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Party differences and energy reform: fiscal conservatism in the California legislature

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Research building on political economy and ecological modernisation theories has paid increasing attention to the conditions that affect the prospects for environmental reform. Much work focuses on variation among political units in support of a single type of energy policy, whereas we examine within-state variation in support of a wide range of energy reform policies. Applying multilevel analyses to the 2011–2012 legislative session in California, we identify bill characteristics associated with divisions between Republicans and Democrats. Expanding the size or scope of government (through spending, government commissions, and business regulations) reduces support for energy reform among Republicans, whereas promoting transparency and other 'good government' initiatives reduces support among Democrats. In contrast with the standard view that Republicans oppose almost all energy reforms proposed by Democrats, we identify bill characteristics that increase the likelihood of support from both parties, namely tax reductions and credits, including for bills that promote renewable energy.

Keywords: renewable energy; energy efficiency; political parties; legislation; state government; California

Introduction

One of the most important issues in the study of environmental politics is the conditions under which policy proposals win political acceptance. In the United States during the early twentieth century, the Republican Party supported environmental reform, but since 1980 it has increasingly opposed many such proposals, often because they are viewed as a burden to the private sector and to the economy as a whole (Layzer 2012). For example, the centrepiece legislation of President Obama's energy policy, a bill to develop a cap-and-trade system for carbon emissions and to enact a national renewable portfolio standard (the American Power Act of 2010), failed to win adequate support in the US Senate based largely on arguments about the costs of the energy transition and

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the intrusiveness of 'big government' in the market. The fossil-fuel sector played a major role in defeating the legislation; the elections held later in the year brought to Congress a wave of new conservative members who had signed pledges against any additional climate-change policies and whose opposition forced President Obama to scale down his energy reform ambitions (Johnson 2010). Thus, economic reasoning associated with market-friendly and neoliberal ideology has increasingly provided a rationale for rejecting proposals associated with climate-change mitigation via energy policy reforms.

Given this political climate, under what conditions will not only Democrats but also Republicans support energy reforms? Whereas considerable research focuses on one bill type (such as renewable portfolio standards) and examines factors that affect support across multiple political units (countries or state governments), we analyse the support of individual legislators for all energy bills passed within a single legislative session of a single state: the 2011–2012 legislative session in California. (Legislation that failed to pass was not analysed because generally the bills did not receive full roll-call votes from both chambers of the state legislature.) We adopt the novel strategy of examining the association of certain 'bill characteristics' with support for energy reform legislation – specifically, the type of energy policy proposed and the budgetary provisions within the bill that expand or reduce the size or scope of government. We show that many of these bill characteristics are associated with higher or lower levels of support among Republicans and Democrats but not always in obvious and predictable ways. We also examine the potential influence of financial contributions from relevant industries (e.g. fossil-fuel companies, utilities, and renewable-energy companies).

This project has important implications for environmental politics and policy because it points to strategies for framing and crafting legislation that can potentially obtain broad political support even across party lines. Although our analysis is focused on California state-level politics, we expect that the strategies detailed here are applicable to other governments, both at the national and subnational level. This is especially so where the following conditions apply: there are strong party divisions characterised by neoliberal and social democratic (or social liberal) philosophical differences, and these divisions are aligned with fundamental disagreements about the need to transition rapidly to a low-carbon economy. Future research would have to determine which governments meet these conditions, but we would expect the analysis to be relevant not only in many other American states but also in other countries, including those of Asia (Hess and Mai 2014).

Our method takes advantage of the recent emergence of searchable legislative websites with bill trackers, which provide roll-call votes for bills passed by state legislatures. The 2011–2012 session was chosen because it is the most recent complete session for which data were available; it also occurs after the 2010 defeat of national cap-and-trade legislation, when political differences between Republicans and Democrats on renewable energy and greenhouse-gas emissions

intensified. California is important for various reasons. First, it is the most populous state, and if it were a country, its economy would be the eighth largest in the world (Center for Continuing Study of the California Economy 2013). Second, on environmental and renewable-energy issues, the state's legislation often is a trendsetter for the rest of the country (Bryner 2008, Boehmke and Skinner 2012). There is also an international 'California effect', as evidence exists that the state's environmental regulations have caused the environmental standards of other countries to ratchet upwards (Perkins and Neumayer 2012). Third, the state's historic concerns with air-quality issues have helped to drive a long-term transition to low-carbon and low-emissions energy technology, and the state's clean technology industry is ranked first in the country (Clean Edge 2013). Finally, because the state was controlled by Democrats during this period, the energy-related legislation includes many examples of environmentally oriented energy policies (such as support for renewable energy and energy efficiency). Thus, the database that we developed from this session provides a solid basis for assessing a range of bill characteristics that affect support for energy reforms among legislators from both parties.

Background literature and contribution

In addition to the practical value of our approach for legislators and our novel data, our study also contributes to environmental social theory and research. Ecological modernisation theory and the related theory of reflexive modernisation have drawn attention to the institutionalisation of environmental regulation, both through the development of environmental agencies in governments and through practices within firms and among consumers (e.g. Mol and Spaargaren 2000, Scheinberg 2003). In contrast, political economy theory (e.g. treadmill of production and treadmill of accumulation theory) suggests that although environmentally oriented institutional change has occurred, the change has not resulted in a transformation of the state and economy to such an extent that firms in the private sector place environmental goals above profitability goals (Pellow *et al.* 2000, York and Rosa 2003). Instead, industries that reformers target for fundamental change, such as the fossil-fuel and utility industries, tend to resist change by attempting to gain a favourable regulatory structure that slows down transition processes. Treadmill theorists further argue that successful environmental reform is contingent on more fundamental economic and political reforms; until they occur, environmental degradation will outpace the effects of ecological modernisation.

In response to this theoretical divergence, some researchers have attempted to shift the terms of the debate from the need for fundamental economic and political change to the analysis of the conditions under which environmental reforms occur or fail to occur in existing political systems (Buttel 2003, Fisher and Freudenburg 2004). Much of this research considers the role of industry in environmental reform. For example, Shwom (2011) suggests that the presence of

social movement mobilisation, a history of regulation for an industry, and the level of fragmentation of industry are crucial factors shaping the prospects for environmental reform. Consistent with treadmill theory, several studies suggest that an important negative factor for the adoption of renewable energy and related policies is the strength of the fossil-fuel and utility industries (May and Koski 2007, Matisoff 2008, Coley and Hess 2012, Jenner *et al*. 2013, Hess and Mai 2014, Vasseur 2014). Likewise, the subfield of innovation studies that focuses on sustainability transitions is drawing increasing attention to opposition to low-carbon energy policy from the utilities and fossil-fuel sector (e.g. Geels 2014).

In addition to the role of industrial influence, the literature on environmental reform for state governments in the United States has identified a range of political factors that also affect support for environmental reform. Unsurprisingly, support is positively associated with Democratic Party control of the legislature (Huang *et al.* 2007, Lyon and Yin 2010) and indices of a state's social liberal ideology (Matisoff 2008, Chandler 2009, Yi and Feiock 2012, Matisoff and Edwards 2014), and these effects have been found for a range of energy-related laws, including renewable portfolio standards, transportation policies, and wind-energy policies (Wiener and Koontz 2012, Fowler and Breen 2013). Strength of environmental organisations and solar energy associations can be positively related to policy outcomes for energy laws, but the results are less consistent for this variable (Vachon and Menz 2006, May and Koski 2007, Vasi 2009, Lyon and Yin 2010, Coley and Hess 2012, Jenner *et al.* 2012, Yi and Feiock 2012). The geographical proximity of an adopting state to other adopting states may affect legislative outcomes, at least for state-level renewable portfolio standards (Chandler 2009, Wiener and Koontz 2012, Vasseur 2014). However, not all studies support strong policy diffusion effects among neighbouring states (e.g. Matisoff 2008, Yi and Feiock 2012, Matisoff and Edwards 2014). Another factor involves differences in the structure of state governments: for example, states that have a bureaucratic agency solely devoted to energy policy and states where the governor has strong appointment powers over state agencies are more likely to adopt green buildings policies (May and Koski 2007). Finally, states with a higher implementation capacity (measured by state and local tax effort) tend to have a higher rate of adoption of commercial building energy codes (Nelson 2012).

This study holds the state government constant, meaning that we control for several of the variables that emerge in the comparative studies discussed above, such as geographical proximity to other states and the structure of state governments. However, consistent with the past research discussed above, we include variables related to party affiliation and industry influence. Furthermore, our strategy of examining all bills within a single state legislative session allows us to examine the influence of a wide range of bill characteristics on support for energy bills. This focus is consistent with research that suggests that framing issues are potentially important for

developing broad support for environmental policies (e.g. Lybecker *et al.* 2013). Very few studies examine bill-level variation for this policy field (e.g. Chupp 2011), and the ones that do so generally consider only a narrow range of bills passed at the state level throughout the United States (Clark and Allen 2004, Coley and Hess 2012). Our goal of understanding what bill characteristics can gain support from legislators in both parties can have important implications for understanding the conditions under which environmental reforms occur, thereby contributing to environmental social theory and generating policy implications.

Hypotheses

Because the legislative session under consideration was controlled by Democrats and was in California, we found a large number of bills addressing the transition of the energy system from fossil-fuel dependence to higher levels of renewable-energy use and energy efficiency. We expected to find that Democrats vote for such energy reforms more often than do Republicans. However, if legislators voted completely on party lines, we would expect to find little variation within parties, and we would expect that bill characteristics would not affect votes. Instead, we do find a limited amount of variation among Democrats and wide variation among Republicans, and thus we have an opportunity to understand what bill characteristics affect support from not only Democratic but also Republican legislators.

We first examine whether the type of energy bill under consideration (e.g. renewable energy or energy efficiency) is associated with legislators' support. In line with past research that shows that Democrats are more supportive of green energy reforms than Republicans, we expect to find:

> H1a: *Bills supportive of renewable energy or energy efficiency will be negatively associated with Republican votes.*
>
> H1b: *Bills supportive of renewable energy or energy efficiency will be positively associated with Democratic votes.*

We also examine provisions that would increase the size or scope of government (through new spending, expanded regulations, and additional government commissions), provisions that would decrease the size or scope of government (through reduced taxes and regulations), and provisions that would increase government transparency (through 'good government' reforms). Past research shows Republicans are more supportive of policies consistent with a market-based, fiscally conservative ideology (e.g. Layzer 2012), whereas Democrats are more willing to rely on government powers to achieve energy reforms. Furthermore, we expect that Republicans will be more supportive of 'good government provisions', both because these provisions are associated with greater government efficiency, cost savings, and transparency, and because

minority parties often fall into the role of government 'watchdogs'. Thus, we expect:

H2a: *Bills that increase the size or scope of government (by increasing government spending, creating commissions or task forces, increasing regulations on businesses, or increasing regulations on utilities) will be negatively associated with Republican votes.*

H2b: *Bills that increase the size or scope of government (through the same four bill characteristics) will be positively associated with Democratic votes.*

H3a: *Bills that decrease the size or scope of government (by decreasing taxes or reducing regulations on businesses) will be positively associated with Republican votes.*

H3b: *Bills that decrease the size or scope of government (by decreasing taxes or reducing regulations on businesses) will be negatively associated with Democratic votes.*

H4a: *Bills that increase transparency (legislation that promotes 'good government') will be positively associated with Republican votes.*

H4b: *Bills that increase transparency (also 'good government') will be negatively associated with Democratic votes.*

Finally, we examine the influence of energy industry donations on legislators' voting preferences. Although we cannot make direct causal claims about the effects of campaign donations on specific votes with this methodology, it is possible to analyse the general association between campaign donations and the full range of votes on energy bills for the legislative session. Of 80 industries, the oil and gas industry is the eighth largest contributor to political spending in the United States ($73 million in 2012), and the utility industry is also a significant contributor ($22 million in 2012). Furthermore, spending by the fossil-fuel sector has increased since the mobilisation against national climate-change legislation in 2010 (Lipton 2012, Citizens for Responsibility and Ethics in Congress 2013). Conversely, contributions from the 'alternative' energy sector[1] are much lower and thus might not be associated with legislators' votes ($3 million in 2012; Center for Responsive Politics 2014a, 2014b). We accordingly develop three additional hypotheses:

H5a: *For both Democrats and Republicans, donations from the fossil-fuel sector will be negatively associated with votes on energy bills.*

H5b: *For both Democrats and Republicans, donations from the utilities industry will be negatively associated with votes on energy bills.*

H5c: *For both Democrats and Republicans, donations from the renewable alternative energy industry will not be associated with votes on energy bills.*

Data and methods

Dependent variable

We analysed all energy-related legislation passed by both houses of the California legislature during the 2011–2012 legislative session. To construct a list of energy legislation, we searched the comprehensive legislative database on the website of the California State Legislature (2013) using the terms 'energy', 'renewable', and 'efficiency'. We found that the term 'energy' captured all applicable legislation, and thus the terms 'renewable' and 'efficiency' were redundant. We read all bills and dropped those that mentioned energy issues in passing or in a very minor portion of omnibus legislation. Furthermore, we did not include bills that were not passed by both houses of the legislature because these bills generally lacked full roll-call votes. Thus, our dependent variable is an individual legislator's vote for the 78 passed bills. We provide descriptive statistics on these votes before analysing each legislator's vote in our multilevel analyses. Overall, we recorded 8752 votes on 78 bills.

Independent variables

Given previous literature that demonstrates party influence on legislators' votes, we recorded the proportion of Republicans who were sponsors or co-sponsors of the bill (number of Republican co-sponsors divided by the total number of co-sponsors) and the political party of each individual legislator (Democrat or Republican). We used this information for the variables 'Proportion of Republican Co-sponsors' and 'Legislator's Party' (Democrat = 1). For most of the 2011–2012 session, the state's Senate was comprised of 25 Democrats and 14 Republicans, and the Assembly had 52 Democrats and 28 Republicans. (One Republican Assembly member who switched from Republican to Independent near the end of the 2011–2012 legislative session is coded as Republican because he was in that party for most of the session.)

For each of the bills that were introduced in the legislature, we constructed independent variables related to bill characteristics. The first set of variables concerned the substantive purpose of the bills; specifically, we recorded '1' if the bills promoted renewable energy (48 bills) and '1' if the bills promoted energy efficiency (24 bills). A very small number of bills also explicitly promoted fossil fuels (one bill), highways (two bills), and public transit (five bills). Although we include these bills in our data set, we do not include variables for fossil fuels, highways, or public transit in our analysis because, in simulations, variables with five or fewer events have led to biased regression coefficients and paradoxical associations (Peduzzi *et al*. 1996).

Another set of variables related to bill characteristics concerned budgetary provisions associated with fiscal conservatism and government size or scope. For bills that expanded the size or scope of government, we recorded '1' if the bills authorised or increased spending (21 bills), '1' if the bills created new

commissions or task forces (11 bills), '1' if the bills increased regulations on businesses (12 bills), and '1' if the bills increased regulations on utilities (18 bills). Likewise, for bills that reduced the size or scope of government, we recorded '1' if the bills decreased taxes (nine bills) and '1' if the bills decreased regulations on businesses (10 bills). Finally, we recorded '1' if the bills promoted budget transparency, discouraged conflicts of interest, or implemented related 'good government' initiatives (nine bills). We generally did not encounter bills that explicitly cut spending, decreased regulations on utilities, or ended commissions and task forces. We did find three bills that increased taxes, but again we did not include this variable in our analysis given the 'small n'. Importantly, these 'bill type' and 'budgetary provision' variables are not mutually exclusive: most bills scored '1' on multiple categories.

For a final set of independent variables, we gathered data on campaign contributions from the fossil-fuel sector, utilities industry, and alternative-energy industry from the National Institute on Money in State Politics (2014). Many legislators were in their first term, and in some cases they had won seats through special elections after the 2011–2012 legislative session had begun, meaning that campaign donation data for these members were only available for the 2011–2012 time period. Other legislators were serving their final term, either opting not to run during the next election or having reached a term limit, meaning that campaign donation data for these members were only available for the 2009–2010 time period at the latest. Given that there was no single campaign cycle during which every member of the California state legislature raised money, we used campaign contribution data for the most recent available campaign cycle for each member (i.e. either the 2011–2012 cycle or the 2009–2010 cycle).

Control variables

We coded several control variables, including the legislator's chamber as either California Senate or Assembly (Senate = 1). This control variable, 'Bill Chamber', is included based on research that shows that voters and legislators in California State Senate districts tend to be more moderate than voters and legislators in Assembly districts (e.g. Jacobson 2004). Other variables measured were committee membership, specifically membership in the budget and/or the appropriations committees (Budget or Appropriations Committee Membership = 1) or in the natural resources and/or the utilities committees (Natural Resources or Utilities Committee Membership = 1). The budget or appropriations memberships could potentially make legislators more attuned to concerns over the size or scope of government, whereas members of the natural resources and utilities committees may be more aware of energy reform issues. We also coded a variable indicating a legislator's incumbent status (Incumbent = 1) because campaign fundraising varies for campaigns for 'open seats' versus campaigns that include an incumbent (Clawson *et al.* 1992). Finally, past research has shown that racial and ethnic minorities (i.e. non-white individuals) and women may be more concerned about energy and

environmental issues than white voters and men (e.g. McCright and Dunlap 2011). Thus, to control for the possible influence of race and sex, we include variables for the race and sex of each state legislator (Non-white = 1; Female = 1).

Analytic strategy

The relatively complex structure of our data gives us a number of ways to handle the analysis of state legislators' votes for energy reforms. If we conduct a logistic regression with bill characteristics predicting the likelihood of the legislators voting 'yes' on that bill, we would make the assumption that individual votes vary independently of individuals. One approach to relax this unlikely assumption is to add dummy-coded variables for each legislator to the equation. This approach would absorb all individual differences in accounting for the votes recorded. However, this method has some drawbacks. First, including individual-level fixed effects would take away a large number of degrees of freedom from the model, given the number of legislators. Second, we would be unable to analyse the impact of party membership, industry donations, and many of our control variables on legislators' voting records because all of the individual-level variation would be accounted for by the dummy variable. Consequently, we used a multilevel modelling approach that conceptualises legislators' votes as nested within legislators, and these votes are shaped by bill characteristics along with legislators' demographic indicators, party affiliations, and amount of donations received. The multilevel approach acknowledges the clustered error structure by nesting votes within individuals, while allowing us to analyse individual-level characteristics that could shape legislators' votes. Due to the binary nature of the dependent variable, we select the generalised linear mixed model with the logistic link function.

The following set of equations illustrates our multilevel approach:

$$\log\left[\frac{p_{ij}}{1-p_{ij}}\right] = \beta_{0j} + \beta_{1j} RenewableEnergySupport + \beta_{2j} EnergyEfficiencySupport$$
$$+ \beta_{3j} Spending + \beta_{4j} Commission + \beta_{5j} BusinessRegulation$$
$$+ \beta_{6j} UtilitiesRegulation + \beta_{7j} TaxDecrease$$
$$+ \beta_{8j} DecreaseRegulation + \beta_{9j} GoodGovernment$$
$$+ \beta_{10j} ProportionRepub + \varepsilon ij$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01} Female + \gamma_{02} NonWhite + \gamma_{03} Democrat + \gamma_{04} FossilFuelDonation$$
$$+ \gamma_{05} TotalUtilitiesDonation + \gamma_{06} AltEnergyDonation + \gamma_{07} Incumbent$$
$$+ +\gamma_{08} BudgetApprMem + NaturalResourceUtil + u_{0j}$$

$$\beta_{1j} = \gamma_{10}; \beta_{2j} = \gamma_{20}; \beta_{3j} = \gamma_{30}; \beta_{4j} = \gamma_{40}; \beta_{5j} = \gamma_{50}; \beta_{6j} = \gamma_{60}; \beta_{7j} = \gamma_{70}; \beta_{8j}$$
$$= \gamma_{80}; \beta_{9j} = \gamma_{90}; \beta_{10j} = \gamma_{100}; \varepsilon ij \sim L(0,1); u_{0j} \sim N(0, \tau_{00})$$

Results and discussion

Descriptive statistics

Table 1   provides descriptive statistics for Republican, Democratic, and all legislators' overall support for energy reforms, as well as Republican, Democratic, and all legislators' support for each bill characteristic of interest (not controlling for other variables). Political party exerts an obvious influence on legislators' votes for energy bills: Republicans vote for energy reforms about 57% of the time, whereas Democrats vote for energy reforms about 98% of the time.

When considering each of our bill characteristics, notable variations in Republicans' support for energy reforms emerge. Although the inclusion of renewable-energy provisions only slightly reduces Republican support for energy reform, the inclusion of energy-efficiency provisions reduces Republican support to 45%. In terms of bills that expand the size of government, Republicans support legislation that increases spending only 39% of the time and legislation that creates government commissions only 29% of the time. Regulations on utilities (67% support) seem more palatable to Republicans than regulations on businesses (54% support). Finally, in terms of bills that shrink the size of government or promote government transparency, Republicans vote for energy bills that decrease taxes 78% of the time, and they vote for bills that decrease regulations on businesses or promote good government a majority of the time (64% and 59% respectively). Overall, these bill characteristics do not seem to matter much to Democrats, as would be expected in a legislature dominated by the party. However, we note that Democrats voted for bills that reduce taxes at a

Table 1.   Descriptive statistics for bill characteristics, by party.

Variable	Republicans	Democrats	All Legislators
% support for all legislation	57	98	84
% support for renewable energy legislation	56	98	83
% support for energy efficiency legislation	45	98	80
% support for bills that increase spending	39	99	78
% support for bills that create commissions	29	98	74
% support for bills that increase regulations on businesses	54	99	84
% support for bills that increase regulations on utilities	67	98	87
% support for bills that decrease taxes	78	100	92
% support for bills that decrease regulations on businesses	64	97	85
% support for bills that promote 'good government'	59	95	82

Table 2.   Descriptive statistics for campaign contributions from energy industries, by party.

Variable	Republicans Mean SD		Democrats Mean SD		All Legislators Mean SD	
Donations from fossil-fuel companies	$18,754	$11,669	$7,546	$9,245	$11,479	$11,483
Donations from utilities companies	$12,937	$8,011	$11,169	$8,831	$11,789	$8,593
Donations from alternative-energy companies	$2,695	$3,574	$4,702	$8,022	$3,998	$6,868

rate close to 100%, whereas bills that promote 'good government' receive a somewhat lower level of support from Democrats (95%).

Table 2 provides descriptive statistics on contributions from energy industries of interest for Republicans, Democrats, and all legislators. Republicans receive more contributions from fossil-fuel companies ($18,754 on average) than Democrats ($7,546 on average) but only slightly more money from utilities than Democrats ($12,937 compared to $11,169), and Democrats receive more money from alternative energy industries than Republicans ($4,702 compared to $2695). The standard deviation for campaign contributions from each of the three industrial groups for both Democrats and Republicans is large because a sizeable number of legislators received no money from various industries, whereas many other legislators received several times the average amount of campaign contributions.

Multilevel analyses

Table 3 shows results from our multilevel analyses for Republican legislators separately, Democratic legislators separately, and all legislators. For each group of legislators, we provide a base model containing bill characteristics (i.e. bill types and budgetary provisions) and a full model containing both bill characteristics and campaign contributions. Each model also includes control variables. The dependent variable is a legislator's vote for each bill, and the non-dichotomous variables in each model are standardised due to significant variations in the scaling of the different variables. In general, we focus our attention on the models for Republican legislators separately and Democratic legislators separately, but we include the model for all legislators to assess the overall role of political party membership in votes for energy bills. Specifically, as models 3a and 3b show, Democratic Party membership is strongly associated with support for energy bills, even when controlling for bill characteristics and campaign

Table 3. Generalised linear mixed logistic models for California legislator votes, by party.

Independent and Control Variables	Model 1a Republicans Base		Model 1b Republicans Full		Model 2a Democrats Base		Model 2b Democrats Full		Model 3a Legislators Base		Model 3b Legislators Full	
	B	(se)	*b*	(se)	*b*	(se)	*b*	(se)	*b*	(se)	*b*	(se)
Bill Characteristics												
Proportion on Republican Co-Sponsor	0.4461***	(0.0594)	0.4502***	(0.0595)	0.1327	(0.1330)	0.1306	(0.1325)	0.4167***	(0.0541)	0.4186***	(0.0542)
Renewable Energy Support	-0.3170***	(0.0937)	-0.3183***	(0.0937)	-0.1675	(0.2641)	-0.1664	(0.2640)	-0.2950***	(0.0863)	-0.2925***	(0.0863)
Energy Efficiency	-0.7325***	(0.0998)	-0.7324***	(0.0998)	0.5378*	(0.2693)	0.5414	(0.2692)	-0.5514***	(0.0915)	-0.5530***	(0.0915)
Spending Bill	-0.5911***	(0.1047)	-0.5895***	(0.1047)	-0.1185	(0.3021)	-0.1279	(0.3018)	-0.5101***	(0.0973)	-0.5050***	(0.0973)
Commission Creation	-0.9202***	(0.1268)	-0.9185***	(0.1267)	0.0707	(0.3598)	0.0690	(0.3594)	-0.7109***	(0.1108)	-0.7132***	(0.1109)
Regulation Increase on Business	-0.2365*	(0.1176)	-0.2357*	(0.1176)	1.1625*	(0.4540)	1.1714*	(0.4549)	-0.1255	(0.1098)	-0.1240	(0.1098)
Regulation Increase on Utilities	-0.0253	(0.1123)	-0.0246	(0.1123)	-0.7183*	(0.2911)	-0.7226*	(0.2910)	-0.1129	(0.1059)	-0.1055	(0.1059)
Tax Decrease	1.0938***	(0.1462)	1.0937***	(0.1463)	3.8140***	(1.0729)	3.7870***	(1.0611)	1.2050***	(0.1427)	1.1987***	(0.1426)
Regulation Decrease on Business	0.3515*	(0.1321)	0.3541**	(0.1321)	-1.1852***	(0.2980)	-1.1857***	(0.2979)	0.1552	(0.1211)	0.1532	(0.1211)
Good Government	0.2507*	(0.1273)	0.2485	(0.1273)	-1.5503***	(0.2612)	-1.5502***	(0.2612)	-0.0420	(0.1161)	-0.0394	(0.1162)
Legislator Characteristics												
Legislator's Party (Democrat)									4.1781***	(0.2504)	4.1911***	(0.2912)
Senate Chamber	0.4229*	(0.1708)	0.5037**	(0.1696)	-1.1800**	(0.4171)	-0.9910*	(0.4196)	-0.2791	(0.2080)	-0.2549**	(0.2094)

Table 3. (Continued).

Independent and Control Variables	Model 1a Republicans Base		Model 1b Republicans Full		Model 2a Democrats Base		Model 2b Democrats Full		Model 3a Legislators Base		Model 3b Legislators Full	
	B	(se)	b	(se)	b	(se)	b	(se)	b	(se)	b	(se)
Incumbent	0.3626*	(0.1772)	0.3214	(0.1665)	-0.4100	(0.4181)	-0.5610	(0.4154)	-0.0863	(0.2036)	-0.1191	(0.2058)
Budget or Appropriation Member	-0.3394*	(0.1545)	-0.2882*	(0.1443)	-0.1729	(0.4326)	-0.1993	(0.4359)	-0.3608	(0.1963)	-0.3597	(0.1989)
Natural Resource or Utilities Member	0.3897*	(0.1723)	0.4249**	(0.1633)	-0.2868	(0.4246)	-0.4901	(0.4486)	0.0617	(0.2070)	0.0215	(0.2140)
Non-White	0.8707	(0.5212)	0.8898	(0.4838)	0.8393	(0.4502)	0.8113	(0.5026)	0.4699	(0.2975)	0.3766	(0.3111)
Female	-0.1012	(0.1919)	-0.2031	(0.1843)	-0.0811	(0.4271)	-0.1582	(0.4242)	-0.1705	(0.2221)	-0.2007	(0.2229)
Fossil-Fuel Donation			0.1425	(0.0988)			-0.4147	(0.2551)			-0.1136	(0.1314)
Utilities Donation			0.1056	(0.1070)			0.4137	(0.3385)			0.2113	(0.1548)
Alternative-Energy Donation			-0.0935	(0.0946)			-0.0939	(0.2864)			-0.0425	(0.1602)
Constant	0.6697**	(0.2184)	0.6457**	(0.2081)	5.7101***	(0.6498)	5.8385***	(0.6597)	1.1836***	(0.2436)	1.2401***	(0.2620)
Number of Clusters	43				77				120			
Number of Observations	3071				5682				8753			
ICC	0.06				0.41				0.68			

Note: Coefficients with standard errors in parentheses. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$ (two-tailed tests).

contributions. Similarly, in models 1a, 1b, 3a, and 3b, we find that the presence of Republican sponsors or co-sponsors on a bill is positively associated with support for energy bills. Republican sponsorship or co-sponsorship is associated with positive votes not only among Republicans but also among all legislators (both Republicans and Democrats).

One of our primary sets of variables for bill characteristics concerns the potential effect of the type of energy bill on legislators' support for energy reforms. Models 1a and 1b show that bills promoting renewable energy or energy efficiency receive less support from Republicans, providing support for H1a. In comparison, bills that promote energy efficiency receive more support from Democrats (although only in the base model), while provisions that promote renewable energy apparently have no effect on Democratic support, providing only some support for H1b.

Another set of variables allows us to examine the association of provisions that would expand or reduce the size, scope, and transparency of government with legislators' votes on energy bills. With regard to budgetary provisions within each bill that would expand the size or scope of government, models 1a and 1b show that bills that increase government spending, create new government commissions or task forces, or apply new regulations to private businesses receive less support from Republicans. Regulations on utilities apparently have no effect on support from Republicans, but otherwise these findings support H2a.

In contrast, Democrats show more support for bills that increase regulations on business and less support for bills that increase regulations on utilities. Furthermore, provisions related to spending or commissions have no effect on Democratic support, lending weak support to H2b. Why are Democrats more willing to increase regulations for businesses than for utilities? In examining individual bills, we found that much of the legislation placing regulations on businesses during this time period placed safety regulations on fossil-fuel companies (e.g. AB 56; SB 44; SB 216; SB 705; SB 879) or increased restrictions on pollutants (e.g. AB 2196). Most utility regulations achieved seemingly non-offensive tasks such as securing fairer rates for utility customers (AB 2516) and promoting energy-savings programmes (AB 2227; SB 1207). However, other utility-related bills threatened to roll back gains related to renewable energy, such as by implementing a cost–benefit study of net energy metering programs run by utilities to determine whether solar panels are unfairly subsidised by those who do not own them (AB 2514, which received unanimous support from Republicans but some opposition from Democrats in both chambers). Thus, these findings are consistent with the expectation of Democratic support for a green energy economy, if not the expectation that Democrats would always support new regulations.

With regard to budgetary provisions that would reduce the size or scope of government, we find that bills that reduce taxes or reduce regulations receive more support from Republicans, providing support for H3a. Interestingly, Democrats are strongly supportive of bills that reduce taxes (in fact, we only

uncovered one 'no' vote among Democrats for this set of bills), whereas they are less supportive of bills that reduce regulations on businesses, providing mixed support for H3b. To understand why Democrats are more willing to reduce taxes than to reduce regulations on businesses, we examined individual bills and found that Democrats sometimes voted against bills that rolled back regulations because they exempted certain renewable-energy technologies or roadway projects from environmental review processes (e.g. AB 1073 and AB 890, both of which received more support from Republicans than Democrats). By contrast, many 'tax cut' bills provided tax credits for the purchase of renewable-energy or energy-efficiency systems (e.g. AB X1 15, SB 1128, SB 1485), once again confirming the idea that Democrats are supportive of green energy reforms, if not the expectation that Democrats would be opposed to tax reductions.

Additionally, we find that provisions that require budgetary transparency or disclosure of conflicts of interest (i.e. bills that promote 'good government') have a significant, positive effect on Republicans in the base model (though not in the full model), providing some support for H4a. In contrast, 'good government' bills receive less support from Democrats in both the base and full model, providing support for H4b. These findings are consistent with our hypothesis that the out-of-power party is more concerned with transparency issues.

Our final variables of interest concern campaign contributions from the fossil-fuel, utility, and alternative-energy industries. In each model, we find that campaign contributions from energy industries are not associated with variation in either Republicans' or Democrats' support of energy bills, providing no support for H5a or 5b, which predicted a negative relationship between fossil-fuel and utility donations and support of energy bills, but positive support for H5c, which predicted no relationship between renewable alternative energy industry donations and support of energy bills. The result is consistent with the view that campaign contributions provide a 'ticket of entry' to legislators but do not necessarily affect votes (Clawson *et al*. 1992). We do not interpret the finding to suggest that there is no relationship between preferences for energy bill types and industry spending, but in the context of our findings, we suggest that the specific bill characteristics identified here are better predictors of legislative support.

With regard to the control variables, we find that Republicans in the State Senate are more supportive of energy bills than Republicans in the State Assembly, whereas Democrats in the State Senate are less supportive of energy bills than Democrats in the State Assembly. We expected this finding because elected officials who represent larger districts tend to have more moderate political views, meaning that Republicans would veer in a more liberal direction (and thus towards greater support for green energy reforms) and that Democrats would veer in a more conservative direction (and thus towards reduced support for energy reforms). We also find that Republicans with incumbent status are more supportive of energy bills than first-term legislators, but only in model 1a.

The effect of incumbent status disappears when financial contributions are added in model 1b.

Finally, although control variables indicating the race and sex of each legislator are not significant, we find that Republicans in the budget or appropriations committee are less supportive of energy reforms, whereas Republicans in the natural resources or utilities committee are more supportive of energy reforms. These findings, which do not apply to Democrats, are consistent with the interpretation that Republicans in the budget or appropriations committee are more sensitive to concerns with taxes and spending (which play a significant role in their voting patterns) than other Republicans, whereas Republicans in the natural resources committee (which has jurisdiction over many green energy bills) and the utilities committee (which also examines much energy legislation) are more exposed to the need for energy reforms.

Alternative specifications

The discussion above examined differences between Republicans' and Democrats' support for energy bills by analysing subsets of Republican and Democratic legislators separately. An alternative way to assess differences between Republicans' and Democrats' support for energy reforms is through cross-level interactions between political party and other variables of interest in models that contain all legislators. Thus, as an additional robustness check, we analysed possible interaction effects for variables of interest that were significant in any of our previous models (results not shown here but available on request). We uncovered a positive interaction effect between energy efficiency provisions and membership in the Democratic Party. An interaction for renewable-energy provision and Democratic affiliation was not significant, in line with the earlier finding that renewable-energy provisions do not affect Democratic votes.

In terms of budgetary provisions that would expand the size or scope of government, we identified positive interaction effects for spending and Democratic affiliation, commission creation and Democratic affiliation, and business regulations and Democratic affiliation. Because variables for spending and commission were not significant for Democrats in models 2a and 2b, these results are in contrast with the previous models but do support our initial expectations in hypothesis 2b. We also found a negative interaction effect for regulation increases on utilities and Democratic affiliation, consistent with our previous findings. In terms of provisions that would reduce the size or scope of government, we found a negative interaction effect for regulation reductions on businesses and Democratic affiliation, in line with our previous findings. There was no statistically significant interaction effect for tax reduction and Democratic affiliation, but this variable was positive and significant for both parties in our previous models. Thus, we would not expect any major difference in Republicans' and Democrats' support for energy bills with tax reductions. Finally, we identified a negative interaction effect for 'good government'

provisions and Democratic affiliation, a result that is also consistent with our previous findings.

Conclusion

Our research provides insight into the conditions for continued energy reforms in the United States, given the broad political context of sharp differences between political parties on issues such as climate change and the need to transition to lower reliance on fossil fuels. With respect to the multilevel analysis, we found that the following categories and characteristics of energy legislation will tend to produce a negative vote from a Republican legislator in this sample: renewable-energy bills, energy-efficiency bills, government-spending increase, commission creation, and new business regulations. In contrast, approximately 98% of Democrats supported renewable-energy and energy-efficiency legislation, and in the multivariate models, their positive votes were associated with regulatory increases on businesses and negative votes associated with 'good government' provisions and decreased regulations on businesses. Among both Republicans and Democrats, bills that reduce taxes (e.g. through tax credits for individuals or companies transitioning to greener energy) received increased levels of support. The finding is consistent with the tendency for environmental politics in the United States to be configured via market-friendly, neoliberal policy instruments. For example, there is a preference for cap-and-trade policies over taxes for emissions reduction policies to combat sulphur dioxide emissions and for renewable-energy credits as an instrument for enhancing solar policy. There is also a tendency towards the use of tax credits and rebates, again instead of increased taxes, in order to encourage market activity and business development.

Because our research focuses on only one legislative session and on one state, it raises many new questions. Future research could look at changes over time; we expect that in most states in the United States, there will be evidence of increasing differences between Republican and Democratic votes, especially after 2010 when the national-level reform initiatives failed. Future research could also look at other state governments, including those with larger and smaller levels of employment in the fossil-fuel sector and those with differing degrees of Republican and Democratic Party control over the legislative chambers. We also expect that these patterns would apply to other countries where ideological divisions (neoliberal vs. social liberal or social democratic) are aligned with sharp differences over green energy transition policy, particularly in Canada and in some other Anglophone countries.

We emphasise that our research counters the conventional wisdom that Republicans will consistently vote against energy reforms supported by Democrats. We found that 22 bills received 95–100% support from Democrats and Republicans in both the Senate and Assembly. These bills were often incremental adjustments that lacked ideological hurdles such as creating new commissions, increasing taxes or government expenditures, or adding business regulations.

Only eight of the bills in our data set received no votes from Republicans in the Senate and support from fewer than 5% of Republicans in the House. Five of these bills involved reference to greenhouse gases or the Greenhouse Gas Reduction Fund, an issue that tends to spur the sharp political divisions associated with conventional wisdom. Thus, our analysis suggests that at least on some issues involving low-carbon energy reform, agreement can be reached across party lines, but bills must be carefully crafted to avoid ideological barriers.

Overall, this research project breaks new ground in the analysis of subnational energy legislation by demonstrating an association between bill characteristics and legislators' support for energy reforms. Methodologically, the project also shows what can be accomplished by shifting the study of energy policy from cross-state or cross-country comparisons of a single law type to within-state comparisons of multiple law types. In the United States, the highly polarised political landscape with respect to energy policy also makes this type of analysis of great practical interest for policymakers who are struggling to find agreement for further energy reforms. Specifically, the issue of anthropogenic climate change may be more divisive for Democrats and Republicans than for standard wedge issues such as evolution, gun control, abortion, and the death penalty (Hamilton 2014). Thus, on a generally divisive issue, social science research may be able to contribute insights into strategies for crafting common ground.

From the perspective of environmental social theory, the lack of support for policies that move the economy towards lower levels of greenhouse-gas emissions is consistent with the 'treadmill' approach (e.g. of production or accumulation) to environmental politics and society discussed above. This approach recognises that ecological modernisation occurs but argues that the pace of reform is too slow to address ongoing increases in aggregate consumption and global environmental degradation. However, neither treadmill nor ecological modernisation frameworks provide much help in explaining the more policy-relevant problem of the conditions under which environmental reform policies advance or do not advance. Our research builds on that of social scientists such as Shwom (2011), who argued that conditions are conducive to policy reform where there is high public awareness and a record of previous regulation. Both of those conditions describe California at present, and there is also support in California for renewable energy and energy efficiency legislation from the state's clean technology industry, a feature that is consistent with her criterion of a non-unified business class.

This type of approach goes beyond the theoretical impasse in environmental social theory by developing a policy-relevant analysis of environmental reforms and policy conflict. We argue that a theory of environmental policy conflict should include the framing of bills with respect to issues that can increase ideological divisions. We suggest important ways that specific policies can gain and lose legislators' support depending on the ideological linkages. These linkages may be especially important where the business class is divided between treadmill interests that seek to slow a green-energy transition and a dynamic renewable-energy and clean-tech sector, as has occurred in California. Although

these industrial clashes are aligned with party differences, there is enough balance in the business class and enough autonomy in the political field for legislators to find areas of agreement, especially if they pay attention to issues of fiscal conservatism that might otherwise jeopardise bipartisan proposals. Our approach therefore focuses less on the broad historical argument – the extent to which capitalism is consistent with environmental sustainability – that has characterised the differences in environmental social theory and more on building empirically grounded research on environmental conflict and the conditions for policy reform and stasis. We bracket the broader historical claim – that environmental reform efforts are ultimately doomed to failure or that they will ultimately result in successful ecological modernisation – and focus instead on the more immediate problem of the conditions under which reform does and does not proceed.

Note

1. Organisations that track industry contributions tend to use the term 'alternative' energy as a slightly broader category than renewable energy, but most of the donations were from organisations associated with renewable energy.

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