town has resulted in a call for the consolidation of school districts. Out of town firms are
being courted to develop and purchase local property. The School District is being
pressured to entice an Oregon property development with interest in developing 500
housing units within its tax jurisdiction (“the development will bring in property tax
revenue, but they want us to accommodate some of the wishes of the developer” (School
Official, personal communication, August 16, 2011)). Localized ownership of business
and property diminishing, albeit with the support of the growth machine coalition. This means governance is shifting toward larger, private corporations operating from a great distance away.

There exists a sense that external actors are playing a more prominent role in local governance. This role is encouraged by the growth machine coalition. How do actors in the growth machine see the role of VEC? Do they view it as just another generator of revenue for local property owners and developers? And is the growth machine compromising or coopting the integrity of the VEC by using it as an enabling conduit?

VEC’s integrity was recently put to the test.

**The Mouse River Flood of 2011.** The Mouse River Flood of the summer of 2011 was a major blow to Ward County. The flooding displaced over 10,000 people, with over 4000 housing units being destroyed. Some of the businesses that benefitted most from the economic boom were reluctant to assist in disaster mitigation and recovery.

For-profit businesses were criticized for being stingy (Co-operative Official, personal communication, August 15, 2011). After some level of shaming, the local Wal-Mart eventually contributed over $100,000 in food aid (Local Resident, personal communication, August 10, 2011). Public officials reached out to the energy companies, asking them to contribute their labor force and heavy machinery toward mitigating the flood damage. A local city official recounted how the oil companies refused to divert their operational staff to securing the dykes, and instead cut a check for a million dollars. The problem was that the money could only go so far since the oil companies were already using the stock of heavy machinery available in the region. The local school
official interviewed conveyed the thoughts of one oil exec who felt disgusted that his company thought they could buy their way out of local community obligations during the flood (School Official, personal communication, August 16, 2011).

VEC was a leader before, during, and after the flood. As the floodwaters began to rise, VEC set forth a number of directives. VEC announced that once their critical facilities were secured, they would divert their heavy machinery and labor force toward mitigating the rising floodwaters. Staff was given paid time to participate in building dykes and tossing sand bags despite the impact this would have on their margins (Cooperative Official, personal communication, August 15, 2011). The co-operative also wanted to send a clear message to its member-owners that they—the member-owners—would not be held liable for flood-related damage to VEC’s infrastructure:

The co-op has told consumer-members that late fees, facility charges, disconnection and reconnection fees related to the flooding would be waived, said Rafferty. “We know that recovering from this flood is going to take a while and we want to help our members through these difficult times (Holly, 2011).

VEC practiced frequent, open channels of communication to the broader community in order to send clear signals as to the services they would be offering, and the responsibilities they would be taking on.

Once it became apparent that the floodwaters would breach the dykes, VEC began to set its sites on planning for recovery once the waters receded. VEC and Basin were instrumental in setting the philanthropic standard for disaster recovery in the area. VEC and Basin offered critical resources for those displaced by the flood. Basin voluntarily offered a plot of land to FEMA for temporary housing facilities, and VEC wired the encampment at their own cost.
VEC was able to marshal its extensive network of co-operatives to assist with disaster recovery in Minot (Holly, 2012). CoBank, the SRT telecom co-operative and VEC together pooled contributions totaling over $50,000 to the Red Cross (Cunningham, 2011). VEC reached out to their national electric co-operative network to pull down hundreds of thousands of dollars from other electric co-operatives for recovery efforts ("Verendrye to waive charges for accounts without power," 2011). When four of their employees lost their homes, VEC’s board of directors approved a 50/50 match program to help, raising over $12,000 in assistance.

It is estimated that the flooding has resulted in hundreds of millions of dollars of damage (“Federal infrastructure aid,” 2012). It will take years before Minot stabilizes, particularly with the escalating oil boom. Nonetheless, local officials made it clear that VEC, in partnership with Basin, set the gold standard by which volunteer and philanthropic recovery endeavors adhered. This despite total flood costs to VEC adding up to over $2.4 million (though VEC may quality to have upwards of 90 percent of their costs covered by FEMA)).

Conclusion

The operational features of VEC during the floods may serve as an extreme example of how a firm exhibiting a not-for-profit, member-owned governance structure functions when individuals within its service territory need help the most. The GM and the staff are persistently involved in maintaining and enhancing the community interactive features of the co-operative. Such persistent engagement reinforces broad levels of trust, a feeling of connectivity, and the capability to reach out to the member-
owners and get them involved when critical issues arise. As the flood highlights, VEC is
then able to harness social capital in a way that promote stability and a sense of security.

Did the construction of PrairieWinds wind farm help develop Ward County’s
community structure? Not explicitly. Could the VEC and Basin have done what it has
(building local civics and entrepreneurship while leading the community during a
disaster) without the wind farm? Chances are, yes.

This is really more of a longitudinal question; the wind farm is both a hedge and
an investment. Regulation and climate change may threaten the carbon-based electric
generators used by Basin. Early adoption may help Basin and its member-co-operatives
adapt to the future, smoothing any rough transitions and allowing member-co-operatives
like VEC to continue with its public entrepreneurship. Plus, by embedding electric
generation capacity within Basin’s nested system of owner-co-operatives, the wind farms
roots the community wealth, preventing capital flight.

Basin, VEC, and the material well being of the community are enhanced.

Locally, the construction of the wind farm did enhance the capacity of VEC. But
did it also strengthen the socio-economic grip of the growth machine? One must look at
the trajectory that has placed electric co-operatives on their current path.

The policy of universal national electrification has been a formal policy of the
U.S. government since the 1930’s. The kick-start granted to electric co-operatives by the
government came about due to the unwillingness of the IOUs to participate in meeting
the federal government’s desired policy outcome. Electric co-operatives started out, by
necessity, as agents of change and contestation against the IOUs in the governmental
policy arena, but their service territories were by IOUs once established. Electric co-
operatives, by the very act of their formation, did engage in development activities at
least until they became virtually permanent community staples.

As time has gone on and as residents have been born and raised with “always on”
electricity, the electric co-operatives are being pressured into demonstrating a diverse
value proposition beyond providing electricity (Co-operative Association Official,
personal communication, September 8, 2010). New in-migrants not necessarily familiar
with the co-operative model take their electricity for granted (“I’ve always had it, so I
never thought about it” (Local Official, personal communication, July 6, 2012)). Electric
coop-eratives are increasingly having a difficult time defining themselves separately of
the IOUs; distinguishing themselves on economic terms alone (higher pay to staff, lower
executive compensation, and competitive rates) is increasingly a failing proposition. This
means that the integrity of the model is not being promoted as an incubator of civic
engagement, entrepreneurship, and development, a critically important point for co-
operative practitioners to be cognizant of.

Unlike a solely market-based system, the co-operative system incorporates the
voices of individuals in communities generating, transmitting, and consuming energy
from co-operatives. Presumably, better decisions would be made with regards to siting of
infrastructure, compensation for the consumption of resources (land, air and water), and
end-consumer costs. But the strategic community development orientation of an electric
c-co-operative can be diverted when influential actors –such as a growth machine- capture
the firm. This is where visionary leadership appears to matter.

The Ward County growth machine coalition does not seem to be controlling the
direction of VEC, so much as it is being harnessed by the GM to maintain and elevate a
local civic culture. It would not be accurate to say that VEC is actively changing the community social structure, ala the development orientation of the community interaction field approach. But the engagement of member-owners in the Member Advisory Committee and the building of new organizations are important. VEC is not developing community so much as building community capacity. It’s an organization, which the mechanisms of governance remains rooted locally, waiting to be harnessed for community development. That is a powerful mechanism that is not part and parcel of the IOU model of governance, and -as the GM of VEC demonstrates- leadership is a critical component for the maximization of those assets for community ends.

The polycentric nature of the electric co-operative system and VEC’s active participation is also critically important. VEC is quite engaged in influencing the public policy of their federated organizations, such as NRECA. Currently, VEC’s GM is attempting to influence other co-operatives to participate actively in local community capacity building (the NRECA-sponsored committee is called “The 21st Century Committee”). This is the importance of polycentric governance and knowledge transmission; VEC, one of over 900 electric co-operatives, can experiment, take risks, and share its success (or failures) with other electric co-operatives, thereby stimulating new initiatives strengthening the overall co-operative system.

That said, a number of concerns related to the integrity of the co-operative model and its community orientation remain. For example, the electric co-operatives within the vicinity of the Bakken are enabling the ongoing shale oil development (Basin Electrical Newscenter, 2012).
Basin Electric has a lot of work to do around Mountrail-Williams Electric’s service territory to help meet the load growth, including building the Pioneer Generation Station, obtaining easements for the Antelope Valley Station-to-Neset 345-kilovolt transmission line, and planning substation and microwave communication site additions.

The unconditional support of the growth may actually be harmful to the member-ownership of the electric co-operative member-ownership. Local public services, particularly government services, are struggling to keep pace with need. There is a critical shortage of housing, and local residents are expressing feelings of alienation. The electric co-operative could serve as a balance and apply pressure to the oil firms contribute to enhanced community wellbeing. But perhaps this is extending the responsibilities of co-operatives such as VEC beyond what is reasonable. The point is that –depending on the leadership and the demands of the member-owners- VEC and other co-operatives could take on such a role; it is vitally important for co-operative stakeholders to understand the capabilities of a co-operative to enhance the livelihoods of those the institution is tasked to serve.

Regardless, it is clear that VEC and Basin are outliers not only in the wind energy sector, but also amongst their colleagues in the electric co-operative system. It is important to understand the development differentials that may arise when diverse institutional models participate in the governance over critical collective resources. The dissertation now turns toward a comparative analyses of the two cases, and explores factors that set the co-operative model apart from the investor-owned model.
Chapter Six: A Comparative Analysis of Two Wind Farm Ownership Models

The use of case studies and fieldwork is meant to explore and uncover unique attributes that may be obscured in large N studies. The two case studies here reveal a number of discernable patterns inherent in wind energy development processes, patterns that would have likely been overlooked in a large N study. These patterns are influenced by structural attributes, government policy, market demand, public opinion, and unique local community dynamics (issues of human behavior, broadly speaking).

The two case studies have helped to better contextualize the extent to which government policy influences the diffusion of diversified models of wind energy ownership throughout the nation. It is clear that the Obama Administration’s all-of-the-above energy policy is not as all-inclusive as it is made out to be. The government policy has resulted in the privileging of elite actors that then fails to enhance community agency of those communities playing host the wind energy firms.

Despite the imbalance in how diverse institutional models are treated under government policy, the case studies reveal wind energy development projects have tangible impacts on their host communities, though perhaps not in ways that might be presumed. While both models convey benefits, there exists a variance in impact that appears to correspond to the model of ownership. Yet development variances stemming from ownership models are somewhat nuanced until an institutional analysis pulls back the layers obscuring finely textured details of interest (illustrated in Table 7). One-on-one interactions in the field helped to advance understanding of these variances.
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While the ownership model does seem to influence outcomes, there are some findings from analysis of the two types of ownership that appear to be somewhat standard features of wind energy development (to be discussed in Section Two). This has to do not wholly with the instinctual behavioral tendencies of those controlling the wind farm, but partly because of a number of structural issues (discussed primarily in Section 1). These structural issues emanate largely from the engineered embeddedness of wind energy within the electric energy industry (each turbine is bundled in a group format, situated across vast tracts of land to maximize wind energy extraction, distributing the electricity generated to a transformer connecting to the electric grid (see Figure 12 below for an illustration of the electric grid). Key actors within the system (such as the FERC or ISOs) will craft much of the policy that dictates a great deal of the wind farm’s operational features to ensure compatibility with and stability of the grid at large.\textsuperscript{34} The firm’s management and the board determine the remaining operational features. This is where ownership matters, in the stewardship of resources (constant and surplus) generated by the firm, as well as the positive externalities of the governance processes.

\textsuperscript{34} The only scenario in which this is likely to change is in the instance of the creation of a decentralized grid structure.
Electric energy actors are somewhat insulated from local public affairs. The opportunities for public or community governance remain obscured (Florini & Sovacool, 2009, p. 5240). The operational and governance complexity of the grid is a further barrier for inclusivity and participation by laypersons or public entrepreneurs. There exists a strong bureaucratic administrative element whereby participatory mechanisms are discouraged in exchange for expert, specialized leadership. This is in part due to an electric energy industry that is capital intensive, heavily regulated, and requires a broad array of professionals in engineering, finance, law, and other relevant fields. Risk aversion, planning, and market projections are integral features of the system. “A mature sociotechnical system is often very conservative and its actors are unwilling to change”
(Blomkvist & Larsson, 2013, p. 119). This has in turn inculcated a culture emphasizing raw economic rationality and institutional functionalism as opposed to one explicitly concerned with social wellbeing or civic engagement.

Discussions with regulatory officials and industry leaders depict a somewhat generalizable narrative with regards to the constitutional and collective choice levels of analyses. Monocentric tendencies become a feature, and many actors engaged in electric energy demonstrate isomorphic traits in that they increasingly act like each other; the lack of differentiation has an observable effect of stifling innovation. In this narrative, the IOUs have inordinate influence over the entire system, harnessing their structural advantage which emanates predominantly through government energy policy – strengthened by their participation in the electoral politics and political candidates-predetermining standards by which capital is accessed, exacerbating structural disadvantages felt by the co-operative system.

The build out of new renewables and smart grid technologies means that the grid will grow even more complex and with that complexity comes even more barriers. Rural communities will increasingly play host to this complex generation infrastructure. But unless government policy changes or the electric co-operative system (arguably the most relevant advocate for publicly-owned power) takes a more aggressive stance, communities will be in the backseat while IOUs drive the terms and conditions for development. The structural impediments place electric co-operative firms on dis-parity with their IOU counterparts, which in turn impact their capacity to deliver upon their value-added proposition. This observation is noteworthy considering that so much of the
electric energy sector falls under some form of public ownership. That said there is much the electric co-operatives could do.

Regardless of the ownership model, the manner with which the local community is engaged with the firm, as well as the actors stewarding the firm’s resources, also has implications for the electric energy system itself. In order to compare the two case studies, the remainder of this chapter will be arranged into four sections, three of which address the core research questions (identified by section-heading), followed by a synthesized discussion. The discussion further assesses of the implications of this system on community development, the policies bolstering the system, and the broader implications for public engagement on energy governance.

**How Do the Multi-Layered Governance Systems of the United States Influence Local Level Wind Energy Development (government and market policy)?**

The two case studies uncovered a great deal about the complex systems engaged in governing wind energy and the electric grid. Interviews with leaders in the regulatory, development, investment, and advocacy fields reveal a number of public and private actors, structural impediments resulting in limited wind energy ownership models, and a broad array of motivations driving wind energy development. Governance over wind energy occurs at a number of levels through overlapping mechanisms by a broad array of actors. This brought to the fore a number of social dilemmas facing the entire wind energy sector, as well as specific issues related to the ownership model of the given firm and systems specific to those ownership models.

This section will give a brief perspective on the electrical industry with regards to the co-operative and IOU sectors. The perspective will be linked to an analysis of government energy and financial policy as it pertains to wind energy development. The
analysis here is critical; major actors in this arena react to government policy. Though as
the analyses will reveal, level jumping or the crosscutting across various social processes
is performed by the IOUs to shape the very system they then react to. This is not
performed to intentionally put the co-operative system at a disadvantage so much as to
guarantee rents for the IOUs (rents in the form of steady subsidy streams, guaranteed tax
breaks which cut the cost-of-money for loans from major financiers, and substantially
reduces business risks and guarantees a solid return on investment).

**The electric system.** A path dependency is built into the overall electric energy
system from its inception, putting electric co-operatives at a structural disadvantage
compared to their IOU counterparts. The IOUs staked claims to high margin,
metropolitan areas, leaving the rural countryside to fend for itself. Rural actors mobilized
to address the electrification deficit. Despite attempts at systemic vertical integration,
electric co-operatives consistently concede that retail energy from co-operatives is
oftentimes more expensive than the for-profit sector for the aforementioned reasons of
structural disadvantage. The early development of the electric system has played out in
such a manner where today the co-operatives are left with low density, high overhead,
and low margin infrastructure, relative to the more profitable IOUs. As Table 8
demonstrates there is far less room for error on the part of electric co-operatives; they
have fewer endogenous options. Electric co-operatives are reliant on IOUs and public
power for over 50 percent of their wholesale energy needs. A positive internalization on
the part of electric co-operatives is that they work extremely hard to contain their costs
(costs going above and beyond basic infrastructure).
<table>
<thead>
<tr>
<th>Source</th>
<th>Total</th>
<th>IOU</th>
<th>REC</th>
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<td></td>
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<tr>
<td>Net Generation MWh</td>
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<tr>
<td>Transmission Line Miles</td>
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<td>Distribution Line Miles</td>
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<td>MWH Sales</td>
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Table 8: Electric System Disparity
Figure 13 depicts the general fixed overhead costs of electric utilities. IOUs achieve greater returns on their fixed cost investment due to the higher density of consumers within their service territories. The electric co-operatives have a long-standing orientation of operating under significantly smaller margins since they have higher overhead and limited means for spreading the cust-burden. One electric co-operative official claims that the at-cost orientation of electric co-operatives has made them so robust that “if we [electric co-operatives] were competing over the same utility lines, no doubt we would beat ’em on price” (Co-op Association Official, personal communication, September 8, 2010).

Figure 13. Fixed overhead costs

Source: Email Co-operation Association Official, 2011.
Despite the current disparity, it is difficult to say if the electric co-operative system could have penetrated this far into the electricity sector were it not for the intervention of the U.S. government. The FDR Administration’s creation of the Rural Electrification Administration (REA), the REA’s recalibrated policy treating electric co-operatives as equal to IOUs with regards to eligibility for government assistance, and the REA’s support system professionals, were instrumental in breaking the absolute stranglehold of IOUs. Additionally, the REA drafted a model state law (the Electric Co-operative Corporation Act) that further assisted state and local efforts to rapidly advance the early build out of the electric co-operative system. This is important in that it has helped to create a more competitive environment against the monopolistic tendencies of the established IOU system, nurture institutional diversity, and extend electric energy to low margin rural regions of the nation. The electric co-operative system has helped to balance the tendencies of the IOU system, thereby contributing a stabilizing effect to the electric energy commons.

The FDR Administration’s purpose for empowering co-operatives was due in part to their core design; the co-operative model is meant to grow, innovate, and catalyze approaches for self-help development. In this manner co-operatives are not wholly without their own recourse, as is evident in the case of Basin. Basin is representative of an Ostromian robust resource regime. The study of Basin –and of its owner-co-operative VEC- reveals that co-operatives have created sophisticated federated governance systems. These systems are polycentric (multiple levels of decision-making and responsibility), with an emphasis on building entrepreneurial capacities and enhancing robustness within the member networks and organizations. These structures have been
formalized through the creation of associations at the state, regional, and national levels. The nesting of co-operatives into a larger association of co-operatives allows for dynamic economies of scale, and the enhanced provisions of goods and services. This then strengthens the capacity of locally rooted electric co-operatives to concentrate their member orientation and Basin to focus its specialized service portfolio.

It must be noted again that as covered in Chapter Five the energy sector as a whole is heavily subsidized through a number of mechanisms. A growing body of literature has documented the externalized costs of carbon-based fuels on public health and the environment. These energy sources remain heavily subsidized despite their profitability (Leber, 2013). The grid itself is sustained through U.S. Department of Energy grants, and managed by federal government corporations and partnerships, enabling ongoing development initiatives by the private sector (“Wind Industry Cheers Midwest ISO Approval of Multi-Value Projects - News - The Illinois Wind Energy Coalition,” n.d.). The federal assistance to utilities, listed below (Table 9) shows the difference in government assistance provided to electric co-operatives and IOUs. The highlighted numbers demonstrate how co-operatives pay interest on their loans, whereas IOUs are subsidized, externalizing their “cost-of-money.”
### Table 9. Federal assistance to electric utilities

<table>
<thead>
<tr>
<th>Investor-Owned Electric Utilities</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Number of systems</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td>Investment Tax Credits</td>
<td>$3,433,194,000</td>
<td></td>
</tr>
<tr>
<td>Accelerated Depreciation</td>
<td>$90,678,993,000</td>
<td></td>
</tr>
<tr>
<td>Total retained taxes</td>
<td>$94,112,187,000</td>
<td></td>
</tr>
<tr>
<td>Annual cost to gov't (4.08%)</td>
<td>$3,839,777,000</td>
<td></td>
</tr>
<tr>
<td>Total customers</td>
<td>$102,351,000</td>
<td>$38</td>
</tr>
<tr>
<td>Assistance per customer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Rural Electric Co-operatives<sup>5</sup>

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</thead>
<tbody>
<tr>
<td>Number of systems</td>
<td>632</td>
<td></td>
</tr>
<tr>
<td>Total RUS loans outstanding</td>
<td>12951120000</td>
<td></td>
</tr>
<tr>
<td>Gov't cost of money less avg. int. rate on RUS loans (4.08% - 4.70%)</td>
<td>-0.62%</td>
<td></td>
</tr>
<tr>
<td>Annual cost to gov't</td>
<td>($80,297,000)</td>
<td></td>
</tr>
<tr>
<td>Total customers</td>
<td>$12,462,000</td>
<td>$0</td>
</tr>
<tr>
<td>Assistance per customer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources of information and data for Federal Assistance to Electric Utilities:


3U.S. Dept. of Energy (DOE/EIA) 2009 data.


*522 municipal systems (out of approx. 2,000) reported 2003 statistics to DOE (the last year data was collected).

Table 9. (continued)


Notes:
1) Calculations are intended to illustrate only Federal subsidies that affect the utilities’ cost of capital and the cost to the federal government of providing those subsidies.
2) IOU data provided by DOE reflect changes from the implementation of FASB no. 109. The analysis includes "Accumulated Deferred Investment Tax Credits", "Accumulated Deferred Income Taxes", and appropriate data included in "Other Regulatory Liabilities." February 2011
A criticism of the long-standing practice of extending electrification through government subsidy mechanisms is that it has “baked-in” path dependency via policy inheritance. A report funded by the NRECA concluded:

“All electric utilities in the United States receive federal assistance, or subsidies. This was the conclusion of Nobel Laureate economics professor Lawrence R. Klein of the University of Pennsylvania and has been further substantiated by numerous studies by federal agencies and others” (Co-op Association Official, personal communication, September 8, 2010).

From an operational perspective, both of these ownership models have diminished their structural capability to self-finance capital-intensive projects. Investor-owned corporations are averse to withholding significant capital reserves adequate enough to purchase wind farms outright (margins are distributed to shareholders as dividends, and to executives as compensation). Many wind energy firms truly are extensions of venture capital firms (Horizon’s primary shareholder is Goldman Sachs), diminishing the sector’s overall capacity to use margins for endogenous growth. Executives are motivated to return profits quickly to the investor shareholders, not to grow the total share of renewables to conserve the environment.

The ownership of a co-operative desires a different return on investment. Co-operatives are sensitive to appearances that they are charging their member-owners excessive rates to enhance their margins. Substantive capital reserves may give the appearance that member-owners are being overcharged, and the management has ulterior motives for the money. The sensitivity then results in the distribution of margins back to the member-owners based on share of patronage in order to demonstrate fiduciary—not environmental- stewardship. Short-term member-owner gratification holds up self-
financing capacity building as it pertains to environmental stewardship. The ramifications for the electric co-operative system are important.

This has the effect of reducing systemic self-governing capacities outside of government-refereed action. Decision-making breaks down, authority becomes hierarchical, and “spontaneous” or self-led entrepreneurship is severely diminished (Aligica & Tarko, 2011, p. 258). When the federal government provides substantial grants or backs privately funded loans, the government does so with the power of the Full Faith and Credit of the U.S. Reliance on government financial subsidy incentives has in turn had an impact on organizational capacity to self-finance critical infrastructural investments. New deployments of innovative technologies are put on hold until government policy incentivizes investors by reducing or eliminating risk. Investing in energy development becomes a safe hedge for large financiers looking to guarantee return on investment, investment dependent upon government subsidy policy.

The total result is an energy sector reliant on large financial partnerships to make up for the lack of internally accessible investment capital. IOUs have a history of strong relationships with major financial partners. The relationship carries over to the operational organizational aspects as well. Horizon developers noted that wind energy firms commonly hire individuals from the ranks of the financial sector with experience procuring capital for development (Wind Developer, personal communication, November 9, 2011). According to an Illinois regulator, this practice is so common that “the folks running wind energy companies are the same folks involved in oil, natural gas, and banking” (Regulatory Official, personal communication, October 25, 2010).
Government serves the role of greasing the squeaky wheel. And with increasingly gridlocked government there exists a greater likelihood that wind energy development will endure a number of shocks, harming the deployment of electric energy infrastructure.

**The wind energy system.** Growing the wind energy sector will continue to require significant, prolonged infrastructural investment. This is due in part to the conversion from the traditional grid model, to the “Smart Grid.” The enhancement of energy reliability and independence from non-domestic sources is clearly a federal government policy objective. A U.S. DoE official notes: “We will spend more money going from coal to wind. From wheel-to-spoke to decentralized” (Regulatory Official, personal communication, September 7, 2010).

But the electric co-operatives are feeling a level of strain with regards to the lack of parity in subsidy between the two institutional forms.

Electric co-operatives are engaged in wind energy governance, but not as owners; their role is primarily as a wholesale consumer through PPAs with IOUs (the IOUs own the bulk of the infrastructure). Referring back to Table 8, IOUs own almost half of all distribution lines, control over half of the transmission lines, and market to a significant majority of all American consumers. Quasi-governmental organizations serve as a referee of sorts, regulating the initial connection of the wind energy generator to the grid, as well as the base load projections needed to meet demands, and as a check against price fixing.

All of the users of the grid will need to be involved in upgrading the infrastructure for wind and other renewables to grow at the pace necessary to mitigate climate change.
A leader in the electric co-operative sector (Co-op Association Official, personal communication, September 8, 2010) highlights some of the problems of shared governance in the sector: “Whose responsibility is it to modify the grid? Who does it fall upon to finance this? If the IOUs aren’t throwing any of their money at it, why should co-operatives?” This quote underlies the difficult discussions the electricity sector is currently facing. The polycentric traits are further undermined due to unclear responsibilities and obligations. The issue of access to infrastructure—or rights- seems well established. But responsibility is not. The frequently voiced narrative was the necessity of a federal government energy policy to grow wind energy and to identify who is responsible for procuring the resources necessary in order to avoid a tragedy of the commons situation. Government policy appears to obscure responsibility, and places all electric industry actors in a position of policy dependence.

Until additional efficiencies deriving from technological innovation and economies of scale make wind costs and wholesale prices competitive against subsidized hydro-carbons, government energy policy will remain a critically important component for deploying wind energy. Even if the cost of wind energy becomes price competitive, state government energy policy will probably be required to coerce utilities to make wind a significant share of their energy generation portfolio, lest capital reserves be used toward other endeavors.

The main point at which state governments get involved in wind energy governance, is creating demand by stimulating growth in the sector. Demand is stimulated by state-by-state RPS. The Illinois RPS mandates that electricity distributors procure 25 percent of their electricity from wind resources. Notably one state’s RPS can
stimulate interstate trade in wind energy. North Dakota’s RPS is toothless in that it is voluntary, but favorable North Dakota development policies make the state an attractive region for developers to build wind energy generators providing electricity to Minnesota, a neighboring state with a mandated wind energy RPS.

The institutional analyst must also understand the calculus of the electric utilities to better assess why they function in a given way. Energy generators are not without risk: new generators are extremely expensive and always face some level of trade-off (wind’s trade-off is in the new intermittency\textsuperscript{35} and wildlife regulatory issues). Wind energy, like all other forms of electric energy generation, requires enormous capital outlays. Wind, being a free source of fuel, helps to bring about market stability in that long-term costs are more easily accounted for than the more volatile coal or natural gas (which promises to get more volatile as awareness of the linkages between greenhouse gasses and fossil fuels becomes an explicit matter of public policy). The tradeoff in policy is that “early adopter” costs are externalized via government subsidy in an effort to kick start the sector.\textsuperscript{36} And the externalized tradeoff is that long-term government subsidy policy enables the development of better technologies and cheaper wind energy with reduced environmental impact as broader adoption takes hold.\textsuperscript{37}

The most important subsidy mechanism is the Production Tax Credit (PTC). Wind energy developers are strongly dependent on the PTC to offset their costs and raise

\textsuperscript{35} Critics use the intermittency of wind energy as if to say wind energy is far more unpredictable than other energy sources. One must also consider that if transportation facilities shut down, regulations hamper mining and drilling, or non-renewables become scare, they too are in a sense intermittent. What makes them stand out from wind is their attributes, which allow them to act like a battery during periods of surplus accumulation, to sit in storage, stockpiled until needed. Wind has yet to enjoy the development of an affordable, scalable battery system allowing for the storage of surplus energy stocks to flow into the grid on an as-needed basis.


\textsuperscript{37} The largest wind energy association, American Wind Energy Association (AWEA), has claimed the subsidy has been a resounding success. AWEA is calling for a phase out of federal subsidies due in part to projections that place wind energy on a trajectory to be price-competitive with subsidized fossil fuels in under a decade (Bailey, 2012).
investment capital by sheltering an investment partner’s tax liability. The PTC makes wind energy attractive to large financial and corporate firms, particularly those looking to shelter taxes through the “monetization” of the PTC. Wind energy IOUs are blurring the lines between being an energy generator or a shell company for these financial interests. Take for example Horizon, which changed hands a number of times, from their initial incorporation status to Invenergy, and finally to EDP Renewables which is primarily owned by Goldman Sachs. The trend looks to continue. A DOE official noted “it’s increasingly becoming common for IOUs to grow wind farms through unregulated subsidiaries” (Regulatory Official, personal communication, September 7, 2010). Critics view the PTC as a large handout in that it can offset upwards of half of the total costs of a wind farm (Association Official, personal communication, August 9, 2011). Wind energy developers interviewed in this project claimed that financiers can see debt-payoffs in as little as three to seven years (Wind Developer, personal communication, March 25, 2010).

The government subsidy directed at wind energy follows a century long pattern of government assistance for large-scale energy producers and providers (refer to Chapter Four). With wind, the government subsidy continues to be skewed toward the benefit of the IOUs. Electric co-operative representatives interviewed in this research were quick to point out that virtually all incentives offered to electric co-operatives are almost always offered to IOUs years or decades in advance of the electric co-operative sector. Such an assertion certainly merits further study. Yet co-operatives are reacting to wind energy growth and development, but are not “at the table” making
relevant policy; indeed, they seem more interested in preserving their legacy generators than expanding into renewables.

**Thriving Despite the Systemic Disadvantage and Increasing Vulnerability**

Government policy certainly plays a role in growing new wind energy. But these policies provide a device for sheltering taxes by the same financial entities that shook the global economy in 2008. What are the implications of an instable financial institutional culture being transmitted to the nascent—and some say necessary—wind energy industry? If the buzzwords of energy *security* and *independence* are to have meaning, shouldn’t policy be aligned toward those institutional arrangements with similar value orientations?

In this way, we may be privileging the firm most likely to crumble during times of systemic disruption.

Co-operatives offer a number of advantages with regards to sustainable institutional development. Initial research on this question has shown co-operatives are safer investments with lower defaults than their corporate counterparts (Murray, 2011; Stringham & Lee, 2011), meaning the longevity is more dependable, critical for long-term policy planning. Yet government energy policy has a perverse effect in that it privileges for-profit firms through tax offsetting subsidy. Co-operatives have historically been at a disadvantage due to their low tax, not for profit structure tied to their member-owner governance, rendering them ineligible for those government subsidies. Co-operatives have limited options outside of their own sector and occasional access to government assistance. One example is in the critical partnerships a co-operative needs with large financiers.
One prominent electric co-operative developer claimed that IOUs exploit the subsidy to enhance investor relationships (Co-operative Official, personal communication, August 15, 2011). According to his claim, backed up by a number of other officials within the electric co-operative sector, return on investment on IOU initiatives yields a range of 9-11 percent (the yields are presumably artificially inflated due in part to tax savings, subsidies, and over-priced end-consumer utility bills), whereas co-operatives yield a return of about 3-5 percent (if this holds true, the co-operatives are better able to do more with less overhead). Co-operatives require patient investment capital. The risk appears too high. The scenario is then compounded by the fact that individual distribution co-operatives are oftentimes too small to entice significant investment capital. This puts them on financial disparity with IOUs (data verifying their claim does not appear readily available, but the claim merits further study).

Despite their disadvantage, electric co-operative leaders consistently expressed their sentiment that government policy was neither out of favoritism nor rejection of the co-operative model, but a fundamental misunderstanding of its owner-governance structure and the resultant characteristic of how resources are allocated. The claim is that policymakers and financiers have been trained to understand more dominant forms (government, corporations, and non-profits). According to this persistent narrative, models like co-operatives are viewed as alternatives, going untaught in major public educational institutions. The confusion results in a general perspective that co-operatives are foreign, confusing, and seen as risk-prone due to the member-owner nature. A co-operative isn’t always “legible” (Scott, 1999) or understandable to traditional finance. The owners of a co-operative (member-owners) are unlike the owners of an IOU.
(shareholders). A question often arises as to who is responsible for defaulting on loan repayments? Co-operatives, more so than IOUs, must build strong relationships with investment firms, utilize specialized bans (such as the National Co-operative Bank), or self-finance. The illegibility to investment interests, coupled with systemic impediments, compounds the limited growth capacity of co-operatively-owned wind.

Basin (and other G&T electric co-operatives) is tasked by their owner-co-operatives with attracting investment capital to assist the systemic growth of their owner-co-operatives. Basin can harness the aggregate system in a manner that one distribution co-operative could never do. Plus, BASIN can better justify withholding margins as capital reserves since their core mission is in part to serve the needs of their owner-co-operatives.

BASIN was observed doing two things to counter the structural disadvantage as it pertains to wind energy development:

1. BASIN sidestepped the not for profit “co-operative problem” by incorporating their wind farms as a for-profit, investor-owned entity (the sole investor being Basin), thereby becoming eligible for government subsidy;

2. BASIN self-financed from one of its other taxable subsidiaries, thereby negating the necessity of interacting with large financiers - typically unable to understand the differential features of the co-operative model - in order to procure investment capital.

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38 NRECA has been a leader in growing access to capital for those distribution co-operatives with resource deficiencies who are not members of a G&T (discussed in Chapter Five, pp. 146-151).
Basin was then able to exploit all of the same government policy benefits as Horizon and other IOUs while growing its service portfolio under the co-operative ownership and governance model.

Replication of the BASIN approach to developing Prairiewinds by another co-operative is unlikely. BASIN is one of two so-called super G&Ts in the U.S.; not many electric co-operatives can leverage capital and subsidy in the manner Basin has. And officials within BASIN were keen to note that their corporate subsidiary came about out of opportunity and relationships with the DoE, not out of a grand design to optimize organizational agility (“the stars aligned for us” (Association Official, personal communication, August 9, 2011)).

Such a development tactic opens electric co-operatives to attacks on the integrity of the model from a number of corners. The formation of investor-owned subsidiaries may give the appearance of money laundering (as one electric co-operative in Atlanta has been accused of doing (Cooper, 2008)). The corporate entity must seek to make a taxable monetary profit, which comes from the PPA, owned by BASIN. Officials with BASIN defended this tactic, noting that organizational wholesale costs and price to the owner co-operatives is virtually always the first concern, and that PrairieWinds was developed to provide the best cost-competitive wind power possible. Any profits are returned back to BASIN and administered the same way as other marginal returns in the co-operative; investing in infrastructure and returning margins to owners. Furthermore, Basin noted that its reports are in the public realm, meaning member-owners can self-monitor.

The analyses of BASIN reveal an organizational culture where G&Ts attempt to control many exigencies. The electric co-operative system as a whole is culturally
oriented toward vertical integration, in order to maximize control for member benefit (Co-operative Association Official, personal communication, September 8, 2010). This is particularly true when variables may interfere with their capacity to meet the service demands of their member-owners, or reliance on other types of firms makes G&Ts more susceptible to price volatility.

Nonetheless, it stands that BASIN and VEC have to work within rules that from a development perspective are designed to accommodate IOUs. Invariably, many electric co-operatives must interact with their IOU counterparts, whether it’s to purchase wholesale energy, share transmission lines, or vie for service territory. None of the ownership types connecting to the grid can isolate.

The origins of the IOU and co-operative systems have placed both on a path dependency. IOUs are widely understood. The IOUs are better positioned to leverage legibility, revenue streams, valuation to procure capital, and quickly expand their generation and transmission capacity. This seems to play a significant role with regards to the question “why is there only one co-operatively-owned wind farm”. Co-operatives by and large began disadvantaged: they arose to develop the low-margin service territory the IOUs rejected out of profit projections. Compounding the problem is an energy policy acting as a public subsidy for the private sector to invest in and govern over the resource rich areas of the grid while leaving co-operatives with sparse, high overhead rural regions. The features of the service territory then exacerbate the government policy disadvantage faced by co-operatives. Concurrent to that, co-operatives have less equity due to their decentralized structure. Plus, instead of dipping into their capital reserves or go into debt to build their own wind farm, co-operatives tend to purchase PPAs
exclusively through the IOUs (since IOUs are the dominant form of wind energy ownership).

“The main point though is that co-ops don’t really own much wind per se. They have many more PPAs (Power Purchase Agreements) where they’ve committed to purchasing the power generated by a wind farm owned and operated by a private entity that built it and probably got tax advantages for doing so” (Scott, 1999).

Taken as a whole, government energy policy is bent in favor of investor-owned, for profit models of wind energy production. Electric co-operatives taking a reactive stance to government policy, fail to differentiate themselves on critical element of the co-operative model and the potential benefits of co-operatives toward advancing energy policy. Co-operatives then are simply are not at the policymaking table. The public policy then creates a chilling effect, discouraging robust collective action by a majority of U.S. energy consumers (the public service paradox, in which consumers are not given voice in the provision and procurement of a public good).

Taken together, the “baked-in” structural deficits, coupled with IOU-centric government energy and fiscal policies, place the electric co-operative sector at a disadvantage. Yet this disadvantage has catalyzed entrepreneurial responses by the electric co-operative sector (the formation of G&Ts, purchasing co-operatives, and representative associations). Under current policy arrangements, the IOUs would appear to receive an inordinate amount of government privilege, allowing IOU models of electric generators to deploy new, renewable energy generators. Yet there is still time for co-operatives to mobilize in an effort to change these ongoing dependencies.
How Does Wind Energy Development Influence and Interact With Local Community Social Structures (community)?

The previous section addresses the issue of policy, structural pathways, and the resultant features of wind energy development. What are the implications at the local or host level? How are those communities playing host to major pieces of electric company infrastructure effected by this policy? And what might happen to these firms and their communities if government support was more evenly allocated, shifted from IOU to co-op, or removed entirely? The two case studies revealed a number of common features observable of wind energy development within a host community.

There are three distinct phases related to the development process of wind energy development wherein actors have varying degrees of influence and governance: 1. exploration and development; 2. construction, and; 3. operations and maintenance. A wind farm, physically and socially, will have greater opportunity for involvement during the development and construction phases when the firm is in need of broad-based community buy-in and consent. But once a wind farm is constructed and operational, there is quite little a community can do to alter how the firm distributes newly generated wealth or how it otherwise interacts with the community.

This section addresses the extent to which the features of wind farms will have relatively generalizable interactions at the community level. This is due in part to the aforementioned government regulatory apparati, the rigidity of the market, and the to-be-addressed organizational design of wind farms (Section Three).

As noted previously, a community is a…
…group of people with durable, multiplex and direct relations. They expect to continue to interact for some time to come (so group membership must be fairly stable); they interact on several fronts, not in a specialized sphere; and their relations are not mediated, in particular by central government agencies.”

Development of community is oriented from the vantage point that…

“…community members strengthen the community field (Stedman, et al., 2009, p. 182) when they interact not just within their private-interest social fields (such as a small business), but also across linked social fields to distribute benefits throughout the community (Wilkinson, 1970, 1972). The community field itself can be identified by how the local population addresses any one of the following problems occurring during an action process (405): “problems of awareness, organization, decision making, resource mobilization, and resource application” (Wilkinson, 1991).”

There are a number of mechanisms that may be utilized in order strengthen the community by way of wind energy development. Many of the mechanisms have strong linkage to the features of a polycentric system, particularly when actors are allowed to engaged in the process. It no doubt takes inventiveness from the firm to ascertain the optimal linkages to community governance. In this, process matters a great deal with regards to community development outcomes.

“How people interact, and how those interactions facilitate transference of trust, knowledge, and other resources are crucial to better understanding both the impediments to community development, as well as how to better develop the community field; the flatter or more accessible the governance institutions, the greater the potential for individual and community-wide collective action through interaction (more recent work finds the social order itself is maintained when the gap in inequality is lessened, for example) (E. Ostrom, 2005).”

Additionally, community inclusivity allows for enhanced information flows toward the wind developer so they can better adapt to social dilemmas. This will be of critical importance throughout the remainder of this analysis.

**Scouting for ideal communities: Prerequisites for wind energy development.**

Both communities in the case studies had ideal wind regimes: contiguous plots of land,
ready access to the grid, and robust wind. The relative rush to develop wind energy in Illinois as compared to North Dakota is for a number of reasons. The existing grid was built out to accommodate future growth, making long-term investment in Illinois more attractive than sparsely populated states like North Dakota. For one, McLean County, Illinois has access to major transmission lines connecting to Chicago, Indianapolis, and St Louis regional energy consumers; developers could readily plugin to the Illinois grid (Association Official, personal communication, November 3, 2010). These dense metropolitan populations are more likely to demand greater bulk quantities of renewable electricity on normative grounds.

North Dakota’s total wind regime is not as attractive in that it’s isolated from significant transmission, requiring additional build out of transmission lines, limiting access to the broader electricity market. The grid is constructed to service relatively rural regions meaning it will need upgrading if the North Dakota wind were to be used for regional energy needs, and the co-operative ownership of the transmission grid means that Basin is disincentivized from allowing for-profit firms to gobble up transmission capacity (Basin’s orientation is toward its owner-co-operatives, not to help provide strategic access to markets for private partners).

Once wind energy developers have determined the economic environment to be favorable, they begin the search for ideal communities nested within these ideal environs. The attributes of a community and key actors are significant determinants in wind energy siting. What set these two communities apart from other communities with similar wind regimes and made them ideal for wind energy development was the community reception to wind energy development. The growth machine coalition, with its heavy orientation
toward land development (real estate, agriculture, or otherwise), smooths the path forward for wind energy developers to make the case for wind energy development. That said, these firms are not unprepared for any potential hiccups along the way.

The wind energy development groups are learning a great deal from each other about how best to steward the development of new wind farms. The information gleamed in the field is transmitted to associations, shared with colleagues, and shared at conferences (the Center for Renewable Energy at Illinois State University in McLean County facilitates many of those discussions for Midwest-based developers (University Official, personal communication, May 10, 2010)). A dominant theme coming from infra-firm sharing of best practices is that the greatest ally of the wind energy developer in averting organized opposition is transparency and trust-building (Wind Developer, personal communication, November 8, 2011).

Wind energy developers are fully aware of the range of options opponents may use against them. Actors living within and outside of the proximity of the turbines have any number of reasons to oppose a wind farm, and have a number of venues in the government (primarily county zoning boards) and public (such as local media outlets) to stop wind energy development. This study finds that quality of life issues (including aesthetics, sense of place and social identity, cultural and rural heritage, property values, and public health and safety) and the threat to wildlife conservation efforts were all reasons for opposition. A wind farm changes the skyline of a community for a generation or more. The general public may also have preconceptions as to the public health outcomes of wind energy development (turbine shadows, noise output, and harm to wildlife). The wind energy developers are keenly aware of this, and proactively prep to
mitigate the numerous levers that may be used to stymie the ambitions of a wind energy firm.

Wind energy developers work diligently to foster community buy-in, adhering to an early-and-often principle of outreach. Public events are held in symbolically significant venues (schools and firehouses for example) advancing the transparency principle, fostering greater buy-in through interaction, camaraderie, and trust generation. Transparency also applies to upfront discussions of controversies that have traditionally been associated with wind energy development. Additionally, wind energy developers go into each situation knowing the significant financial investment will be needed to proactively curtail environmental concerns. The wind energy firms have discovered it is best to pay for environmental impact studies up front as insurance against future criticism. While the cost of impact studies (hundreds of thousands to millions of dollars) is a sizeable amount of money, it’s a small price for developers to pay in an industry with promise of healthy, guaranteed margins (Association Official, personal communication, August 17, 2011).

A looming problem for wind energy development will be the (McGinnis & Brink, 2012) inequitable distribution of project burdens and benefits, distrust in the developer’s motives, and perceived lack of public participation in the decision-making process. Thus far, there has been little sustained opposition on this front. Perhaps this is in part how the wind energy developers advocate the economic impacts of a wind farm.

The developers are very keen to begin the conversation with a discussion of the financial returns of prospective wind turbine hosts. When harnessed, the wind farm can now convert a resource that used to merely exist as a lost resource into a harnessed
commodity cash crop of sorts, a biofuel. Buy-in was sought through appeals to individualism (*you could make a pretty penny if you host one of our turbines!*’) and distributive communitarianism (*think of the benefit to the schools, and think of the children!*’). The appeal to individualism promised a virtually cost-free return on investment; the quarter of an acre of land is operated and maintained by the wind firm, and checks are sent on a timely basis to the property-owner. Fairness in contractual agreements were hammered home through an open process as well:

“You always run into those types that think one neighbor is getting a better deal than the next. You want to nix that up front. In all of our presentations, we talk about the blanket offer for each turbine. No exceptions. If it so happens that one property owner gets an increase in lease payments, then *all* property owners get a an increase. This is featured in all of our public meetings” (Wind Developer, personal communication, March 25, 2010).

The developers also appeal to communitarian ideals to advance their development ends.

Common themes:

- Your neighbors are going to be financially better off. Property owners will make more money on their land, and new, high-paying jobs will be created.
- Your local government will get a new source of tax revenue (and you will be spared local tax increases for the foreseeable future).
- The under-funded K-12 school system will get a revenue boost, and the local children will have a brighter future.
- Together we (community and our wind farm) are going protect the environment and reduce dependence on foreign energy.

The biggest economic impact occurs after community cultivation, during the construction phase. The up front expenditures provide the biggest jolt to a local community’s economic base. The turbines, the community organizing, procurement of
land, synchronization of incentives and investment, and link to the grid, and labor costs add up to tens if not hundreds of millions of dollars.

Millions of dollars are infused primarily into rural taxing bodies, which proves to be particular useful to disadvantaged, underfunded rural school systems. Parents are content knowing their children are receiving a competitive education, and school system employees are gratified knowing they have enhanced job security:

“We are focusing heavily on math and science. Our kids are going to get a top-notch education on par with what they get in Normal [IL].”

But much is hidden from the outward discussions of community benefit. The impacts of a wind farm are, by and large, up front and economic. Wind energy developers don’t shy away from this fact, but they seem to conflate the short-term impacts as a long-term economic gain. Plus, the wind energy developers are never wholly transparent; they only convey some of the economics of the wind firm, never producing total profit projections. The public is not included in the governance of wind energy in a way that could advance long-term community development; this applies for both the co-op and IOU models of ownership.

The long-term operations phase, while contributing to the local tax base and land-lease payments, provides relatively few jobs (though such jobs are typically well-paid). Revenue generated from wind and land resources is typically absentee managed, resulting in capital flight concentrating wealth elsewhere. Additionally, longitudinal analyses are unavailable since the industry is in its relative infancy; this is problematic for communities pressured into making long-term development decisions (land leases contracts for turbines can range from 20 to 50 years) based on short-term “return-on-investment” projections.
The developers are not in the local communities to impact change, per se. The wind energy developers are there to build buy-in in order to deploy an enterprise contributing back to core organizational values (profits for IOUs or enhanced services for co-operatives). It falls back upon the actors within the firm to make use of the generated resource of the wind farm. It is doubtful that significant social structural change could come from the building of wind farms. In fact, the wind farms probably did more to maintain the local status quo (though to varying degrees) than to challenge it.

Referring back to the topic of ideal communities for wind energy development, it may not be happenstance that two communities of Ward and McLean exhibit strong growth machine characteristics. A system can be structured in such a manner as to prevent individual and collective action for purposes of atomization or centralized power (or to subvert stifling social centers by entering into voluntary collective action arrangements elsewhere). Growth machines certainly utilize such practices in order to enable economic development initiatives.

A rural, agriculturally based growth machine located in a wind-rich community is quite attractive for wind energy development interests. The wind firms in both of these communities link to cliques with growth machine attributes. The economic aspects of wind energy development were very attractive to the groups that play a strong role in growth machines. Property owners could lease their land to extract financial value from the wind, and the tax burden of property owners would be diminished as wind energy occupies a larger share of local tax liability. Communities with agricultural commodity orientations make for an easier “pitch” in that the concept is not foreign to landowners who are used to harvesting their land for a living.
When the growth machine coalition help to set out long term arrangements of the wind farm, many community benefits are forfeited for the life of the wind farm (30 to 50 years). Perhaps this is why many respondents were muted or under-enthusiastic about operational impacts. The school official in McLean County, excited about the financial boost to the tax base, noted: “It’s too bad though that we’re probably prepping these kids to move out of here, though. There just ain’t anything to keep them around.” This statement highlights the lack of substantive change that empowers individuals to govern themselves within these communities. Sure, the wind farm provides resources that allows for the development of human capital through locally established government institutions, but inclusive self-governance and public entrepreneurship take a back seat to financial and material focused outcomes of wind energy. The actors involved in the wind energy development process seemed to represent a cross-section of the local status quo with regards to age, gender, race, and class; very little seemed to be done with regards to diversified engagement.

The potential benefits of public energy governance are numerous. If the community is involved in the governance process, they could better utilize the wind farm for public pursuits. Outside of the obvious ramifications of distribution of resources, one must consider the physical characteristics of a wind farm. Properly sited, a wind farm could be used as a non-governmental limit the capacity of a community to sprawl, serving a role as a greenbelt and farmland preservation instrument.

Public engagement might result in greater community self-awareness. Perhaps the community might change collectively alter its calculus if the actors were aware that wind resources are indeed exhaustible. If private IOUs occupy the land, then the wind
regime cannot be further harnessed with a new community-owned wind farm. Once a wind farm is built and that wind regime is saturated, additional or alternative models become impossible. Communities *must* be careful to choose whether the ownership model introduced locally is the ideal community partner in the decades to come.

Wind energy development certainly has an impact on the social structure of the host community. Wind energy development, at this current stage, is more amenable to economic development than community development. It becomes clear that communities need to be prepared for wind energy development up front to better negotiate terms. Once in operational and construction phase, the community benefit is predetermined. Individuals must have the space to be able to work collectively, build new institutions, and challenge centralized power by aggregating up the existent social hierarchy or having the tools necessary to create their own social structure. But does the insertion of a given type of organizational model impact the type of community development outcome?

**How Does the Ownership Model of the Wind Energy Firm Affect Community Development (the firm)?**

The question of ownership over the wind farm and ownership’s resultant community development impacts requires a peeling back of the layers of governance and the influence ownership has over governance mechanisms. The “peel-back” helps to assess not only how the firm is stewarded, but to assess its resulting robustness, and how the community is engaged in that process. Many actors within both types of firms perform governance, but rarely do the owners themselves partake in direct governance or stewardship outside of the occasional shareholder or member-owner meetings. McGinnis and Brink (2012) elaborate further on the concept of stewardship:
“the term “stewardship” …refer[s] to the practice of managing common resources in a way that insures the continued availability of that resource to future users. The problem is a classic dilemma: each individual has an interest in extracting as many resources as possible, and hoping that someone else will pay the costs of replenishment or maintenance. In the absence of effective stewardship, the commons will be destroyed” (p. 1).

The IOUs certainly make greater promises, conveying the benefits to individuals and the community in financial terms while avoiding direct discussions of potential pitfalls; the IOUs are not as concerned about their role in community stewardship and governance as the co-operative firm. A further point of consideration is that a firm whose substantive controlling interest coming from venture capital investors (IOUs) certainly pose risk for long term sustainable operations. What if the market collapses or the firm goes bankrupt? What reasonably are the chances the IOU will make an effort to transition the relationship between the community and the wind farm in a mutually beneficial manner? With that in mind, is the IOU really the optimal steward for a community’s wind regime?

What is needed is a tool to assess institutional features and how those features interact within the institution’s host community. The Ostrom Design Principles (ODP) (refer to Table 2) serves as a useful diagnostic in assessing institutional robustness. The categorization of institutional features provides the institutional analyst with the tools necessary to identify shortcomings in institutional design, and that institutions fit with the resource it stewards.

It should be noted that the ODPs have only recently been extended outside the realm of natural resource governance. Most recently, Ostrom’s colleagues at the Bloomington School have applied the ODPs to an examination of the health care
commons [Ostrom also has a book on knowledge as a commons]. The application beyond natural resource management is justified as such:

Over several years she [Ostrom] examined case studies of natural resource commons which were successfully managed by local users of that commons over long periods of time, as well as cases in which these efforts were unsuccessful. Community groups exert stewardship by establishing and enforcing their own rules concerning how many and what types of resources can be extracted, and when, as well as requiring contributions to collective efforts to maintain access to those resources. Ostrom (1990) summarizes her findings in an influential list of eight “design principles” which are satisfied, in one way or another, in cases of sustainable resource management (McGinnis & Brink, 2012, pp. 1-2).

But Ostrom’s work on sustainable resource management had been tightly linked to natural resources, and not yet widely applied to standard businesses, or to highly technological systems.

Our initial discussions focused on the serious concern that lessons drawn from the study of natural resource management (mostly in the developing world) might not even be relevant to the highly technical realm of modern healthcare. Technically speaking, Ostrom limited her conclusions to the management of common-pool resources, in which individuals extract resources from a common pool for their own use. Some commons are better described as public goods, in the sense that individuals jointly enjoy the benefits without any threat of exhaustion. Other commons are available only to those who pay a membership fee, as is the case for country clubs or housing associations. Health and healthcare policy encompass the full array of private, public, and club goods, and only a few aspects fit the technical definition of a common pool resource (p. 2).

McGinnis goes on to demonstrate how a complex system (health care) comprised of a mix of goods can be conceptualized as a commons.

Access to emergency room services seems the best fit, since ERs are clearly subject to overcrowding and overuse in some circumstances. The patients are users of an ER who need to draw upon the skills of the physicians and nurses in order to improve their health. There are a limited number of medical personnel who can treat a finite number of patients at one time, just as there are a limited number of examination areas. If a patient comes to the ER for a non-emergency, the doctor who treats that patient is not able to take care of another patient who really needs emergency care.
Other important aspects of health care, like community health or insurance coverage, are more like public or club goods. Fortunately, Ostrom left open the possibility that the design principles might also be relevant to the sustainable production of public goods, especially at the local level\(^9\) (p. 2).

This research applies the diagnostic “to discover whether and which design principles” are being used by the firm and if they are helping to support” the wind regime and community field as a robust resource – focusing on two individual organizations from within the broader system - much the same as Ostrom’s Bloomington School colleagues are plying the ODPs to analyses of the health care system as a commons (pp. 1-3). The diagnostic allows for an analysis of the robustness of the firm, which helps to understand in greater depth how the firm interacts with the local community, the institutional logic guiding the firm in this process, and categorization of the governance features integral for community development.

For the purposes of analytical clarity, robustness is defined as “the ability of human-constructed systems to remain functioning even after experiencing an exogenous shock” (McGinnis, 2012, p. 9). Importantly, this allows us to link institutional robustness features to economic and social externalities. The question of “how does the ownership model of the wind energy firm affect community development” becomes more prescient. A strong institutional analysis linking institutional design and practice is better linked to community governance and development processes with these tools (ODPs) in hand.

**Assessing the design and operational impacts of the wind farm on local level community development.** Section One accounts for the broader IOU and co-operative systems and their regulatory environments. Section Two addresses the generalizable elements of wind farm and community interaction. How then do the two case studies

\(^9\) Bold added for emphasis.
inform our understanding of the role of ownership over operational wind energy firms and their interaction with the host community?

Evidence from fieldwork in the two case studies demonstrates that a co-operative wind farm offers a number of advantages not likely to be found with an investor-owned wind farm. These advantages stem largely from participatory governance linked to ownership, and the nested systemic governance designs of the co-operative firm that do not exist in the IOU model (IOUs are simply not structured in such a manner). What follows is a defense of these findings through an institutional analysis of the two wind farms, via the ODPs (McGinnis, 2012 p. 22).

[ODP #1] Clearly defined boundaries & [ODP #7] minimal recognition of rights to organize (local autonomy).

ODP #1:

Individuals or households who have rights to withdraw resource united from the …resource must be clearly defined; [B] The boundaries of the …resource must be well defined.

ODP #7:

The rights of appropriators to devise their own institutions are not challenged by external government authorities.

The boundary of interest here is the community’s wind and governance regime.

Importantly, how is it that an operational wind farm’s ownership model impacts a community’s capability to alter the operation of a wind farm, and how does that wind farm reciprocate?

A wind farm is, at its simplest, an extractive device. The infrastructure is sited across vast tracts of land (now limited in its utilization), accessing and extracting consistent wind resources, converting wind energy to electricity, and transmitting the
electricity to the grid in return for monetary reimbursement. The monetary value is wind energy depends on a number of factors (intermittency of wind, market demand, subsidy, cost relative to other fuels, and so on), but the fiscal returns of cash flows were not a part of the discussion in either community. Speaking broadly, the community members were simply left out of the discussion of potential profit.

It makes sense for the IOU wind farm to divert attention from a dialogue of the long-term cash flow. If the IOU can control the information available to the community while generating trust amongst key decision makers, the IOU is in a superior position to lay out their own terms for development within a host community. The IOU works diligently to disengage potential oppositional issues, trumping up the financial benefits to landowners and the infusion of resources to symbolically important taxing bodies. Properly performed, acquiring rapid community acquiescence allows wind farm profits to be maximized, and revenues to be projected over the lifetime of the wind farm. This makes fully operational wind farms an attractive hedge for large financial interests.

The IOU seeks to limit broad community participation; community actors must be cognizant of this fact. Education is not an act of empowerment so much as another form of marketing or advocacy seeking acquiescence. Speculative contracts with landowners are sought out far in advance of a commitment to build –albeit with a promissory fiscal return should the wind farm be built. Once landowners have approved of a contractual agreement on IOU-ordained terms and local government has approved building and zoning permits, there is little leverage the community has to enjoin in governance (they are not conferred rights since they do not have the privileges of ownership). The processes as utilized by the IOU do not engage community members in operational
stewardship of the wind farm. This can result in unforeseen criticism, and harm the need to convert to clean, renewable energy.

Take for example the issue of grid connectivity. According to one of the wind energy developers, it is not an uncommon for some actors to demand locally generated wind energy be distributed and consumed locally as well (Wind Developer, personal communication, November 9, 2011). Some residents in McLean County were upset that the electricity generated from Twin Groves would in essence be exported for use elsewhere (Martello, 2009). The perception was that a wind farm is perfectly capable of being used for local energy needs, so why then should Horizon sell the electricity elsewhere. This demonstrates a fundamental misunderstanding of how energy generators on the grid function, and the problems when stakeholders are not included in stewardship; confusion or ignorance can lead to allegations of impropriety, and trust diminishes.

One can envision scenarios where other, similar conundrums arise. With enough consistent repetitive retelling of such friction going unchecked, these stories could form a mythos labeling wind energy development as community exploitation and misappropriation. Rapid, mass-conversion from “dirty,” exhaustible sources of energy to clean renewables could be impinged.

Co-operatives do better at engagement, distribution of resources, and long-term involved in governance. Basin and VEC avoid this problem by design. The nested-systems approach of electric co-operatives means that any electricity produced by Basin for distribution by Basin’s member-co-operatives, for the member-co-operative’s consumer-ownership. The boundaries are more logical (the wind energy turbines connected to the local transmission lines technically do feed back into the local
distribution network). But this is also where ownership contributes to the furtherance of knowledge.

Horizon doesn’t seek to educate the broader community about issues pertinent to electricity generation. It simply is not part and parcel of their model. Education is used primarily for marketing to advance their bottom line. Their desire is to the minimum necessary to see a wind farm through to operational status.

The electric co-operatives have a number of incentives to cultivate the community to better understand electric and wind energy governance – and stewardship of the electrical system as well. As noted in Chapter Two (pp. 32-34), co-operative institutional logic is informed by the Co-operative Principles (CP) (http://ica.coop/en/what-co-op/co-operative-identity-values-principles). Of relevance here is CP #4, **Autonomy and Independence**:

Co-operatives are autonomous, self-help organisations controlled by their members. If they enter into agreements with other organisations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

The co-operatives are rooted within the community (though Basin to a much lesser degree). The board is comprised of those who live within the service territory and consume the goods and services (as is likely of the staff as well). Whatever the co-operative does in the community will have an effect on those directly governing the co-operative. Furthermore, it’s a reflection of their concern for the community as well; it is highly unlikely that the co-operative would want to be seen as a destructive force.

The IOUs are part and parcel of a system that is enabled by the federal government to grow the share of wind energy generation in the U.S. As discussed in
Section One, community-ownership of wind is a virtual impossibility without the active engagement of or pushback by community development interests. Electric co-operatives serve a critical role in pushing their communities to actively engage in energy governance, without electric co-operatives, public energy governance would be virtually non-existent. Electric co-operatives are actively involved in defining the boundaries of their responsibilities toward these ends.

The co-operatives performed a number of informative public events to educate the public on what to expect during the development processes. The co-operatives certainly pulled from the same proverbial playbook as the IOUs with regards to appeals to individualism and communitarianism, but there was a stronger social responsibility element to how the co-operatives engaged the community.

First, the electric co-operatives provided in-depth educational presentations and materials. Basin was extremely sensitive not only to the known oppositional issues, but was also very careful to acknowledge potential future dilemmas, such as the saturation of a localized wind regime that could limit wind energy development capacity. Yes, this did help to engender deeper trust, but in presenting on such topics, Basin risked its own project.

Second, the electric co-operatives actively acknowledged that landowners should seek out their own third party legal representation. Basin offered all prospective landowners legal-fee-stipends, to retain legal representation to review the fairness of their contracts. Basin suggested the landowners pool the stipends together to enhance the legal representation as well. Again, the risk Basin took was that they provided the landowners a venue by which they could work collectively outside of Basin’s control, and potentially
mobilize to demand better contractual arrangements (the co-operative provides space for landowners to interact, share information, and build and enhance trust).

Basin and VEC have well-established mechanisms to allow for longitudinal governance over the wind farm. These mechanisms have been transmitted from amongst their cohorts in the electric co-operative sectors, and will be discussed further below.

[ODP #3] Wide participation in collective choice:

Most individuals affected by the operation rules can participate in modifying the operational rules.

The IOUs’s narrowly designated boundaries, established to maintain optimal control, translate into a scenario where participatory collective choice mechanisms are essentially cut off after the development phase. Horizon developers made it very clear that the executive team was hands off, expecting the development staff to produce optimal returns. Horizon developers sought the path of least and desired to use monetary incentives to seek acquiescence. Their timeframe was short: do just enough to get the turbines in the ground, and the job was essentially done. Absentee ownership could then kick in. The development staff would then pack up, and head to the next field site; in this manner, IOU wind farms are duplicating many of the features of absentee coal-fire power plants that atomized their host communities (Adamson, 2008; Freudenburg, 1984; Freudenburg, 2008).

Not so with the co-operative. Co-operatives are not motivated by quarterly performance-reporting metrics; co-operatives are member-need oriented. These co-operatives see themselves as existing in perpetuity, benefitting future generations. Electric co-operatives then exhibit a much longer time horizon and planning perspective than their IOU counterparts. The board and operational teams live and work within or
near the service territory. What they do unto their service territory, they essentially do unto themselves, their friends, family, and peers. The actions of the co-operative interact with the community, and the community also interacts with the co-operative.

Two Co-operative Principles inform how the co-operative engages the broader community:

CP #1, Voluntary and Open Membership: Co-operatives are voluntary organisations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.

CP #7, Concern for Community: Co-operatives work for the sustainable development of their communities through policies approved by their members.

These CPs push the co-operative to seek venues for broad-based participation, as well as to insure there is a net community benefit from its operations. Take for example Basin and VEC’s actions.

Basin is quite cognizant of the potential for positive economic externalities reaped by the community hosting their wind farm. It makes sense that they could situate any major investment within their service territory, and within proximity of a member-co-operative: VEC. VEC led the community effort to develop the wind farm, which fostered positive social capital from the community toward VEC. This also enhanced Basin’s standing amongst actors in Ward County, as well as VEC. Merely siting the infrastructure within a co-operative’s service territory is not enough to claim wide participation by the member-ownership in governance over the wind farm.

The electric co-operatives in this study are not complacent organizations. The board and executive team offer a number of incentives to promote active civic engagement by the staff. During the floods, staff was offered paid leave to assist in
mitigating the damage. Furthermore, VEC invests a great deal of organizational resources in driving up turnout at their annual general member meeting, which has become a community fixture. But these examples are somewhat one-way participatory mechanisms that certainly do transmit important information back to the organization, which the leaders can then absorb, analyze and assess the need to recalibrate features of the co-operative; these mechanisms do not necessarily empower community actors to govern.

VEC is also engaged in fostering new institutional leadership. The “member advisory committee” has provided an outlet for interested co-operative member-owners to actively engage in governance over the electric co-operative, providing a venue for participatory decision-making. This carries a risk of disruptive member-owners taking advantage of an open door to the organization. But it also carries the advantage of information sharing, trust building, and the generation of future leaders for the co-operative.

[ODP #4] Monitoring:

[A] Monitors are present and actively audit …resource conditions and appropriate behavior; [B] Monitors are accountable to or are the appropriators.

The electric industry as a whole has a relatively robust monitoring regime as it relates to the ongoing operation of the electric grid. The ISOs, FERC, and NERC serve the role of monitoring the grid for early warning signs, as well as vetting new connectivity to assure perpetual operations.

The operational IOU wind farm does not directly report much if any information to its local host community. Performance and health and safety information can largely be found online through the websites of governmental regulatory bodies. Unless
otherwise specified in the terms of local community government or landowner lease contracts, the IOU wind farm need not report additional data above and beyond what is required by law.

Electric co-operatives essentially perform the same reporting as IOUs and report to their member-owners and apex organizations. The electric co-operatives in this research see this feature as linked to CP #5: Education, Training, and Information:

Co-operatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives. They inform the general public - particularly young people and opinion leaders - about the nature and benefits of co-operation.

Oddly, electric co-operatives take it as given that they are unregulated; they seem to only be unregulated by government with regards to their inner operational features as it relates to fiscal allocation. The reality is that they are extremely regulated. Electric co-operatives report to their member-owners, at a minimum, once per year at the annual general membership meeting. In the case of VEC, their member advisory committees provide another venue for in-depth, intimate discussions of the co-operative's robustness. The co-operative must also report to their co-operative support system lenders on their fiscal performance, as well as to their marketing co-operative, Touchstone, on the integrity and quality of the member-owner services.

Electric co-operatives are highly regulated and monitored entities at many levels, by virtually all of their stakeholders. Not so with IOU wind firms.


ODP #5:

Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, officials account to these appropriators, or both.
ODP #6:

Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.

Both ownership models will have spelled out penalties between landowners and the firm, as well as local government agencies and the firm. The IOU, however, differs in that the sanctions community members are able to leverage against the IOU will be limited (the IOU is absentee). Plus, the IOU is more likely than the co-operative to insist on contractually binding third party dispute resolution mechanisms, such as arbitration.

Electric co-operative could certainly operate in an absentee manner (it would seem to be against their institutional logic), and could have their member-owners sign off on a waiver of judicial access and rights for disputes processes. But in the case of Basin, that did not occur; the member-owners certainly could take given disputes to court should the need arise.

Co-operatives have additional sanctioning and dispute resolution mechanisms. Simply enough, member-owners of a community could exert collective social pressure upon actors within the co-operative to resolve disputes. Member-owners can also attend VEC or Basin general membership and advisory meetings, where their voices are heard again. And, should it come to that, the member-owners can call for a special emergency meeting, the board can fire staff, and the member-owners can expel members of the board. The community certainly has more options for dealing with a problematic electric co-operative than a similarly problematic IOU.
[ODP #8] Nested enterprises:

Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprise.

All wind energy firms are indeed embedded within a nested system. The electric grid is, at its base, a system whereby actors must minimally be linked to government regulation and oversight, as well as maintaining connectivity to financiers on matters related to investment partnerships and future investing opportunities. And if the accounts of developers at Horizon were accurate, wind energy developers stay connected with each other in order to share best practices for community organizing, as well as infrastructural build out.

Electric co-operatives nest within the same network of actors, but do so by way of their own polycentric, federated system. Co-operatives are by design a nested enterprise, and that nesting is utilized to enhance the co-operative’s value orientation. The institutional logic is again informed by the Co-operative Principles, specifically CP #6, Co-operation among Co-operatives:

Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional and international structures.

Electric co-operatives are by law and by institutional design member-owner governed. They are also nested within their community. There is a bare minimal recognition of participatory rights to governance and monitoring. This means that electric co-operatives operate as a gateway, an access point to active participation in the governance of wind energy and the electric grid as a whole. Taken on the whole, the electric co-operative provides a venue by which citizens may actually *do democracy*, aggregate resources to enhance the local co-operative, and foster a system that mitigates
the public service paradox through consumer engagement in provision and procurement processes.

The two co-operatives and the co-operative actors in the associations talked in terms of evolving toward a complete systems approach. The electric co-operatives in this study exhibited an aggressive desire for vertical integration (from mine-mouth to meter) in order that they might enhance their self-governing capacities. Vertical integration of the supply chain by the G&Ts is coupled with the federated structure in an attempt to control market volatility as much as possible to meet this end.

But it is not just a market orientation for the electric co-operatives. Through associated with the national apex organization, NRECA, the co-operatives have created a wide variety of support systems for the electric co-operative sector. The electric co-operative system is incrementally moving toward being able to self-finance, has created a marketing brand (Touchstone), and is aggregating individual organizational needs into group purchasing negotiations in order to drive down overhead costs on services like health insurance and pensions. The co-operatives are in a persistent state of network maintenance.

The IOUs prefer targeted, isolated specialization, as well as externalization of management of the grid infrastructure. By design, the IOU actors act as nodes on a network, closed to community engagement. IOUs may be nested within the electric energy system, but they are not necessarily nested within their host community.

In contrast, even a corrupt co-operative offers latent capacity not built in to the IOU firm. The value the co-operative may offer to the member-owner is certainly enhanced by the nested nature of electric co-operatives; the co-operative firm “looks” a
lot more like its host community than the IOU. It is left to the actors within the local level electric co-operative to transmit the value into something meaningful for the local community. This is where adherence and commitment to democratic governance becomes challenging.

[ODP #2] *Congruence with local conditions and fairness:*

Congruence between appropriation and provision rules and local conditions: [A] Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions; [B] The benefits obtained by users from a …resource, as determined by appropriation rules, are proportional to the amount of inputs required in the form of labor, material, or money, as determined by provision rules.

Analysis of the firms failed to find evidence wherein the co-operatives or Horizon dramatically altered the social structure in such a manner that could be identified as community development. The difference is such: Horizon sought to harness those with social and political capital to influence development. IOU wind energy developers sought approval through local government regulatory agencies, and contractual agreements with landowners. The desire was to limit overall tax burden, limit community enticements, and maximize the subsidies to guarantee the largest marginal payoff possible. Up front, the community and wind developer may be in alignment on their values orientation, but as time goes on, the community has few if any options to renegotiate the terms of the contract. Once the wind farm is constructed and operational, the community is stuck with that infrastructure for 30 to 50 years, and Horizon’s maintenance of its network basically shutdown.

The electric co-operatives come from the local community, and seek constant alignment with broader value-orientation of the community. The electric co-operatives are helping to both contribute to maintenance of the existing social structure (which is
critical in an environment of rapid influx of in-migrants, that could cause a great deal of 
chaos), building individual and collective capacities. Board members, member-owners, 
and operational staff are interacting through standard channels created and sustained by 
the co-operatives and the broader community. The product of these interactions seems 
somewhat static from a structural change perspective; much like the IOU, the co-
operatives seem to be engaged with their local growth machine coalitions.

But recent developments within NRECA, the US co-operative movement, and the 
International Co-operative Alliance (ICA) could stimulate these actors to participate more 
explicitly in local co-operative development. NRECA has created a 21st Century 
Committee in reaction to the ICA’s Year of Co-operatives to assess how co-operatives 
could get back to their core mission. According to actors involved with the Committee’s 
work, there is a push for system-wide realignment with the Co-operative Principles (Co-
op Association Official, personal communication, September 8, 2010). For the purpose 
of this analysis, the relevant Co-operative Principles are:

**CP #1, Voluntary and Open Membership:** Co-operatives are voluntary 
organisations, open to all persons able to use their services and willing to accept 
the responsibilities of membership, without gender, social, racial, political or 
religious discrimination.

**CP #2, Democratic Member Control:** Co-operatives are democratic 
organisations controlled by their members, who actively participate in setting 
their policies and making decisions. Men and women serving as elected 
representatives are accountable to the membership. In primary co-operatives 
members have equal voting rights (one member, one vote) and co-operatives at 
other levels are also organised in a democratic manner.
**CP #3, Member Economic Participation:** Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the co-operative; and supporting other activities approved by the membership.

**CP #7, Concern for Community:** Co-operatives work for the sustainable development of their communities through policies approved by their members.

ODP #3 addressed a sizable portion of CPs #1 and #7.

Realignment with the overall bundle of CPs could lead to significant outcomes.

North Dakota has a rich history of co-operatives participating in economic and community development. The so-called Co-operative Fever of 1991 (Patrie, 1998) had substantial participation by North Dakota electric co-operatives, including VEC and Basin. This is yet again an emanation of co-operatives as latent community development capacity; all it takes is the right conditions and catalytic actors to drive the co-operative toward community development engagement.

Currently, VEC is helping to both contribute to maintenance of the existing social structure (which is critical in an environment of rapid influx of in-migrants, that could cause a great deal of chaos), while also building individual and collective capabilities for engagement in community governance. The current leadership of the electric co-operative is looking at nurturing the next generation of talent take the helm through the Member Advisory Committee.

Strong adherence to the preferences of local actors does not come without some pitfalls. Co-operatives exhibit great potential to influence the larger system. Officials at US DoE made it clear that NRECA and the rural electric co-ops have immense political
clout, that clout being used for initiative deemed worthy by key leaders in the sector. Electric co-operatives have not been actively pushing awareness of the need to convert from coal to renewables such as wind, translating into a situation whereby member-owners are not mobilizing en masse for rapid conversion. Electric co-operative clout is not used to grow the co-operative movement or community development capacity so much as to limit change, especially the shift from coal to renewables. Basin, for example, is only looking to build its share of renewables within its portfolio, not to convert it completely. Basin projects it will not need new electric generation capacity until 2018 (Rebenitsch, R., personal communication, August 18, 2011), meaning Basin, with the greatest capacity of all energy producer to develop North Dakotas wind regime, will be relatively idle in this area, reducing co-operative participation in renewable proliferation, and leaving the gate wide open for IOUs to saturate the wind regime.

**Concluding Discussion**

The contributions of this study are both small and large. But what stands out to this researcher is this: The electric energy commons is complicated, the IOUs are powerful, and government policy plays a commanding role in shaping the system. And yet co-operatives have demonstrated a long-term, successful track record for not only governing the energy commons, but maintaining their underlining institutional logical orientation despite the isomorphic tendencies of the system. The implications are enormous. Rural communities equipped with the proper set of institutions and leadership can govern over one of the most sophisticated resource systems known to humankind.

This dissertation was somewhat exploratory in nature, and therefore could not address all of the critical questions uncovered and unaddressed. What remains to be seen
is how the critical consciousness of institutional actors emanates, the form it takes, how it is harnessed and how it is engaged. Do these institutions and their stewards desire to be forces for community robustness against corrosive social forces? Are alternative models to the status quo –specifically co-operatives- the optimal model for enhanced community development? Do co-operatives have the capacity to attempt to become national policymakers merely by acting, not necessarily counting on external agents to take the electric energy system to the next stage? And if so, is this a good idea?

What is clear is that the wind energy development phenomenon should not be presumed to always be a benefit or detriment to a host community. The positive externalities of a wind farm depend on how it is operated, the underlying logics of the ownership model, who governs the firm and their underlying motivations, and within what framework of rules the firm functions under. Furthermore, one cannot underscore the importance of intentionality; reliance on spontaneous community development outcomes is a naïve approach in that it presumes the mere introduction of a major development project would result in positive externalities, a result that can never be guaranteed without some level of community intervention.

This is a problem of passive development, of allowing “markets” to happen as opposed to intentionally designing or controlling for development outcomes (the invisible hand of the market). Wind energy development receives government assistance with virtually zero strings attached, as if the consumption of public goods confers little if any responsibility to provide for the commons. To place absolute trust in the community or public orientated virtues of the investor-owned firm is naïve; the investor-owned firm is
not legally or normatively expected to account for the public interest. As noted at the
beginning of this dissertation, the historical pathways for energy development has had
unintended, negative community impacts. Government policy that extolls privileged
status onto one type of institution should at bare minimum account for or mitigate the
deleterious impacts that institution may externalize onto a host community.

There is no doubt that wind energy promises to transform rural communities via
numerous socio-ecological mechanisms. The studies encapsulated in this dissertation
were conducted from an underlying assumption that the introduction of new wind energy
infrastructure interacts with local level community structure. Wind energy development
very well could have a significant impact on the livelihood of millions. Marginalized
groups could be empowered to have a greater voice in community governance, or those
with inordinate local influence could be further strengthened. The subsequent questions
of wind farm ownership become of central interest in that ownership is presumed to be a
partial determinant as to how actors navigate systemic structural pathways at multiple
levels, and how those actors transfuse the attributes of the resource system with the
attributes of the community.

The analysis provides a lot for developers and policymakers to consider,
particulary with considerations of the efficacy or usefulness of institutional design. The
two institutions have different underlying logics guiding them. But, it is also reasonable
to ascertain that given features of the firm should offer an additional inducement for the
actors wishing to interact with it. An IOU will more likely attract individuals personally
motivated to accrue financial wealth, and co-operatives will more likely attract

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40 There are increasing incidents of investor-owned wind farms refusing to power-down their generators when requested by the
Independent System Operators, due to the need to produce as much revenue as possible; the unfettered private profit motive is indeed
a threat to the robustness of the energy commons.
individuals with a service-orientation. Obviously this does not always neatly align, which is why not all institutions exhibit the same organizational culture. At the end of the day, fallible human beings running the firms determine the firm’s value orientation, informed by -or despite of- the institutional logic.

Energy policy involves how and why actors use essential resources to supply the grid, as well as how the grid infrastructure is shared and stewarded. A central tension sits at its heart. On the one hand, following from the concept of "the commons," the electric system is in part stewarded to varying degrees by every citizen, and every citizen has some form of governance duty responsibility over that system (from paying their energy bill, conserving energy, to serving on an electric utility’s board). On the other hand, in the American economic system significant weight has been granted to private interests with regards to the right to extract natural resources, process them into useable “things,” (goods, or services) and to profit from that process –oftentimes enhanced through government subsidy- so long as those private interests follow rules established by the political process, citizen governance (democratic administration) is diminished. This is partially a result of major shifts in government policymaker orientations over the last couple of decades (Clinton-Gore’s “reinventing government,” neoliberalism, and the more recent anti-government movements). A commonality is the misplaced rejection of collective or community governance regimes, stemming from the conflation of forms of collective action for suboptimal state or central planning. Government policy then appears to confer privilege on the closed-door, for-profit, investor-owned firm out of the presumption that the investor-owned firm will always offer the optimal policy outcome.

The energy commons -and increasingly many resource systems- operate under an
isomorphic market logic (DiMaggio & Powell, n.d.) whereby actors within the action arena are taken on attributes similar to or in alignment with the investor-owned firm. The provision of public goods is viewed by policymakers as optimally distributed via market mechanisms, resulting in policy emphasizing competition and decentralization as proxies for non-state control. The replacement for “the state” with “the market” presupposes a false binary, limiting choice, cultivating a system that is guided by “free” market ideological perspectives that shapes the governance structure. The prescribed market-based solution evades criticism for tendencies to function much like a centralized autocratic state (crowding out of entrepreneurship, inefficiency, and monopolistic behavior). This results in a situation in which government policy conflates means (markets and competition) with ends (choice, self governance, and robustness) with a lack of critical self-reflection. The system is in a self-perpetuating mode, wherein the underlying faith in markets gets stronger and stronger despite the warning signs of impending tragedy (in the real of fiscal responsibility, energy security, and global climate change) (Bourdieu, 2001).

Robust public governance is about more than mere non-state, market-oriented institutional arrangements. Aligica and Tarko (2011, p. 246), commenting on Bloomington School governance studies, remind us that:

Ostrom’s exploration led to the conclusion that the discussion on polycentricity is not just a discussion about multiple decision-making centers and monopolies of power, but also a discussion about rules, constitutions, fundamental political values, and cultural adaptability in maintaining them (Aligica & Tarko, 2011, p. 246).

And yet the inherent conflicts between joint ownership, values, public participation, adaptability, and the exploitation of natural resources goes largely unaddressed in U.S.
energy policy. Incomplete, investor-friendly government policy harms “alternative” institutions creating a power vacuum readily exploited by the dominant (market-logic-oriented) institutions.

The point here is that this dissertation reveals that government energy policy is missing an opportunity to make meaningful contributions toward enhancing community self-help governance and development capabilities. Energy, as an industrial sector, generates substantial revenues, and the sector could be further strengthened through citizen engagement. What is troubling is that government energy policy may be doing the opposite, leaving communities wide open to exploitation through systemic erosion of self-governing capacities.

Actors learn democracy in part “by doing.” But the emphasis of policymakers in the 20th century toward Weberian efficiency and Wilsonian bureaucratic administration paradigm means deliberate debate, dialogue and collective action has been slowly subsumed by expert thought-leaders. Individuals are increasingly left to feel powerless due to decreasing venues for participation in the “art and science of association.” Skills related to problem solving, building trust and enhancing reciprocity -and venues for being listened to by the powerful- are diminished. The forms of collective action center instead on seemingly unending partisan conflict (youth engagement in violent gang activity, adults become rent-seeking, and so on).

The way by which a wind farm impacts its host community is found in the long-term stewardship of the wind regimes and the resources generated by the firm; local ownership is one approach that seems to enhance community benefits (Kildegaard & Myers-Kuykindall, 2006; Tolbert, et al., 2002). In this concern, there are two major
points of departure a co-operative has from an IOU that should come to the attention of community developers and those advocating inclusive community governance. The first major departure is that an investor-owned firm has a number of legal barriers isolating broad-based participation, whereas a co-operative serves as a point of entry for participating in governance over a good or resource. A community actually cedes a great deal of governance rights when an investor-owned firm is given control over local resources. The investor-owned firm may be absentee-owned; meaningful interaction with the firm’s central decision-makers (executives, shareholders, etc.) may involve extensive coordination, or even outside arbiters (such as state or federal courts) to acquire minimal interactions for the purposes of discussing base concerns of the community.

Any member-owner of a co-operative has a right to certain governance mechanisms of the electric co-operative. There are of course the performance reports and general membership meetings that are part-and-parcel of the electric co-operative model. But there are also direct democracy mechanisms, such as the capacity to run for the board, participate in public advisory events, and personal interaction with the locally based staff and board members.

This brings us to the second major departure; a member-owner has a right to participate in an electric co-operative. Even a corrupt co-operative must allow some minimal amount of member owner participation by the community members; a fully operational IOU is not necessarily obligated to do so if it is not spelled out in the contractual details. That also means an electric co-operative can be governed or reformed from a number of points.
The study of Ward County, North Dakota found that the institutional logic of the co-operative is unlike that of the investor-owned firm. Electric co-operatives are by institutional design (and legal statute) member-owner governed. They are also nested within their community. There is a bare minimal recognition of participatory rights to governance and monitoring. This means that electric co-operatives operate as a gateway, an access point to active participation in the governance of wind energy and the electric grid as a whole. Taken on the whole, the electric co-operative provides a venue by which citizens may actually do democracy, aggregate resources to enhance the local co-operative, and foster a system that mitigates the public service paradox through consumer engagement in provision and procurement processes. Even a stale electric co-operative provides additional value that an IOU would be reluctant to offer, namely that the very existence of an electric co-operative is at minimum latent community development.

The rural electric co-operative sector is rife with stories of can-do collective action, of people volunteering to pay for the neighbor’s member equity, of farmers volunteering their time and equipment to dig post holes and string wire across vast terrains. Many of these early electric co-operatives went on to start telecom co-operatives, drinking and wastewater co-operatives, and credit unions. A few exploratory studies found that co-operatives “outlive” their corporate counterparts (Murray, 2011; Stringham & Lee, 2011), and make the community wealth rooted through local ownership (Alperovitz, 2011). These are long-lived institutions that engender public entrepreneurship and build communitywide social capital.

While an electric co-operative may cover a large geographic territory (as is the case of Basin), a member-owner located hundreds of miles away can still access the
central co-operative through one of Basin’s owner-co-operatives; the local distribution 
co-operative. And through this distribution co-operative’s network, the individual 
member-owner can attempt to mobilize other distribution co-operatives under the Basin 
umbrella to influence change.

The power of the electric co-operative is that, by default, it incorporates more 
actors in the governance process. If the energy generator is co-operatively-owned, the 
staff and the board stewards the firm with locality in mind. These groups come from the 
service territory of the electric co-operative, providing a number of venues for member-
owners to engage the direct stewards. Even then, these direct stewards can catalyze 
involvement as is being done in the case of VEC’s Member-Advisory Committee, which 
is fostering a new generation of co-operative leaders. The electric co-operatives certainly 
make a good faith effort at educating their member-owners, as well as the general public 
(indeed there is a renewed effort by NRECA to get their co-operative member base to 
educate the individual members, and have them advocate for co-op-positive policy)

No institutional arrangement will result is some manner of predestined outcome. 
Recall that in the case of Ward County, the two electric co-operatives exhibited relatively 
close links with the growth machine coalition (as did the IOU in McLean County, 
Illinois). While VEC is certainly working to build its member-owner capability to 
perform community governance, one should be concerned that the efforts of VEC to 
build a civic culture may be a wash in the end due to their strong interactions with the 
growth machine coalitions; co-operatives could also serve a powerful role in co-opting 
the local community.
The way a co-operative functions has big implications as it pertains to broad-based wealth creation and community development. The governance mechanisms of the electric co-operative seem to produce an iterative approach to collective resource management whereby community actors may cycle through the co-operative and transmit new knowledge throughout the community. This matters for relatively minor operational issues, such as an understanding of utility bill. Additionally, major social dilemmas benefit from such engagement - global climate change and the intersection with energy policy in particular - in that these dilemmas will require a broadly-based movement of engaged citizens at a number of levels, using a number approaches, to pose new, innovative solutions (Ostrom, 2009). An IOU simply does not see this as a major component of their operations.

There is certainly enhanced value offered by this co-operative-owned wind farm, and that does seem to stem from the co-operative ownership model. The existence of a co-operative is not enough to claim community development. However, developing the features of a co-operative (adherence toward core principles, enhancing member-owner engagement in participatory governance) moves the co-operative in that direction. In this way, it would seem appropriate to claim co-operatives – generally speaking – as a form of latent community development capacity.

The reluctance to claim co-operatives as institutionalized community development is appropriate. It runs the risk of fostering complacency, limiting self-reflection, and degrading praxis. Institutional analysts would be keen to avoid making a value claim absent of a number of parameters.

A solid conclusion of this research is that there is absolutely no reason why electric
co-operatives should be at a structural or policy disparity from their IOU counterparts, whether it be wind or other elements of federal energy policy. If energy policy is truly an all-of-the-above proposition, then a variety of institutions must be allowed to take advantage of government subsidies as well. Policy, as it stands, privileges absentee, private ownership and stewardship of the grid and natural resources. The general public is, by design, excluded. Should the current trend continue, private, civic-adverse institutions will be the de facto models that proliferate.

It may seem impossible to broaden public policy to account for electric co-operatives and their participating in deploying wind energy in an era of government austerity. The capital-intensive nature of wind energy commands significant upfront costs. Capital-intensive projects are going to be out of the reach of communities and non-standard business models (due in part to state sponsorship of privilege), and instead suit the typical role of private investors. But this is another problematic area wherein electric co-operatives offer an additional value or solution to policymakers seeking to harness these processes for added community development outcomes.

Energy policy in Denmark and Germany has carved out a role for collective or crowd sourced financing, leveraging community financial buy-in to advance wind energy development. U.S. energy policy could go a long way toward opening the system up to smaller scale investing by engaging electric co-operatives as leaders in such a process. Electric co-operatives could harness their member-owner network to raise investment capital, the federal government could provide a tax advantage to encourage such investment, and the development of new wind energy infrastructure would be owned by the communities whose natural resources provide the fuel. This seems like a reasonable,
low-cost for the government approach toward rapid development of wind energy.

Elinor Ostrom implores scholars to look at real-world examples of collective action successes and failures (2007 p. 9) in an effort to build healthy, robust communities. There is immense potential for diverse types of institutions outside of just the market and state to provide solutions to critical social dilemmas facing individuals and their communities. Electric co-operatives – and the co-operative sector as whole - provide an extraordinarily rich backdrop with which to better understand how to cope with collective action dilemmas. This is in part because little attention has been given toward institutional models such as co-operatives, which exhibit quasi market and quasi government features. And yet this institutional model has received little attention toward these ends. A new, coordinated approach to understanding the co-operative model should provide new, innovative approaches toward addressing the major concerns awaiting communities at large. It is the task of the research community to address this deficiency.
References


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Appendix A: Community Survey Informed Consent

[insert date]

Keith Taylor (a PhD candidate in the Department of Human and Community Development from the University of Illinois at Urbana-Champaign) is researching the impacts of wind energy generation on communities in Illinois and North Dakota; this project is being applied to Keith’s dissertation completion requirement. The research is being performed under the professional advisement of Professor Gale Summerfield, Director of the Women and Gender in Global Perspectives Program (also at the University of Illinois). Keith is attempting to understand how energy generating facilities may be utilized for community and economic development. Keith will be collecting data, as well as interviewing community residents and stakeholders, such as you.

The interview will last approximately half an hour. We would like to ask you about your experiences with the local wind farm. You do not have to answer any question that you do not want to. We will keep the questionnaires confidential and not identify any participants. There are no right or wrong answers. Your name and any other identifying information will not be used for any purposes. We would like to audio record the interview but no names will be placed on the digital recorder, and you may request that we turn the digital recorder off at any time.

There is no known risk in this study outside of the risks of daily life. If at any time you have questions about this research project, please feel free to contact Professor Gale Summerfield at 217-333-1977. As adviser of the project, she is happy to address any concerns you may have. You are welcome to call collect if you identify yourself as a research participant. In addition, if you have any questions about your rights as a participant in research involving human subjects, please feel free to contact the University of Illinois Institutional Review Board (IRB) Office at 217-333-2670 or irb@uiuc.edu. Again, you are welcome to call collect if you identify yourself as a research participant.

We appreciate your willingness to participate in the study and again thank you for your time.

PhD Student Keith Taylor, Principal Investigator Date
University of Illinois, Human and Community Development 268 Bevier Hall, 905 S. Goodwin Avenue, Urbana, IL 61801
Phone: 217-259-1145 Fax: 217-244-7877 Email: ktayl2@illinois.edu

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**************
Your signature below indicates that you understand the information provided above and have decided to participate.

Signature of Participant Date

☐ I agree for this interview to be audiotaped.
☐ I am at least 18 years old.
Appendix B: Community Wind Interview Guide

Community Opportunities in Alternative Energy Generating Communities
Interview Protocol for Communities with Wind Farms

Date and time of interview____________________________
Interviewer______________________
Location of interview____________________________

BACKGROUND:
Keith Taylor (a PhD candidate in the Department of Human and Community Development from the University of Illinois at Urbana-Champaign) is studying the social impacts of wind energy generation on communities in Illinois and North Dakota; this project is being applied to Keith’s dissertation completion requirement. Through discussions with key community stakeholders in Illinois and North Dakota communities, Keith hopes to identify opportunities as well as concerns that have appeared in the communities associated with the alternative energy projects. Keith will be performing data collection, as well as interviewing community residents and stakeholders, such as yourself.

ASSURANCES:
Everything is completely confidential. This isn't journalism. Your name will not appear in any of the published materials or files except for the consent form [which will be kept separately from the notes] unless you state explicitly on record that you are comfortable with your name attached to the project. There will never be direct quotes attached to your name or your institution. The interview should take about 15-30 minutes.

QUESTIONS:
1. What is your work (title, position) and where does your work take place?

2. What community (town and county) do you live in?

3. What are the critical issues facing this community?

4. What assets and opportunities exist in this community that could address these critical issues?

   a. Are you aware of particular actions being taken to address the various opportunities and challenges/threats in the region?

   b. If so, can you describe them?

5. a. The wind farm changed how your day-to-day life in any way? What about your business or where you work? Please explain.

   b. Do you do any official business with the wind farm? By that I mean do you have any contracts with the wind farm, or do you provide any products of services for them?

       i. Do any of your friends or family do any official business with the wind farm?
c. Are there any businesses you frequently use in town? If so, please explain.

7. a. How did the wind farm come to be?
   b. Who were the founders? [Were you involved in the start-up of the farm in any way?]
   c. Did any groups outside of the community participate in the process and why?
   d. Did the geographic location of the community serve as a decisive factor in locating the wind farm here?
   e. Were there any concerns expressed by critics? If yes: Were these concerns addressed and how?

8. What groups of individuals participate in the day-to-day and long-term operations of the wind farm? [Clarify: “who owns the facility? Who profits directly from it? Do any outside groups have a vested interest in X?”]

9. How has the wind farm benefited your community?

10. a. Do you see the wind farm as a permanent part of the community? Why or why not?
    b. Has the economy had an impact on the wind farm? What impact has the economy had on other aspects of life in the community?

11. a. Are there any particular local organizations, such as a community development group, environmentalists, or energy interests, that are related to the work of the wind farm?
    b. Did new organizations start up for the wind farm? If so, what do they do, and do they still exist?
    c. Do you belong to any organization that worked with or opposed the wind farm?
    d. What are the main organizations in the town? [Church, community development group, growers associations?]

12. What has the general community sentiment been toward the wind farm? [Follow up] Why do you think the community reacted in such a way?

13. What type of local development has been done in support of or as a result of the wind farm?

14. Do you think wind energy production is good for your community? What impacts does wind energy production have economically and politically?

15. Accounting for the numerous assets in your community (such as the wind farm), what actions do you believe could be taken, utilizing those assets to further local community development?
16. [THESE TWO QUESTIONS ARE INTENDED TO DEVELOP A SOCIAL NETWORK DIAGRAM OF THE COMMUNITY. ADMINISTER TO RESPONDENTS AND COLLECT UPON COMPLETION].

   a. If a project was before your community, please list up to five people whose support would be essential for the project to succeed. Please indicate each individual’s name, occupation, approximate age, sex and approximate years the individual has resided in your community.

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   b. Name the three people most effective in stopping projects?

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This concludes the interview. Thank you for your time. Would you like a copy of the results? If so, please write your name, address, and phone number below.

Name __________________________________________
Address________________________________

Phone: ______________
Appendix C: Survey Informed Consent

Keith Taylor (a PhD candidate in the Department of Human and Community Development from the University of Illinois at Urbana-Champaign) is researching the impacts of wind energy generation on communities in Illinois and North Dakota; this project is being applied to Keith’s dissertation completion requirement. The research is being performed under the professional advisement of Professor Gale Summerfield, Director of the Women and Gender in Global Perspectives Program (also at the University of Illinois). Keith is attempting to understand the market and regulatory forces at play in wind energy development. Keith will be collecting data, as well as interviewing wind energy stakeholders, such as you.

The interview will last approximately half an hour. We would like to ask you about your experiences with wind energy. You do not have to answer any question that you do not want to. We will keep the questionnaires confidential and not identify any participants. There are no right or wrong answers. Your name and any other identifying information will not be used for any purposes. We would like to audio record the interview but no names will be placed on the digital recorder, and you may request that we turn the digital recorder off at any time.

There is no known risk in this study outside of the risks of daily life. If at any time you have questions about this research project, please feel free to contact Professor Gale Summerfield at 217-333-1977. As adviser of the project, she is happy to address any concerns you may have. You are welcome to call collect if you identify yourself as a research participant. In addition, if you have any questions about your rights as a participant in research involving human subjects, please feel free to contact the University of Illinois Institutional Review Board (IRB) Office at 217-333-2670 or irb@uiuc.edu. Again, you are welcome to call collect if you identify yourself as a research participant.

We appreciate your willingness to participate in the study and again thank you for your time.

__________________________
PhD Student Keith Taylor, Principal Investigator
__________________________
Date

University of Illinois, Human and Community Development
268 Bevier Hall, 905 S. Goodwin Avenue, Urbana, IL 61801
Phone: 217-259-1145           Fax: 217-244-7877          Email: ktayl2@illinois.edu
******************************************************************************
******
Your signature below indicates that you understand the information provided above and have decided to participate.

__________________________
Signature of Participant
__________________________
Date

☐ I agree for this interview to be audiotaped.
☐ I am at least 18 years old.

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Appendix D: Wind Energy Interview Guide

Community Opportunities in Alternative Energy Generating Communities
Interview Protocol for Wind Energy Stakeholders

Date and time of interview____________________________
Interviewer______________________
Location of interview____________________________

BACKGROUND:
Keith Taylor (a PhD candidate in the Department of Human and Community Development from the University of Illinois at Urbana-Champaign) is studying the social impacts of wind energy generation on communities in Illinois and North Dakota; this project is being applied to Keith’s dissertation completion requirement. Through discussions with key stakeholders in the wind energy sector, Keith hopes to identify opportunities as well as concerns that have appeared in the communities associated with the alternative energy projects. Keith will be performing data collection, as well as interviewing stakeholders, such as yourself.

ASSURANCES:
Everything is completely confidential. This isn't journalism. Your name will not appear in any of the published materials or files except for the consent form [which will be kept separately from the notes] unless you state explicitly on record that you are comfortable with your name attached to the project. There will never be direct quotes attached to your name or your institution. The interview should take about 15-30 minutes.

QUESTIONS:
1. What is your work (title, position) and where does your work take place?
2. What community (town and county) do you live in?
3. What are the critical issues facing the wind energy sector from your perspective?
4. What assets and opportunities exist that could address these critical issues?
5. We would like to understand how communities and wind farms works together.
   a. How do wind farms change the local livelihoods of the community hosting the wind energy infrastructure?
6. We would like to understand how the development process plays out in the communities hosting wind farms.
   a. How does the wind energy development process typically begin?
   b. Who typically is engaged in the initial development stages of wind energy development?
   c. To what extent are local level community members typically engaged in the development process?
   d. Do the geographic location of the community serve as a decisive factor in locating the wind farm here?
i. What role does the political climate play in siting a wind farm within a given community?

e. What are the general concerns expressed by critics? Are those concerns often addressed, and if so, how?

7. What groups of individuals participate in the day-to-day and long-term operations of the wind farm? [Clarify: “who owns the facility? Who profits directly from it? Who regulates it? Do any outside groups have a vested interest in X?”]

8. How wind farms benefit local level communities?

9. Do you see wind farms as a permanent part of the community? Why or why not?

10. Has the economy had an impact on wind energy development?

11. What is the general community sentiment been toward the wind farm? [Follow up] Why do you think communities react in such a way?

12. What type of local development is done in support of or as a result of the wind farm? Who typically covers the expenses for such development? Who typically benefits from such development?

13. Do you think wind energy production is good for communities? What impacts does wind energy productions have economically and politically?
Appendix E: Institutional Review Board Approval

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of the Vice Chancellor for Research
Institutional Review Board
330 E Green Street
Suite 203
Champaign, IL 61820

July 30, 2011

Gale Summerfield
Gender and Women's Studies Program
320 ISB
910 S Fifth St
MC 480

RE: Cooperative or Investor-Owned: How Does the Structure of the Electric Wind Energy Firm Influence the Effects of Wind Energy Development on Community Development
IRB Protocol Number: 12012

Dear Gale:

Thank you for submitting the completed IRB application form for your project entitled Cooperative or Investor-Owned: How Does the Structure of the Electric Wind Energy Firm Influence the Effects of Wind Energy Development on Community Development. Your project was assigned Institutional Review Board (IRB) Protocol Number 12012 and reviewed. It has been determined that the research activities described in this application meet the criteria for exemption at 45 CFR 46.101(b). Category 2 applies because the study involves interviews with stakeholders and community members in Illinois and North Dakota to examine the socioeconomic impacts of cooperative and corporate wind energy development on rural communities. Although interviews may be audio recorded and participants may be identified in publications, any disclosure of the participants' responses outside of the research context would not reasonably place them at risk of criminal or civil liability or be damaging to their reputation, employability, or financial standing.

This determination of exemption only applies to the research study as submitted. Exempt protocols are approved for a maximum of three years. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated. To submit modifications to your protocol, please complete the IRB Research Amendment Form (see http://irb.illinois.edu/?q=forms-and-instructions/research-amendments.html).

We appreciate your conscientious adherence to the requirements of human subject research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me or the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

[Signature]
Su Le, Director, Institutional Review Board

c: Keith Taylor

Telephone (217) 333-2670 • fax (217) 333-0405 • email IRB@illinois.edu