



Original research article

# Media and policy in a complex adaptive system: Insights from wind energy legislation in the United States<sup>☆</sup>



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## ABSTRACT

Since the early 1970s, debates surrounding the promises and pitfalls of renewable energy as a way to securely meet consumption demands in the United States have been commonplace in the media and political discourse. Drawing on the communication and political science literatures, this research addresses the relationships between the amount of media coverage given to wind energy, as well as the frames used in covering the topic, and the number of bills presented to state legislatures. We argue the media and political decision-making bodies are working as agents in a complex adaptive system, wherein they are constantly interacting and adjusting to both internal and external variables.

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## 1. Introduction

The 21st Century has seen an abundant growth in debates and discussions surrounding climate change and how society can and should adapt to its consequences. These debates and discussions came to a head during the Conference of the Parties to the UN Framework Convention on Climate Change in Paris in December 2015 (COP21), which resulted in the most aggressive intergovernmental agreement on climate change to date. The agreement, which was signed by more than 170 countries in April 2016, lays the foundation for keeping the global temperature rise below 2 °C. While all member-states represented at COP21 are currently attempting to determine which market and regulative mechanisms will be needed to reduce emissions to agreed-upon levels, many nations have political momentum to build upon. In the United States, some of the most comprehensive and aggressive climate policies have been advocated for through the Executive Branch. In August 2015, US President Barack Obama and the Environmental Protection Agency (EPA) released the Clean Power Plan (CPP), which aims to cut domestic carbon emissions by 32% from 2005 levels by 2030

and position the US as an international leader in the fight against climate change. The CPP followed President Obama's announcement in 2009 that committed to reducing US greenhouse gas emissions to 17% below 2005 levels during his time in office. The administration's push for diversifying energy resources and moving to renewable technologies is clear, and during President Obama's time in office the generation of power through renewables such as wind, solar and geothermal sources has more than doubled [28]. The 2015 CPP establishes unique emission rate goals and mass equivalents for each state to be met in 2022, but the Supreme Court has granted a stay on the regulation in response to a legal challenge from some states, utilities and coal companies [21]. The development of renewable energy resources, such as wind energy, has been proposed as a solution that will let society meet the increasing energy needs of today without compromising the ability of future generations to also meet their energy demands [36]. Proponents of wind energy argue it has the potential to create green jobs and generate more energy than the US population needs, while keeping operational costs low [36,4]. Wind energy has been opposed, however, because of siting concerns involving the noise, aesthetic, and sense of place effects of turbines [121,120,103].

To meet the demands of the CPP, states need to play a key role in incentivizing and supporting growth within the wind energy industry. Across the United States, regulations and policies in support of wind energy development and adoption vary widely, yet differences in wind energy deployment rates cannot fully be

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explained by existing policies or wind resource availability at the state level [117]. Given this, Fischlein et al. [46] suggest understanding the “highly complex socio-cultural context [at the state level] is critical to comprehending deployment of wind power as well as deployment of other emerging energy technologies” (p. 4429). One important layer in this context is the role the media plays in state level decision-making [100,101]. This critical line of inquiry is sorely lacking in energy literature, with only 0.1% of work in prominent energy journals from 1999 to 2013 coming from communication and media scholars [98]. In this research, we address this issue, incorporating the communication and political science literatures to examine the media-policy relationship.

Given the news media’s role in shaping public perceptions when it comes to understanding how to think and respond to changing circumstances, understanding how the story of alternative energy technology regulation and development unfolds in the mass media may provide valuable insights into how alternative energy policy is codified in different locales and on different scales. Communication research helps make sense of how people “respond to information not only based on its availability and completeness, but also with how it is presented, their trust in its source, how they interact with the medium, and how it confirms or conflicts with information coming from friends and associates” [98,p. 16]. What’s more, the media-policy interface connects the understudied social dimensions of communication and persuasion to energy governance [99].

### 1.1. Theoretical framework: the media/policy relationship

Scholars from communication and political science have provided a variety of ideas about how to conceptualize the links between the media and policy. Nisbet and Hoge [79] note that scholars from various disciplines could “be criticized for a lack of clarity and consistency” in theorizing about the press/policy relationship (p. 6). To adequately address the relationship between media and policy, it is necessary to address literature from both fields.

Literature from the discipline of communication studies can provide a better understanding of the rhetoric of energy in media and policy [39,13,90] and social change through the concepts of cultivation [51,52], agenda setting [125], and framing [11,70,53,44,107,33]. For example, many agenda-setting studies in the communication literature have measured how much the media influences public opinion on specific issues [16,76,115,124]. These studies are largely based on assessing top stories in the media and testing them for significant differences with public opinion polls of what people view as the most important issues facing society. This line of inquiry started to study political issues, investigating the effects of media on voters’ opinions. The field has largely grown in the past 30 years to encompass other elements beyond politics. For environmental issues in particular, studies of media and public agendas have confirmed particularly strong agenda-setting effects when environmental issues are unobtrusive (i.e., when they are not easily observed or detected through firsthand experience) [1,97,57]. Agenda-setting effects have been observed on the environmental issues of pollution [1], global warming [106] and energy supply [15]. Hansen [57] argues agenda setting effects may be strongest when audiences cannot observe an environmental phenomenon, because it allows the media to “step in as the main source of information” for the public (p. 170). Trumbo [106] examined the influences of media’s agenda on both public and political attitudes in regard to global warming and found that agenda setting effects were stronger in members of Congress than the general public. Additional communication research suggests that power in policy making can in part come from controlling media attention about an issue and framing that issue in favorable terms [79].

Framing studies highlight how journalists serve as critical agents within a complex social system, reporting on disturbances within social and natural systems by developing a frame or interpretation of social events. Analyzing frames allows researchers to identify the ways in which the transfer of information influences human consciousness. Entman [43] argues framing is:

To select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described. Essentially, frames diagnose, evaluate and prescribe (p. 52).

Frames call attention to some aspects of reality and obscure others, which leads to understanding issues in different ways. McCombs and Reynolds [76] note, given the occupational realities of journalists, some things have to be emphasized over others:

Many events and stories compete for journalists’ attention. Because journalists have neither the capacity to gather all information nor the capacity to inform the audience about every single occurrence, they rely on a traditional set of professional norms to guide their daily sampling of the environment. The result is a limited view of the larger environment, something like the highly limited view of the outside world available through a small window (p. 4).

Frames serve as tools for journalists to sort through and present complex social and environmental issues to a broader audience in a way that is understandable. Stephens et al. [100] note that “while the scale and scope of the news media’s influence on any particular issue or technology is debatable, the potential of the news media to influence behavior, perceptions and discourse is large, so consideration of the media when exploring potentially controversial issues (or technologies) is critical” (p. 171). Given that many people do not have first hand experiences with renewable energy supply, demand or technology beyond their monthly energy bills related to personal or business consumption, understanding how stories are told and in what ways the media and political agendas are influencing one another is paramount.

Similar to the communication literature, research from political science offers insight into the political discourse of the environment [56], framing effects on citizens [38], and agenda setting at the policy level [9]. Several studies from political science characterize the media/policy relationship almost like a “conveyor belt” of information, with the media being cited as a delivery mechanism for elite political agendas to the public, [9, p. 40,63,12,123,10]. In regard to agenda-setting, Soroka [97] argues that media can have a direct influence on policy because policymakers rely on the mass media for information just as much as the public. Page [81] takes the argument one step further and argues that media actors might be trying to influence policy by taking policy stands in Op-Eds and journalistic stories. Baum and Potter [9] resist these narrow conceptualizations and argue for a new approach in political science literature, arguing that scholars “have investigated every conceivable causal link between the public, decision makers, and the media. . . And investigation into narrow pathways is likely to produce diminishing returns” (p. 41). In accord with Baum and Potter’s call, many scholars from both fields are now arguing the relationship between media and policy should be more fully understood as a mutually influencing two-way relationship among a set of other variables [67,9,75,105]. That is, politicians might use the media strategically to frame an issue in one way or another just as much as the media influences what policymakers believe to be important. In this current research, we engage directly with the

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