CLOSUP Student Working Paper Series
Number 29

April 2018

Exploring Current Republican Senators' Portrayal of Climate Change and Mitigation Policies

Madeline Carter, University of Michigan

This paper is available online at http://closup.umich.edu

Papers in the CLOSUP Student Working Paper Series are written by students at the University of Michigan.
This paper was submitted as part of the Winter 2018 course *PubPol 495 Energy and Environmental Policy Research*,
that is part of the CLOSUP in the Classroom Initiative.

Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the Center for Local, State, and Urban Policy or any sponsoring agency

Center for Local, State, and Urban Policy
Gerald R. Ford School of Public Policy
University of Michigan

Madeline Carter
Pub Pol 495
Sarah Mills
April 25, 2018

Exploring Current Republican Senators' Portrayal of Climate Change and Mitigation Policies

Abstract

To evaluate current Republican views on climate, this study performs an inventory of all 51 US Republican senators' official websites. It analyzes how each member speaks of "climate change" and "energy," which types of climate change mitigation policies they support, and whether their answers correlate with the percentage of renewable energy production (REP) in their state. It finds that only two of 51 Republican senators address "climate change." Secondly, a majority (37/51) of Republican senators support REP. Most of those 37 frame their support for renewables in terms of potential economic benefits, like job creation, rather than environmental protection. Of the 14 senators voicing policy preferences for mitigation, 12 support an "all-of-the-above" approach, which promotes lowering carbon emissions, creating new energy technology and jobs, and fostering energy independence. Finally, while there are few patterns based on percentage of REP per state, the only two senators who speak of "climate change" come from the states with the lowest levels of RE production, which challenges existing literature. These findings suggest that mitigation policy proposals focused on technological innovation to support energy development, alongside opportunities for economic growth and/or job creation, will likely result in greater support from Republicans than policies addressing "climate change" itself.

Introduction

For nearly three decades, scientists across the globe have agreed that climate change is a real phenomenon. The Intergovernmental Panel on Climate Change (IPCC) formed in 1988 to consider evidence on climate change. The United Kingdom's Prime Minister, Margaret Thatcher, called for a global treaty on climate change in 1989, given the increasing levels of carbon dioxide that were sure to be damaging the atmosphere (BBC, 2013). Scientists have known for more than two decades that climate change is, indeed, primarily anthropogenic. In 1995, the IPCC concluded that there is a clear human influence on Earth's changing climate (BBC, 2013). Despite researchers being in agreement on these advances in climate science, approaching climate change mitigation has not failed to become a contentious partisan issue in the United States, sticking out like a sore thumb in our increasingly polarized political environment.

Views on climate change – belief in its existence, whether or not it is anthropogenic, and willingness to support mitigation policies – have repeatedly been found to correlate with partisanship (Popovich, Albeck-Ripka, 2017). Progressives, those typically affiliated with the Democratic Party, have been most supportive of climate change mitigation, and willing to stand by evidence that our changing environment can be attributed to human behavior (like the burning of fossil fuels). Those upholding conservative ideals and voting alongside the Republican Party have more commonly been in opposition to climate science and mitigation. This resistance to scientific evidence has consistently been traced to Republicans' distaste for government regulation, and more specifically, their commitment to protecting US businesses from regulatory policies that may hinder financial success or individual freedom (McCright, Marquart-Pyatt, Shwom, Brechin, & Allen, 2016).

Seeds of doubt on climate science were initially planted in the 1990's, when companies like Exxon paid groups to argue against climate change's validity, and lobbied elected officials to end any pursuit of industry-based regulation (Worland, 2017). While a majority of Republicans have come to accept climate change as real science in the 2010's, the initial politicization of the issue has limited right-leaning representatives' willingness to support government involvement in limiting harmful emissions by firms (Popovich & Albeck-Ripka, 2017). As a hugely influential fossil fuel industry investor, Charles Koch, commented, "Government rules intended to slow climate change are 'making people's lives worse rather than better'" (Davenport, Lipton, 2017).

Republicans' defense of free markets explains their aversion to broad mandates meant to limit carbon emissions from large energy firms. However, there are other types of mitigation policies which do not function as mandates or market-inhibiting strategies. Under cap-and-trade, for example, firms possess the ability to emit carbon at their socially optimal level by trading the limited number permits in existence with other firms. Cap-and-trade still reduces overall emissions to a specified amount, but gives firms the freedom to decide at what level they should ideally pollute (from an economic standpoint), and to then make tradeoffs. Existing research suggests that Republican support for market-based solutions like cap-and-trade policies has increased (Kukkonen, Ylä-Anttila, & Broadbent, 2017).

In addition to supposed increased support for market-based mitigation techniques like cap-and-trade, the rise of renewable energy production poses as a strong economic motive for Republican representatives to support certain mitigation techniques. That is, in states and/or regions where renewable energy production is most feasible and increasing in practice, Republican representatives and their constituents would benefit from supporting this type of climate change mitigation technique. According to the Department of Energy, states with the

highest percentages of renewable energy production are the Great Plains/Midwestern states of North and South Dakota, Iowa, Minnesota, and Nebraska; Western states of Washington, Oregon, Idaho, Nevada, and California; and the eastern states of Delaware, Rhode Island, and Maine (Department of Energy, 2018).

The evolution of Republican opposition to climate change and mitigation policies seems to reflect a greater acceptance of climate science overall, and existing literature suggests a relatively newfound support for specific market-based solutions like cap-and-trade. This research seeks to answer the question of what current, federal Republican representatives' views on the existence of climate change are, as well as their preferences for policy solutions. Understanding Congressional representatives' attitudes toward climate change and mitigation, and analyzing the rationale behind those positions, allows for us to better predict the direction in which federal environmental policy will move.

Literature Review

Partisan Differences in Climate Change Beliefs and Policy Preferences

Since the US has typically been in opposition with similar nations that do seek to address climate change, research has sought to identify predictors and/or patterns for views on climate change to better understand support for mitigation policies. McCright, Marquart-Pyatt, Shwom, Brechin, and Allen (2016) found that being pro-environment to begin with, one's political orientation (pro-climate views being more common among leftists), and gender (women being pro-climate more often than men) are the most consistent predictors of support for climate change mitigation. They highlight that the US's political right has mobilized to thwart climate

change mitigation to protect businesses, which included extensive financial resources going towards developing controversy around climate science in the 1990's and early 2000's.

Despite these trends among the political right, research has also suggested that since the Bush Jr. era began in 2001, there has been increased overall support for climate change mitigation policies at the state level, even among conservative states (Peterson & Rose, 2006). In particular, state-level governments are recognizing the economic risks they may face from environmental damage, and in turn, are developing climate action plans. In the first 5 years of the Bush administration's leadership, 9 comprehensive state plans (3 of which were in Republican-voting or swing states), four regional agreements, and even local government plans were constructed to limit greenhouse gases. Peterson and Rose also investigated which states are likeliest to take the lead in climate mitigation efforts, and pointed to Pennsylvania as having an important role, given its geographic capacity for energy production.

Following the suggestion that support for mitigation policies has increased overall, other research points to the type of policies that are becoming more favorable. Dietz, Dan, and Shwom (2009) surveyed residents of Michigan and Virginia, two rust belt states, to ask about eight different policies which would limit the burning of fossil fuels. The authors found that respondents (from across the political spectrum) overwhelmingly oppose mitigation in the form of a gas tax (mandate), but strongly support moving financial resources away from fossil fuels and towards sustainable energy plans. This research holds implications for the rust belt specifically, as it suggests there is less support for regulatory mandates that citizens will notice in their day-to-day lives, but consistent support for a general movement of funding towards sustainable energy systems.

American policy preferences on other forms of mitigation have been surveyed in depth on a national level. One study by Leiserowitz (2006) measured support for a variety of proposals meant to be enacted at the national level, and found the following: 90% of respondents believe the US should reduce its greenhouse gas emissions. 88% supported the Kyoto Protocol and 76% wanted the US to reduce its greenhouse gas emissions, no matter how other countries approach the problem. 79% were in support of increased vehicle fuel economy standards (CAFE). 77% supported government regulation of carbon dioxide, and a shift in funding away from the fossil fuel industry and towards renewable energy. A majority of participants favored a tax on "gas guzzling" vehicles, but a much higher proportion opposed a gas tax for reducing emissions. Again, this evidence suggests that Americans oppose policy mandates that directly affect them, but support less tangible regulations being enacted at a national level. Further, while Democrats expressed the strongest support for mitigation policies, majorities of Republicans still supported most of the policies presented.

Additional research has explored how disagreement over such mitigation policy preferences divides organizations and individuals into competing coalitions (Kukkonen, Ylä-Anttila, & Broadbent, 2017). This study used the Advocacy Coalition Framework, which asserts that individuals group themselves into competing advocacy coalitions based on shared policy core beliefs, and use their collective power to influence policy outcomes. These coalitions are not necessarily sorted by political parties, but rather, by specific policy preferences that may be shared across party lines. This study's findings suggest that while beliefs on the reality of anthropogenic climate change, the importance of the environment over the economy, and views on the (un)desirability of government regulation are the most common dividers for policy coalitions, not all policies receive support from only one coalition. For example, the data suggest

that support for cap-and-trade policies does not fall into just one of those common coalitions, but that it exists across belief systems. Based on the majority of their core policy beliefs, however, Democrats tend to separate themselves into the advocacy coalitions that value the environment over the economy, while Republicans more often fall in line with coalitions that dislike government regulation and question the reality of anthropogenic climate change.

Renewable Energy Production

When considering current representatives' climate change mitigation policy preferences, one reason to assume strong Republican support for energy may not be about partisanship, but more so about the potential economic benefits for representatives' states. While the deployment of renewable energy depends on state policies and support from representatives, it is also contingent upon geography – that is, windy states possess much higher renewable energy potential than do states that are more sheltered and still. However, if there is a way to make money from renewable energy in a red state, and such renewable energy techniques also happen to mitigate climate change, what reason would a Republican representative have for being against them?

As wind power is the most rapidly growing source of renewable energy production in the US, it serves as an effective standard by which to measure the success and interest of various states in implementing renewable energy policies. In an analysis of the 12 states (5 of which are Republican-voting) that had the highest percentages of renewable wind energy development and planning at the time of the study, researchers found that several factors have predicted the (successful) development of wind energy initiatives (Bird et al., 2005). State tax and financial incentives, alongside state Renewable Portfolio Standards, determine successful implementation, particularly in states that already possess naturally strong wind resources. Further, increasing cost-competitiveness that has been driven by a shift toward larger and more efficient turbines

(attributable to Federal tax incentives and heightened natural gas prices) encourages states to implement wind energy projects. In other words, wind is the least costly energy resource in particular regions of the United States, which explains its increasing prevalence across states, regardless of partisan affiliation.

Existing literature has thoroughly explored the evolution of partisan differences in beliefs surrounding climate change. This research seeks to address where Republican senators currently stand in their views on climate change, and in particular, how their climate policy preferences are impacted by differences in renewable energy production levels within each members' home state. Filling this gap in research allows for a greater understanding of why conservative representatives may be more willing to adopt certain mitigation techniques over others, as well as how future mitigation proposals can be linguistically tailored so as to gain bipartisan support.

Methodological Approach

In this study, I perform an inventory of the current 51 US Republican senators' official websites in order to gauge their views on climate policy. Websites are one of the most public, accessible forums through which representatives can relay their policy positions to constituents. That said, the information on these websites is undoubtedly tailored to *carefully* depict policy stances demonstrative of each district's preferences, with language chosen intently to convey a desirable message to the average constituent. The portion of a member's website dedicated to stances on policy issues typically recognizes both the problem at hand (in the representative's view), as well as his or her preferred solution(s).

I hypothesize that the geographic location of each senator's constituency should influence their support for climate change mitigation policies, given state-by-state differences in the

prevalence of renewable energy sources. Presumably, the states that stand to benefit economically from renewable energy production will be most inclined to support environmentally protective mitigation policies (including renewable energy and other market-based initiatives). While Republican representatives may be hesitant to address the importance of "climate change" as a policy issue, given conservative resistance to taxes or increased government spending associated with this cause, they may be willing to recognize that support for renewable energy projects and/or market-based solutions is integral to their state's economic well-being.

By looking for the specific language on climate policy utilized by *every* Republican senator, regional patterns in how they recognize climate change, as well their policy preferences for mitigation, can emerge. That is, it will come to light if geographic location – each state's ability and/or potential for renewable energy production – plays a part in how willing Republican representatives are to recognize climate change and support specific types of mitigation policies. The analysis focuses on the presence or absence of specific language regarding climate science and mitigation policies, including the mention of renewable energy, market-based solutions, job creation, and economic stimulation, to understand the relationship between the economic benefits of renewable energy production and Republican receptivity to climate change.

In order to determine whether the renewable energy industry affects support for climate change mitigation policies, I list the percentage of renewable energy production per state, as given by the US Department of Energy (2018). The first website screen in the inventory is for the presence or absence of each senator's views on "climate change," including the specific use of the phrase. Next, I go on to see if their issue stances include anything on "energy." If so, the following screen is for whether or not their stance on energy revolves around the prospects of job

creation and/or economic stimulation. Determining whether support for renewable energy is connected to economic variables sheds light on what representatives' intentions are – supporting renewable energy because of its potential benefits to the environment, or at least partially because of perceived economic returns for members' home states. The last screen is for the presence of support for specific mitigation/environmental protection policy approaches. This may include the promotion of market-based solutions, which utilize economic variables within free markets to incentivize firms to minimize environmentally-damaging practices; cap-and-trade is a standard example. Regulatory approaches are also accounted for, which includes any mandates limiting the use of non-clean energy production (i.e. carbon emissions).

Results and Analysis

Use of "Climate Change"

Given that existing research affirms that partisanship defines one's willingness to address "climate change" (Popovich & Albeck-Ripka, 2017), the fact that only two Republican senators – Lisa Murkowski of Alaska and Mike Enzi of Wyoming – included the phrase on their official websites is unsurprising (Appendix A). Senator Murkowski's use of "climate change" was not indicative of her viewing it as a pressing issue, but rather, a suggestion on how to "reduce the emissions **blamed** for climate change." Her support for the "all-of-the-above" policy approach elicited the use of the phrase, but a semantic review of the reference does not suggest that Murkowski is stating a personal belief of carbon emissions being responsible for climate change. Rather, she acknowledges that others *blame* these emissions for climate change, and that this type of policy approach, which she supports as a way to lower costs and bolster US energy security, may placate such concerns.

Similarly, Senator Enzi's remarks on climate change were not presented as him having personal concerns about the issue, but rather, as an argument that "Regardless of where one stands on the issue of global climate change, it makes sense to enact practical energy and environmental policies." He goes on to offer suggestions about how we should address carbon emissions and air pollutions, therefore recognizing these factors as issues requiring attention. Again, his careful acknowledgement of the environment falls in line with the politicization of climate change that has been displayed in existing research (Popovich & Albeck-Ripka, 2017). While he clearly points to emissions and energy inefficiency as problems to consider, Enzi does not directly relate these issues to climate change on his website.

In comparing these two senators' use of "climate change" to the percentage of renewable energy production in their states, it is notable that both Wyoming and Alaska fall at the bottom end of production, with Wyoming having the lowest percentage of .3% and Alaska having the second lowest percentage of .8% (see Table 1 below). This is in contrast to the hypothesis that senators whose states have the *highest* percentage of renewable energy production would be most willing to address "climate change." Perhaps the fact that both Wyoming and Alaska are revered for their natural environmental beauty, and a changing climate poses a threat to that beauty's existence, explains Senator Murkowski's and Enzi's willingness to mention climate change. However, the true rationale behind their framing of the issue, as well as the correlation with their states' low level of renewable energy production, is unknown. Case studies on both senators and their states may be useful to better explain this finding.

Table 1: Inventory of Republican Senators' Websites, in Ascending Order by % of Renewable Energy Production per State (5 states with lowest production levels; see Appendix B for full table)

States and Republican Senators	Use of "Climate Change"	Use of "energy"	Types of Mitigation / Protection Policies	Jobs / Economic Stimulation	Percentage of Renewables / State
Wyoming - John Barrasso [50]	No	Yes	N/A	No	0.3
Wyoming - Michael B. Enzi [51]	Yes	Yes	Market-based; NO cap/trade	Yes	0.3
Alaska - Dan Sullivan [2]	No	Yes	N/A	Yes	0.8
Alaska - Lisa Murkowski [3]	Yes	Yes	"All-of-the-Above"	Yes	0.8
West Virginia - Shelley Moore Capito [48]	No	Yes	"All-of-the-Above"	Yes	1.0
Louisiana - Bill Cassidy [21]	No	Yes	N/A	Yes	1.5
Louisiana - John Kennedy [22]	No	No	N/A	-	1.5
Utah - Mike Lee [46]	No	No	N/A	-	1.5
Utah - Orrin G. Hatch [47]	No	Yes	N/A	Yes	1.5

Use of "Energy"

Only 14 of the 51 current Republican senators did not address renewable energy as a policy issue on their website – in other words, 72.55% mentioned the importance of developing alternative sources for energy within the US (Appendix A). None of these statements were negative; Every member who addressed renewable energy focused either on its benefit to their state – largely economic – or its benefit to the country's national security. That is, by finding and/or developing more sources of renewable energy in the US, ranging from wind to nuclear power, they believe we can reduce our reliance on the energy sources of foreign countries that are often viewed as unstable. There was less emphasis placed on environmental benefits being a reason to support renewable energy production, but some members still mentioned utilizing environmentally safe or friendly approaches in pursuing energy independence. For example, Senator Johnny Isakson's website states, "It is in the geopolitical and environmental interests of the United States to reduce our dependence on imported foreign oil from unstable areas of the

world. The United States must develop a balanced national energy policy that increases and diversifies our country's energy supply in environmentally and economically friendly ways."

There is no apparent correlation between levels of renewable energy production and the use of "energy" in any of the states with Republican senators (Appendix B). This finding invalidates the hypothesis that Republican representatives from states with higher levels of renewable energy production would be more willing to promote the use of clean energy sources. Overall, however, these findings confirm the results of existing literature which suggests that while approaching "climate change" is still highly politicized and partisan (Popovich & Albeck-Ripka, 2017), the vast majority of the public (>70%) supports moving toward renewable energy production (Leiserowitz, 2006).

Energy in Association with Jobs and Economic Stimulation

Of the 37 Republican senators who touched on renewable energy, 26 of them framed the benefits of renewable energy production in terms of economic stimulation or job creation for the US and their home states (Appendix A). Given that only two of these members addressed the idea of a changing climate as a reason for supporting renewable energy and/or mitigation techniques, these findings seem to align with existing literature – despite the obvious support for renewable energy as a climate mitigation technique, it remains politically unpopular for Republicans to speak of "climate change" (McCright, Marquart-Pyatt, Shwom, Brechin, & Allen 2016). By framing renewable energy as an economic benefit to their home states and the US as a whole, senators are providing constituents with positive reasons to support climate change mitigation in the form of renewable energy, despite their avoidance of speaking on "climate change" as an issue.

There is no apparent correlation between a state's senator(s) speaking on the use of "energy" in terms of a promoting job creation or economic stimulation, and the percentage of renewable energy production in that state (Appendix B). Though members of the states with the 8 highest levels of production, ranging from 91.68%-100%, all founded their support for renewable energy in the promise of job creation and/or economic stimulation, the rest of the distribution (states listed by ascending renewable energy production levels) is sporadic.

Types of Mitigation/Environmental Protection Policies

Perhaps the most surprising aspect of the inventory data was the acceptance of an "all-of-the-above" policy approach to energy and environmental protection, versus more clearly market-based mitigation techniques like cap-and-trade. Of the 14 representatives who offered their views on mitigation and/or environmental protection policies, 12 of them said they abide by the all-of-the-above policy approach (Appendix A). This strategy was developed under the Obama Administration in 2014 and consists of the following points: "1. To support economic growth and job creation. 2. To enhance energy security. 3. To deploy low-carbon energy technologies and lay the foundation for a clean energy future (Furman & Stock, 2014)." The current House Committee on Natural Resources website states that "Republicans support an all-of the-above energy approach that includes the development of alternative energy sources such as wind, solar, hydropower, nuclear, geothermal and biomass, along with clean coal and American-made oil and natural gas. A comprehensive plan will help protect the environment and improve our economic and natural security" (House Natural Resources Committee, 2018).

These findings challenge current research, given that only one Republican senator explicitly voices support for "market-based" mitigation techniques on their website (Appendix A). While existing literature suggests market-based solutions (broadly) are increasingly favorable, and that

cap-and-trade policies tend to be among the least divisive and are gaining traction with conservatives, this inventory did not support those conclusions (Kukkonen, Ylä-Anttila, & Broadbent, 2017). Senator Enzi, the only representative who explicitly voiced support for general "market-based" techniques to protect the environment, was sure to clarify that he was strongly against any form of cap-and-trade. In his words, "A cap-and-trade system might better be called a cap-and-tax system." Senators Jeff Flake (Arizona) and Roy Blunt (Missouri), who are in support of the all-of-the-above approach, also specify that they oppose cap-and-trade policies. Each of these senators argued that cap-and trade hinders economic growth and is too intrusive, in that government should not have the right to shape market outcomes. As Flake commented, "… regulating our energy industry by attempting to pick winners and losers is not the federal government's job."

An outlier in the inventory was Senator Johnny Isakson of Georgia, whose mitigation policy preferences are framed in terms of protecting Georgia's unique bounty of natural resources. On his site, Isakson pledges his commitment to "ensuring our natural resources are maintained through conservation, smart growth and environmentally sound technology." The specific policy he endorses is the Clear Skies Act, which is a piece of legislation that failed to pass in 2005. This act was intended to reduce harmful emissions from firms by setting a national cap on specific pollutants, and then allowing firms to adjust their emissions by trading permits – essentially, a cap-and-trade program. Isakson bases his support for this bill in his distaste for federal air quality standards (set by the EPA) that have been raised for all Americans. He argues that having too-high federal standards "seriously impacts an area's ability to attract and retain jobs." While Isakson opposes the EPA's national regulations, he emphasizes the importance of protecting

Georgia's mountains, rivers, forests, and farmlands, and argues the Clear Skies Act to be a more economically fair and attainable way of doing so for his state.

The notable presence of support for environmental protection is in line with existing literature, in that while only two Republican senators spoke of "climate change," 14 out of 51 of these representatives were willing to offer stances on how we should approach cleaner environmental policies (Appendix A). As this research also suggests, *overall* recognition of environmental damage from energy production, as well as support for a range of mitigation techniques from Republicans (i.e. reducing greenhouse gas emissions, and transitioning resources from fossil fuels to renewables) has increased over time (Peterson, Rose, 2006).

Neither the presence of support for mitigation policies in general, nor support for any one specific mitigation policy correlates with the percentage of renewable energy production per state (Appendix B). That is, support for mitigation techniques is not more likely to be present in states with a higher percentage of renewable energy production. This finding invalidates the hypothesis that Republican representatives from states with higher levels of renewable energy production would be most willing to promote either renewable energy or other mitigation initiatives (like market-based solutions or the all-of-the-above approach).

Final Analysis

The absence of a correlation between renewable energy production levels per state, and support for climate change mitigation policies (including both renewable energy and other approaches like all-of-the-above) suggests that Republican senators may be in support of mitigation policies for reasons other than economic benefits to their home states (Appendix B). Broad support for renewable energy usage (72.55%) and acceptance of the all-of-the-above approach (12/14 senators who addressed mitigation policies) could, instead, be due to a number

of factors: a genuine concern for environmental damage, or for their reelection prospects given increased public support for funding renewable energy instead of burning fossil fuels (Leiserowitz, 2006), for example.

Conclusion

Limitations

In doing an inventory of current Republican senators' websites to assess where they stand on climate change, there are surely limitations on the breadth information that is available. While representatives' websites are the most condensed space in which their issue stances can be located, they do not represent the entirety of a member's policy preferences. This inventory could not account for policy preferences on energy and climate change made available through public hearings, press releases from individual members, their voting records, or other informational spaces. For the handful of members who lacked an "issues" section entirely, alongside those who did not choose to address energy or environmental issues on their websites, it is not apparent whether or not they are willing to address "climate change" itself, renewable energy as a means of sustainable energy production, or what their preferences on mitigation policies are. Exploring other informational forums that portray representatives' stances would offer a more detailed understanding of how Republican senators feel about climate change, both by incorporating members who lack website information entirely, and by expanding upon environmental policy decisions and preferences stated in other spaces.

Future Research

These findings suggest that existing literature is correct in claiming Republicans are more accepting of climate change mitigation policies broadly, given senators' sweeping promotion of

renewable energy, which is closely aligned with public opinion favoring a transition of funding from fossil fuels to more sustainable energy sources (Leiserowitz 2006). As existing research also confirms, “climate change” itself is still highly politicized (Popovich, Albeck-Ripka, 2017). While conservative representatives are willing to support renewable energy production, it is not in reference to climate science. Rather, it is most frequently tied to job creation and economic stimulation – outcomes that are framed as being beneficial for everyone.

On the other hand, this inventory seems to differ from existing literature which claims that Republican acceptance of cap-and-trade policies, as well as support for market-based solutions in general, is increasing (Kukkonen, Ylä-Anttila, & Broadbent, 2017). No Republican senator explicitly supported cap-and-trade on their website. Rather, three members took a stand against this type of policy, and only one of those members offered support for “market-based” solutions. As an outlier, one other senator voiced support for a regulatory policy that resembles cap-and-trade. Further, all-of-the-above is focused on economic growth, international independence, and low-carbon energy. This approach seems to be framed in terms of broad support for technological advancements and new, cleaner sources of energy rather than for market-led, laissez faire solutions. With this discrepancy in understanding which types of policies Republicans actually favor, it would be beneficial to pursue research that surveys all representatives on current mitigation policy proposals. That is, given the ambiguity surrounding which types of mitigation techniques Republicans support, there is likely uncertainty about Democratic members’ true preferences for addressing climate change. Firstly, this study could be replicated for Democratic senators to better understand their mitigation policy preferences, and whether they diverge from what current literature suggests. Subsequently, collecting responses directly from both Republican and Democratic senators (perhaps by calling their offices) on

where they stand with specific versions of cap-and-trade, tax incentive programs, and other clean energy policies proposed under the 115th Congress would be more representative of the direction in which environmental policy is moving.

Takeaways for Policymakers

While there seems to be a consensus that Republicans are more accepting of climate science today than they were in previous decades, this study, along with others referenced in the literature review, portray the continued politicization of "climate change," as being unfavorable for Republicans (Popovich, Albeck-Ripka, 2017). However, this inventory depicts Republican senators as being in support of renewable energy, as well as the all-of-the-above approach, regardless of their states' renewable energy production levels or the perceived economic benefits to their home states. Knowing that addressing "climate change" is still not a favorable means of framing policies for Republicans, but that support for mitigation is clearly present (regardless of whether renewables seem profitable for a member's state), non-Republican policymakers should approach policy formation accordingly. That is, when drafting policy proposals, a focus on technological innovation to support energy development, alongside opportunities for economic growth and/or job creation that is favorable for everyone, will likely result in greater support from Republicans than any policy addressing "climate change" itself.

Appendix A:

Inventory of Republican Senators' Websites, in Alphabetical Order by State

States and Republican Senators	Use of "Climate Change"	Use of "energy"	Types of Mitigation / Protection Policies	Jobs / Economic Stimulation	Percentage of Renewables / State
Alabama - Richard Shelby [1]	No	Yes	"All-of-the-Above"	No	16.2
Alaska - Dan Sullivan [2]	No	Yes	N/A	Yes	0.8
Alaska - Lisa Murkowski [3]	Yes	Yes	"All-of-the-Above"	Yes	0.8
Arizona - Jeff Flake [4]	No	Yes	"All-of-the-Above"; NO cap/trade	Yes	15.5
Arizona - John McCain [5]	No	Yes	N/A	No	15.5
Arkansas - John Boozman [6]	No	Yes	"All-of-the-Above"	Yes	12.0
Arkansas - Tom Cotton [7]	No	No	N/A	-	12.0
Colorado - Cory Gardner [8]	No	Yes	"All-of-the-Above"	Yes	3.1
Florida - Marco Rubio [9]	No	No	N/A	-	41.0
Georgia - David Perdue [10]	No	No	N/A	-	36.4
Georgia - Johnny Isakson [11]	No	Yes	Regulatory (Clear Skies Act)	Yes	36.4
Idaho - James E. Risch [12]	No	Yes	N/A	Yes	100.0
Idaho - Mike Crapo [13]	No	Yes	N/A	Yes	100.0
Indiana - Todd Young [14]	No	No	N/A	-	15.8
Iowa - Chuck Grassley [15]	No	Yes	N/A	Yes	91.7
Iowa - Joni Ernst [16]	No	Yes	"All-of-the-Above"	Yes	91.7
Kansas - Jerry Moran [17]	No	Yes	N/A	No	11.2
Kansas - Pat Roberts [18]	No	Yes	N/A	No	11.2
Kentucky - Mitch McConnell [19]	No	Yes	N/A	No	2.4
Kentucky - Rand Paul [20]	No	No	N/A	-	2.4
Louisiana - Bill Cassidy [21]	No	Yes	N/A	Yes	1.5
Louisiana - John Kennedy [22]	No	No	N/A	-	1.5
Maine - Susan Collins [23]	No	Yes	N/A	Yes	100.0
Mississippi - Roger F. Wicker [24]	No	Yes	N/A	Yes	11.7
Mississippi - Thad Cochran [25]	No	Yes	Website broken; N/A	N/A	11.7
Missouri - Roy Blunt [26]	No	Yes	"All-of-the-Above"; NO cap/trade	Yes	42.3
Montana - Steve Daines [27]	No	Yes	"All-of-the-Above"	No	10.8
Nebraska - Ben Sasse [28]	No	No	N/A	-	61.1

***Senator Thad Cochran's website links are broken; while he has an issues section on "energy," it cannot be accessed**

States and Republican Senators	Use of "Climate Change"	Use of "energy"	Types of Mitigation / Protection Policies	Jobs / Economic Stimulation	Percentage of Renewables / State
Nebraska - Deb Fischer [29]	No	No	N/A	-	61.1
Nevada - Dean Heller [30]	No	Yes	N/A	Yes	94.7
North Carolina - Richard Burr [31]	No	No	N/A	-	25.7
North Carolina - Thom Tillis [32]	No	Yes	N/A	No	25.7
North Dakota - John Hoeven [33]	No	Yes	"All-of-the-Above"	Yes	8.1
Ohio - Rob Portman [34]	No	Yes	N/A	Yes	9.2
Oklahoma - James Inhofe [35]	No	Yes	"All-of-the-Above"	Yes	3.0
Oklahoma - James Lankford [36]	No	No	N/A	-	3.0
Pennsylvania - Patrick Toomey [37]	No	Yes	N/A	Yes	4.4
South Carolina - Lindsey Graham [38]	No	Yes	N/A	No	16.0
South Carolina - Tim Scott [39]	No	No	N/A	-	16.0
South Dakota - John Thune [40]	No	Yes	"All-of-the-Above"	Yes	93.9
South Dakota - Mike Rounds [41]	No	Yes	N/A	Yes	93.9
Tennessee - Alexander Lamar [42]	No	No	N/A	-	35.2
Tennessee - Bob Corker [43]	No	No	N/A	-	35.2
Texas - John Cornyn [44]	No	Yes	N/A	Yes	2.6
Texas - Ted Cruz [45]	No	Yes	N/A	Yes	2.6
Utah - Mike Lee [46]	No	No	N/A	-	1.5
Utah - Orrin G. Hatch [47]	No	Yes	N/A	Yes	1.5
West Virginia - Shelley Moore Capito [48]	No	Yes	"All-of-the-Above"	Yes	1.0
Wisconsin - Ron Johnson [49]	No	Yes	N/A	No	57.5
Wyoming - John Barrasso [50]	No	Yes	N/A	No	0.3
Wyoming - Michael B. Enzi [51]	Yes	Yes	Market-based; NO cap/trade	Yes	0.3

Appendix B:

(Table 1) Inventory of Republican Senators' Websites, in Ascending Order by % of Renewable Energy Production per State

States and Republican Senators	Use of "Climate Change"	Use of "energy"	Types of Mitigation / Protection Policies	Jobs / Economic Stimulation	Percentage of Renewables / State
Wyoming - John Barrasso [50]	No	Yes	N/A	No	0.3
Wyoming - Michael B. Enzi [51]	Yes	Yes	Market-based; NO cap/trade	Yes	0.3
Alaska - Dan Sullivan [2]	No	Yes	N/A	Yes	0.8
Alaska - Lisa Murkowski [3]	Yes	Yes	"All-of-the-Above"	Yes	0.8
West Virginia - Shelley Moore Capito [48]	No	Yes	"All-of-the-Above"	Yes	1.0
Louisiana - Bill Cassidy [21]	No	Yes	N/A	Yes	1.5
Louisiana - John Kennedy [22]	No	No	N/A	-	1.5
Utah - Mike Lee [46]	No	No	N/A	-	1.5
Utah - Orrin G. Hatch [47]	No	Yes	N/A	Yes	1.5
Kentucky - Mitch McConnell [19]	No	Yes	N/A	No	2.4
Kentucky - Rand Paul [20]	No	No	N/A	-	2.4
Texas - John Cornyn [44]	No	Yes	N/A	Yes	2.6
Texas - Ted Cruz [45]	No	Yes	N/A	Yes	2.6
Oklahoma - James Inhofe [35]	No	Yes	"All-of-the-Above"	Yes	3.0
Oklahoma - James Lankford [36]	No	No	N/A	-	3.0
Colorado - Cory Gardner [8]	No	Yes	"All-of-the-Above"	Yes	3.1
Pennsylvania - Patrick Toomey [37]	No	Yes	N/A	Yes	4.4
North Dakota - John Hoeven [33]	No	Yes	"All-of-the-Above"	Yes	8.1
Ohio - Rob Portman [34]	No	Yes	N/A	Yes	9.2
Montana - Steve Daines [27]	No	Yes	"All-of-the-Above"	No	10.8
Kansas - Jerry Moran [17]	No	Yes	N/A	No	11.2
Kansas - Pat Roberts [18]	No	Yes	N/A	No	11.2
Mississippi - Roger F. Wicker [24]	No	Yes	N/A	Yes	11.7
Mississippi - Thad Cochran [25]	No	Yes	Website broken; N/A	N/A	11.7
Arkansas - John Boozman [6]	No	Yes	"All-of-the-Above"	Yes	12.0
Arkansas - Tom Cotton [7]	No	No	N/A	-	12.0
Arizona - Jeff Flake [4]	No	Yes	"All-of-the-Above"; NO cap/trade	Yes	15.5
Arizona - John McCain [5]	No	Yes	N/A	No	15.5

***Senator Thad Cochran's website links are broken; while he has an issues section on "energy," it cannot be accessed**

States and Republican Senators	Use of "Climate Change"	Use of "energy"	Types of Mitigation / Protection Policies	Jobs / Economic Stimulation	Percentage of Renewables / State
Indiana - Todd Young [14]	No	No	N/A	-	15.8
South Carolina - Lindsey Graham [38]	No	Yes	N/A	No	16.0
South Carolina - Tim Scott [39]	No	No	N/A	-	16.0
Alabama - Richard Shelby [1]	No	Yes	"All-of-the-Above"	No	16.2
North Carolina - Richard Burr [31]	No	No	N/A	-	25.7
North Carolina - Thom Tillis [32]	No	Yes	N/A	No	25.7
Tennessee - Alexander Lamar [42]	No	No	N/A	-	35.2
Tennessee - Bob Corker [43]	No	No	N/A	-	35.2
Georgia - David Perdue [10]	No	No	N/A	-	36.4
Georgia - Johnny Isakson [11]	No	Yes	Regulatory (Clear Skies Act)	Yes	36.4
Florida - Marco Rubio [9]	No	No	N/A	-	41.0
Missouri - Roy Blunt [26]	No	Yes	"All-of-the-Above"; NO cap/trade	Yes	42.3
Wisconsin - Ron Johnson [49]	No	Yes	N/A	No	57.5
Nebraska - Ben Sasse [28]	No	No	N/A	-	61.1
Nebraska - Deb Fischer [29]	No	No	N/A	-	61.1
Iowa - Chuck Grassley [15]	No	Yes	N/A	Yes	91.7
Iowa - Joni Ernst [16]	No	Yes	"All-of-the-Above"	Yes	91.7
South Dakota - John Thune [40]	No	Yes	"All-of-the-Above"	Yes	93.9
South Dakota - Mike Rounds [41]	No	Yes	N/A	Yes	93.9
Nevada - Dean Heller [30]	No	Yes	N/A	Yes	94.7
Idaho - James E. Risch [12]	No	Yes	N/A	Yes	100.0
Idaho - Mike Crapo [13]	No	Yes	N/A	Yes	100.0
Maine - Susan Collins [23]	No	Yes	N/A	Yes	100.0

Bibliography

BBC News. A Brief History of Climate Change. (2013, September 20). *BBC.* Retrieved from http://www.bbc.com/news/science-environment-15874560

Bird, Lori. Bolinger, Mark. Brown, Matthew. Gagliano, Troy. Parsons, Brian. Wiser, Ryan. (2005) "Policies and market factors driving wind power development in the United States." *Energy Policy.* https://ac-els-cdn-com.proxy.lib.umich.edu/S0301421503003835/1-s2.0-S0301421503003835-main.pdf?_tid=c737d967-ee3b-4ba5-b88d-5978b54d6c6b&acdnat=1520865358_61878872a88425d5935e1cefeb675904

Davenport, Coral. Lipton, Eric. (2017, June 3) How G.O.P. Leaders Came to View Climate Change as Fake Science. *New York Times.* Retrieved from https://www.nytimes.com/2017/06/03/us/politics/republican-leaders-climate-change.html

Dietz, Thomas. Dan, Amy. Shwom, Rachael. (2009). Support for Climate Change Policy: Social Psychological and Social Structural Influences. *Rural Sociology*. http://onlinelibrary.wiley.com/doi/10.1526/003601107781170026/full

Furman, Jason. Stock, Jim. (2014). New Report: The All-of-the-Above Energy Strategy as a Path to Sustainable Economic Growth. *The White House, President Barack Obama.* Retrieved from https://obamawhitehouse.archives.gov/blog/2014/05/29/new-report-all-above-energy-strategy-path-sustainable-economic-growth

House Committee on Natural Resources. (2018). All-of-the-Above Energy Approach. *House Committee on Natural Resources.* Retrieved from https://naturalresources.house.gov/energy/

Kukkonen, A. Ylä-Anttila, T. and Broadbent, J. (2017) Advocacy coalitions, beliefs and climate change policy in the United States. *Public Administration*. https://doi-org.proxy.lib.umich.edu/10.1111/padm.12321

Leiserowitz, Anthony. (2006). Climate Change Risk Perception and Policy Preferences: The Role of Affect, Imagery, and Values. *Springer.* https://link-springer-com.proxy.lib.umich.edu/article/10.1007%2Fs10584-006-9059-9

McCright, Aaron M. Marquart-Pyatt, Sandra T. Shwom, Rachael L. Brechin, Steven R. Allen, Summer. (2016) Ideology, Capitalism, and Climate: Explaining Public Views about Climate Change in the United States. *Energy Research & Social Science*. www.sciencedirect.com/science/article/pii/S2214629616301864?via%3Dihubandhttps%3A%2F%2Flink.springer.com%2Farticle%2F10.1007%2Fs10018-016-0144-7.

Peterson, Thomas. Rose, Adam. (2006) Reducing Conflicts between Climate Policy and Energy Policy in the US: The Important Role of the States. *Energy Policy*. www.sciencedirect.com/science/article/pii/S0301421505003162.

Popovich, Nadja. Albeck-Ripka, Livia. (2017, December 14). How Republicans Think about Climate Change – in Maps. *New York Times.* Retrieved from https://www.nytimes.com/interactive/2017/12/14/climate/republicans-global-warming-maps.html

US Department of Energy. (2018) Renewable Energy Production by State. *US Department of Energy.* Retrieved from https://www.energy.gov/maps/renewable-energy-production-state

Worland, Justin. (2017, July 27). Climate Change Used to Be a Bipartisan Issue. Here's What Changed. *TIME*. Retrieved from http://time.com/4874888/climate-change-politics-history/

Bibliography of Senators' Websites

[1] Shelby: https://www.shelby.senate.gov/public/index.cfm/legislativeissues
[2] Sullivan: https://www.sullivan.senate.gov/about/bio
[3] Murkowski: https://www.murkowski.senate.gov/issues/issues-and-priorities
[4] Flake: https://www.flake.senate.gov/public/index.cfm/issues
[5] McCain: https://www.mccain.senate.gov/public/?p=energy-water-and-environment
[6] Boozman: https://www.boozman.senate.gov/public/index.cfm/energy_1
[7] Cotton: https://www.cotton.senate.gov/
[8] Gardner: https://www.gardner.senate.gov/about-cory/issues/energy-and-the-environment
[9] Rubio: https://www.rubio.senate.gov/public/index.cfm/
[10] Perdue: https://www.perdue.senate.gov/about/priorities
[11] Isakson: https://www.isakson.senate.gov/public/index.cfm/environment
[12] Risch: https://www.risch.senate.gov/public/index.cfm/issueslegislation?p=Issues
[13] Crapo: https://www.crapo.senate.gov/issues
[14] Young: https://www.young.senate.gov/help
[15] Grassley: https://www.grassley.senate.gov/issues
[16] Ernst: https://www.ernst.senate.gov/public/index.cfm/key-issues?p=energy-and-environment
[17] Moran: https://www.moran.senate.gov/public/index.cfm/issues?p=energy
[18] Roberts: https://www.roberts.senate.gov/public/index.cfm?p=IssueStatements
[19] McConnell: https://www.mcconnell.senate.gov/public/index.cfm/issues
[20] Paul: https://www.paul.senate.gov/
[21] Cassidy: https://www.cassidy.senate.gov/priorities/issues/energy-and-natural-resources
[22] Kennedy: https://www.kennedy.senate.gov/public/
[23] Collins: https://www.collins.senate.gov/issues/environment
[24] Wicker: https://www.wicker.senate.gov/public/index.cfm/issues
[25] Cochran: https://www.cochran.senate.gov/public/index.cfm/key-issues?p=energy-enviroment
[26] Blunt: https://www.blunt.senate.gov/public/index.cfm/expand-american-energy
[27] Daines: https://www.daines.senate.gov/meet-steve/legislative-issues/energy-natural-resources-and-public-lands
[28] Sasse: https://www.sasse.senate.gov/public/index.cfm/issues
[29] Fischer: https://www.fischer.senate.gov/public/index.cfm/priorities
[30] Heller: https://www.heller.senate.gov/public/index.cfm/energy
[31] Burr: https://www.burr.senate.gov/issues

[32] Tillis: https://www.tillis.senate.gov/public/index.cfm/key-issues
[33] Hoeven: https://www.hoeven.senate.gov/issues/energy
[34] Portman: https://www.portman.senate.gov/public/index.cfm/energy
[35] Inhofe: https://www.inhofe.senate.gov/issues/energy-environment
[36] Lankford: https://www.lankford.senate.gov/issues
[37] Toomey: https://www.toomey.senate.gov/?p=issue&id=36
[38] Graham: https://www.lgraham.senate.gov/public/index.cfm/key-issues
[39] Scott: https://www.scott.senate.gov/about/biography
[40] Thune: https://www.thune.senate.gov/public/index.cfm/solutions
[41] Rounds: https://www.rounds.senate.gov/issues
[42] Lamar: https://www.alexander.senate.gov/public/index.cfm/
[43] Corker: https://www.corker.senate.gov/public/
[44] Cornyn: https://www.cornyn.senate.gov/issues
[45] Cruz: https://www.tedcruz.org/proven-leader/limiting-washingtons-power/
[46] Lee: https://www.lee.senate.gov/public/index.cfm/issues
[47] Hatch: https://www.hatch.senate.gov/public/index.cfm/energy-and-natural-resources
[48] Moore Capito: https://www.capito.senate.gov/about/issues
[49] Johnson: https://www.ronjohnson.senate.gov/public/index.cfm/agriculture
[50] Barrasso: https://www.epw.senate.gov/public/
[51] Enzi: https://www.enzi.senate.gov/public/index.cfm/issue-statements