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2018-03-23

## Gone with the Wind: The Evolving Influence of Social Movements and Counter Movements on Entrepreneurial Activity in the U.S. Wind Industry

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### Original Publication Citation

Carlos, W. C., Sine, W. D., Lee, B. H., & Haveman, H. (2014). Gone with the wind: Industry development and the evolution of social movement influence. *Advances in Strategic Management*. Available at SSRN: <http://ssrn.com/abstract=2746274>.

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### BYU ScholarsArchive Citation

Carlos, W. Chad; Sine, Wesley D.; Lee, Brandon H.; and Haveman, Heather A., "Gone with the Wind: The Evolving Influence of Social Movements and Counter Movements on Entrepreneurial Activity in the U.S. Wind Industry" (2018). *Faculty Publications*. 2088.  
<https://scholarsarchive.byu.edu/facpub/2088>

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**Gone with the wind:**  
**The evolving influence of social movements and counter movements**  
**on entrepreneurial activity in the U.S. wind industry**

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**Running Head: Gone with the wind**

The final, definitive version of this paper is forthcoming in *Advances in Strategic Management*, published by Emerald Publishing.

## **Abstract**

Social movements can disrupt existing industries and inspire the emergence of new markets by drawing attention to problems with the status quo and promoting alternatives. We examine how the influence of social movements on entrepreneurial activity evolves as the markets they foster mature. Theoretically, we argue that the success of social movements in furthering market expansion leads to three related outcomes. First, the movement-encouraged development of market infrastructure reduces the need for continued social movement support. Second, social movements' efforts on behalf of new markets increase the importance of resource availability for market entry. Third, market growth motivates countermovements that reduce the beneficial impact of initiator movements on entrepreneurial activity. We test these arguments by analyzing evolving social movement dynamics and entrepreneurial activity in the US wind power industry from 1992 to 2007. We discuss the implications of our findings for the study of social movements, stakeholder management, sustainability, and entrepreneurship.

**Keywords:** social movements, countermovements, sustainability, entrepreneurship, stakeholder management, industry evolution

Research on entrepreneurship and industry creation has shown that new markets are often inspired by collective action engaged in by social movements. As this research illustrates, social movement organizations represent important stakeholders that can promote entrepreneurial activity by generating demand for innovative products by highlighting problems with existing practices and advocating alternatives (*e.g.*, Hiatt, Sine, and Tolbert, 2009; Rao, 1998; Weber, Heinze, and DeSoucey, 2008; York, Hargrave, and Pacheco, 2016). Recently, scholars have investigated the unexpected ways that social movement effects diffuse from their original targets to new domains (Briscoe and Gupta, 2016; Giugni, 1998; Soule, 2012). For example, the Progressive movement's championing of rational bureaucracy as the solution to problems of social organization made possible the growth of the bureaucratic form of thrift and hastened the decline of the older community-oriented form (Haveman, Rao, and Paruchuri, 2007), while the Women's Christian Temperance Union challenged the brewing industry and, in so doing, unexpectedly generated entrepreneurial opportunities for producers of non-alcoholic beverages (Hiatt et al., 2009). Other studies demonstrate how environmental activists have inspired opportunities for sustainable goods and services, such as alternative energy (Durand and Georgallis, 2018; Pacheco, York, and Hargrave, 2014; Sine and Lee, 2009; Vasi, 2009;), sustainable food (Lee, Hiatt and Lounsbury, 2017; Weber et al., 2008), and recycling (Lounsbury, Ventresca, Hirsch, 2003). Although a few studies have considered how industries inspired by social movements evolve (Pacheco et al., 2014; York et al., 2016), prior research remains limited in explaining how the influence of social movements on market activity changes as these industries mature.

We advance this research agenda in two ways. First, we respond to calls to consider how the impact of social movements on entrepreneurial activity evolves as markets develop (Hiatt et al., 2009; Pacheco et al., 2014; Sine and Lee, 2009). We argue that social movements play an important role in supporting entrepreneurship during the earliest years of industry emergence, but their role diminishes as markets mature. Early in an industry's history, when it is not well known or accepted as legitimate, when there is no infrastructure to support the market, and when its profitability is uncertain, social movements can be critical for the success of new markets. During these tenuous

times, social movements serve as a substitute for industry associations and infrastructure that has not yet been established (Tolbert, David, and Sine, 2011).

However, as new industries expand they become more legitimate (Aldrich and Fiol, 1994; Hannan and Freeman, 1989) and authoritative actors like the state become involved. In addition, market infrastructure develops, in the form of suppliers of specialized resources and dedicated distribution systems (Pacheco, et al., 2014; Hannan and Freeman, 1989). Collective bodies, such as industry, trade, and professional associations, are important elements of market infrastructure: they promote expanding industries and support entrepreneurs and managers (Sine et al., 2005; Weber et al., 2008). In turn, legitimacy, state support, market infrastructure, and improved economic potential enhance entrepreneurs' access to the resources needed to launch new ventures (Lee, Struben, and Bingham, 2018), and reduce the need for entrepreneurs to rely on the support of social movements.

Second, we investigate the dynamics between movements and counter movements (Dorobantu, Henisz, and Nartey, 2017; Meyer and Staggenborg, 1996). In new markets supported by social movements, entrepreneurs often pursue economic and moral objectives simultaneously, because such markets become infused with the moral values of the supportive social movements. In such markets, pioneering entrepreneurs tend to be motivated not only by the possibility of economic returns, but also by the chance to achieve the movement's goals and support its values. As markets develop, they offer better profit opportunities and attract entrepreneurs who, compared to their predecessors, are motivated more by economic returns and less by movement ideologies; therefore, moral and economic imperatives within the sector become increasingly at odds (Lee et al., 2017). Tensions between economic and moral objectives can spawn opposition from previously supportive actors, and can give rise to grievances aired by previously uninvolved or neutral actors (Zald and Useem, 1987). Opponents can mobilize resources, attract allies, and engage in tactics to thwart further market development: in short, they can develop into counter movements. For example, the growth of the solar power industry resulted in unexpected industrial waste, which conflicts with the industry's objective of not harming the environment; this conflict spawned opposition movements (*e.g.*, LaFraniere, 2011). Although counter movements may have substantial impacts on market entry,

previous research has generally overlooked these factors by focusing on their implications for state policy and initiator movements (Ingram and Rao, 2004; Staggenborg and Meyer, 1998; Zald and Useem, 1987).

Both the changing impact of social movements and the rise of counter movements are driven by market development. Accordingly, we analyze them simultaneously by studying a market that expanded substantially and that was supported by a social movement: the US wind power industry from 1992 to 2007. Like other chapters in this volume that explore sustainability related contexts, the wind power industry provides a fitting setting to examine the dynamics between activists promoting and opposing an ideologically motivated market. We use state level panel data on all wind farms founded in the US during this period to test our hypotheses about the evolving role of initiator and counter movements on entrepreneurial activity in this growing market.

### **The Evolving Impact of Social Movements on Founding Rates**

#### *Social movements and new markets*

Entrepreneurs in new markets face significant challenges. First, new markets are often not perceived as cognitively or socio-politically legitimate (Aldrich and Fiol, 1994; Sine et al., 2005). Cognitively, their novelty makes it difficult for stakeholders such as potential customers, employees, and state authorities to understand their constituent organizations. Socio-politically, the use of innovative technologies and the production of novel goods and services may not conform to existing norms and expectations of how business is conducted. As a result, entrepreneurs in nascent industries must deal with skeptical state authorities.

Second, organizations in a new market have access to few, if any, industry-specific resources: few educational institutions to teach employees skills that have market-specific utility, limited suppliers of specialized materials or equipment, few funding sources that understand their particular “value proposition,” and minimal collective efforts in the form of industry associations to promote the market or provide technical assistance to market participants. This dearth of resources forces

entrepreneurs to jerry-rig existing resources, both material and cultural (Baker and Nelson, 2005; Rao, 1998).

Third, profits are often elusive. In some new markets, new kinds of organizations use innovative technologies to produce existing products differently, such as “green” electric power (Sine et al., 2005), or produce novel kinds of products, like biotechnology drugs (Stuart, Hoang, and Hybels, 1999). In other new markets, new kinds of organizations redeploy existing technologies in new ways to produce novel kinds of products, such as magazines in eighteenth-century America (Haveman, 2015). In all three situations, new ventures hope profits will come when underlying technologies improve and markets expand. To improve profit potential, entrepreneurs must either work to reduce costs by improving the efficiency and reliability of their technologies, or experiment with product attributes and revenue models to enhance their value proposition to customers.

Support from sympathetic social movements outside new industries – those whose values and goals are congruent the new industries’ own – can help to mitigate these challenges. Social movements can benefit new industries through a combination of strategic framing, resource mobilization, and the creation and exploitation of favorable political opportunity structures (Rao, Morrill, and Zald, 2000; York and Lenox, 2014). We discuss each in turn below.

*Strategic framing.* Frames are “schemata of interpretation,” (Goffman, 1974: 21) that reduce complexity and help actors perceive, interpret, and act effectively. For social movements, frames are words, symbols, stories, and actions that are deployed to organize social facts and events into a narrative congruent with movement values and goals (Hiatt and Carlos, 2017; Snow, Rochford, Worden, and Benford, 1986). Frames elaborate movement grievances and interests, highlight problems with the status quo, diagnose the causes of these problems, and provide solutions. Strategic framing spurs collective attributions and legitimates social movement goals and tactics. For example, women’s groups secured voting rights when they argued that women would use their franchise to protect children, homes, and families because this frame convinced skeptics that voting rights would reinforce women’s traditional gender roles (McCammon et al., 2001).

Strategic framing by social movements helps new markets in three ways. First, it legitimates movements' goals and tactics, as well as the types of organizations required to achieve them. Second, it energizes potential entrepreneurs by disseminating information, making potential entrepreneurs aware of opportunities in those markets (Shane, 2000). Third, it creates acceptance of and demand for new industries' products by touting them as solutions to the problems targeted by supportive social movements, creating favorable attributions in the minds of potential employees, customers, suppliers, and state agencies (Hiatt and Carlos, 2017).

*Resource mobilization.* Mobilization involves recruiting and retaining members, coordinating activities, and acquiring resources (Gamson, 1990; McCarthy and Zald, 1977). Social movement and allied organizations (such as professional and trade associations, affiliated media, or sympathetic non-profits) are powerful mobilizing devices. For example, the Southern Christian Leadership Conference was built on the institutional infrastructure of black churches (Morris, 1984). Entrepreneurs in new markets can leverage the established structures of intermediaries, such as social movement organizations to overcome resistance by state agencies, and other stakeholders (Armanios et al., 2017) and to access to information and resources (Shane, 2000). Movements can also create incentives and promote supportive norms and structures. For example, environmental groups supported the development of the Forest Stewardship Council certification to seed a market for sustainable forest products by developing standards and monitoring mechanisms (Cashore, Auld, and Newsom, 2004).

*Political opportunities.* Many social movements seek to change society by pushing for laws, policies and judicial decisions that are congruent with movement values (Tilly, 1986). If successful, social movements alter political opportunity structures, making them more favorable to movement goals (Tarrow, 1993). The state policies promoted by social movements have both coercive and normative power. Coercively, they constrain or enable particular behaviors. Movement-promoted state policies can also provide financial incentives or disincentives for certain behaviors, thereby altering the underlying economics. For example, anti-abortion activists pushed state legislators to restrict the use of Medicaid funds to pay for abortion services (Levine, 2004). Movement-promoted



state policies can also raise or lower standards for accountability and widen or narrow the legally acceptable range of structures and activities. For instance, investor-rights activists persuaded the Securities and Exchange Commission to expand the issues open to shareholder votes, thus subjecting corporate executives to greater scrutiny (Davis and Thompson, 1994). Normatively, movement-promoted state policies increase understanding and social acceptance of promoted behaviors and reduce acceptance of prohibited behaviors (Edelman and Suchman, 1997; Minkoff, 1994). For example, the civil rights movement's advances in voting spilled over to the workplace, when valorization of the due process protections in civil rights law legitimated demands for fair treatment at work (Edelman, 1990).

For new markets, social movements can create political opportunities in several ways. Most basically, they open up new markets. For example, cannabis activists legitimated the medical use of cannabis and lobbied for its legalization for medical purposes (Dioun, 2018). Movement-supported legal changes can also improve the legitimacy of new markets. For instance, the 1983 Supreme Court decision upholding a provision in the Public Utilities Regulatory Policies Act requiring utilities to purchase power from independent power plants at reasonable prices provided a strong endorsement for this new market (Betts, 1983; Nowak, 1983; Sine et al., 2005).

#### *Market expansion and the declining impact of social movements*

Increases in the number of firms, and the consequent enhancement of market legitimacy, promote the development of industry-specific pools of resources: specialized funding, raw materials, equipment, and personnel; tailored distribution systems; and supportive collective bodies, such as trade and industry associations (Hannan and Freeman, 1989; Pacheco et al., 2014). Only when new markets have grown will resource suppliers be motivated to customize their products to suit new markets' idiosyncratic needs. And only when new markets have grown will there be a critical mass to support collective action (Lee et al., 2018).

Together, increased market legitimacy, the development of state support, and the formation of industry infrastructures—all driven by market expansion—make it easier for would-be

entrepreneurs to acquire resources and launch new ventures (Durand and Georgallis, 2018; Georgallis, Dowell, and Durand, 2018). This makes strategic framing, resource mobilization, and political opportunity creation by social movements less necessary. First, as the values promoted by social movements become widely accepted, less effort is required to legitimate them. Second, as market infrastructure develops, entrepreneurs have less need of support from social movements. Third, as movement values become embedded in state policies, entrepreneurs become less dependent on social movement support (Meek, Pacheco, and York, 2010). In sum, as markets develop, social movement influence declines, due to enhanced market legitimacy, profitability, state support, and infrastructure. These improvements encourage entrepreneurship. Thus, we propose:

*Hypothesis 1a: Increases in the number of organizations in a new market will attenuate the positive impact of social movements on foundings.*

*Hypothesis 1b: Increased state support for a new market will attenuate the positive impact of social movements on foundings.*

#### *Market expansion and the growing importance of resources*

In markets supported by social movements, entrepreneurs are often ideologically motivated. The content of entrepreneurs' ideologies varies widely and may emphasize non-instrumental outcomes, making entrepreneurs more willing to take the risk of launching ventures, even though they are unlikely to earn profits (Lee et al., 2018). In such cases, the ideologies that drive entrepreneurs are often the movements' own (Vasi, 2011; York and Lenox, 2014). For example, in the early thrift industry, the Progressive movement's celebration of rational bureaucracy became instantiated in organizational forms that valued impartiality, bureaucratic control, and flexible voluntary effort by rational savers (Haveman and Rao, 1997).

As new markets expand, they become more economically viable due to their enhanced legitimacy, state support, demand for their products and services, and infrastructure. Moreover, technological advances (in production or distribution systems or products themselves) can further enhance expanding economic viability, which attract a range of entrepreneurs to expanding markets—those who may be more motivated by economic considerations than ideological ones.

Thus, “ideological push” gives way to “market pull” (Hiatt et al., 2009: 646). For profit-seeking entrepreneurs, instrumental concerns (e.g., resource availability) are more important than transcendental concerns (i.e., social movement support). Therefore, we predict:

*Hypothesis 2a: Increases in the number of organizations in a new market will amplify the positive impact of the availability of natural resources on foundings.*

*Hypothesis 2b: Increased state support for a new market will amplify the positive impact of the availability of natural resources on foundings.*

### *The rise of counter movements*

The changes that social movements promote can unleash new grievances and give rise to counter movements (Zald and Useem, 1987). Indeed, successful social movements not only spark counter movements, they also provide blueprints for action (Strang and Soule, 1998). If the changes initiated by social movements threaten some group and if initiator movements show signs of success, then counter movements are more likely to mobilize in opposition to initiator movements (Meyer and Staggenborg, 1996). For example, the anti-abortion movement was galvanized by the success of the pro-abortion movement; specifically, the 1973 *Roe v. Wade* decision upholding women’s rights to abortion (Staggenborg, 1991). The very growth of social movements sows the seeds of opposition: growing movements draw in more diverse supporters, many of whom utilize frames that differ from those deployed by movements’ original core constituents. For instance, from the mid 1950s to the early 1970s, some black activists began to engage in increasingly militant behavior that was at odds with the moderate mainstream civil rights movement (Haines, 1988).

News media often support counter movements, as journalists craft “balanced” narratives that present both sides of a conflict (Gamson and Meyer, 1996). For example, media accounts of the Students for a Democratic Society highlighted right-wing opposition to the movement (Gitlin, 1980). Balanced media attention increases the salience of the issues contested by counter movements and creates perceptions that change is possible, revealing opportunities for oppositional mobilization (Kingdon, 1984; Meyer and Staggenborg, 1996).

New markets supported by social movements can also give rise to counter movements. As explained above, pioneering entrepreneurs often seek to achieve movement ideals, rather than just earn profits. Ideologically motivated entrepreneurs create value-rational (*wertrational*) organizations, which reflect their beliefs in substantive principles rather than just efficiency or profitability (DiMaggio and Anheier, 1990; Weber, 1978: 24-26). Thus, in new markets, entrepreneurs' ideologies can be reflected in their ventures' goals, strategies, structures, and products. These ideologies become imprinted on new markets and over time, they become enduring elements of these markets' blueprints for action.

Counter movements use counter-framing techniques to rebut and challenge the version of reality constructed by initiator movements (Benford, 1993; Cornelissen and Werner, 2014; Esacove, 2004; Litrico and David, 2017). Counter movements also woo sympathetic elites, such as religious, community, or business leaders, who have related grievances: religious leaders because initiator movements threaten their flocks; community leaders because initiator movements threaten their environs; and business leaders because initiator movements threaten their profits. For instance, the Catholic Church was an early supporter of the anti-abortion movement (Staggenborg, 1991). When counter movements mobilize, initiator movements face increased competition for resources (Koopmans, 1993). Counter movement mobilization also threatens the reputation and profitability of firms in movement-supported markets (Carlos and Lewis, 2018; King and Soule, 2007; Vasi and King, 2012), and firms' ability to attract resources (McDonnell and Werner, 2016). In sum, counter movements reduce the effectiveness of initiator movements and threaten the economic prospects of firms in movement-supported markets. Thus we predict:

*Hypothesis 3a: Increases in counter movement activities will reduce foundings in markets supported by initiator movements.*

*Hypothesis 3b: Increases in counter movement activities will attenuate the positive impact of initiator movements on foundings in markets supported by initiator movements.*

*Hypothesis 3c: Increases in counter movement activities will attenuate the positive impact of resource availability on foundings in markets supported by initiator movements.*

## **Research Site: The US wind power industry**

### *The growth of wind power in the US*

The story of the modern US wind industry begins in October 1973, when the Oil Producing and Exporting Countries embargoed shipments of oil to the US, creating nation-wide oil and gas shortages. The Iranian Revolution of 1978 exacerbated these shortages. As a result, oil and gas prices skyrocketed and residential electricity prices nearly doubled. In the wake of the energy crisis, a new opportunity opened for the environmental movement, which had mushroomed into a mass movement after the first Earth Day in 1970. Environmental activists pushed for use of energy-efficient technology and renewable energy sources, and raised awareness of the dangers “brown” energy sources posed to the environment.

Mounting economic pressure and social activism pushed policymakers to promote electricity-generating technologies that would decrease dependence on foreign oil, culminating in the Public Utilities Regulatory Policies Act (PURPA) in 1978. By requiring electric utilities to connect with and purchase electricity from nonutility power plants, PURPA opened access to electricity markets. Hundreds of entrepreneurs submitted applications to construct wind generation facilities (Russo, 2001; Sine and Lee, 2009). Then, as oil prices fell in the mid-1980s, the Tax Reform Act of 1986 cancelled federal tax credits for wind power. This loss of financial support had a tremendous negative effect on the market. The situation improved in 1992 with the passage of the Energy Policy Act, which offered federal wind tax credits and allowed independent-power producers, including wind farms, to sell power directly to local distributors, rather than power generators (Asmus, 2001). As a result, the wind power industry began to expand again. At the end of 2016, installed capacity provided enough energy to power 24 million homes, surpassing hydroelectric capacity and provided jobs for over 100,000 Americans (American Wind Energy Association, 2016).

As the wind power market grew, the value of wind energy as a nonpolluting “green” technology became increasingly accepted. Large industrial concerns, such as General Electric, and prominent investment banks, such as Goldman Sachs, made major investments in wind power. Industry associations developed apace; attendance at American Wind Energy Association (AWEA)

conferences grew ten-fold from 2,300 in 2002 to 23,000 in 2009. AWEA became a formidable advocate for the industry: its public relations staff work with news media to disseminate positive information about the industry, its lobbyists push for legislation favorable to wind power, and its website hosts information that wind developers can use as they try to win support for their projects.

### *Opposition to wind power*

Despite wind power's increasing legitimacy, the market has not gone unchallenged. "Not in my backyard" (NIMBY) activists, who support the development of wind power in principle but oppose wind farms in their vicinity, appeared across the country (Freudenberg and Steinsapir, 1992; Gipe, 1995; Pasqualetti, Gipe, and Righter, 2002). Consider, for example, the mission statement of the largest NIMBY organization in the US, the Alliance to Protect Nantucket Sound (2011):

The Alliance supports wind power as an alternative energy source. However, we oppose the proposed Cape Wind plant in Nantucket Sound due to potential adverse economic, environmental and public safety impacts.

One of the most common NIMBY objections is that the natural landscape is ruined by the construction of wind turbines. NIMBYs also cite concerns regarding the impact of wind turbines on migratory birds and bats. Such concerns have resulted in many wind farms being delayed as environmental impact studies are carried out. Still other NIMBYs point to health and safety issues posed by wind farms. For example, wind opponents often complain about "wind turbine syndrome," which they believe affects people living near wind turbines, involving sleep disturbance, headaches, vertigo, nausea, irritability, and other physical and mental disorders (Pierpont, 2009).

NIMBYs have adopted pro-wind activists' tactic of pointing to scientific evidence and expert testimonies to support their claims. For example, organizations such as National Wind Watch, Alliance to Save Our Sound, and Stop Ill Wind provide data on their websites about the adverse environmental impacts of wind power; they also criticize the reported technological and economic benefits touted by wind power supporters.

Wind market participants are well aware of the NIMBY counter movement. In interviews, prominent wind developers frequently identified NIMBY activism as one of the more difficult

challenges they face. A wind developer in New York bemoaned the delay of his wind farm, stating: “if it wasn’t for the time it has taken to deal with the concerns of the NIMBY’s, these turbines would already be up and running... I’m losing \$1,500 a day for every day they’re not in the ground.” Another developer had spent years working on a wind farm that was eventually cancelled because of local opposition. He said, “We learned something from that one and now we take local opinions seriously. If we get the feeling that there is going to be a big fight, it might not be worth it for us to go there.” One developer spent over a year trying to win over local residents who were spooked by the warnings of NIMBY activists. He chartered a bus to take local residents to a wind farm two hours away so they could experience turbines in person, went door to door to talk with local residents, and hosted weekly open houses to assuage their concerns about the proposed wind farm.

## **Research Design**

### *Data Sources*

To test the hypotheses developed above, we gathered data on all wind farm foundings in all US states from 1992 to 2007. We use the state-year as our unit of analysis because most regulation of this industry is at the state level. Our analysis starts in 1992 because the Energy Policy Act passed that year significantly changed energy policy by offering federal wind tax credits and overhauling the US energy regulatory regime. In 1992, wind power was still in its infancy, with only 1,680 MW of installed capacity, compared to roughly 18,000 MW by the end of 2007. Our analysis ends in 2007 because the 2008 financial crisis fundamentally altered the economics of wind farm financing. The primary source of funding for wind farms had been institutional investors seeking tax credits for investments in renewable energy to offset tax liabilities from profits. As profits fell during the “Great Recession,” the need for tax credits declined, so investment in renewables plummeted. By 2009, half of the institutional investors that had financed wind projects had left the field (International Energy Agency, 2009).

### *Measures*

*The dependent variable: wind farm foundings.* Our outcome of interest is the number of new wind farms founded in each state each year. Data come from the AWEA, the pre-eminent wind industry association. All major American wind farm developers, wind-turbine manufacturers, and wind farm operators are AWEA members; other members include electric utilities, government agencies, and scientific researchers. AWEA obtains data on wind farm installations through a combination of self-reporting by wind farm operators and research by AWEA staff. All self-reported information is reviewed by AWEA staff before inclusion in the dataset.

*Resource availability.* We measured the total acres of windy land suitable for wind power production in each state each year. This includes all land areas with class 3 wind speeds—meaning wind speeds greater than 6.4 meters/second at 50 meters above sea level, using data from the National Renewable Energy Laboratory, the research-and-development arm of the Department of Energy.

*Initiator movements.* Consistent with previous research (*e.g.*, Sine and Lee, 2009; Vasi, 2009), we collected data on the number of Sierra Club members in each state for each year. Founded in 1892, the Sierra Club is one of the oldest and largest environmental organizations in the US (McCloskey, 1992). It has actively promoted the wind industry on several fronts: advocating state adoption of policies that favor renewable energy, including wind power, and educating the populace about the benefits of “green” energy sources and the hazards of “brown” sources.

*The number of organizations (wind farms) in the market.* We count the number of wind farms operating in each state each year, using data from the AWEA. This provides a proxy for market development.

*State support.* We assessed whether or not a state had passed legislation supporting wind power. The most significant policy change affecting wind power is the adoption of a renewable portfolio standard (RPS) policy (Bird et al., 2005). RPS policies mandate that all retail sellers of electricity must obtain a certain portion of their electricity from renewable energy sources. Most RPS policies include benchmarks that specify the percentage of energy that must come from renewable



sources by a certain date and impose stiff penalties on suppliers who do not meet guidelines. Between 1992 and 2007, 27 states adopted RPS policies. We used a dummy variable to indicate whether or not each state had an RPS in place each year, using data from the Database of State Incentives for Renewable Energy. This is a comprehensive source of information on federal, state, and local energy policies.

*Counter movement activity: NIMBYs.* NIMBY protests against wind power facilities were the most common counter movement in this market. Following previous research (*e.g.*, Koopmans and Rucht, 2002), we collected data on NIMBY protest events from newspaper articles. Using the NewsBank's *Access World News* database, we searched for articles that include the following terms, using Boolean logical operators: (“wind power” OR “wind turbine” OR “wind farm”) AND (nimby OR protest OR oppose\* OR against OR opponent\*). This search yielded almost 20,000 articles. We removed duplicate articles and articles that did not mention a specific date and location of a protest event. The final sample of articles documents 1,618 protest events. On average, states experienced 1.07 protests per year, although there was great variation, as the standard deviation was 9.40.

Massachusetts was an extreme outlier, with, on average, 28 protests per year and a maximum of 186 protests in 2003. Almost all targeted the Cape Wind project in Nantucket Sound, which garnered significant national attention due to the visibility of opponents such as Ted Kennedy, Robert Kennedy Jr., John Kerry, and Mitt Romney. We used two methods to mitigate the impact of these outliers. First, in the analysis reported below, we winsorized this variable at the 1<sup>st</sup> and 99<sup>th</sup> percentiles (Tukey, 1962). This involves replacing extreme values with the next-closest value within the 1<sup>st</sup> – 99<sup>th</sup> percentile range. Second, in results not reported here, we dropped Massachusetts from the sample analyzed. The results of this analysis were similar to those shown below.

*Control variables.* We controlled for state-level factors that may influence the founding of new wind power producers: population density, percentage change in population, percent change in gross state product, and personal income per capita. Population trends and state economics proxy state-level demand for electricity and the overall economic environment for new means of power production, respectively. The data for these variables come from the US Census Bureau. Foundings

increase over time, as market legitimacy increases and the economic viability of new technologies is established (Hannan and Freeman, 1989), so we controlled for market age with a time-trend variable beginning in 1978, the year PURPA was enacted. This year marked the initial opportunity for utility-scale wind power in the US. NewsBank's *Access World News* database covered more newspapers for certain states and years, so we also controlled for the number of newspapers in each state in the database. This allowed us to remove bias due to the fact that some state-year observations had more newspapers in the database, and so would be likely to have higher counts of NIMBY protests on record.

#### *Model Specification and Estimation*

Because our dependent variable is a count (the number of new wind farms established in a given state in a given year), we estimated event-count models. The data were over-dispersed and almost 80 percent of state-year observations had zero foundings. Both over-dispersion and excess zeros violate assumptions of the traditional Poisson regression model, so we estimated zero-inflated negative binomial models (ZINB) (Lambert, 1992). ZINB models account for the high percentage of zeros using a two-stage modeling approach that makes use of both binary and count models (Long and Freese, 2006; Hilbe, 2007). The first stage uses a logit model to determine which variables predict zero counts. The second stage uses a negative-binomial count model to predict the count outcome for non-zero cases.

The logit model included several measures that we expect would determine whether the focal state would experience any (rather than zero) wind farm foundings in the focal year. First, we included acres of available windy land and total landmass in each state. Second, since wind power production may be driven by demand for electricity and economic conditions in energy markets, we included the cost of electricity in each state each year, growth in state electricity consumption (percentage change from the previous year), and the volume of electricity imports into each state. The last variable captures the degree to which a state can currently produce enough energy to meet local demand. These measures come from the Department of Energy.

Because most wind farms take more than one year to establish (Wind Energy America, 2011), we lagged all independent variables by two years. Because the data include multiple observations for each state over time, we clustered the data by state to handle within-state correlations. We estimated robust standard errors to account for model misspecification (Arminger, 1995). Two variables, number of wind farms and Sierra Club membership, were highly correlated ( $r=0.84$ ). To reduce multicollinearity, we orthogonalized these variables through a modified Gram-Schmidt procedure (Golub and Van Loan, 1989), using the `orthog` command in Stata, which partials out the common variance between related variables (J. Cohen and P. Cohen, 1983; Saville and Wood, 1991).

## Results

Table 1 presents univariate statistics and correlations for all variables in the analysis. Table 2 presents zero-inflated negative-binomial models of the number wind farm foundings for state-year. The Vuong test (Greene, 1994) confirmed that the ZINB model is statistically different from the baseline negative-binomial model, which indicates that the ZINB model fits the data better. Model 1 in Table 2 presents a baseline model that contains all control variables; subsequent models add variables to test our hypotheses in the order presented above. Each model shows the results for the negative-binomial model (second stage) above the results for the logit model (first stage).

[Tables 1 and 2 about here]

Across all logit models in Table 2, the most consistently significant predictor of whether any wind farms would be established was the state's total landmass. Electricity costs and the volume of electricity imports also predict wind farm foundings.

In the negative-binomial models, the effect of per capita personal income is positive and generally statistically significant, suggesting that when and where people have higher incomes, they can afford higher-priced wind power. The consistent positive effect of the number of existing wind farms is consistent with prior research. Also consistent with prior research (Sine and Lee, 2009), we found positive and significant effects of Sierra Club membership and the availability of windy land.

These results point to the importance of social movements and the availability of material resources for entrepreneurial activity. Finally, state support in the form of an RPS policy has positive and generally significant effects.

Model 2 shows that increases in the number of wind farms attenuated the positive impact of social movements on foundings, supporting hypothesis 1a. Model 3 shows that increased state support attenuated the positive effects of social movements on foundings, supporting hypothesis 1b. Model 4 shows that increases in the numbers of wind farms amplified the positive impact of resource availability on foundings. This effect was only marginally significant ( $p < 0.097$ ), so it only weakly supports hypothesis 2a. Model 5 shows that increased state support for a new market significantly amplified the positive impact of available resources on subsequent foundings, supporting hypothesis 2b.

Model 6 shows that NIMBY protest events significantly decreased wind farm foundings, supporting hypothesis 3a. Model 7 shows that these protests significantly diminished the initiator movement's positive impact on wind farm foundings, supporting hypothesis 3b. Model 8 shows that the protests reduced the positive impact of material resources on wind farm foundings. But this effect was non-significant, so it fails to support hypothesis 3c.

## **Discussion**

Recent work has demonstrated that social movements can spur the development of new markets when those markets are motivated by values that are congruent with the movements' own (*e.g.*, Briscoe and Gupta, 2016; Sine and Lee, 2009; Vasi, 2009). We advance research on this topic by focusing attention on the environmental movement and its evolving impact on the US wind power industry as that market expanded. Our results provide considerable support for the premise that as new markets expand and become more legitimate, and as supportive state policies are implemented, the impact of social movements on those markets is attenuated. In contrast, we found that supportive state policies accentuate the impact of available resources (here, windy land) on foundings. Our findings also demonstrate that public policy can reduce the risks entrepreneurs face.

The adoption of favorable state policy serves as a strong signal of market legitimacy in general and state support for the market in particular, which also appears to diminish the need for industry support from social movements.

In addition, we considered how social movements' success in spurring new markets can generate new grievances for other actors, motivating them to form counter movements. As counter movements attack initiator movements, the latter's ability to support new markets is impeded. Our results are consistent with prior research showing that counter movements can have negative consequences for business (Ingram, Yue, and Rao, 2010), but the observed effect is small, perhaps due to the fact that we analyzed data at the state level. This may obscure much NIMBY impact because NIMBY's focus is often local. For example, interviews with NIMBY activists revealed that most NIMBY opposition consisted of local citizen groups opposed to the specific locations of proposed wind farms. While NIMBYs may thwart wind farm developments nearby, wind developers may try again in other locations where there less opposition. For example, when local opposition halted the development of a wind farm in Springwater, New York, a spokesperson for the developer stated, "we decided to focus our efforts on the development of wind projects in other parts of New York" (Messenger Post Newspapers, 2006). Developers learned from experience and avoided developing wind power in locations prone to NIMBY activism. Future studies conducted at lower levels of geographic aggregation (*e.g.*, at the county or municipal level) may reveal stronger, more localized effects of NIMBYs than we found here.

Our findings have broad implications for scholars of social movements, entrepreneurship, and nonmarket strategy. For social movement scholars, this paper addresses a call to "move beyond single movements, and consider dynamic interactions among a multitude of contenders" (Koopmans, 2004: 21). We investigate these dynamics by analyzing the emergence of NIMBYs, a special kind of counter movement. Although a few studies have examined NIMBY activity (*e.g.*, Dokshin 2016; Ingraham et al. 2010; Lounsbury et al., 2003), they place NIMBYs in the role of initiator rather than challenger. In these studies, NIMBYs emerged in opposition to the establishment of unwanted facilities, but they did not compete with the claims of another social

movement; instead, the interaction between NIMBYs and other social movements was mutually beneficial. Our study highlights the possibility of *competition* between NIMBYs and initiator movements. In our case, NIMBYs adopted ideologies that were similar to those of the initiator movement and competed with the initiator movement for access to resources, attention, and allies. Our findings suggest that the co-evolution of initiator and counter movements may include dynamics not considered in existing theoretical treatments (*e.g.*, Staggenborg and Meyer, 1996; Zald and Useem, 1987).

Furthermore, these insights respond directly to calls from stakeholder management scholars for future research to “...elucidate the interactions of stakeholder movements and countermovements in markets” (Dorobantu et al., 2017:30). Despite the conceptualization of stakeholders as heterogeneous actors who are affected by or who can affect market activities (Freeman, 2010), prior research has generally taken an oversimplified view that casts social movement stakeholders as homogenous actors who pursue a common agenda. This ignores the differential impact of heterogeneous stakeholders on firms and markets (Hiatt, Carlos, and Sine, 2017). In addition, while prior work has considered how relationships with nonmarket stakeholders can affect new-venture performance (Hillman, Zardkoohi, and Bierman, 1999; Siegel, 2007; Dorobantu and Odziemkowska, 2017), past work has paid little attention to normative actors such as social movements, or the broader implications for market-level dynamics. Stakeholders that are normative actors that frame particular activities as right or wrong and mobilize support or resistance to such activities can have significant impacts on new markets and their constituents.

We also add to a small number of studies that consider the evolving impact of social movements on different kinds of movement outcomes (Hiatt and Carlos, 2017; Pacheco et al., 2014; York et al., 2016). Although prior research has considered how movements experience waves of activity (*e.g.*, Koopmans, 1993; Koopmans, 2004; Minkoff, 1997) and how they co-evolve with their environment (Dioun, 2018; Koopmans, 2004; Oliver and Meyers, 2002; Pacheco et al., 2014), these studies have largely focused on how *movements themselves* evolve. We instead analyze the evolving *impact* of social movements. Despite growing attention to movement outcomes, notably activist-

driven policy changes (Cress and Snow, 2000; Hiatt, Grandy, and Lee, 2015; Soule and Olzak, 2004), very few studies have considered how this impact evolves. A few recent exceptions have shown that social movements have a significant impact during the initial stages of a political process, but that this impact diminishes as the legal rules become more stringent and the consequentiality of action increases before new legislation is passed (King, Cornwall, and Dahlin, 2005; Soule and King, 2006). Our study also shows that the impact of social movements evolves, but we study the impact on market development, rather than on public policy adoption.

Finally, this study contributes more broadly to research on organizations and entrepreneurship. The application of social movement concepts to organizational theory has been particularly useful in explaining institutional change (Davis, McAdam, Scott, and Zald, 2005). A few recent studies have linked social movements to the creation of new markets (Dioun, 2018; Hiatt et al., 2009; Schneiberg et al., 2008; Sine and Lee, 2009) and market categories and regulation (Lee, 2009; Weber et al., 2009). To date, however, research linking social movements to entrepreneurial activity has centered on new markets and novel market categories, with little consideration of whether or how social movement impacts evolve as markets mature, much less how social movement impacts change when opposition movements arise. Our study specifically considers the interaction between social movements and market development.

## **Conclusion**

In accordance with the other chapters in this volume, we highlight the important role that stakeholders play in influencing CSR and sustainability. Although our analysis focused on state level findings, we nevertheless see important opportunities for research that considers the evolving dynamics among multiple stakeholders on firm level outcomes (Aguilera et al., 2007; Flammer and Luo, 2016; Pacheco et al., 2014). For instance, future studies could examine additional factors that may influence how stakeholders impact firm strategies (York and Lenox, 2014) and commitment to these industries and issues (Durand and Georgallis, 2018). In particular, we encourage work that

accounts for the interplay among multiple stakeholders and the evolving temporal effects of these dynamics on firm level outcomes.

Furthermore, we point to opportunities to investigate potential unintended consequences of stakeholder actions. Just as our findings show that the success of social movements led to their own decreasing relevance in the wind industry, stakeholder pressures on firms may likewise produce outcomes not initially intended or desired by these stakeholders. Although research indicates that firms engaging in prosocial behaviors in response to stakeholder pressure (Ingram et al., 2010; McDonnell and King, 2013), recent work suggests that pressure from stakeholders may also lead firms to become overly modest or reluctant to talk about their positive social or environmental activities. This is particularly salient if firms are concerned that talking about their good deeds may put them at risk of being perceived as hypocritical, or inauthentic (Carlos and Lewis, 2018; Kim and Lyon, 2011; Lyon and Maxwell, 2011). For stakeholders motivated to compel firms to engage in CSR and sustainability initiatives, this act of “green hush”, or strategically remaining silent about prosocial behaviors may unintentionally stifle the diffusion of these positive activities. When companies actively talk about the good things they are doing, it can lead to greater social pressure for competitors to adopt similar practices and eventually institutionalize such activities, but this is unlikely to happen if others are not aware of the prosocial activities that companies are involved in.

Finally, we see opportunities for studies that provide more nuanced insights into specific tactics that stakeholders can use to inspire firms to engage in prosocial activities, including potential contingencies that may influence the effectiveness of these tactics in varying institutional environments (Dorobantu et al., 2017; Hiatt et al., 2017). Although our qualitative work uncovered some of the tactics engaged in by promoters and opponents of wind power, additional work to systematically codify and evaluate the effectiveness of these tactics on both industry and firm level outcomes and across varying contexts remains an important avenue for future research.



## Acknowledgements

We thank Arkangel Cordero, Robert David, Glen Dowell, Shon Hiatt, Olga Khessina, Ben Lewis, Sarah Soule, Pam Tolbert, Yin Ximing, and Jeff York for their helpful comments on previous drafts. We also gratefully acknowledge funding from the David R. Atkinson Center for a Sustainable Future.

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**Table 1. Means, Standard Deviations, and Correlations for All Variables**

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1 Population density <sup>a</sup>	4.38	1.41										
2 State population (annual percent change)	0.01	0.01	-0.16									
3 Gross state product (annual percent change)	0.06	0.03	-0.10	0.29								
4 Personal income <i>per capita</i> <sup>a</sup>	10.21	0.25	0.32	-0.03	0.01							
5 Industry age	21.50	4.61	0.04	-0.04	0.01	0.79						
6 Electronically archived state newspapers	11.49	21.54	0.32	-0.06	-0.04	0.46	0.37					
7 Number of wind farms	3.62	11.99	0.02	-0.02	0.00	0.22	0.18	0.55				
8 Renewable Portfolio Standard (1=yes; 0=no)	0.18	0.38	0.12	-0.00	0.01	0.46	0.37	0.35	0.27			
9 Acres of windy land/10,000	4.74	7.88	-0.51	-0.09	0.03	-0.09	-0.00	-0.11	0.13	0.06		
10 Number of Sierra Club members/1,000	12.83	25.68	0.26	0.02	-0.02	0.23	0.07	0.63	0.84	0.12	-0.10	
11 Number of NIMBY protest events	0.97	2.92	0.15	-0.12	-0.03	0.36	0.33	0.48	0.20	0.38	-0.6	0.25

Notes: This table is based on 650 state-year observations of wind farm foundings from 1992 to 2007. <sup>a</sup> Indicates the variable was log-transformed.



**Table 2. Zero-Inflated Negative-Binomial Models Predicting the Number of Wind Farm Foundings**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Population density <sup>a</sup>	-0.0310 (0.084)	-0.1453* (0.074)	-0.0602 (0.077)	-0.0944 (0.088)	-0.0914 (0.069)	-0.0424 (0.073)	-0.0657 (0.071)	-0.0405 (0.074)
State population (annual percent change)	-19.3986 (12.383)	-18.9671 (11.899)	-19.0989 (11.826)	-22.1725+ (12.986)	-28.1559* (10.947)	-21.7104+ (12.596)	-21.0081+ (12.100)	-21.6556+ (12.572)
Gross state product (annual percent change)	-1.6286 (3.194)	-0.7287 (3.243)	-1.1705 (3.174)	-0.8429 (3.238)	-0.8154 (2.993)	-1.6344 (3.238)	-1.4274 (3.227)	-1.6524 (3.228)
Personal income <i>per capita</i> <sup>a</sup>	2.3134** (0.884)	1.3618 (0.924)	2.2417** (0.865)	1.7177+ (0.926)	1.7904* (0.730)	2.3910** (0.822)	2.2212** (0.842)	2.3864** (0.830)
Industry age	0.0438 (0.045)	0.0588 (0.043)	0.0386 (0.047)	0.0547 (0.042)	0.0691+ (0.040)	0.0519 (0.045)	0.0480 (0.044)	0.0526 (0.046)
Electronically archived state newspapers	-0.0161* (0.008)	-0.0056 (0.006)	-0.0080 (0.007)	-0.0135* (0.006)	-0.0120** (0.004)	-0.0116* (0.006)	-0.0063 (0.005)	-0.0119* (0.006)
Number of wind farms	0.1700** (0.062)	0.4229*** (0.109)	0.1562** (0.057)	0.3097** (0.105)	0.2527*** (0.073)	0.2041*** (0.057)	0.1881*** (0.056)	0.2017*** (0.057)
Renewable Portfolio Standard (1=adopted; 0=not adopted)	0.9558** (0.340)	0.8576* (0.398)	1.1134** (0.355)	0.9123* (0.394)	0.1111 (0.334)	1.0520** (0.339)	1.0471** (0.359)	1.0358** (0.353)
Acres of windy land/10,000	0.0473** (0.018)	0.0419** (0.015)	0.0468** (0.017)	0.0347* (0.016)	0.0294 (0.025)	0.0449** (0.017)	0.0437* (0.017)	0.0457* (0.018)
Number of Sierra Club members/1,000	0.3830*** (0.031)	0.9531*** (0.217)	0.3792*** (0.034)	0.2844*** (0.054)	0.3441*** (0.030)	0.3627*** (0.029)	0.3788*** (0.038)	0.3642*** (0.030)
Wind farms × Sierra Club members		-0.0004** (0.000)						
RPS × Sierra Club members			-0.0092* (0.004)					

Wind farms × windy land					0.0026 <sup>+</sup> (0.002)				
RPS × windy land						0.0897 <sup>**</sup> (0.031)			
NIMBY protest events							-0.0708 <sup>*</sup> (0.033)	-0.0403 (0.040)	-0.0624 (0.042)
NIMBY × Sierra Club members								-0.0006 <sup>*</sup> (0.000)	
NIMBY × windy land									-0.0019 (0.003)
Constant	-24.9670 <sup>**</sup> (8.379)	-15.2562 <sup>+</sup> (8.852)	-24.1211 <sup>**</sup> (8.176)	-18.8733 <sup>*</sup> (8.916)	-19.7572 <sup>**</sup> (7.236)	-25.825 <sup>***</sup> (7.758)	-23.9973 <sup>**</sup> (8.039)		-25.8048 <sup>***</sup> (7.835)
<i>Inflation Model</i>									
Acres of windy land/10,000	-1.5711 (0.970)	-1.2530 <sup>+</sup> (0.738)	-1.4372 <sup>+</sup> (0.843)	-1.4535 <sup>+</sup> (0.833)	-1.6359 (0.998)	-1.4935 (0.922)	-1.4176 <sup>+</sup> (0.837)		-1.5028 (0.935)
Total state land area/10,000	-0.1175 <sup>**</sup> (0.039)	-0.1051 <sup>**</sup> (0.033)	-0.1118 <sup>**</sup> (0.035)	-0.1146 <sup>**</sup> (0.036)	-0.1203 <sup>**</sup> (0.043)	-0.1133 <sup>**</sup> (0.038)	-0.1103 <sup>**</sup> (0.036)		-0.1137 <sup>**</sup> (0.038)
Electricity cost <sup>a</sup>	-3.1716 <sup>+</sup> (1.768)	-3.3427 <sup>*</sup> (1.681)	-3.0440 <sup>+</sup> (1.723)	-3.4986 <sup>+</sup> (1.798)	-3.9543 <sup>*</sup> (1.699)	-3.1001 <sup>+</sup> (1.788)	-3.0819 <sup>+</sup> (1.725)		-3.0940 <sup>+</sup> (1.784)
Energy consumption (annual percent change)	8.1765 (10.460)	10.3326 (10.281)	9.0568 (10.341)	9.0930 (10.069)	8.4392 (10.153)	8.9160 (10.244)	9.3679 (10.098)		8.8342 (10.281)
Electricity imports	-0.0241 <sup>+</sup> (0.013)	-0.0294 <sup>*</sup> (0.013)	-0.0258 <sup>*</sup> (0.013)	-0.0266 <sup>*</sup> (0.013)	-0.0284 <sup>*</sup> (0.013)	-0.0260 <sup>*</sup> (0.013)	-0.0270 <sup>*</sup> (0.012)		-0.0259 <sup>*</sup> (0.013)
Constant	9.7229 <sup>*</sup> (4.456)	9.7682 <sup>*</sup> (4.171)	9.3249 <sup>*</sup> (4.319)	10.4390 <sup>*</sup> (4.499)	11.6348 <sup>**</sup> (4.344)	9.5725 <sup>*</sup> (4.504)	9.4592 <sup>*</sup> (4.335)		9.5582 <sup>*</sup> (4.495)
ln[alpha]	-0.6104 (0.860)	-0.7671 (1.014)	-0.6921 (0.996)	-0.6670 (0.843)	-0.7863 (1.443)	-0.7266 (1.089)	-0.7622 (1.138)		-0.7226 (1.081)
N	650	650	650	650	650	650	650		650
$\chi^2$	567.8020	537.5467	488.1870	544.0613	695.2847	691.3900	530.0477		947.1237

**Notes:** This table is based on 650 state-year observations of wind farm foundings from 1992 to 2007. Standard errors are in parentheses below parameter estimates. + indicates  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , and \*\*\*  $p < 0.001$ , two-tailed t tests. <sup>a</sup> Indicates the variable was log-transformed.