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ARTICLE

The convergence of economic development and energy-transition policies in state-government plans in the United States

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Because elected officials and voting publics in the United States have disagreed with policies to decrease greenhouse-gas emissions and increase renewable energy, research is needed to help guide practitioners toward policy initiatives that are less likely to trigger opposition. This study assesses one type of policy for which disagreements may be less heated: economic development targets for industrial sectors in U.S. state governments that support the renewable energy and clean technology (RE&CT) industrial sector. A review of state-government plans and strategy statements shows that support for plans with a sectoral strategy does not divide strongly along party lines, and likewise there are Republican governors who support plans for targeted economic development strategies that include their state's RE&CT sector. However, there is some ideological opposition to sectoral targeting in general, and a qualitative comparative analysis indicates that in states with both strong fossil-fuel employment and Republican governors, support is weaker for the RE&CT sector in the plans. Overall, whereas opportunities for political compromise are blocked in many policy arenas for renewable energy and greenhouse gas regulation, the arena of green economic development appears to offer modest opportunities.

KEYWORDS: public policy, renewable energy resources, economic development, legislation, state government agencies

Introduction

For decades, Republicans and Democrats in the United States have disagreed on environmental and energy issues, but the differences between the two parties have become more pronounced in recent years (Layzer, 2012). For example, in 2010 a coalition of free-market conservatives and fossil-fuel interests defeated the Clean Energy Jobs and America Power Act (S. 1733), which would have initiated a national cap-and-trade regime and a national renewable portfolio standard. Furthermore, the elections of 2010 brought to Congress an entering class of legislators for whom opposition to climate-change legislation was a salient issue (Johnson, 2010; McCright & Dunlap 2011; Hamilton, 2014). Since then, legislation in support of a transition to more sustainable energy has received little support in Congress. Likewise, in state governments the 2010 elections brought into office a wave of Republican governors who often reversed the energy policies and programs of their Democratic predecessors, and conservatives in state legislatures increasingly supported the repeal of state-level renewable portfolio standards and withdrawal from regional greenhouse-gas initiatives (American Legislative Exchange Council, 2014; Hess, 2012; Rabe, 2013).

These changes are evident for environmental policy, but they also reflect a broader increase in partisanship (McCarthy et al. 2006). Ideological distance between Republicans and Democrats has increased in most state governments (Shor, 2013), and the number of legislatures controlled by one party has also reached a historic high (Elliot & Balz, 2013). Likewise, emerging research suggests that climate change has become a more divisive issue for Republicans and Democrats than other main wedge issues such as gun control, abortion, evolution, and the death penalty (Hamilton, 2014). The changes in the political landscape have made it difficult for political leaders to build consensus in support of policies that increase the pace of the transition to low-carbon energy sources.

However, some grounds remain for bipartisan agreement. For example, in 2014 the Republican-controlled House of Representatives passed the "Better Buildings Act of 2014," which supported voluntary measures such as "Tenant Star," a rating program that encourages landlords and tenants to improve energy-efficiency in commercial spaces (Committee on Energy and Commerce, 2014). Furthermore, some state governments have continued their tradition as leaders of low-carbon transition policies, notably Democrat-controlled states in the western and northeastern parts of the country (Byrne et al. 2007; Dinan, 2008; Burke & Ferguson, 2010).

However, the prospects for state-government innovation are relatively restricted, with the greatest opportunities mostly in western (California, Colorado, Hawaii, Oregon, and Washington) and northeastern (e.g., Maryland, Massachusetts, New York, and Vermont) states.

Given the opposition to policies that support the transition to low-carbon energy sources, those in the political arena need to think carefully about what kinds of laws and policy proposals are most and least likely to trigger disagreements. The above-mentioned energy-efficiency bill is one example of an approach palatable to conservatives because it does not involve increases in taxes, government spending, and mandatory regulation of businesses. In a similar vein, property-assessed clean-energy laws, which enable bond-market funding for residences and businesses with no additional government expenditures, regularly attract bipartisan support in state legislatures, whereas proposals for increasing renewable portfolio standards are associated with higher levels of opposition from Republican legislators (Coley & Hess, 2012). Likewise, "everyday" environmental policies, such as state-government purchases of environmental goods, tend to have higher bipartisan support (Clark & Allen, 2004). Thus, within the field of environmental and renewable or low-carbon energy policies, initiatives can be configured in ways that trigger higher and lower levels of political support across partisan divisions.

Building on studies that suggest the potential for environmental and energy policies to be configured in ways to enhance or reduce bipartisan support, we argue that the convergence of economic development and environmental policies may afford continued opportunities for political agreement across party lines in state legislatures. We reason that this policy field has potential for broad support across party lines because it involves the business sector and is associated with job creation. Especially in states where local fossil-fuel production and employment are limited, state political leaders recognize that the replacement of out-of-state imports of fossil fuels with intrastate renewable energy production can create local jobs and spur the economy (Bowen et al. 2013; Fitzgerald, 2010; Hess, 2012; Rabe, 2011; Yi, 2013). For example, media reports have linked intrastate wind-energy development to rural economic development goals in Minnesota (Wilson & Stephens, 2009) and to broad economic benefits associated with low-cost energy in Texas (Fischlein et al. 2014).

This study evaluates the argument that economic development is a policy arena where support for RE&CT is possible even in states with Republican governors, and it argues that in these states the strength of the fossil-fuel industry is associated with differences in support for the RE&CT sector. After first providing a theoretical framework based on the study of technological transitions, the study analyzes the position of the RE&CT sector in state government economic-development plans and the factors that are associated with higher and lower levels of support for the sector.

Background and Definitions

This research project is based on a theoretical framework anchored in the study of "transitions," or long-term historical changes in the economic and industrial systems of societies. Transition studies can include broad analyses of societal change that examine pathways to a more socially just and environmentally sustainable world, and this type of work tends to examine the effects of, and potential for, fundamental economic and political change (e.g., Raskin, 2006). In contrast, the study reported here focuses on a second type of approach to transitions: research that is rooted in technology and innovation studies and that analyzes the changes of large technological systems from one configuration to another. This approach has generated a substantial literature on "sustainability transitions," such as the change in electricity systems from high-carbon fossil-fuel dependence to renewable energy and other low-carbon sources (Markard et al. 2012). The "multi-level perspective," a prominent approach within this type of transition studies, examines the dynamics within an industrial field between a niche of emergent organizations and technologies (e.g., solar energy) and a regime of established organizations and technologies (e.g., the utility system) (Geels, 2011). The relations shape and are shaped by broader "landscape" conditions, such as cultural and political structures and change. In the case of energy transitions, government policies have a strong influence because the industry is so heavily regulated (Smith & Raven, 2012).

Earlier work on the policy dimensions of transitions focused on how to implement them through learning, experimentation, and strategic niche management (Kemp et al. 1998). This literature frequently assumed a relatively strong political consensus in support of government policies, but increasingly researchers have come to recognize the role of politics, power, and conflict as central to sustainability transitions (Grin, 2010; Meadowcroft, 2011). Of growing interest is the organized resistance by existing industrial regimes to political efforts to undertake sustainability transitions such as low-carbon energy generation (Geels, 2014). Industrial conflicts between emerging niches (such as renewable energy) and the existing industrial regimes (such as fossil-fuel production and generation) play out in the political field

as contests between political parties and political ideologies, such as between liberal Democrats and conservative Republicans in the United States.

This study contributes to the field of sustainability transitions by analyzing how sustainability policies are associated with differences in level of political disagreement based on how policies are framed (Lybecker et al. 2013). Specifically, we examine the proposition that because economic development policy is business friendly and job creating, it is a policy type that conservative leaders can support even if they oppose other low-carbon transition policies, such as renewable portfolio standards and greenhouse gas-emissions trading (see also Fischlein et al. 2014). We build on studies of sustainability transitions in tandem with economic development goals, such as the creation of green industrial clusters (McCauley & Stephens, 2012). However, the literature on regional economic development and sustainability transitions generally neglects the problem of political opposition to low-carbon energy transitions and how agreements can be forged between opposing viewpoints (Truffer & Coenen, 2012).

This study, the first to analyze the support of United States governors for the RE&CT sector as part of an economic development strategy, is based on sectoral strategies announced in economic development statements and plans issued by, or in cooperation with, each of the governors' offices. A sectoral strategy is defined as the selection of specific industrial sectors as priorities for recruitment, retention, and other economic development efforts. Although state-level sectoral strategies are similar to national industrial policies (Johnson, 1984), at the state level the focus is often more on recruiting firms and on growing local industry clusters. When fully articulated, a sectoral economic development strategy can include a systematic "suite" of policies that not only help businesses to emerge, grow, and develop (sometimes called the "supply" side of those policies) but also help regional markets to develop by strengthening demand (Lund, 2009).

The term "renewable energy" is defined as solar, wind, geothermal, hydropower, biofuels, and/or biomass, and the term "clean technology" is defined as manufacturing and services related to energy efficiency and renewable energy technology. Although the following analysis uses these umbrella terms, it also tracks the specific language used in the economic development plans to better understand how these industries are defined. Thus, quotation marks in the tables indicate the actual terminology used.

Our focus is on the extent to which state-level economic development plans or strategy statements articulate a sectoral strategy and the degree to which the strategy includes the state's RE&CT sector. We ask three research questions:

1. Is support for the state's RE&CT sector in economic development-strategy statements and plans only found in states with Democrats as governors? If support for the sector has become highly controversial in the Republican Party, we would expect to find all references to the RE&CT industries deleted in states with Republican governors or that these industries would be mentioned only after a greater focus is placed on the fossil-fuel industries. However, if the issue is viewed primarily as economic development for the state's existing industries, we would expect to find some support for the RE&CT sector even in plans drafted by or for Republican governors.
2. Do states with Democrats as governors support a sectoral strategy more than those with Republicans as governors? If sectoral targeting is viewed through a laissez-faire lens, we would expect to find that Republican governors reject a sectoral strategy as unacceptable political interference in the economy and explicitly articulate this reasoning. For example, with respect to the bankruptcy of the solar manufacturing firm Solyndra, Republican political leaders criticized the Obama administration's strategy of picking "winners and losers," and the House of Representatives passed the "No More Solyndras" bill based on ideological opposition to industrial policy (Wald & Savage, 2011; Southall, 2012).
3. Is the strength of the fossil-fuel sector in the state associated with the priority placed on the RE&CT sector? Based on previous studies on the relationship between fossil fuel-sector strength and policies in support of renewable energy (Coley & Hess, 2012; Vasseur, 2014), we expect that states with a higher level of employment in the fossil-fuel sector will also have lower support for RE&CT in their economic development plans.

Methods

It is important to underscore what this analysis is and is not attempting to accomplish. We are interested in economic development strategies formulated at the charge of the governor or in cooperation with the governor's office. We focus on governors rather than legislators because governors usually articulate an economic development strategy as part of their administration's general mission. Furthermore, it is increasingly the case in the United States that the party of the governor and of the legislature is the same (Elliott & Balz, 2013). We do not attempt to

measure actual policy implementation, legislation, or general program outcomes, such as number of firms recruited. Although such questions are important, they fall outside the scope and length limitations of the study. Rather, we focus only on the prioritization of the RE&CT sector in economic development plans. It is likely that broad strategy and planning documents have some relationship with policy outcomes because they guide the governor's staff and economic development administrators, who must then decide which industries should be targeted for greater attention and resources. However, we recognize that planning documents and statements also have a public relations function.

To assess differences in plans between states with Democrats and Republicans as governors, we gathered and read the economic development-strategy documents under the current governor (as of early 2014) in all 50 states (a total of 69 sources were used, as referenced in the appendix). The data came from a search of the websites of governors and economic development agencies in state governments. For each state, we searched for the most complete articulation available of economic development policy in the form of a planning document or comprehensive strategy statement completed under the current governor. We then focused on portions of the documents that articulated a sectoral strategy to evaluate the extent to which the RE&CT sector was included. We did not attempt to analyze changes over time, although this would be a worthwhile project for future research. We are limited by the logistical and resource constraints posed by a longitudinal study, but we are also particularly interested in the current situation (generally post-2010) in which some Republican governors elected in 2010 or 2012 reversed the environmental and energy policies of their Democratic predecessors. During this period, the rise of Tea Party candidates and the influence of the American Legislative Exchange Council have meant an increase in state-level opposition to renewable energy and other green energy-transition policies.[1]

Descriptions of the documents appear in four tables. As of early 2014, 21 states had Democrats as governors and 29 had Republicans as governors. We found that 32 states had an economic development plan or strategy statement that 1) was issued during the administration of the current governor, 2) targeted or highlighted specific industrial sectors, and 3) was developed either directly by the governor or with coordination from the governor's office. Generally, the economic development agency was involved in the creation of the plan or even developed the plan for the governor, and in some cases the plan was the result of an extensive consultation process as well. We also checked the list of prioritized industries in the plans against lists of key or prioritized industries on the websites of the economic development agency, and the two were generally similar.

For the remaining eighteen states that lacked a plan with a clearly articulated sectoral strategy, we conducted an additional, supplementary analysis. Rather than exclude these states, we reviewed statements on the websites of the economic development authority for indications of targeted or highlighted industries. The results are reported in Tables 3 and 4. Because the statements by the economic development authority are likely to be less connected to the governor's policy directions, we view this second dataset as less significant for the research questions. There is also substantial variation in the kinds of material that we found. In some cases, the lists of targeted industries provided by the economic development authority are part of its associated strategy, whereas in other instances the lists may be little more than informational material about the state's main industrial strengths. Bearing in mind this methodological caveat, we thought it was useful not to exclude these eighteen states from the analysis but to examine them separately.

The data are broken into four groups and presented in four tables. For states with a sectoral strategy, Table 1 describes the plans for Republican governors (n=18) and Table 2 for Democratic governors (n=14). For states without a sectoral plan, Table 3 is for states with Republican governors (n=11) and Table 4 for those with Democratic governors (n=7).

To answer the third research question, an additional analysis was conducted of the 32 states with sectoral plans (Tables 1 and 2) based on a categorization of the states as those with plans that prioritized the sector (n=22) and those that showed weak support (i.e., the sector was included in an "all of the above" strategy or not included, n=10). This categorization is based on the data summarized in Tables 1 and 2. We used fuzzy-set qualitative comparative analysis (fsQCA), an increasingly common method in the social sciences because it enables a rigorous form of comparative analysis when data sets are too small for multivariate regression analysis but when there is a need to sort through potential mixes of variables (Ragin, 1987). Unlike multivariate regression analysis, which measures how much independent variables can contribute to an outcome, this approach views causes (variables) as complementing each other to contribute to a specific outcome.

[1] The American Legislative Exchange Council supports conservative legislation in general and opposes legislation that supports a transition to renewable energy. The nonprofit organization has been associated with companies and individual donors in the fossil-fuel sector (Peterka, 2011).

Fossil-fuel employment for each state was calculated per thousand inhabitants based on oil, gas, and coal employment less retail filling-station jobs (IPAA, 2009; USEIA, 2009). We included median income, population growth, and green jobs per thousand in the state based on the hypothesis that favorable treatment of the RE&CT sector might be occurring in rapidly growing, wealthier states that already

Table 1 States with a plan that has a sectoral strategy: Republican governors.

State and Date	Plan and Authors	Clean Tech or Green-Energy Industries
Alabama 2011	Accelerate Alabama, developed under executive order by Governor Bentley	Eleven targeted sectors. Bioenergy included under "agricultural products/food production" and "forestry production."
Arizona 2010	Arizona Commerce Authority, public-private partnership under Governor Brewer's initiative	"Renewable energy" included as one of five clusters. Focus on solar industry. Also supported by governor's Office of Energy Policy.
Florida 2011	"State of Florida Job Creation Plan" by the Department of Economic Opportunity, Enterprise Florida, and Workforce Florida. Introduction by Governor Scott	Lists six targeted industries qualified for incentives, of which one is "clean tech."
Idaho 2011	Governor Otter's "Project 60" plan	Lists "alternative energy" as one of five leading industrial clusters targeted for development.
Mississippi 2012	"Mississippi Works," economic development program of Governor Bryant	Targets health care and energy as "major growth sectors." The focus of energy is on oil and gas, but biomass and energy efficiency are included and the governor supports legislation in this area.
Nebraska 2010	"Growing Jobs, Industries, and Talent," endorsed by Governor Heineman	Identifies "renewable energy" as one of twelve clusters.
Nevada 2011	"Moving Nevada Forward," endorsed by Governor Sandoval	"Clean energy" included among seven targeted sectors.
New Jersey 2012	"State Strategic Plan," directed by the governor's office, Department of Planning, and Department of State	Identifies six industrial clusters and includes the "green economy" as one of three additional growth sectors.
New Mexico 2010; 2012	New Century Economy Summit statement, developed under Governor Martinez; "Present and Future of Energy," report of the Economic Development Department	Includes energy among four targeted industries, but specific areas are not discussed. The Economic Development report highlights fossil fuels and nuclear energy but includes renewable energy (consistent with Governor Martinez's changes in policy direction from her Democratic predecessor).
North Carolina 2013	"North Carolina Jobs Plan," by the North Carolina Economic Development Board for Governor McCrory	Lists eight targeted industries, one of which is "energy." Within energy, the targets are "oil and gas production" and "smart grid." Mentions shale gas exploration.
North Dakota 2011	"North Dakota Economic Development Strategic Plan 2010–2020," by an official advisory group for Governor Dalrymple and the Department of Commerce	Energy included among five "target industries." Highlights oil and gas but includes biofuels and wind.
Ohio 2012	"Jobs Ohio Strategic Framework," for Governor Kasich by a new nonprofit organization he created to replace the Department of Development	Organized by twelve industrial sectors, one of which is "energy." Highlights oil and gas production and mentions "challenges" facing "renewables markets."
Oklahoma 2012	"Oklahoma's Economic Development Initiative," endorsed by Governor Fallin	Targets five "high priority industrial ecosystems," of which one is "energy." Highlights "machinery manufacturing, natural gas production, distribution, and engineering services."
South Dakota 2010	"Building a Stronger South Dakota: The Daugaard Plan," by Governor Daugaard	Includes "energy" as one of four industries targeted for development; energy section priorities include biofuels, wind, and a new oil refinery. The Office of Economic Development lists energy among seven "key industries."
Tennessee 2011	"Jobs4TN Plan," endorsed by Governor Haslam	Includes eight "key clusters," one of which is "energy technologies." The category includes lighting fixtures, turbines, and "clean energy products," consistent with the state's manufacturing strengths
Texas 2013	"Texas Wide Open for Business," by the governor's Office of Economic Development	Has six key industries, including energy, which has three subclusters: "oil and gas exploration and production; electric/coal/nuclear power generation; and renewable and sustainable energy generation."
Utah 2010	"Utah's Economic Development Plan," by Governor Herbert	Has seven targeted industries, including "Energy and Natural Resources." Although the plan includes "renewable energy" in the list of "growth areas within these sectors where particular attention is placed," the governor's more detailed energy plan suggests an "all of the above" energy strategy that emphasizes the need to develop both "traditional" and "renewable" energy.
Wyoming 2013	"Leading the Change," Governor Mead's plan	The state targets three industries—tourism, minerals and energy, and agriculture—as the central industrial sectors, and the governor's discussion of energy emphasizes oil, natural gas, coal, and uranium but includes wind.

have a strong base of green jobs. (The number of additional variables is limited due to the small size of the data set.) We used the Pew Center data set for green jobs because it does not overestimate the category by including employment in industries that are only vaguely related to the green economy (Pew Charitable Trusts, 2009; for a discussion of different approaches to defining green jobs, see Hess 2012). We selected other measures (median income, population, and fossil-fuel employment) to coincide with the year of the Pew dataset, 2007, which we defend as preceding the plans analyzed and the employment changes that occurred with the 2008 recession. We also contend that employment is the preferred measure of sector strength because it was a significant predictor of outcomes in previous studies, and we view it as a better measure of the scope of potential political constituency than an industry's general economic output.

Results

Question 1: Comparison of Tables 1 and 2 shows that in states with a sectoral plan and a Republican governor (Table 1), 9 out of 18 plans highlight the RE&CT sector. In contrast, in states with Democrats as governors (Table 2), all but one state (Minnesota) clearly highlights the sector. Thus, we find that in states with Republican governors support for the sector is weaker but still present. In the nine states

Table 2 States with a plan that has a sectoral strategy: Democratic governors.

State and Date	Plan and Authors	Clean Tech or Green-Energy Industries
Arkansas 2012	"Governor Beebe's Strategic Plan for Economic Development," Arkansas Economic Development Commission	One of the three main targeted industry sectors is "green energy and related products."
Colorado 2011	"Colorado Blueprint," endorsed by Governor Hickenlooper	Mostly regional strategy but includes "renewable energy" and "clean technology" in the list of statewide "competitive clusters" (see also COEDIT, 2014).
Connecticut 2013	Annual Report of the Department of Economic and Community Development	Lists "green technologies" as one of the five leading industries where it is focusing attention.
Hawaii 2012	"Hawaii's Targeted and Emerging Industries," Department of Business, Economic Development, and Tourism	Lists "alternative power generation" as an emerging rather than established sector.
Kentucky 2012	"Kentucky's Unbridled Future," contract report for Governor Beshar	"Sustainable manufacturing" highlighted as one of five "strategic business/industry sectors."
Maryland 2011	"Charting Maryland's Economic Path," endorsed by Governor O'Malley	Includes "bio-energy" in the life sciences and health care strategy; also mentions "renewable energy" in several energy-related statements.
Massachusetts 2011	"Choosing to Compete in the 21st Century," Economic Development Planning Council under Governor Patrick	Identifies five established industrial clusters and "clean energy" as one of three emerging clusters.
Minnesota 2012	"Working for Minnesota Jobs," Governor Dayton's economic development strategy	RE&CT are not included in the list of eight "high-potential sectors." The omission is not consistent with the state's broader emphasis on biofuels and wind energy.
Missouri 2011	"Strategic Initiative for Economic Growth," initiated by Governor Nixon and partially implemented in 2013 legislation	"Energy" is one of seven targeted clusters in its final report. The category includes wind, solar, and biomass along with nuclear energy and natural gas.
Montana 2010	Report, Governor's Office of Economic Development	Lists five areas of targeted technology development, one of which is "clean technology." Innovate Montana (public-private partnership) also includes "clean technology" among seven clusters.
New York 2010	"New York Works," Governor Cuomo's strategy statement	Highlights "energy efficiency, renewable energy, and clean-tech businesses." Likewise, Empire State Development also targets twelve" industries that provide the greatest degree of growth, innovation and potential," one of which is "clean technology," which includes manufacturing and renewable energy production.
Oregon 2012	"Ten Year Plan for Oregon Project," by the governor's office	Lists "clean technology" as one of the state's eight "key industries." Business Oregon, the state's economic development agency, also recognizes "clean technology" as one of "five key industries in which it holds global competitive advantages."
Vermont 2011	"Strategic Plan 2012–2015," endorsed by Governor Shumlin	A general plan that includes "environmental conservation and renewable energy" as one of eight priorities.
Washington 2012	"Glimpses Into Our Future," by the Washington Economic Development Corporation in response to legislature and request from the governor	Lists fourteen innovation clusters and highlights clean tech, electric vehicles, and smart grid as three of the fourteen areas.

Table 3 States without a sectoral plan: Republican governors.

State	Renewable/ Clean Tech Highlighted	Description
Alaska	No	No general plan. The Division of Economic Development lists several industries central to its programs and mission but does not include RE&CT.
Georgia	Yes	The 2012 official plan has a regional, not sectoral, approach. The Department of Economic Development lists seventeen key industries. The discussion of the "energy and environment" industry has a biomass focus.
Indiana	No	Governor Pence had not produced an economic development plan at the time of the study, but the Indiana Economic Development Corporation lists ten industry sectors. Under "energy" all forms are listed with no focus on renewable energy.
Iowa	Yes	The Iowa Economic Development Authority highlights five industrial clusters, one of which is renewable fuels. In general, the biofuel and wind industries receive support from both Republican and Democratic governors.
Kansas	Yes	Governor Brownback's 2011 economic development plan opposes a sectoral strategy but mentions "renewable resources" in a brief list of key industries. The Department of Commerce describes five targeted industries, one of which is "alternative energy."
Louisiana	No	The 2010 Five-Year Strategic Plan 2012–2016 has no sectoral strategy. Louisiana Economic Development includes "energy" as one of the "key industries," and the discussion of energy is focused on fossil fuels, an approach consistent with the governor's priorities.
Maine	No	Governor LePage's economic development strategy is not sectorally based and does not mention renewable energy, a position that is consistent with his opposition to the policies of his predecessor. Sectoral strategies in the state's Department of Economic and Community Development date to the previous Democratic administration.
Michigan	No	Governor Snyder has opposed the sectoral strategy of picking "winners and losers." The Michigan Economic Development Corporation lists six growth industries, but RE&CT are not prioritized.
Pennsylvania	No	The state's Department of Economic Development lists "energy" as one of seven key industries. It highlights shale-based natural gas and oil, and it does not mention renewable energy. Governor Corbett's Energy Plan includes "alternatives and renewables" under an "all of the above" strategy.
South Carolina	Yes	Neither the Jobs Economic Development Authority nor the state's Department of Commerce list target industries, but the public-private partnership New Carolina focuses on cluster-development strategy and includes hydrogen and fuel cells among fifteen clusters.
Wisconsin	No	The Wisconsin Economic Development Corporation strategic plan in 2012 under Governor Walker analyzes industry strengths by location quotient but does not have targeted industries. The 2011 Annual Economic Development Programs report lists ten industry clusters with priority for support, but neither renewable energy nor clean technology is included.

with Republican governors where the economic development plans do not prioritize the sector, they 1) clearly favor the fossil-fuel industry and downplay the RE&CT sector or 2) adopt an "all of the above" strategy that describes both "traditional" and "renewable" energy sources. These states are Mississippi, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Texas, Utah, and Wyoming. Thus, there are differences not only between states with Democratic and Republican governors but also among states that have Republican governors. In the supplementary analysis of the 18 states without a sectoral plan (Tables 3 and 4), the ratio of states that highlight the RE&CT sector to those that do not is also higher in states with Democrats as governor.

Question 2: To answer this question, we compared respectively the number of states in Tables 1 and 3 (Republican governors with a sectoral plan and without one) and in Tables 2 and 4 (Democratic governors with a sectoral plan and without one). We found that the ratio of states with sectoral plans to all states in the same party is roughly equivalent for states with Democrats as governors (67% of all states) and those with Republicans as governors (62% of all states). This finding suggests that although a sectoral strategy may be controversial ideologically at the federal level (Block, 2008), it is much less so at the state level. As Eisinger (1986) has argued, at the federal level, sectoral strategies have floundered due to sectional rivalries overlaid with industrial priorities. Although sectional rivalries can appear within states, especially larger ones, states also tend to focus on specific industries where they already have an advantage.

However, our review of plans and related statements by governors also found some expressions of ideological opposition to a sectoral strategy. For example, in the 2011 state-of-the-state address for Michigan, Governor Snyder (a Republican) advocated ending the strategy of "picking winners and losers" and of using tax incentives to get outside businesses to create more in-state jobs (Bomey, 2011). A similar view is found in the economic development plan of Kansas Governor Brownback (a Republican).

> The state government of Kansas need not commit scarce resources to the enormously

Table 4 States without a sectoral plan: Democratic Governors.

State	Green-Clean Highlighted	Notes
California	Yes	Lt. Governor Newsom's plan highlights "clean economy" but has a regional rather than sectoral strategy. "Green technology" was listed on governor's website as one of six industry clusters (CGOED, 2013) and has been a state government priority.
Delaware	Yes	Governor Markell eliminated the cluster strategy in 2009 to focus on needs of all businesses. The Delaware Economic Development Office continued to highlight five competitive industries, one of which was "green and material sciences." The governor has been generally supportive of the sector.
Illinois	Yes	Governor Quinn's Illinois Economic Recovery plan does not have a sectoral strategy but highlights the "green economy."
New Hampshire	Yes	Governor Hassan's "Innovate NH Jobs Plan" does not have a sectoral strategy but emphasizes renewable energy and greenhouse-gas initiatives.
Rhode Island	Yes	The Rhode Island Comprehensive Economic Development Strategy has annual reports but no sectoral strategy. The Rhode Island Economic Development Corporation lists the "green economy" among its eight highlighted sectors.
Virginia	No	The economic development plan of Governor McAuliffe was not yet available. The Virginia Economic Partnership lists energy among ten key industries, and the discussion highlights both "traditional" and "renewable" sources, perhaps reflecting the previous Republican governor's priorities more than those of the current Democrat.
West Virginia	No	There is no comprehensive economic development plan, but the West Virginia Department of Commerce recognizes "advanced and alternative energies" as one of thirteen major industries. The discussion includes coal, natural gas, and wind.

> difficult task of predicting the outcome of competition if it focuses on the much more manageable—and appropriate—task of creating the "playing field" on which competition takes place. By way of analogy, the new vision says: the State of Kansas runs tournaments; it does not field players. Creating a playing field to host world-class tournaments will attract world-class players. The playing field will endure, but players will come and go (Brownback & Coyler, 2011).

Likewise, the 2006 economic development plan for the state of Indiana, for which Republican Governor Daniels (the predecessor of Republican Governor Pence) wrote the preface, criticizes sector-specific strategies:

> Some states are pursuing strategies that explicitly target certain "desirable" industry clusters. This plan does not propose such a strategy for Indiana as it is not appropriate for government to try to pick "winners" in the game of economic competition. Rather, free markets should determine the fate of both individual enterprises and even whole industry sectors (IEDC, 2006).

One Democratic governor, Markell of Delaware, also eliminated the sectoral strategy in order to focus economic development efforts on "all" businesses.

Question 3: The outcome of the fsQCA is a binary variable that splits states into two groups—those with higher priority for the RE&CT sector and those with lower priority. The independent variables include governor's party affiliation, state median income, population growth, green jobs per thousand inhabitants, and fossil-fuel jobs per thousand inhabitants (see Table 5). Upper- and lower-case letters indicate a higher and lower score on the variable respectively. For example, the word "DEMOCRAT" in upper-case letters indicates a higher score for that variable for the states listed in the same row in the column on the right, and the word "democrat" in lower case indicates a lower score for the states in the same row in the column to the right. If the word does not appear in either upper-case or lower-case letters, then it indicates that the variable is not relevant for the set of states on the right. The distributions of the variables determine the membership scores (Ragin, 2000). For example, for the number of fossil-fuel jobs per thousand for each state, we specify the three threshold levels following Ragin's direct method of calibration: the threshold for full membership is the third quartile, the one for full nonmembership is the first quartile, and the cross-over point is the median. We use the function *directCalibration* in the *QCA3* package in R to generate calibrated scores.

The table is read as follows: for row 1, Montana, Kentucky, Colorado, and Vermont form a path to high priority for the RE&CT sector in the plans based on having a Democrat as governor and higher fossil-fuel employment per thousand inhabitants in comparison with the other states in the dataset. For row 2, New York, Missouri, and Maryland form a path to high priority for the RE&CT sector in the plans based on a lower level for the variables population growth, green jobs per thousand inhabitants, and fossil-fuel employment per thousand inhabitants. Thus, Table 5 shows seven paths (the seven rows in the upper part

Table 5 Qualitative comparative analysis of plans in Tables 1 and 2.

States that Prioritize Renewable Energy and/or Clean Technology in the Plans							Cases
(1) DEMOCRAT				* FOSSILFUELJOB	+		MT, KY, CO, VT
(2)		growth	* greenjob	* fossilfueljob	+		NY, MO, MD
(3) DEMOCRAT		* growth	* greenjob		+		NY, MO, KY, MD
(4)	* INCOME		* greenjob		+		NV, NY, HI, AZ, MD, FL
(5) democrat		* GROWTH		* fossilfueljob	+		NV, FL, ID, TN
(6)	* INCOME	* GROWTH		* fossilfueljob	+		NV, HI, WA, AZ, OR, FL
(7)		* GROWTH	* GREENJOB	* fossilfueljob	+		ID, OR, TN, WA
Solution Coverage		0.676456					
Solution Consistency		0.965619					
States That Do Not Prioritize Renewable Energy and/or Clean Technology in the Plans							**Cases**
(1) democrat	* INCOME	* GROWTH		* FOSSILFUELJOB	+		UT, WY
(2) democrat		* GROWTH	* GREENJOB	* FOSSILFUELJOB	+		WY, NM, TX
(3) DEMOCRAT	* income	* GROWTH	* greenjob	* fossilfueljob	+		NC
Solution Coverage		0.387306					
Solution Consistency		0.882417					

of the table for states that prioritize the RE&CT sector) that are associated with the solution set of higher levels of priority for RE&CT in the plans and three paths associated with the solution set of lower levels of priority (the three rows in the lower part of the table).

The fsQCA also provides a measure of consistency and coverage. Consistency is the measure of the cases with a similar group of causal conditions (that is, the five variables of political party, income, population growth, green jobs employment, and fossil-fuel employment) that exhibit a similar outcome (e.g., high priority) as a subset of all cases that exhibit the outcome, and coverage is the proportion of cases represented by the paths. Consistency is sometimes compared with the concept of significance in inferential statistics, and coverage is sometimes compared with the R^2 or variance, but these comparisons are only heuristics because the underlying mathematics is based on intersecting sects rather than inferential statistics. Consistency and coverage scores are bound by 0 (low) and 1 (high). Our fsQCA output displays high consistency levels in both sets of configurations: 0.97 and 0.88, respectively.

The most prominent pattern is that four of the seven paths indicate a lower level of fossil-fuel employment in states with a higher priority for the RE&CT sector. This group of states also tends to have a Democrat as governor, higher population growth, and lower green jobs per thousand. (We discuss the potential effects of green jobs constituencies below.) For the six states categorized as giving the RE&CT sector lower priority, the solution coverage is 39% but the solution consistency is also high, at 88%. These states tend to have higher population growth, a higher level of fossil-fuel employment, and a Republican governor. (Note that the paths that result in successful cases are not necessarily the same as the ones that result in unsuccessful cases because the method does not assume causal symmetry.) Because high population growth and median income do not clearly distinguish the states with high and low priority for the sector, the discussion will focus on fossil-fuel employment and party of the governor. The two variables are clearly related (we began the study with evidence for differences between Republicans and Democrats on the issue), but the correlation for all 50 states between fossil-fuel employment and years that a Democrat served as governor (for the fifteen-year period 1998 through 2013) is only –0.08. Thus, there is some value in discussing in a more fine-grained and qualitative way the relationship among party of the governor, the relative strength of the state's fossil-fuel sector, and the strength of support for the RE&CT sector.

Discussion

Fossil-fuel employment and prioritization of the RE&CT sector are negatively associated both in the fsQCA analysis and when one delves down into a case-by-case analysis. Of all 32 states in Tables 1 and 2, the 15 with the highest rank for fossil-fuel employment per thousand are (from highest to lowest):

Wyoming, Oklahoma, Texas, New Mexico, North Dakota, Montana, Kentucky, Colorado, Utah, Mississippi, Arkansas, Alabama, Vermont, New Jersey, and Nebraska. In Table 1 (Republican governors), the nine states with a low priority for the RE&CT sector include seven states in this list of top 15 states for fossil-fuel employment (in the same order): Wyoming, Oklahoma, Texas, New Mexico, North Dakota, Utah, and Mississippi. Thus, 7 out of the 9 states with Republican governors that have a low priority for the RE&CT sector in the economic development plans have high levels of fossil-fuel employment.

The other two states in Table 1 with a low priority are North Carolina and Ohio. These states are not in the top 15 for fossil-fuel employment, but in both states Republican governors have prioritized development of the natural gas industry. North Carolina is one of a small handful of states in the southern region of the country with a renewable portfolio standard goal (approved under a former Democratic governor) (SB 3, 2008).[2] The state also previously had various initiatives in support of solar energy and biofuels, such as the North Carolina Solar Center and the Biofuels Center of North Carolina. However, support for the RE&CT sector has cooled since the change of parties in the governor's office in 2013. For example, in 2014 Republican Governor McCrory supported and signed the legislature's "Energy Modernization Act," which lifted a moratorium on natural gas recovery from hydraulic fracturing for the state (SB 786, 2014). There were also efforts in the legislature—not supported by the governor—to repeal the state's modest renewable portfolio standard (Murawski, 2013; Oakes, 2013). Thus, the RE&CT sector is highly contentious in North Carolina.

Likewise, in Ohio under Democratic Governor Strickland, from 2007 until 2011, the state government developed a renewable portfolio standard, an energy-efficiency standard, and a series of net-metering provisions (SB 221, 2008). Governor Strickland also supported Ohio Third Frontier's initiatives to develop the fuel-cell industry and other clean technology industries.[3] In contrast, Republican Governor Kasich, who took office in 2011, supported and approved legislation (SB 315, 2012) that diluted the renewable portfolio and energy-efficiency standards and placed a gag rule on the disclosure of chemicals in natural gas-fracturing operations. Governor Kasich also supported the legislature's initiative to freeze the state's renewable portfolio standard (SB 310, 2014). Again, this latter initiative was especially contentious, and businesses and stakeholders were divided in their support for it.

In Table 1, another set of "anomalous" states are Alabama, Nebraska, and New Jersey, which have Republican governors, high fossil-fuel employment, and higher priority for the RE&CT sector. Alabama's plan is geared more toward the state's agricultural industry, and the state is ranked first for cellulosic ethanol production (Business Facilities, 2013). Although the governor supports the state's biofuels industry, he is also in favor of tapping into Alabama's oil-sands reserves (Bentley, 2014). Nebraska has the second highest rate of growth in green jobs and has strong wind and biofuels industries (Pew Charitable Trusts, 2009). In 2013, Governor Heineman signed a bill in support of wind-farm subsidies, although under the pretext of eliminating a local sales-tax option for Omaha (LB 104, 2013; O'Hanlon, 2013). Thus, Nebraska has a strong constituency in support of wind and biofuels that may dampen opposition. In New Jersey, Governor Christie's record on renewable energy is mixed. He supports the state's relatively successful solar industry but also withdrew the state from the regional greenhouse-gas accord of the northeastern states. Democrats have controlled the state legislature during his terms, and there is a relatively strong constituency for the RE&CT sector. The state also ranks among the top 10 of the 32 states in Tables 1 and 2 for green jobs.

Turning to Table 2, several states with Democrats as governors are also among the top 15 in fossil fuel-employment rates (Colorado, Kentucky, Montana, and Vermont), but in these states' plans, the RE&CT sector receives priority. One counterbalancing factor may be green jobs: Colorado and Vermont are in the top 10 states for green jobs per capita, and Kentucky and Montana are in the top 20. Thus, even if a state has relatively high fossil-fuel employment, a relatively strong green jobs constituency may push Democratic governors to support economic development strategies that include or prioritize their RE&CT sector. These factors may coincide with general ideological preferences among Democratic governors for green transition policies.

Are patterns similar for the 18 states without a clearly articulated sectoral plan (Tables 3 and 4)? Several states in this group also focus on fossil fuels or an "all of the above" strategy: Indiana, Louisiana, Pennsylvania, Virginia, and West Virginia. Of these states all but West Virginia have Republican governors. The politically conservative state of Indiana has a middle ranking (25) in terms of fossil-fuel employment, but it does have a coal industry in addition to oil and gas employment. In 2014, the legislature

[2] The designation "SB" refers to "Senate bill," and "HB" refers to "House bill." These designations and the date are generally used to find details on a bill in the state legislature's electronic archive.

[3] Ohio Third Frontier was launched in 2002 and became a widely recognized state economic development program for high-technology industries, including for the state's solar and fuel-cell clusters (Hess, 2012).

approved a freeze on the state's energy-efficiency program (SB 34), which Governor Pence allowed to become law without his signature. Louisiana has the third highest level of per capita fossil-fuel employment, and Governor Jindall (2012) has strongly criticized green energy-transition policies associated with the Obama administration. Pennsylvania is in the top 20 states for fossil-fuel employment and has a booming natural gas industry that Republican Governor Corbett supports in contrast to the green energy policies of Governor Rendell, his Democratic predecessor. West Virginia has a Democratic governor, but the coal industry has a strong effect on state policies. Nevertheless, the West Virginia Department of Commerce recognizes "advanced and alternative energies" and includes wind energy alongside coal and natural gas. Virginia is a mixed state in terms of party constituencies, with an emerging political balance between its more liberal northern portion and more conservative southern portion. Likewise, the level of fossil-fuel employment is roughly equivalent to that of green jobs. (For more details on state-level policies and politics, see Hess, 2012; Hess et al. 2010).

Several states with Republican governors have fairly well-developed renewable energy-industry constituencies, and we conclude that Republican governors tend to support these interests even if they avoid more controversial green energy-transition policies, notably renewable portfolio standards and greenhouse gas-emissions controls. Examples of strong renewable industries in states with Republican governors include the solar industry (Arizona, Florida, and New Jersey), wind (Idaho, Iowa, Nebraska, and South Dakota), biofuels (Alabama, Georgia, Iowa, Nebraska, and other states), and clean technology manufacturing (Georgia, South Carolina, and Tennessee). We suggest that where the political constituency for fossil fuels is weak or moderate, and where there is already an emergent RE&CT sector, Republican governors will tend to adopt a more open approach in prioritizing the sector. Some states have already reached a point where the number of people employed in green jobs is greater than that employed in fossil-fuel jobs. In one such state, California, the ratio of green jobs to fossil-fuel jobs is now over 2 to 1, and both the previous Republican governor (Schwarzenegger) and current Democratic governor (Brown) have supported the RE&CT sector. The state has shown leadership in a wide range of RE&CT industries, including solar and wind energy, green buildings and smart-grid technology, biofuels, and clean transportation (Hess 2012, Hess et al. 2010).

Conclusion

Our analysis provides two main insights, one oriented toward policy practice and the other toward sustainability and transition theory. From a policy perspective, political leaders and advocates concerned with developing a strategy to support a transition to a low-carbon economy in a situation of political opposition may find some opportunities in the economic development field. The differences in viewpoints between Republicans and Democrats on climate mitigation and green energy-transition policies have resulted in gridlock in Congress, and since 2010 Republican governors and legislatures in several states have reversed some green energy-transition policies of Democratic predecessors. However, the focus on job creation and business development, rather than on the environmental implications or linkages to greenhouse-gas initiatives and climate change, may create some common ground for prioritizing the RE&CT sector in the economic development field, in contrast with the opposition that has emerged in the broader environmental and energy-policy fields. The analysis shows that these hybrid economic development and energy policies can gain the support of Republican governors, but their support is shaped at least partially by local industries. In other words, support for the strategy is more likely if it is geared to a specific industrial strength in the state (such as solar, wind, biofuels, or fuel cells) and in states without high fossil-fuel employment.

We also suggest that despite some indications of ideological opposition among political conservatives to sectoral economic development strategies, in general such opposition is not salient in the field of state-level economic development policy. In other words, the practical issue of building and maintaining a state's strengths in particular industries tends to trump ideological concerns with having the government play a role in "picking winners and losers" among different industries. Sectoral targeting is widely diffused in economic development practice in the state governments and is an accepted policy practice in both Democratic and Republican administrations.

The study's second implication is more oriented toward the emerging theory of sustainability transitions, specifically, the issue of regime resistance (Geels, 2014; Hess, 2014). Earlier work on sustainability transitions, especially focused on Europe, assumed a relatively strong political consensus, and thus the salient issues tended to be more managerial and technical. In contrast, emerging research has increasingly focused on the politics of transitions and how existing industrial regimes resist reform efforts.

The fossil-fuel sector in the United States has opposed low carbon-transition policies by mounting a powerful mobilization of lobbying and campaign spending, and its opposition has affected both federal and state policies. Thus, the study of transitions to more sustainable industrial regimes, which in many industrial sectors is heavily driven by industrial policy and government regulation, requires attention to the interactions of conflicts in the industrial field (e.g., relationships between emergent and established firms) and in the political field (e.g., partisan and ideological divisions). We draw out an implication of this new direction in the study of sustainability transitions: attention to the problem of regime resistance and party differences leads to an analysis of the types of issues within the sustainability policy field that can mitigate or exacerbate political differences. As this study indicates, the level of political conflict within the broader field of sustainability policies is issue specific, and reformers in the political field can benefit from paying close attention to the type of issue and its potential for conflict or agreement across party lines. In the United States, frames and laws directly oriented toward environmental goals, especially greenhouse-gas reduction, have encountered increasingly sharp political opposition from significant segments of the Republican Party and from wealthy donors associated with the fossil-fuel sector. One pathway toward lessening political opposition is to forge linkages between energy-transition policies and the broader economic goals of job creation and business development.

However, the likelihood of successfully connecting sustainability transition policies with economic development policies will depend on the political opportunity structure, which in turn is likely to be more open in states where the fossil-fuel sector has lower levels of employment and a weaker political constituency and conversely where there are emerging industrial clusters in the RE&CT sector. This argument may appear to be very limited: there is a slightly greater openness of political opportunities for this framing of policy than for framings based on environmental criteria as the motivation for support for the RE&CT sector, but the openness depends on local industrial strengths. However, there is also a broader, historical issue at stake. Although the RE&CT sector lacks the financial resources of the fossil-fuel sector and therefore has a lower capacity to influence the political system, growth of the RE&CT sector in a state, and for the wider industries associated with "green jobs," results in the gradual creation of political constituencies that support clean energy policies and oppose efforts to overturn existing green transition policies. Thus, feedback effects between policy support and job creation have important political implications given the sharp partisan divisions on this issue.

When President Obama promised to create "five million green jobs" in 2008, to the extent that the holders of these jobs came to identify their livelihoods with Democratic Party politics, he was also threatening Republican opponents with a major occupational wedge issue. If fossil-fuel employment remains static and jobs in the RE&CT sector continue to grow, then the long-term trend will be for a change in the relative weighting of political constituencies and the political calculus of elected officials. In contrast, if fossil-fuel employment were to grow at a similar or greater rate, especially through employment growth in hydraulic fracturing operations and other unconventional recovery processes, then the political balance could be maintained or even shift against green energy-transition policies. Thus, the present configuration of industrial interests and related political constituencies partially shapes support for these policies, but the variation in levels of support also contributes to the future economic and political balance of power among those shaping interests. Because a state's RE&CT sector is a political constituency and because economic development policy is considered proemployment and proindustry, there is some potential for such policies in support of the RE&CT sector to avoid the often sharp partisan divisions that occur over policies that more overtly signal support for a low-carbon energy transition. In turn, green economic development policies also strengthen political constituencies that support the extension and deepening of those policies.

References

American Legislative Exchange Council. 2014. Electricity Freedom Act. http://www.alec.org/model-legislation/electricity-freedom-act/. September 10, 2014.

Bentley, R. 2014. Governor Bentley's 2014 State of the State Address. http://governor.alabama.gov/newsroom/2014/01/governor-bentleys-2014-state-state-address/. September 10, 2014.

Block, F. 2008. Swimming against the current: the rise of the hidden developmental state in the United States. *Politics and Society* 36(2):139–156.

Bomey, N. 2011. MEDC's high-tech business credits, film incentives would be phased out under Rick Synder's plan. *Ann Arbor News* January 28.

Bowen, W., Park, S., & Elvery, J. 2013. Empirical estimates of the influence of renewable energy portfolio standards on the green economies of states. *Economic Development Quarterly* 27(4):338–351.

Brownback, S. & Coyler, J. 2011. *Our Administration's Economic Development Plan*. Topeka, KS: Office of the Governor.

Burke, B. & Ferguson, F. 2010. Going alone or moving together: Canadian and American middle tier strategies on climate change. *Publius: The Journal of Federalism* 40(3):436–459.

Business Facilities. 2013. 2013 Business facilities rankings report: metro and global rankings. *Business Facilities Magazine* July/August.

Byrne, J., Hughes, K., Rickerson, W., & Kurdgelashvili, L. 2007. American policy conflict in the greenhouse. *Energy Policy* 35(9):4555–4573.

California Governor's Office of Economic Development (CGOED). 2013. Industry clusters. http://webcache.googleusercontent.com/search?q=cache:NqFeqHZLDKoJ:business.ca.gov/WhyCA/IndustryClusters.aspx+&cd=5&hl=en&ct=clnk&gl=us&client=firefox-a. September 10, 2014.

Clark, B. & Allen, D. 2004. Political economy and the adoption of everyday environmental policies in the American states, 1997: an exploratory analysis. *The Social Science Journal* 41 (4):525–542.

Coley, J. & Hess, D. 2012. Green energy laws and Republican legislators in the United States. *Energy Policy* 48(1):576–583.

Colorado Office of Economic Development and International Trade (COEDIT). 2014. Energy and Natural Resources. http://www. advancecolorado.com/key-industries/energy-natural-resources. September 10, 2014.

Committee On Energy and Commerce. 2014. H.R. 2126, Energy-Efficiency Act of 2014. https://beta.congress.gov/bill/113th-congress/house-bill/2126. September 10, 2014.

Dinan, J. 2008. The state of American federalism 2007–2008: resurgent state influence in the national policy process and continued state policy innovation. *Publius: The Journal of Federalism* 38(3):381–415.

Eisinger, P. 1986. *The Rise of the Entrepreneurial State: State and Local Economic Development Policy in the United States*. Madison, WI: University of Wisconsin Press.

Elliot, K. & Balz, D. 2013. Party control by state. *Washington Post* December. 13.

Fischlein, M., Feldspauch-Parker, A. Peterson, T., Stephens, J., & Wilson, E. 2014. Which way does the wind blow? Analyzing the sub-national context for renewable energy deployment in the United States. *Environmental Policy and Governance* 24 (3):169–187.

Fitzgerald, J. 2010. *Emerald Cities: Urban Sustainability and Economic Development*. New York: Oxford University Press.

Geels, F. 2011. The multi-level perspective on sustainability transitions: responses to seven criticisms. *Environmental Innovation and Societal Transitions* 1(1):24–40.

Geels, F. 2014. Regime resistance against low-carbon energy transitions: introducing politics and power into the multi-level perspective. *Theory, Culture, and Society* 31(5):21–40.

Grin, J. 2010. Understanding transitions from a governance perspective. In J. Grin, J. Rotmans, & J. Schot (Eds.), *Transitions to Sustainable Development: New Directions in the Study of Long-Term Transformative Change.* pp. 223–319. New York: Routledge.

Hamilton, L. 2014. *Do You Trust Scientists About the Environment?* Regional Issue Brief #40. Durham, NH: Carsey Institute.

Hess, D., Banks, D., Darrow, B., Datko, J., Ewalt, J., Gresh, R., Hoffmann, M., Sarkis, A., & Williams, L. 2010. *Building Clean-Energy Industries and Green Jobs: Policy Innovations at the State and Local Government Level*. Troy, NY: Science and Technology Studies Department, Rensselaer Polytechnic Institute.

Hess, D. 2012. *Good Green Jobs in a Global Economy*. Cambridge, MA: MIT Press.

Hess, D. 2014. Sustainability transitions: a political coalition perspective. *Research Policy* 43(2):278–283.

Independent Petroleum Association of America (IPAA). 2009. *IPAA Oil and Gas Producing Industry in Your State: 2008–2009*. Washington, DC: IPAA.

Indiana Economic Development Corporation (IDEC). 2006. *Accelerating Growth: Indiana's Strategic Economic Development Plan*. Indianapolis: IEDC.

Jindall, B. 2012. Obama's politicized energy policy. *The Wall Street Journal* March 12.

Johnson, B. 2010. The climate zombie caucus of the 112th Congress. *Think Progress* November 19.

Johnson, C. 1984. Introduction: the idea of industrial policy. In C. Johnson (Ed.), *The Industrial Policy Debate*, pp. 3–26. San Francisco: Institute for Contemporary Studies.

Kemp, R., Schot, J., & Hoogma, R. 1998. Regime shifts to sustainability through processes of niche formation: the approach of strategic niche management. *Technology Analysis and Strategic Management* 10(2):175–196.

Layzer, J. 2012. *Open for Business: Conservatives' Opposition to Environmental Regulation*. Cambridge, MA: MIT Press.

Lund, P. 2009. Effects of energy policies on industry expansion in renewable energy. *Renewable Energy* 34(1):53–64.

Lybecker, D., McBeth, M., & Kusko, E., 2013. Trash or treasure: recycling narratives and reducing political polarization. *Environmental Politics* 22(2):312–332.

Markard, J., Raven, R., & Truffer, B. 2012. Sustainability transitions: an emerging field of research and its purposes. *Research Policy* 41(6):955–967.

McCarthy, N., Poole, K., & Rosenthal, H. 2006. *Polarized America: The Dance of Ideology and Unequal Riches*. Cambridge, MA: MIT Press.

McCauley, S. & Stephens, J. 2012. Green energy clusters and socio-technical transitions: analysis of a sustainable energy cluster for regional economic development in Central Massachusetts, USA. *Sustainability Science* 7(2):213–225.

McCright, A. & Dunlap, R. 2011. The politicization of climate change and polarization in the American public's views of global warming, 2001–2010. *Sociological Quarterly* 52(2): 155–194.

Meadowcroft, J. 2011. Engaging with the politics of sustainability transitions. *Environmental Innovation and Societal Transitions* 1(1):70–75.

Murawski, J. 2013. Gov. Pat McCrory embraces solar power. *News Observer* June 4.

Oakes, A. 2013. Governor's remarks close energy summit. *Wautauga Democrat* July 22.

O'Hanlon, K. 2013. Heineman signs wind bill to offer tax incentives. *Journal Star* June 4.

Peterka, A. 2011. Conservative group drafts, promotes anti-EPA bills in state legislatures. *The New York Times* April 4.

Pew Charitable Trusts. 2009. *The Clean Energy Economy: Repowering Jobs, Business, and Investment across America*. Philadelphia, PA: Pew Charitable Trusts.

Rabe, B. 2011. Contested federalism and American climate policy. *Publius: The Journal of Federalism* 41(3):494–521.

Rabe, B. 2013. *Reverse Diffusion and the Durability of State Cap and Trade Policy*. American Political Science Association Annual Meeting. August 29–September 1, Chicago, Illinois.

Ragin, C. 1987. *The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies*. Berkeley: University of California Press.

Ragin, C. 2000. *Fuzzy-set Social Science*. Chicago: University of Chicago Press.

Raskin, P. 2006. *The Great Transition Today: A Report from the Future*. Boston, MA: Tellus Institute.

Shor, B. 2013. How U.S. state legislatures are polarized and getting more polarized (in 2 Graphs). *Washington Post* January 14.

Smith, A. & Raven, R. 2012. What is protective space? Reconsidering niches in transitions to sustainability. *Research Policy* 41(6):1025–1036.

Southall, A. 2012. House passes Solyndra Act aimed at Obama. *The New York Times* September 14.

Truffer, B. & L. Coenen. 2012. Environmental innovations and sustainability transitions in regional studies. *Regional Studies* 46(1):1–21.

United States Energy Information Administration (USEIA). 2009. *Annual Coal Report: 2007*. DOE/EIA–0584. Washington, DC: USEIA.

Vasseur, M. 2014. Convergence and divergence in renewable energy policy in the United States from 1998 to 2011. *Social Forces* 92(4):1637–1657.

Wald, M. & Savage, C. 2011. Furor over loans to failed solar firm. *The New York Times* September 15.

Wilson, E. & Stephens, J. 2009. Wind deployment in the United States: states, resources, policy, and discourse. *Environmental Science & Technology* 43(24):9063–9070.

Yi, H. 2013. Clean energy policies and green jobs: an evaluation of green jobs in U.S. metropolitan areas. *Energy Policy* 56:644–652.

Appendix: State Economic Development Documents

Alabama	Boyette Strategic Advisors. 2012. *Accelerate Alabama: Strategic Economic Development Plan.* http://www.madeinalabama.com/assets/2013/03/AccelerateAlabamaPlan.pdf
Alaska	Alaska Division of Economic Development. 2014. *Development Section*. http://commerce.alaska.gov/dnn/ded/DEV.aspx
Arizona	Arizona Commerce Authority. 2012. *Business Plan*. http://www.azcommerce.com/assets/ACA-Business-Plan2.pdf
Arkansas	Arkansas Economic Development Commission. 2012. *Governor Beebe's Strategic Plan for Economic Development*. http://www.arkansasedc.com/sites/default/files/media/aedc%202012%20revised%20strategic%20plan%20low%20res.pdf
California	Newsom, G. 2011. *An Economic Growth and Competitiveness Agenda for California*. http://ltg.ca.gov/docs/LGN_Econ_Agenda.pdf California Governor's Office of Economic Development. 2013. *Industry Clusters*. http://webcache.googleusercontent.com/search?q=cache:NqFeqHZLDKoJ:business.ca.gov/WhyCA/IndustryClusters.aspx+&cd=5&hl=en&ct=clnk&gl=us&client=firefox-a
Colorado	Colorado Office of Economic Development and International Trade. 2011. *Colorado Blueprint*. http://www.advancecolorado.com/sites/default/files/908_424_Colorado%20Blueprint_11_7_no_jump_8.5_0.pdf Colorado Office of Economic Development and International Trade. 2014. *Energy and Natural Resources*. http://www.advancecolorado.com/key-industries/energy-natural-resources
Connecticut	Connecticut Department of Community and Economic Development. 2013. *Connecticut: Still Revolutionary*. Annual Report, Fiscal Year 2011-2012. http://www.ct.gov/ecd/lib/ecd/decd_fy_2011_12_annual_report.pdf
Delaware	Delaware Economic Development Office. 2014. *Green and Material Sciences*. http://www.dedo.delaware.gov/DelawareIndustries/DelawareIndustries_green.shtml?green
Florida	Florida Department of Economic Opportunity, Enterprise Florida, and Workforce Florida. 2011. *State of Florida Job Creation Plan*. http://www.floridajobs.org/docs/business-resources/state_of_florida_job_creation_plan.pdf
Georgia	Georgia Competitiveness Initiative. 2012. *Georgia Competitiveness Initiative Report*. http://www.georgiacompetitiveness.org/uploads/GCI_Report.pdf Georgia Department of Economic Development. 2013. *Industries in Georgia*. http://www.georgia.org/industries
Hawaii	Hawaii Department of Business, Economic Development, and Tourism. 2012. *Hawaii's Targeted and Emerging Industries: 2012 Update Report*. http://files.hawaii.gov/dbedt/economic/data_reports/emerging-industries/Hawaii_Targeted_Emerging_Industries_2012_Update_Report.pdf
Idaho	Otter, B. 2011. *Project 60*. http://web.archive.org/web/20130217033720/http://www.project60.idaho.gov/recruit.html
Illinois	Quinn, P. 2009. *Illinois Economic Recovery Plan*. http://www2.illinois.gov/gov/Documents/jobs%20action%20plan/Illinois%20Economic%20Recovery%20Plan%20Final.pdf#page=2&zoom=auto,0,715
Indiana	Indiana Economic Development Corporation. 2006. *Accelerating Growth: Indiana's Strategic Economic Development Plan*. http://iedc.in.gov/assets/files/Docs/Data%20Resources/Publications/2006_Strategic_Plan.pdf Indiana Economic Development Corporation. 2014. *Industry Sectors*. http://iedc.in.gov/indiana-info/industry-sectors
Iowa	Iowa Economic Development Authority. 2012. *Clusters*. http://www.iowaeconomicdevelopment.com/WhyIowa/WhyIowaClusters
Kansas	Brownback, S. & Coyler, J. 2011. *Our Administration's Economic Development Plan*. https://governor.ks.gov/docs/documents/2011/02/10/eco-devo_strategic_plan.pdf Kansas Department of Commerce. 2014. *Target Industries*. http://www.kansascommerce.com/index.aspx?NID=451
Kentucky	Boyette Strategic Advisors. 2012. *Kentucky's Unbridled Future: Strategic Economic Development P*lan. http://boyettestrategicadvisors.com/project/kentuckys-unbridled-future/public/project-documents-3
Louisiana	Louisiana Economic Development. 2010. *Five-Year Strategic Plan*. http://www.louisianaeconomicdevelopment.com/assets/LED/docs/Incentives/Performance_Reporting/LED%20Strategic%20Plan%202015-2019.pdf Louisiana Economic Development. 2014. *Explore Louisiana's Key Industries*. http://www.louisianaeconomicdevelopment.com/index/key-industries
Maine	LePage, P. 2011. *Making Maine Prosperous*. http://www.maine.gov/governor/lepage/publications/making_maine_prosperous.pdf Maine Department of Economic and Community Development. 2008. *Maine's Technology Sectors and Clusters: Status and Strategy*. http://www.maine.gov/tools/whatsnew/attach.php?id=118830&an=1
Maryland	Maryland Department of Business and Economic Development. 2011. *Charting Maryland's Economic Path*. http://www.choosemaryland.org/aboutdbed/Documents/medcStrategicReport.pdf
Massachusetts	Massachusetts Economic Development Council. 2011. *Choosing to Compete in the Twenty-Firs*t Century. http://www.mass.gov/hed/docs/eohed/economicdevpolicystrategy.pdf

Michigan	Michigan Economic Development Corporation. 2014. *Growth Industries*. http://www.michiganbusiness.org/grow/industries/
Mississippi	Bryant, P. 2012. *Governor Phil Bryant. State of the State Address: Tuesday, January 24, 2012*. http://web.archive.org/web/20121023011039/http://www.mississippiworks.org/state-of-the-state/ State of Mississippi. 2012. *Two Major Growth Sectors: Energy and Healthcare*. http://web.archive.org/web/20130209043527/http://www.mississippiworks.org/major-growth-sectors/
Missouri	Market Street Services, Inc. 2011. *Strategic Initiative for Economic Growth.* State of Missouri. http://ded.mo.gov/Content/Missouri%20Strategic%20Initiative%20for%20Economic%20Growth%2c%204-11-11%20final.pdf
Montana	Montana Governor's Office of Economic Development. 2010. *Report on Activities 2005-2010 to Governor Brian Schweitzer*. http://leg.mt.gov/bills/2011/Minutes/House/Exhibits/jgh21a05.pdf Innovate Montana. 2014. *Industry Clusters*. http://innovatemontana.com/working-here/industry-clusters/
Nebraska	Battelle Institute. 2010. *Growing Industries, Jobs, and Talent: A Competitive Advantage Assessment and Strategy for Nebraska*. Report for the Nebraska Department of Economic Development and Department of Labor. http://www.neded.org/files/businessdevelopment/battelle/Main_Report_NE_CompetitiveAdvantageAssessment_v8a.pdf Heineman, D. 2010. *Governor Highlights Priorities for Nebraska's Continued Economic Vitality.* September 9. http://www.governor.nebraska.gov/news/2010/09/09_economic_vitality.html
Nevada	State of Nevada. 2012. *Moving Nevada Forward: A Plan for Excellence in Economic Development*. 2012–2014. http://www.nvdetr.org/PDFS/Moving_Forward_050812%20.pdf
New Hampshire	Hassan, M. 2013. *Innovate NH Jobs Plan*. http://www.governor.nh.gov/innovate/
New Jersey	New Jersey State Planning Commission. 2012. *State Strategic Plan: New Jersey's Development and Redevelopment Plan*. http://www.nj.gov/state/planning/final-plan/final_spp_november%208_pub.pdf
New Mexico	New Mexico Department of Economic Development. 2010. *New Century Economic Summit*. http://gonm.biz/uploads/files/NCE-SummitFinalReport.pdf New Mexico Department of Economic Development. 2012. *New Mexico: Present and Future of Energy*. http://gonm.biz/uploads/files/nmPresentFutureEnergy.pdf
New York	Cuomo, A. 2010. *New York Works: Getting New York Back to Work*. http://webiva-downton.s3.amazonaws.com/487/c7/3/1066/andrew_cuomo_ny_works_agenda.pdf State of New York. 2014. Industry Clusters. Empire State Development. http://esd.ny.gov/whynewyork/IndustryClusters.html
North Carolina	North Carolina Economic Development Board. 2013. *North Carolina Jobs Plan*. http://www.nccommerce.com/Portals/0/Documents/AboutOurDepartment/BoardsCommissions/NC%20Jobs%20Plan%20Report_Final.pdf
North Dakota	State of North Dakota. 2011. *North Dakota Economic Development Strategic Plan 2010–2020*. North Dakota Economic Development Foundation. http://www.commerce.nd.gov/uploads/4/edstrategicplan10_20.pdf
Ohio	JobsOhio. 2012. *JobsOhio 2012 Strategic Frame*work. http://jobs-ohio.com/images/jobsohio_strategic_framework.pdf
Oklahoma	Oklahoma Office of the Governor. 2012. *Inspired Oklahoma: Oklahoma's Economic Development Initiative*. Oklahoma Department of Commerce. http://digitalprairie.ok.gov/cdm/ref/collection/stgovpub/id/172053
Oregon	Business Oregon. 2014. *Oregon's Industries*. http://www.oregon4biz.com/The-Oregon-Advantage/Industry/ State of Oregon. 2012. *Ten-Year Plan for Oregon*. http://www.oregon.gov/COO/Ten/Pages/index.aspx
Pennsylvania	Corbett, T. 2013. *Energy=Jobs. Pennsylvania's State Energy Plan*. http://energy.newpa.com/wp-content/uploads/2014/01/PA-State-Energy-Plan-Web.pdf Pennsylvania Department of Economic Development. 2014. Key Industries. http://www.newpa.com/business/key-industries
Rhode Island	Rhode Island Division of Planning. 2010. *Rhode Island Comprehensive Economic Development Strategy*. Annual Report. Calendar Year 2010. http://s3.amazonaws.com/zanran_storage/www.planning.ri.gov/ContentPages/2467769113.pdf Rhode Island Economic Development Corporation. 2014. *Industry Sectors*. http://web.archive.org/web/20130719063901/http://www.riedc.com/industry-sectors
South Carolina	New Carolina. 2014. *Clusters*. http://www.newcarolina.org/clusters.aspx
South Dakota	Daugaard, D. 2010. *Building a Stronger South Dakota: The Daugaard Plan*. http://web.archive.org/web/20120617071125/ http://www.dennisdaugaard.com/images/data/files/Building%20a%20Stronger%20South%20Dakota%281%29.pdf South Dakota Governor's Office of Economic Development. 2014a. *Energy*. http://web.archive.org/web/20140301175245/ http://www.sdreadytowork.com/Key-Industries-Energy.aspx South Dakota Governor's Office of Economic Development. 2014b. *Key Industries.* http://web.archive.org/web/20140201174652/ http://www.sdreadytowork.com/industries.aspx
Tennessee	Tennessee Department of Economic and Community Development. 2011. *Jobs4TN Plan*. http://www.tn.gov/ecd/pdf/Jobs4TN_PowerPoint.pdf
Texas	Texas Economic Development and Tourism Division. 2013. *Texas: Wide Open for Business*. http://www.texaswideopenforbusiness.com/resources/files/texas-marketing.pdf
Utah	Herbert, G. 2010a. *Energy Initiatives and Imperatives: Utah's 10-Year Strategic Energy Plan*. http://www.utah.gov/governor/docs/Energy-Initiatives-Imperatives.pdf Herbert, G. 2010b. *Utah's Economic Development Plan*. http://business.utah.gov/wp-content/uploads/GovPlanLR.pdf
Vermont	Shumlin, P. 2011. *State of Vermont: 2012–2015 Strategic Plan*. http://aoa.vermont.gov/sites/aoa/files/S-W%20Strategic%20Plan%20Final%20V5_Dec_17_2012.pdf
Virginia	Virginia Economic Development Partnership. 2014. *Key Industries*. http://www.yesvirginia.org/KeyIndustries
Washington	State of Washington. 2012. *Glimpses Into Our Future: Washington's Emerging Innovation Clusters*. Washington Economic Development Commission. http://www.wedc.wa.gov/Download%20files/EmergingTechnologies%20v%201%209.pdf
West Virginia	West Virginia Department of Commerce. 2014. *WV Industries*. http://www.wvcommerce.org/business/industries/default.aspx
Wisconsin	State of Wisconsin. 2011. *Annual Economic Development Programs Report*.

	http://inwisconsin.com/content/uploads/2013/02/2011-Act-1251.pdf Wisconsin Economic Development Corporation. 2013. *Strategic Plan*. http://inwisconsin.com/content/uploads/2013/02/Strategic-Plan-Design-11.pdf
Wyoming	Wyoming Business Council. 2013. *Business Plan 2013*. http://www.wyomingbusiness.org/DocumentLibrary/WBC/Business%20Plan/2013_WBCBusinessPlan_WEB.pdf Mead, M. 2013. *Leading the Charge: Wyoming's Action Plan for Energy, Environment, and Economy*. http://web.archive.org/web/20140408221746/http://energy.wyo.gov/pdf/Leading%20the%20Charge.pdf