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Sustainability transitions: A political coalition perspective



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ABSTRACT

In the case of technology transitions to low-carbon sources of energy, there is growing evidence that even in countries with a strong political consensus in favor of a transition, the pace has been slow in comparison with the need to reduce greenhouse gases. One factor that affects the slowness of the transition is political resistance from the incumbent industrial regime. Using data on the mobilization of resistance from the fossil-fuel industry in the United States, the study builds on the growing literature on the political dimensions of sustainability transitions by drawing attention to the role of incumbent regime coalitions, grassroots coalitions in support of green transition policies, and countervailing industrial power. Case studies of political coalitions for ballot propositions in the U.S. are used to show how countervailing industrial power, especially from the technology and financial sector, can tip the balance of electoral spending in favor of grassroots organizations.

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1. Introduction

The literature on the transitions of sociotechnical systems generally assumes that the changes take place over a long period of time, such as a half century, and that the relatively slow pace of a transition can be beneficial, because a pace of several decades or more can give some time for social practices, industrial organizations, legislatures, and regulators to mitigate disruptions and side effects. However, in the case of sustainability transitions (STs) to low-carbon energy sources, the slow pace has long-term environmental effects (e.g., greenhouse gases) that will prove costly. Many countries continue to increase fossil-fuel consumption, and in many places the gains in renewable-energy production have not been substantial enough to reduce the growth in aggregate emissions (York, 2010, 2011). Even where national governments have embraced ST policies, existing energy regimes have often been affected only at the margins.

This research note will provide a perspective on the problem of the slow pace of STs based on research in the United States, where the fossil-fuel industry has mobilized to block ST policy reforms. Although the focus on the U.S. and especially the state-government level may appear to be parochial, the choice of the U.S. case helps to counter-balance what Markard et al. (2012) describe as the “European bias” in the field of ST studies, that is, the tendency for theories of STs to be founded on a base of European cases.

The well-known cross-Atlantic gap in environmental social theory between ecological modernization theory and treadmill theories suggests the need to attend to the ways in which social theory does not always travel well across societies (Mol and Spaargaren, 2000; Pellow et al., 2000; Scheinberg, 2003). To this point, Kern (2012) flags portability problems in ST theory and practice within Europe, even between the historically related and cultural similar countries of the Netherlands and the U.K. It is possible that attention to the particularities of the blocked ST in the U.S. may provide some general insights into ST theory. For example, van der Loo and Loorbach (2012) note that the Dutch Energy Transition Project has not been able “to challenge the societal energy regime in any fundamental way” and that instead conservatives have debated subsidies for renewables (2012, p. 242). Likewise, Kern and Smith (2008) note that the project was dominated by large energy companies and by a broader ideological climate of liberalization.

To avoid misunderstanding, it is important to clarify that frameworks for the study of transitions of large sociotechnical systems such as the multilevel perspective have been applied to other world regions and with success, such as the transition to the internal combustion machine in the U.S. transportation (Geels, 2005). The study in question also drew attention to the counter-mobilization of farmers who originally opposed sharing roads with motorized vehicles. Rather than arguing that existing transition theory is inapplicable, the point is that a comparative perspective raises the question of what kinds of issues are most relevant for the study of a particular type of transition in a particular country and time period. Certainly, there was no carefully organized political opposition by the horse-and-carriage industry, or if there was, it is not part of the currently understood history. Even Hughes's (1983) detailed, comparative study of the electrification transition only mentions in

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passing political opposition from the gaslight industry. In contrast, in the case of the green-energy transition in twenty-first century U.S., the political contestation by the incumbent industrial regime is so well organized that it should be at the center of the analytical framework. More generally, we can hypothesize that in political systems where there is an open, agonistic political process; a high level of industrial influence on the political field through lax regulation of campaign financing and outright corruption; and a powerful established industry that views a ST as threatening, then it is likely that the incumbent industry will mobilize a powerful and effective political opposition to the proposed ST. In Europe there is a greater tendency for governments to dampen potential conflicts through consultative processes (Badaracco, 1985; Jasanoff, 2004). Although industrial influence on politics occurs, it tends to be through the Commission rather than through a vast network of media, think tank, and campaign financing organizations. By bringing out the specificities of the American case, it is possible to shed general light on STs as a political process. Specifically, this study investigates the thesis that countervailing industrial power can provide a crucial element of support to pro-ST political coalitions when there is a conflict with an incumbent regime that has mobilized to slow or block the transition.

2. Literature review and framework

The study of STs is now an established research field with 60–100 papers produced per year (Markard et al., 2012). An influential perspective is work from a multilevel perspective, which emphasizes the dynamics between niches and incumbent technological regimes (e.g., Geels, 2011). In the case of STs, there is broad recognition that government industrial policy is needed to provide protective support to new industrial niches such as renewable energy firms until they have achieved sufficient scale (Smith and Raven, 2012). In Europe and some other world regions, there is a broad policy consensus in favor of a ST for energy, and thus the issue of political conflict over STs is less important theoretically, and the focus of research tends to involve issues of management and policy implementation. However, there is a small but growing literature on transitions in general and STs in particular that pays attention to the political and power dimensions of STs (Flor and Rotmans, 2009; Geels, 2011; Genus and Coles, 2008; Rotmans and Kemp, 2008; Shove and Walker, 2007; Smith et al., 2005; Smith and Raven, 2012). For example, Meadowcroft, (2009, 2011) also points to the irreducibly political character of STs, the difficulties of defining sustainable technologies, and issues of democratic participation. An important aspect of the politics of STs is the potential for them to become politically contested. Geels and Schot (2007) recognize that in the transformation pathway, the incumbent regime may resist proposed changes, and it may alter its trajectory of development. Elzen et al. (2011) discuss how animal welfare advocates mobilized for better treatment of farm animals, and they also describe how farmers experienced technical difficulties and pushed back on the reforms. Grin (2010) analyzes the broader transition to sustainable agriculture as a contested political process that involved the environmental movement, sustainable farmers, industrial farmers, and government agencies. Likewise, Jørgensen (2012) uses actor-network theory to study the longstanding political conflict between nuclear and wind energies in Denmark. In general, there has been growing interest in the role of social movements as crucial actors in the politics of STs (e.g., Hess, 2007; Geels and Verhees, 2011).

Although research on the politics of STs is growing, it has not yet fully analyzed situations in which organizations associated with the incumbent regime mobilize to halt a nascent or growing ST. To some degree general coalition theory in political sociology is a relevant resource. The literature has studied conditions that facilitate

coalition formation among grassroots groups, including social ties among organizations; shared frames and goals, which are often forged through compromises and are enhanced by individuals who serve as bridge brokers; and political context, which includes both the openness to change of elites and the threats posed to organizations (Van Dyke and McCammon, 2010). However, this literature does not provide a systematic explanation of the mechanisms that enable coalitions to achieve their goals when there is resistance from an incumbent regime that is represented by a politically powerful dominant industry. On this point Showm (2011) suggests that the relative unity or disunity of business interests is one important factor that shapes the outcomes of ST politics. Building on this argument and general work on the political sociology of social movements and technology (e.g., Moore et al., 2011), this study suggests that the conceptual framework for studying STs should include the relations among established industry coalitions, grassroots or green transition coalitions, and countervailing industrial power. Thus, the approach to the issue of power in STs focuses on a conflicted political field in the Bourdieusian sense in which coalitions mobilize to support, block, or modify ST policies (Bourdieu, 2005). As applied to the problem of STs, the approach has three crucial mechanisms of mobilization:

1. Incumbent regime mobilization. Incumbent regimes are viewed not simply as bodies of rules and institutions but as organized agents in the political field. They mobilize against ST policies that are perceived to threaten their short-term profitability and long-term existence. In the cases that follow, the established industry coalition includes the petroleum, coal, and natural gas industries; the electrical utilities with the concerns for baseload generation and an interest in nuclear power; and right-wing think tanks and conservative political leaders who frame the green-energy transition as the improper government role in the economy.
2. Grassroots mobilizations of green-transition coalitions. Social movement organizations will form coalitions to support ST policies, and they will forge frames and discourses that allow cross-movement solidarity (Mayer, 2008). The green-transition coalitions include blue-green (labor-environmental) alliances, urban political constituencies that support green jobs, and the rising industries in a niche positions (e.g., green-energy industries; Hess, 2012).
3. Countervailing industry mobilization. Countervailing industrial power is a concept developed from Galbraith (1952) that is used here to refer to industrial power that can provide the financial and political resources to support grassroots coalitions. Increasingly, wealthy individuals in the high-technology and financial services industries have provided high levels of funding in political campaigns that can counter-balance fossil-fuel industry funding.

3. Political coalitions and the energy transition in the U.S.

3.1. Spatial and scalar unevenness in the U.S.

The cases presented here will focus on the green-energy ST in the US, specifically the conflict over fossil-fuels versus renewable energy at the state-government level, where there is considerable variation and unevenness. The focus responds to what Markard et al. (2012) describe as a second “bias” in the literature on STs, the tendency for the literature to focus on national rather than subnational or urban levels of analysis (2012, p. 961). Likewise, Coenan et al. (2012) also argue for the importance of attention to spatial and scalar dynamics in the study of STs. In the U.S. during the administration of Republican President George W. Bush (2000–2008), the

political opportunity structure for green-energy policy reform was mostly closed at the federal government level. Consequently, policy reform in support of energy-related STs took place largely in the state governments where there were political openings, that is, usually states with a relatively small fossil-fuel industry, a greater focus on high-technology (and in some cases clean-technology), and political control by the center-left Democratic Party. In contrast, in the oil states near the Gulf of Mexico and in states with strong coal and natural gas industries, the political opportunity structure for energy-related STs was relatively closed (Hess, 2012). There were also variations among the industries: coal and petroleum companies tended to be most opposed to green-energy transition politics, whereas natural gas was positioning itself as a clean energy that was reducing carbon-dioxide emissions as it displaced coal, and nuclear energy attempted to use the green transition to end the decades-long moratorium on new construction and in some cases to gain inclusion in clean-energy portfolio standards.

During first two years of the Obama administration (2009–2010), the political opportunity structure opened at the federal government level. There was a push to implement the campaign promise of creating five million green jobs, a promise that had helped to mobilize the *grassroots coalition* of labor, environmental, and low-income constituencies that had supported Obama's 2008 campaign. In effect, there was an emergent national green-energy ST policy. However, when Congress considered landmark legislation in support of a cap-and-trade framework and a national renewable electricity portfolio standard, the *incumbent regime* coalition mobilized and defeated the proposed law and purged the Republican Party of pro-environmental moderates. The mid-term elections of 2010 returned many new members to Congress, most of whom had made pledges to fossil-fuel interests not to support climate-change science and green-energy policy (Johnson, 2010). Indeed, when the Republican Party regained political control of the House of Representatives in 2010, it launched a series of attacks on funding for climate science and on environmental policy generally.

After the resurgence of the right in 2010 and the defeat of climate-change legislation, the Obama administration pursued a more quiet, administratively based policy of greening that included greening procurement policies in the military and developing voluntary fuel-efficiency standards from the automotive industry. Action then returned to the state governments, and the Blue-Green Alliance (the crucial *grassroots coalition* organization) shifted its strategy from national to regional meetings. However, at the state government level, the 2010 election resulted in the shift of power in many states from Democratic to Republican Party governors, and with the shift came a substantial unwinding of green-energy policies and programs. In states that retained Democratic legislatures and governorships, most importantly California, green transition policies continued to advance, often with significant new laws. Our multivariate analysis of the votes on state-government laws also showed that the relative strength of fossil-fuel industry employment for each state was a significant predictor of opposition to green-energy policies (Coley and Hess, 2012).

3.2. Coalition politics in state-level ballot initiatives

One political field where it is possible to measure the conflict of coalitions is state-government ballot referenda. The ballot proposition process was originally intended as a vehicle to promote direct democratic participation to circumvent corrupt state legislatures. However, it can also be used as a site for anti-ST mobilizations by *incumbent industrial regimes*. For example, in 2010 in California fossil-fuel companies attempted to derail the state government's landmark AB 32 law, which set in place the mechanism for a cap-and-trade regime of carbon regulation. Discourse and framing

were relevant: Proposition 23 was cleverly worded as a job-saving measure in a period of high unemployment, and the supporting committee, named the California Jobs Initiative Committee, argued that the cap-and-trade regime would increase energy costs, hurt businesses, and reduce jobs. The three largest donors (\$8 million of the \$10.7 million recorded) were two Texas-based petroleum companies and one Kansas-based company associated with the brothers David and Charles Koch ([National Institute on Money in State Politics, 2012d](#)). The opposing *grassroots coalition*, the Stop Dirty Energy Committee, was led by environmental groups with support from labor unions and ethnic minority groups and with additional support from the relatively pro-green Republican Governor Arnold Schwarzenegger. The coalition's counter-frame involved opposition to out-of-state influence on California politics and the environmental justice dimensions of dirty air. The coalition received significant funding from the *countervailing industry*—the state's venture capital, technology, and finance leaders—who were invested in the transition to the clean economy. The countervailing industrial power was crucial, because it provided the financial resources to outspend the fossil-fuel industry. The total raised to defeat the proposition was \$33 million, with at least half of that money coming from the state's finance, insurance, and real estate (FIRE) sector (*ibid.*). Thus, the countervailing industry turned what would have been a relatively even spending situation into one in which the grassroots coalition side dominated and was able to protect the state's global warming law.

In 2012, two other environmental measures appeared on the state's ballot. Proposition 27 would have required mandatory labeling of genetically modified food. The *grassroots coalition* in support of the proposition included natural foods, organic farming, and environmental organizations, but they were able to raise only \$8 million in contrast with over \$40 million raised by the *incumbent regime* coalition, the genetically modified food and food processing industries, and the measure was defeated. The other environmentally related ballot measure, Proposition 39, increased the income tax on out-of-state businesses based on their in-state sales and channeled the revenue to clean energy and energy efficiency projects. The successful ballot measure had only a meager opposition *incumbent regime* coalition: \$45,000 from General Motors and two other companies. In contrast, the supporting committees had \$27 million in funding, most of which came from Thomas Steyer, again a wealthy member of the state's financial services industry who supports community development, environmental, and Democratic Party causes ([National Institute on Money in State Politics, 2012b](#)). Thus, again one can see the importance of *countervailing* industrial power from the green side of California's financial services industry.

During the 2012 elections the other major environmentally related state-government ballot initiative was the battle in Michigan over Proposal 3, which would have increased the state's renewable portfolio standard for electricity from 10% to 25% by 2025. The *grassroots coalition* was led by Michigan Energy, Michigan Jobs, which linked the proposal to job creation by arguing that renewable energy would generally be produced in-state and would replace out-of-state jobs in the coal and natural gas industries. Furthermore, by spurring in-state renewable-energy generation, the demand policy could also provide benefits for the state's manufacturing industry, which has struggled to diversify from its heavy historical reliance on automotive manufacturing into wind-turbine manufacturing and other industries. The proposal would have included the renewable portfolio standard in the state's constitution, a change that would have protected the measure from political reversal. The conservative lobbying organization [American Legislative Exchange Council \(2011\)](#), which sponsors model legislation for state governments, had targeted the state-government renewable portfolio standards with its campaign for

state governments to enact “Electricity Freedom Acts.” Thus, the use of a constitutional amendment could have protected the renewable portfolio standard from assaults by the coalition of political conservatives and fossil-fuel interests. However, the mechanism was politically controversial, and the relatively moderate Republican governor argued that it would tie the hands of the legislature.

The two battling coalitions raised different levels and types of donations. The *incumbent regime* coalition raised over \$30 million dollars across seven committees. The largest support was for Clean Affordable Renewable Energy (CARE) for Michigan, which received over \$23 million in support, almost all of which was from the utilities DTE Energy and CME Energy (National Institute on Money in State Politics, 2012c). With that funding, the organization was able to develop a much longer list of supporters that included chambers of commerce, some manufacturers, some locals of the International Brotherhood of Electrical Workers, and even some ethnic minority groups. Thus, the organization was able to frame its message as that of a grassroots movement organization, even though it was essentially a front group (an “astroturf” organization) for the utilities. The second largest support was \$3.45 million from the Michigan Chamber of Commerce PAC II, which in turn received \$2.5 million from the state’s Republican Party and provided support to five different ballot measures. The third largest source of support was from Americans for Prosperity, a national organization that is associated with fossil-fuel interests and the conservative financiers Charles and David Koch.

In contrast, the *grassroots* coalition raised only \$15.5 million (National Institute on Money in State Politics, 2012c). Of the \$11 million raised by the lead organization (Michigan Energy, Michigan Jobs), the largest donors were environmental organizations, the Green Tech Action Fund (a San Francisco-based fund representing the clean-tech industry), the Blue-Green Alliance, and a hedge fund manager who gave \$1 million. Of the remaining \$4 million raised by other committees, the leading organizations were three environmental organizations and the Green Tech Action Fund. The state’s powerful United Autoworkers Union also supported the measure but did not appear in the records as a major donor. Thus, although there was some support from the *countervailing* finance and technology industries, it was much more limited than in the case of the two California energy propositions discussed above.

In summary, California Propositions 23 in 2010 and 39 in 2012 had significantly more financial power in support of the green-energy position than the opposing position. *Grassroots* coalitions were able to raise more money than opponents due to support from the *countervailing* financial industry, and they were politically successful. In contrast, California Proposition 27 (for food labeling) and Michigan’s Proposal 3 were heavily outspent by the *incumbent regime* coalition, and they were defeated. Furthermore, the crucial financial firepower in the successful California cases was provided the state’s technology and finance sector, which has tended to cast its lot with clean technology through many investments. Google, for example, has invested \$280 million in rooftop

Table 1
Funding for ballot measures in American States related to renewable energy, 2000–2012.

Ballot measure	Vote	Outcome desired by grass-roots coalition	Description	Pro Spending (\$ Thousands) Total raised, followed by largest donors	Con spending (\$ Thousands) Total raised, followed by largest donors
2004 Colorado Amend. 37	Pass	Yes	RPS for some utilities	\$1446 total: Mostly env. orgs	\$1284 total: Excel, rural cooperatives (utilities)
2006 California Prop. 87	Fail	No	\$4 billion for energy research, tax on energy companies	\$61,886 total: \$49,581 S. Bing (film) \$2043 V. Khosla (finance)	\$94,404 total: \$38,000 Chevron \$32,824 Area Energy \$9550 Occidental Oil & Gas \$3025 ConocoPhillips
2006 Washington Measure 937	Pass	Yes	RPS for some utilities	\$1674 total: \$108 J. Blumenthal (finance) RE firms, env. orgs.	\$592 total: Mostly lumber and paper
2008 California Prop. 7	Fail	No	50% RPS by 2025	\$9360 total: \$9000 P. Sperling (Apollo, for profit-education)	\$29,787 total: \$13,895 PG&E (utility) \$13,720 Edison (utility)
2008 California Prop. 10	Fail	Yes	\$5 billion bonds, geared to natural gas	\$22,721 total (anti-env.): \$18,647 Clean Energy Fuels Co. (natural gas) \$3000 Chesapeake Energy	\$173 total (pro-env.): Teachers, consumers, labor, env. orgs
2008 Missouri Prop C	Pass	Yes	RPS for some utilities	\$1030 total: Wind firms & environmental orgs.	\$0
2010 California Prop. 23	Fail	Yes	Would stall cap-and-trade program	\$10,790 total (anti-env.): \$5075 Valero (oil & gas) \$2040 Tesoro (oil & gas) \$1000 Flint (oil & gas)	\$33,200 total (pro-env.): \$5000 S.Thomas (finance) \$3000 National Wildlife Fed. \$1537 NRDC (env.) \$1037 V. Khosla (finance) \$1000 J. Doerr (finance)
2010 Maine Question 2	Pass	Yes	Bonds for off-shore wind, green industry, energy efficiency	\$438 total: Maine Economic Growth Coalition, Build Maine PAC	\$0
2012 Michigan Prop. 12–3	Fail	No	Constitutional amendment for RPS of 25% by 2025	\$15,515 total: \$11,123 Coalition of environmental, RE, and labor organizations \$1.659 MI League of Conservation Voters (also largest coalition contributor)	\$29,128 total: \$11,644 CMS Energy (utility) \$11,570 DTE Energy (utility) \$2506 MI Republican Party (lead donor of a Chamber of Commerce political action committee)

Source: National Institute on Money in State Politics, 2012a.

Key: env. = environmentalist, RE = Renewable Energy, RPS = renewable portfolio standard.

solarization financing, and Silicon Valley venture capitalists were very active in the defeat of Proposition 23 (Bass, 2011).

The capacity to attract financial support is crucial for ballot propositions associated with green energy. A review of the entire set of ballot propositions associated with renewable energy for which data are currently available shows how important funding can be (See Table 1.) In this table, we see that outcomes desired by grassroots organizations were successful six times and not successful three times. (In two cases, California's 2008 Proposition 10 and 2010 Proposition 23, environmentalists viewed the ballot propositions as detrimental to their goals and worked for their failure; thus, a success in these two cases was the failure of the ballot proposition.) The 2006 ballot initiative in California is particularly interesting because it shows the possible limits of countervailing power in that state: supporters led by wealthy donors in the film and finance industries raised over \$60 million, but it was significantly less than the amount raised by the fossil-fuel companies, and the ballot measure failed. Of the six outcomes deemed successes from the standpoint of the grassroots coalitions, five had higher funding for the outcome that they desired. Conversely, of the three failures, all had higher funding by incumbent regime organizations, that is, utilities or donors associated with fossil-fuel companies ($P < .05$, two tailed, Fisher's Exact test).

4. Conclusion

The argument is not a simplistic one about the golden role of politics (those who have the gold set the rules). Rather, the point is to use one type of ST in one country to draw out broader theoretical implications, specifically, the need to include countervailing industrial power in the study of conflicts among political coalitions in the study of STs. In addition to state actors such as governors, the framework here draws attention to three main types of non-state actors: the role of incumbent regimes, grassroots social movements, and actors associated with countervailing industrial power.

Although the cases point to the important role of financial contributions to ballot success, spending on a ballot proposition or a political campaign is not the only method by which the coalitions achieve success. Labor unions in coalition with ethnic minority groups have proven especially effective in the "ground game" of getting out the vote, generally for Democratic Party candidates. Furthermore, there is evidence for a more long-term, underlying pattern of change that is occurring as the green-energy industries slowly grow. For example, in our tracking of the absolute employment figures in California, the number of green jobs is now over twice that of fossil-fuel jobs; in other words, the state may have reached a political tipping point in which the ST political constituency is now more powerful than the incumbent regime constituency (at least for the energy transition). Similar patterns also hold for other very green states, such as Massachusetts, New York, Oregon, and Washington.

This situation may appear to be unique to the United States, and it might be easy for international readers to interpret the focus on conflicting coalitions as parochial and irrelevant for broader comparative work. However, there are echoes of similar anti-ST coalitions in some European parliaments, especially in cases where right-wing parties have come to political power. Furthermore, in the newly industrialized countries such as China and India there are deep tensions between the need to transition to low-carbon energy sources and the temptation to meet rapid growth in energy demand with continued development of fossil fuels. Thus, the situation that is heightened in the U.S. may be of general value for the study of STs. With the development of new opportunities for the extraction of petroleum and natural gas from hydraulic fracturing technologies and the opening of the Arctic Ocean to drilling,

it is possible that conflicts of the type described for the U.S. will become more general. If that occurs, the study of conflicts among coalitions will become more central in the general study of STs.

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