

CLIMATE POLYCENTRICITY BY SUBNATIONAL U.S. ACTORS:
THREE LENSES TO EXAMINE EFFICACY & IMPACT

by

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by

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Over the past several decades the United States has struggled to form a durable, comprehensive federal policy response to manage the climate change risks that come with greenhouse gas emissions. More recently, the country drew international attention with President Trump's announcement of his intentions to withdraw the nation from the Paris Agreement as soon as the accord allows. Within political science, there is one main theoretical framework advanced to explain why the world's largest historical greenhouse gas polluter has no unified plan for achieving emissions reductions – the challenge of collective action (Olson, 1965). However, beyond collective action one additional framework that this dissertation will explore is through the lens provided by polycentricity. Advanced in the 1960s by the Ostroms, polycentricity scholars have historically been interested in exploring how decentralized forms of coordination emerged and could compete, learn from, and coexist together and still function as a complex, nested system. They also advanced initial considerations for why such a governance approach could rival unified systems – in terms of efficiency, political representation, and local self-determination (Ostrom, 1961). This dissertation applies such a lens to the larger climate change

oriented policymaking space within the United States through three chapters explored further below.

Chapter 2 provides an examination of key environmental policies (i.e. renewable portfolio standards, regional cap-and-trade agreements, energy efficiency standards, hybrid electric vehicle incentives, etc.) along with historical inventories of state-level environmental policies and roll calls in related U.S. House votes to extend such programs nationally. Initial findings suggest in most scenarios, both Democratic and Republican members of the U.S. House were much more likely, even after controlling for ideology, to vote in favor of increasing environmental regulations if their home state had already enacted a similar policy. These findings are grounds for additional theoretical influences to add to the list of what may contribute to strategic decision-making behind Congressional votes and the implications for interest groups and other state policies are explored.

Chapter 3 utilizes the Advocacy Coalition Framework to examine the impact of coalitions and policy entrepreneurs in the policymaking process of originating carbon pricing policy outputs at the state-level in the United States. In an attempt to manage the considerable potential risks, an increasing diversity of state-level governments have adopted climate oriented policy, but there has been limited political economic theory and explanation offered in describing the role that advocacy coalitions and campaign strategies have played within the policymaking process leading to the actual variation seen at the subnational level in the United States (Rabe, 2018). This chapter provides both theoretical and empirical contributions to research on state-level climate change policy initiatives through its longitudinal focus on comparative case studies of U.S. state policy initiatives, including the pursuant policy entrepreneurship and coalition-

building, using the Advocacy Coalition Framework (Sabatier, 2013) to assess the impacts of key political, economic, and demographic variables on the design and outcome of these initiatives. Chapter 4 examines the adoption rate for Leadership in Energy and Environmental Design – Neighborhood Development (LEED-ND) projects across the United States. Local governments and developers face variation in the incentives and barriers while implementing LEED-ND projects across four key dimensions – economic, policy, public awareness, and organization and this chapter investigates the drivers of variation using a mixed-methods approach including a two-stage Heckman model, a survey of Texas subdivision developers and interviews with local planning officials. Results indicate that initial public funding may lead to more LEED-ND projects being completed, but with a diminishing return as these projects become established within the region. Support for local programs including tax abatement, public-private partnerships, and other incentives were also demonstrated to help facilitate LEED-ND project adoption. Overall this chapter underscores the important role, especially early on, the public sector and local governments play in initiating local LEED-ND projects to inform and motivate the land development industry.

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CHAPTER 1

INTRODUCTION

1.1 Preamble

Over the past several decades the United States has struggled to form a durable, comprehensive federal policy response to manage the climate change risks that come with continuing to emit greenhouse gases at a rate that exceeds our natural environment's ability to reabsorb them. More recently, the country drew international attention with President Trump's announcement of his intentions to withdraw the nation from the Paris Agreement as soon as the accord allows. Within political science, one main theoretical framework has been advanced to explain why the world's largest historical greenhouse gas polluter has no unified plan for achieving emissions reductions – the challenge of collective action (Olson, 1965). As Victor stated in 2001, after diagnosing the failure of the Kyoto Protocol, our global society “would benefit from collective action, but cooperation fails because each member is individually better off by defection” (p. 47). Ongoing scholarship since has emphasized collective action principles (i.e. understanding non-cooperation through rational choice theory, game theory, etc.) as the primary lens through understanding our climate governance framework (Cole, 2008; Sandler, 2004; Brennan, 2009).

1.1.1 Polycentricity Defined

As a framework focused largely on the international level of governance there were additional details waiting to be filled in (Gordon, 2015; Newell, Pizer, & Raimi, 2013; Symons

& Karlsson, 2015). One such approach came in 2009, when Ostrom proposed a lens of polycentricity through which to understand the complexity of effective policy design to address managing greenhouse gas emissions driving climate change. Ostrom argued that because actors at many levels of society generate carbon dioxide and other greenhouse gas emissions, the importance of finding ways to incentivize reductions at multiple scales is essential beyond exclusively focusing on the global level. Ostrom went on to highlight empirical research (Poteete et al., 2010) that examined various scales found that “while large-scale units were part of effective governance of metropolitan areas, small- and medium-scale units were also necessary components” (p.552). Thus, even though climate change will lead to impacts on the global level, focusing on just a single unit of governance for policy formation towards a collective action response was not effective in and of itself. Put more plainly, in an interview Ostrom explained that “society is complex, people are complex and for us to have [only] simple solutions to complex problems is not a good idea” (Big Think, 2009).

The concept of polycentricity was originally defined in 1961 as a term that “connotes many centers of decision-making which are formally independent of each other” in Ostrom et al.’s work exploring the interaction of metropolitan governments (p. 831). In other words, compared to a single unitary unit of analysis, polycentrism examines systems that contain multiple market and governing authorities within varying scales of governance (Ostrom, 2010). Ostrom et al. were interested in exploring how decentralized forms of coordination emerged and could compete, learn from, and coexist together and still function as a complex, nested system. Ostrom (1961) also advanced initial considerations for why such a governance approach could rival unified systems – in terms of efficiency, political representation, and local self-determination.

Polycentricity asked the essential question: given there are plenty of subnational actors also creating policies to address the threat of climate change and the challenge of reducing emissions, why not study them? “Doing nothing until a global treaty is negotiated maximizes the risk involved for everyone” Ostrom argued. “Rather than only a global effort, it would be better to self-consciously adopt a polycentric approach to the problem of climate change in order to gain benefits at multiple scales as well as to encourage experimentation and learning from diverse policies adopted at multiple scales” (Ostrom, 2010, p. 556). Ostrom further defined polycentric systems as having numerous governing authorities on multiple levels rather than a single, monocentric authority. In Ostrom’s view, “each unit with a polycentric system exercises considerable independence to make norms and rules within a specific domain” from the firm or local government level all the way to a state, regional, or even international government (2010, p. 552). Utilizing a polycentric lens goes beyond simply diagnosing an overall policymaking space as complex or multi-level. Instead, it encourages researchers to pursue a holistic perspective that encourages a more deeply embedded view of the interaction between any policy system’s component parts (Jordan et al., 2018).

Ostrom’s advancement of considering the polycentric framework to enhance the understanding behind the scope and effectiveness of climate governance stemmed from her Nobel Prize-winning economics research in understanding the design principles behind common-pool resource groups. Ostrom’s research found that “when individuals are well informed about the problem they face and about who else is involved, and can build settings where trust and reciprocity can emerge, grow, and be sustained over time, costly and positive actions are frequently taken without waiting for an external authority to impose rules, monitor compliance,

and assess penalties” (Ostrom, 2010, p. 555). While Ostrom didn’t live to see it, this transition from focusing primarily on unitary state actors to a more polycentric approach to empowering individual countries “was further reflected in the December 2015 Paris climate accords, which supplanted the Kyoto [Protocol’s] quest for the ‘one best system’ of an international treaty in favor of a more loosely structured set of national emission reduction pledges” (Rabe, 2018, p. 204).

Polycentricity in turn directly conflicts with earlier international climate regime research that focused on exploring why actions taken to minimize a mutual threat were unlikely to occur without a framework that was externally enforced. Instead, Ostrom’s body of commons research focused on how both trust and local self-determination can play a transformative role in maximizing the local positive externalities from any climate policy proposed. Her research repeatedly found that people and local communities found ways of agreeing on rules without the imposition of an external authority alone. In other words, “a combination of structural features leads many of those affected to trust one another and to be willing to take an agreed-upon action that adds to their own short-term costs because they do see a long-term benefit for themselves and others and they believe that most others are complying” (p. 551). Given that so many of the benefits can be achieved at a finer grain level with mayors, local and state leaders and households “enhancing their knowledge of policies they can adopt and how linking with others increases the benefits and impact of their actions” (Big Think, 2009).

Polycentricity as a theory and body of work should not be thought of as the definitive answer to all of the challenges that waylaid effective international and subnational action on climate change. “Self-organized, polycentric systems are not a panacea,” Ostrom wrote,

highlighting that similar to any evolving school of thought, polycentric theory faces its own set of legitimate weaknesses in conceptualizing climate governance (2010, p. 555). Limitations include the potential for leakage (emission reductions being shifted between locations or outside the overall market), free-riding, inconsistent standards behind policy and inadequate certification, and gaming the system (Fischer & Fox, 2012). Of note, it would be difficult to isolate whether any of these would happen more or less in polycentric approaches when compared to global collective action systems.

Nevertheless, Ostrom goes on to acknowledge that while no governance system is a perfect fit, polycentric systems feature strengths including the ability to “enhance innovation, learning, adaptation, trustworthiness, levels of cooperation of participants, and the achievement of more effective, equitable, and sustainable outcomes at multiple scales” (2010, p. 552). These benefits are highlighted as providing opportunities for all levels of government to be involved in addressing climate change and encouraging experimental efforts at many levels – from the micro to the macro level. These approaches also foster conditions for the development of methods for mutual monitoring and assessing policy costs and benefits from one area to inform the development and creation in other domains.

Building on the conceptual foundation the Ostroms provided, climate governance scholars like Jordan et al. (2018), argue that polycentric theory offers five preposition (local action, mutual adjustment, trust, experimentation, and overarching rules) for understanding how subnational levels of government may benefit from their own agency in responding to climate change with policy creation. These prepositions are highlighted below in Table 1 along with the extension to their scope of coverage in the dissertation.

Table 1. Polycentric Prepositions and Connections to Dissertation Research

(adapted from Jordan et al., 2017)

Polycentric Preposition	Key Connection to Dissertation Research
Local Action: <i>“Governance initiatives are likely to take off at a local level through processes of self- organization” (Jordan et al., 2018, p. 15)</i>	How have local governments adopted and incentivized greenhouse gas reduction and sustainable design in their own state-level coalition formation and local neighborhood development?
Mutual Adjustment: <i>“Constituent units are likely to spontaneously develop collaborations with one another, producing more trusting interrelationships” (Jordan et al., 2018, p. 18).</i>	What has been the process by which neighboring states and federal votes adapt to what first-mover states initiate?
Trust: <i>“Trust is likely to build up more quickly when units are able to self-organize, thus increasing collective ambitions.” (Jordan et al., 2018, p. 19).</i>	How have state-level and local initiatives increased levels of trust in their own policymaking and coalition building to further increase the chances of policy adoption?
Experimentation: <i>“The willingness and capacity to experiment is likely to facilitate governance innovation and learning about what works.” (Jordan et al., 2018, p. 21).</i>	How has policy experimentation lead to other states and federal votes further implementing initial policy adoption at the state-level?
Overarching Rules: <i>“Local initiatives are likely to work best when they are bound by a set of overarching rules that enshrine the goals to be achieved and/or allow conflicts to be resolved.” (Jordan et al., 2018, p. 23).</i>	How do individual state-level policies influence and interact with overlapping federal and state-specific policy layering and initiate additional support for expanding adoption?

As the international climate regime has evolved, scholars that have taken Ostrom's original ideas about applying the polycentric framework to understanding and analyzing the ongoing policy evolution of the policymaking have largely asked four questions:

- “1. How polycentric is climate governance [after the 2015 Paris Agreement?]...
2. When, how, and why has climate governance become more polycentric?...
3. What are the implications of greater polycentricity [for successful outcomes in climate] governance? [(i.e. decarbonization, technology transfer, adaptation, etc.)]...
4. What is the most salient purpose of the emerging framework of polycentric governance?” (Jordan et al., 2018, p. 28).

On the fourth question, while Ostrom (2010) was confident that such a framework could provide three interlocking purposes (describing, explaining, and prescribing) this dissertation is oriented around a descriptive and explanatory purpose framework specifically exploring what happens when U.S. federal-level policymaking to address a rising global issue (i.e. climate change) is unable to move forward? The following chapters incorporate polycentricity to focus on the tensions of federalism and subnational leadership in environmental policy experimentation when no over-arching national policy has been provided.

1.2 Three Chapter Framework

This dissertation is motivated to develop and provide a deeper examination of key dynamics in how North American subnational governments are advancing significant policy solutions pertaining to addressing climate change. This line of research will highlight three different frameworks that subnational actors are taking in climate policy leadership (Masoodi, 2016). Each chapter explores a specific lens and level of examination (state-federal interactions,

state-level coalitions, and local sustainable development) that when taken together provide a larger body of literature that may be of use to both state and local policymakers along with political science and public policy scholars for further exploration. By providing historical context, highlighting strengths and limitations of each dynamic, and using a variety of new methodological approaches, the following three chapters outline distinct levels of policy diffusion to examine the dynamics of these subnational levels of government approaches to filling the policymaking void absent federal leadership. Starting with the macro-level, Chapter 2's level of analysis focuses on state-to-federal policy interactions; Chapter 3 drills down into the meso-level of specific state-level interactions between lawmakers and coalitions; and Chapter 4 approaches the micro-level, examining city-level policies. While there are many important actors, three of them described below—U.S. members of Congress, subnational (state) coalition leaders, and local land developers—feature as the primary actor in one of the chapters and possess the authority to choose whether to pursue any of the climate-oriented policies being studied.

2.2.1 Chapter 2: How Do State-Level Environmental Policies Impact the Voting Behavior of National Legislators?

Chapter 2 provides an examination of key environmental policies (i.e. renewable portfolio standards, regional cap-and-trade agreements, energy efficiency standards, hybrid electric vehicle incentives, etc.) along with historical inventories of state-level environmental policies and roll calls in related U.S. House votes to extend such programs nationally. Initial findings suggest in most scenarios, even after controlling for ideology, both Democratic and Republican members of the U.S. House were much more likely to vote in favor of increasing

environmental regulations if their home state had already enacted a similar policy. These findings are grounds for additional theoretical influences to add to the list of what may contribute to strategic decision-making behind Congressional votes and the implications for interest groups and other state policies are explored.

2.2.3 Chapter 3: Do Advocates Matter? State-Level Actors In Pursuit Of Climate Policies Addressing Market Failure.

Chapter 3 utilizes the Advocacy Coalition Framework to examine the impact that coalitions and policy entrepreneurs contribute to the policymaking process of designing and implementing carbon pricing policy outputs at the state-level in the United States. In an attempt to manage the considerable potential risks, an increasing diversity of state-level governments have elected to respond to the main driver behind climate change—greenhouse gas (GHG) emissions—through policies that create *disincentives* for the production and usage of carbon-based fuels (Carbon Pricing Institute, 2015; Renn, & Schweizer, 2009). The literature has provided a wealth of descriptive writing on the variation within the world’s current carbon pricing policies (both implemented and in design), but there has been limited political economic theory offered in describing the role that advocacy coalitions and campaign strategies have played within the policymaking process leading to the variation seen at the subnational level in the United States (Rabe, 2018). A cohesive literature is missing that connects the dynamics of policy entrepreneurship and coalition-building and how they have influenced and shaped state-level initiatives (Lieberink & Wurzel, 2017). This chapter provides both theoretical and empirical contributions to research on state-level carbon pricing initiatives through its

longitudinal focus on comparative case studies of U.S. state policy initiatives using the Advocacy Coalition Framework (Sabatier, 2013) to assess the impacts of key political, economic, and social/demographic, variables on the outcome of these initiatives as well as their proposed carbon pricing policy design.

2.2.2 Chapter 4: Barriers And Incentives For Sustainable Urban Development: An Analysis Of The Adoption Of LEED-ND Projects

Chapter 4 examines the adoption rate for Leadership in Energy and Environmental Design – Neighborhood Development (LEED-ND) projects as it has varied considerably across the United States. Local governments and developers also face variation in the incentives and barriers while implementing LEED-ND projects across four key dimensions – economic, policy, public awareness, and organizational. This chapter investigated the drivers of variation using a mixed-methods approach including a two-stage Heckman model, a survey of Texas subdivision developers and interviews with local planning officials. Results indicate that initial public funding may lead to more LEED-ND projects being completed, but with a diminishing return as these projects become established within the region. Support for local programs including tax abatement, public-private partnerships, and other incentives were also demonstrated to help facilitate LEED-ND project adoption. Overall this chapter underscored the important role, especially early on, the public sector and local governments play in initiating local LEED-ND projects to inform and motivate the land development industry.

1.3 Final Thoughts

The approaches explored in the next three chapters provide a means of establishing a trajectory for individual subnational units that when combined effectively contribute to the U.S. commitments towards emissions reductions consistent with scientists' agreement of limiting warming globally to well below the 2 degrees, if not 1.5 degrees, Celsius objective. As the ensuing background research will highlight, these approaches can strengthen all levels of government by providing economic incentives, local action, trust, and experimentation. Further polycentricity oriented research directed towards examining climate change policy provides important contributions to the larger political science and public policy literature. It elevates the roles that subnational actors are currently playing in the design, implementation, and diffusion of interlocking climate policies. When coordinated and integrated across multiple levels, the policies explored in the following chapters have the potential to help facilitate effective experimentation and rulemaking by establishing trust, local decision-making and new means for comparative commitments on both the national and international levels.

CHAPTER 2

HOW DO STATE-LEVEL ENVIRONMENTAL POLICIES IMPACT THE VOTING BEHAVIOR OF NATIONAL LEGISLATORS?

Two of the four case studies (Renewable Portfolio Standards and Cap & Trade) in this chapter along with the subsequent data analysis originally appeared in “How Do State-Level Environmental Policies Impact the Voting Behavior of National Legislators?,” Thomas L. Brunell, Brett Cease, (2018) *Social Science Quarterly*, Volume 100, Issue 1, pp. 289-306, and is reproduced by permission of Wiley Online Library. © 2018 by the Southwestern Social Science Association. The majority of the writing was performed by Brett W. Cease, with the original idea, model set-up, edits and feedback provided by Dr. Thomas Brunell.

2.1 Introduction

In 2007 (Amendment 6 of HR 3221) and 2009 (HR 2454) key votes passed the House of Representatives due to conservative Republicans joining with a majority of Democrats to support policies that would have broadly extended the role of the federal government in promoting renewable energy. In turn, with both these votes as well as others like H.R. 2534 in 2007 (the HOPE VI Improvement and Reauthorization Act) and H.R. 5351 in 2008 (the Renewable Energy and Energy Conservation Tax Act), Democrats also voted against the majority of their party’s leadership against any of these bills passing. Why did Congressional members, when considering their vote on any of these bills, vote against the majority of their party’s interests?

What should a classically conservative, anti-regulation member of Congress do if their home state has already passed such legislation? Typically, those against regulation in a federal

system like America's argue that increasing regulations or expenditures puts their state at a competitive disadvantage for industry and could encourage current firms to move out of the state and/or discourage other firms from moving into that state. Observing that in the past twenty years, nearly every Republican member of Congress has professed against expanding federal requirements related to renewable energy, a puzzle emerges as to why the votes studied below attracted some Republican supporters while detracting other Democrats.

One area within Congressional voting behavior studies with limited coverage is the exploration of the competing tension that members of Congress face when policies enacted in their home state affect their decision making on related national legislation. This chapter explores this tension specifically within the environmental policy realm of four votes in the U.S. House of Representatives to increase environmental regulations nationwide – renewable portfolio standards, cap-and-trade, green building standards, and hybrid electric vehicle incentives. In each of these cases, roughly half of U.S. states had already enacted related state-level policies at the time the Congressional vote studied came up to federalize approaches.

This chapter explores the voting decisions made by some Republicans (as well as Democrats) in states that already have a state-level environmental policy and who would otherwise oppose such a policy to strategically vote for such policies on the federal level. A Democrat whose home state has adopted a significant environmental policy (such as renewable portfolio standards or a state/regional cap-and-trade program) may be incentivized to vote in favor of extending such a policy nationally to extend the perceived benefits beyond their own domain or may also experience additional pressure to vote in support due to a larger coalition of home-state actors supportive of the policy. A Republican member of Congress whose home state

has adopted significant environmental regulatory policies may think that this puts his or her home state at a competitive disadvantage relative to other states that have not stipulated policies to shift some portion of their energy production towards renewable energy sources. Since federal legislators can do little to change policies of their own state, they can “level the playing field” (Shipan & Volden, 2006) by helping to enact federal policies with such requirements, thus removing this competitive disadvantage at the state-level. While a countervailing argument might highlight that enacting such federal legislation might place the entire country at a competitive disadvantage to other countries, since members of Congress are representing their own individual district or state within the union, they are incentivized to vote for what is best for their own, more narrow constituency.

This underlying dynamic in our system of federalism has important implications for interest group strategies as well. Scholars have highlighted the importance of understanding the relationship between federal and state policymaking as evolving and in need of additional study, especially in the environmental arena in terms of policy layering and expansion/dismantling (Eccleston & Krever, 2017; Wellstead, 2018). Others scholars contend that “American states have proven to be more resourceful than the federal government” in some policy arenas while other areas like environmental protection may see the need to expand the role of the federal government given the current dynamic of it largely delegating to the states (Shin, 2018, p. 316). As a result, if an interest group is facing a hostile majority in Congress that opposes a new regulatory approach they have proposed, this group could find traction (explored further in Chapter Three) to start advancing their proposal at the state-level. Such an approach would have a built-in multiplier effect, especially if it targeted large states such as New York, California, and

Illinois, which have been traditionally controlled by Democrats but still possess numerous federal Republican legislators. Through this approach, if such a group is able to pass state-level policies in larger states, not only would there then be significant policy momentum to move towards a national level but now they have also created significant incentives for more traditionally conservative members of the U.S. House and Senate to vote for a similar national policy. The mutual adjustment between the states' autonomy to innovate and create policies more closely matched to their constituents' interests and the process of federal preemption in Congress (responding to state and local policy adoption) has been examined by scholars including Teske (2005) and found to have equilibrating effects and create unanticipated political bedfellows, including the potential for Baptist and bootlegger coalitions (Stokes & Breetz, 2018). Derived from earlier economic theory, at times what creates the conditions for new regulatory policy to find the support needed for passage and adoption – is whether these types of coalitions, formed of members with usually opposing views, can establish overarching rules to align their advocacy efforts and become more likely to succeed than those coalitions with only one-sided approaches (Kahn, 1988). As a result, due to a process discussed further below, a group may be able to manufacture a bipartisan majority coalition that favors the national law, albeit for different reasons.

2.2 Theory

What factors affect how members of Congress vote? Understanding such a dynamic has long been of interest to political scientists who study legislatures. Through the years a veritable laundry list of dynamics and institutions have been found to impact a legislator's vote, including

their ideology, constituency preferences, party leaders, the President, public opinion, colleagues, gender, log rolling, interest groups, lobbying, campaign contributions, the salience of issues, upcoming elections, and committee preferences (Dumas, 2016; Stratmann, 1992). A concise exploration of the literature for many of these factors is provided below.

As politicians have the natural motivation to want to remain in office, constituency preferences have been found to be a primary source of influence on how members of Congress vote (Kingdon 1989; Canes-Wrong, Brady, and Cogan 2002). Bishin (2000) found that not only overall constituency preferences, but also the specific ideology and economic priorities of subconstituencies were significant influences on roll-call votes for Congressional legislators. While not examining their interaction with federal policy adoption, List & Sturm (2006) found that when politicians no longer face election, state-level environmental policies are advanced less by governors with broad constituent support and counterintuitively more often by governors in states without broader constituent support, highlighting the role of electoral incentives in adopting significant state-level environmental policy.

Classically, ideology has been the best predictor of a member's disposition towards most legislation. In examining the overlapping influences of national party line, voter preference, and ideology in predicting votes in the Senate, Levitt (1996) found ideology to be the largest determinant. In the modern era, this ideological space has often narrowed to just a single left-right dimension (Poole and Rosenthal, 1991). This dimension is the liberalism - conservatism spectrum and is defined largely by how one views the role and scope of the government in citizens' lives. While Poole and Rosenthal's work on analyzing data through legislative roll calls highlighted that there is at times a second dimension that also cuts across traditional party lines,

studies have highlighted that most of the variation in Congressional vote patterns can be explained along this traditional dimension (Poole and Rosenthal, 2007).

Kingdon (1989) demonstrates how the saliency of an issue can impact how a member votes as well. The higher the saliency of an issue among her or his constituents, the more likely a congressperson is to vote with the preferences of his or her district. Research studies have established a broad variety of influencing factors, most of which are yet to be fully explored. For example, gender plays a role in defining the voting behavior of congresspersons. Swers (1998) found that “while ideology is the strongest predictor of voting on women’s issues, congresswomen are more likely to vote for women’s issue bills than are their male colleagues even when one controls for ideological, partisan, and district factors” (p. 446). Researchers have also explored the limits of partisan influence on public policy and have traditionally found that the type of democracy (majoritarian vs. consensus) greatly influences the context within which parties can influence public policy, with the former demonstrating larger partisan effects (Schmidt, 1996).

In short, there are many competing forces at work that can condition a vote by a member of Congress. This chapter identifies an additional factor – state-level environmental policy – one that has not been thoroughly explored. It proposes that when Congress is considering a policy that has various levels of adoption back home in legislators’ states, whether or not a Member of Congress hails from a state with a similar policy in place or not will affect how he or she votes on the floor.

In studying the diffusion of policies in American politics, much of the research has examined horizontal diffusion – where states, typically neighboring states, adopt similar policies

(Berry and Berry 1990; Gray 1973; Walker 1969). This chapter is interested in the effects of state-level policies on the voting behavior at the federal level – which is related to vertical policy diffusion. This chapter is also less interested in how the process of policy diffusion and more focused on examining how specific state-level policy impact the voting behavior of federal legislators. Other social scientists have found evidence for the vertical diffusion dynamic at work in American politics. For instance, using private interviews with federal lawmakers and their staff, Mossberger (1999) found that state-level policy experimentation did influence a national response to economic policy, though the specific details on how this occurred were diffuse. Rather than specifically borrowing a policy from one state or another, Mossberger found that policymakers possessed a broader awareness of similar policies at the state-level and their relative effectiveness to craft their own response. Fiscal federalism scholars have also highlighted a vertical diffusion dynamic at work via state-level programs providing models for federal policy to learn from, including “the experience in a number of states with their own forms of Emissions Trading [being] an important prelude to the adoption, in the 1990 Clean Air Act Amendments, of a national trading program in sulfur allowances to address the problem of acid rain” (Oates, 1999, p. 1132). Oates contends that “without this experience in a number of states, I seriously doubt that policy-makers would have been willing to introduce such a new and unfamiliar policy measure as tradeable emissions rights on a national scale” (p. 1132).

Shipan and Volden (2006) also highlighted the dynamic of vertical policy diffusion via local-level policy impacting state-level adoption as well national-level policy diffusion impacting state-level adoption. A state response can arise out of effective local/national responses alleviating the pressure to respond or economic incentives to coerce attention to the issue.

However, while these and many other studies examine the interaction between policymaking formulation across the levels of government, they do not factor in the unidimensional dynamic of how state-level policy may pressure federal voting members.

The smaller pool of studies interested in this specific kind of state-federal dynamic are not only interested in the state-federal formulation process, but whether the innovations that state governments implement hold political influence in a federal system and legislators' votes on related topics. Boeckelman (1992, p. 365) found that "political pressure, and a degree of unanimity on the part of subnational governments is necessary to insure utilization" of these policies on the national level as well. Researchers have found that this state-federal dynamic applies within a variety of social spending programs (Daley & Garand, 2005), but for the scope of this chapter, four specific environmental policy interactions are explored in further depth.

The causal process that we examine further attempts to distinguish how much influence home state policies hold for a member of Congress in regards to their Congressional voting record, especially when such policies may incentivize the member to federally extend state benefits that are out of alignment with their party's preferred position. While one would expect that both Democrats and Republicans will be affected by the policies of their home state, since this chapter focuses on four bills that increase environmental regulations with the case criterion explained below, the process by which it affects elected officials from opposite sides of the aisle may differ. The dynamic with Republican members is more noteworthy in this case as they are typically opposed to increasing environmental regulations.

The specific causal sequence our theory proposes is:

1. States may adopt a regulatory policy that according to some may put that state at a competitive disadvantage relative to neighboring or other U.S. states. For example, a policy might make electricity more expensive in the state and in turn reduce its ability to attract businesses due to the increased costs.
2. This may lead to Members of Congress to prioritize protecting their state's interests by choosing to vote whenever they can "level the playing field."
3. This vote might be out of sync with the member's party's interests or his or her own preferences on that particular issue/bill. However, the priority to protect/represent the state's interests may supersede personal or party-line interests for those members.

As a result, this chapter examines how members of Congress strategically may decide to vote for a policy that on first blush looks to be out of alignment ideologically, but is actually in the member's home district or state's best interest to have the policy expand across the country given their state's early adoption. Overall, an argument is advanced within this chapter that through this sequence, home state environmental policies provide another pressure to incentivize members to vote for what is best for their district, their state, their constituency. In other words, since the federal government expects representatives elected from specific states' interests to look out for their own home domain, these conditions may actually create a race to the top, increasing nationwide environmental regulations, rather than exclusively a race to the bottom of lowering regulations, highlighted in many policy domains (Baysinger, & Butler, 1984; Konisky, 2007; Manna & Ryan 2011; Rabe, 2006; Revesz, 1992, Teske, 2005).

2.2.1 State-Level Influence Hypothesis

The main hypothesis that this theory presents is:

Members of Congress from both parties will be more likely to support increasing environmental regulations if their home state already has such a policy in place.

As a result, this chapter examines how influential members' district interests are when they conflict with party and ideology.

2.3 Story & Case Selection

In order to examine whether this federal/state environmental policy tension affects voting behavior our case selection limited consideration exclusively to close bipartisan votes in Congress (passage by roughly a 50-vote margin or less) over the past 15 years that increased environmental regulations and that featured similar state-level policies already in place in a wide diffusion of states at the time that Congress considered legislation. Examining federal policy votes with a widespread adoption at the state-level ensures that the influence across the country would be visible on the federal level rather than simply one region or a smaller cluster of states.

Since 2005, there have been a multitude of Congressional House votes that featured policies that were being extended from the state to the federal level. We chose four of the most prominent examples that met the dual conditions of distributed significant nationwide policy adoption along with a close final bipartisan Congressional vote. The four votes selected were the 110th House vote on the Udall amendment to renewable portfolio standards, H.R. 5351, the Renewable Energy and Energy Conservation Tax Act of 2008, the Moore Capito amendment to the HOPE VI Improvement and Reauthorization Act of 2007, H.R. 2534, and the 111th House

vote on the Waxman-Markey cap-and-trade bill. U.S. States are displayed in Figure 1 to visualize which states had a state-level cap-and-trade, renewable portfolio standard, both, or neither of these policies in place at the time the national legislation came to a vote.

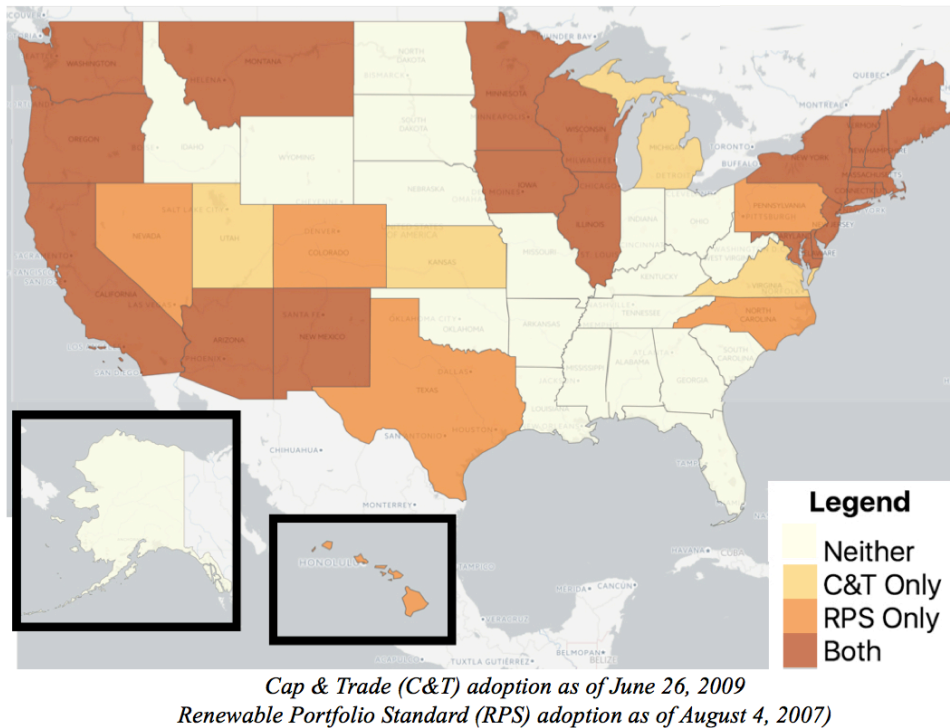


Figure 1. Map of States With RPS or Cap-and-Trade Policies

At the time of the four votes studied, there was a wide diversity of policy adoption with clustering patterns and regional themes. 21 states had adopted state-level versions of both policies, with 27 states (as of August 4, 2007) featuring statewide renewable portfolio standard mandates (targeted goals were not counted) and 24 states (as of June 26, 2009) featuring aspirational plans for regional cap-and-trade programs (program participants but not observers were counted). Primarily states in the Northeast, the Midwest, and West were clustered into their own regional cap-and-trade programs, though this regional similarity in policy design was not

nearly as present in the renewable portfolio rates of neighboring states. Additionally, 30 states had adopted green building standards, and 20 states hybrid electric vehicle incentives by the time of their respective votes, with both policies featuring less clustered adoption rate across the country.¹

2.3.1 Case 1: Renewable Portfolio Standards

The first case involves renewable energy portfolio standards (RPS) and the related 2007 Congressional vote on the Udall Amendment. While there has been considerable variation in renewable portfolio standards across the country, each of them contains two key components—a rising floor for renewable energy sources that electric utilities must provide paired with a targeted timeline to meet it (Lyon & Yin, 2010). In some states, the standard is based on renewable energy capacity goals, but for most it is based on percentage of total kilowatt hours sold. Additionally, the targets can either apply exclusively to the traditionally larger investor owned utilities or be extended towards smaller electric cooperatives and municipal utilities as well.

One aspect that has made RPS policy relatively unique has been the support it has found on both sides of the political aisle, with proponents billing the approach both as effective environmentally and as an economic development tool. States like Iowa and California began implementing RPSs in the early 1990s to craft both carrots and sticks to stimulate domestic

¹ These tallies were derived from a survey from the DSIRE (Database for State Incentives for Renewables & Efficiency) resource. According to their website: “DSIRE is the most comprehensive source of information on incentives and policies that support renewables and energy efficiency in the United States. Established in 1995, DSIRE is operated by the N.C. Clean Energy Technology Center at N.C. State University and is funded by the U.S. Department of Energy.”

investment in the still-fledgling wind and solar manufacturing industries as well as to boost American energy independence. Over the next several decades, as federal-level policy never established a national minimum renewable energy standard, additional states began to formulate their own state- and regional-level responses—including forming blocs of collaborating states such as the Western Governor’s Association of Clean & Diversified Energy Initiative (also known as the WGA, which at its height encompassing every state west of Texas except Oklahoma), the Midwestern Powering the Plains Initiative, and New England’s Regional Greenhouse Gas Initiative (RGGI) (Ju et al., 2014).

These regional initiatives provided a structured place for dialogue that lead at its height to a total of 29 states (as well as Washington, D.C.) adopting RPS policies with an additional eight signing on to a voluntary RPS approach (these are totals after the vote being studied took place). Proponents of RPS policy have highlighted the combination of “regulation and delegation of many choices to the marketplace that is clearly appealing to a diverse set of elected officials and organized interests” (Rabe, 2007, p. 16). Some of these tools include how a state structures its mix of what counts as “renewable” energy that can favor their own home-state development. Another essential consideration is a state’s percentage-based costs caps, which most states with RPSs have included to protect for rising consumer costs (Barbose, 2016). Overall, RPSs today are seen by many states as a key driver to continuing to expand state economic development in the estimated \$44 billion renewable energy annual financial commitments in the U.S. (Frankfurt School of Finance & Management, 2016).

However, there is still a vigorous policy discussion around the utility and effectiveness of RPS policy, with critics highlighting the potential for increasing costs that such regulatory

frameworks place on states that opt in. There is considerable regional variation in terms of political support and the level of adoption of RPS policies (i.e. beyond North Carolina, the southeastern United States does not feature any other state with an RPS). One of the other challenges that RPS standards continue to face is how states define and implement trading for renewable energy credits (RECs). Given that some utilities generate more electricity from renewable sources than others, there is a natural market for being able to purchase additional RECs should a utility not be set to meet the state floor level. Additionally, as more and more electricity is generated and transmitted across state lines, there continues to be ongoing legal concerns regarding whether any potential for interstate trade of RECs would be constitutional given the restrictions imposed by the Commerce Clause.² As a result, both RPS proponents and detractors are in agreement that something will need to be done to reconcile and harmonize the state-level policy variation, with proponents favoring the adoption of a national standard that address current disadvantages to a piecemeal system that “deters investment, complicates compliance, discourages interstate cooperation, and encourages tedious and expensive litigation” (Sovacool, 2009).

By the time of the 110th Congress, roughly half of the states had adopted their own RPS and in February 2007, Congressman Udall introduced H.R. 969 to address the aforementioned challenges and opportunities. Eventually gaining over 160 bipartisan co-sponsors (almost exclusively from states with their own RPS on the books), H.R. 969 sought to amend the 1978 Public Utility Regulatory Policies Act and “establish a Federal renewable energy portfolio

² For a more thorough examination of this key interpretation on whether Congress’ constitutional power to “regulate commerce . . . among the several states” applies to RECs, see Harvard Environmental Policy Initiative’s “Constitutional Issues to Consider in Clean Power Plan Compliance Part 2: The Dormant Commerce Clause” by Kate Konschnik (2016).

standard (RPS) for retail electric utilities that would be administered by the DOE.” (H.R. 969 bill). Udall had introduced similar bills since 2002 on a bipartisan basis and such an approach would have federalized and expanded such renewable energy portfolio standards to a national minimum standard. H.R. 969 became Amendment 6 to H.R. 3221, which was voted on August 4, 2007, between which time the Federal Renewable Portfolio Standard, had been lowered from 20% to 15% by 2020. Speaking on behalf of his own motivations, Mr. Udall said on the floor “almost half of the States of the Union already have an [RPS] in place, but the full potential for renewable electricity will be left unrealized without the adoption of a Federal program to enhance the efforts of these States” (Congress, 2007).

Ultimately, Amendment 6 of H.R. 3221 cleared the House on a voice vote of 220-190³ featuring key Republican members voting in favor and enabling its passage. Though a similar bill passed the Senate that session as well (championed by fellow New Mexican Sen. Bingaman), the two bills never made it through reconciliation and challenges were anticipated from the White House should it have passed conference committee. Nevertheless, the central feature is that the Udall Amendment passed only because of support from both sides of the aisle: over thirty Democrats broke with their party’s majority in favor to oppose and over thirty Republicans did the same to guarantee its passage in the House. Looking at the Republicans who supported the amendment, it is clear that these were not only moderate members of the party with the list including notable conservatives such as former House Speaker Paul Ryan (WI), Brian Bilbray (CA), and Dean Heller (NV).

³ This is the official totals for the amendment though there are three Democratic votes in the affirmative from delegates of DC, Guam, and the Virgin Islands that we do not include in our analyses.

2.3.2 Case 2: Cap-and-Trade

The second environmental policy examined in this chapter is the surge of state-level policy to price carbon dioxide emissions through regional cap-and-trade initiatives that began in 2007 and ultimately lead to the U.S. Waxman-Markey bill proposal in 2009. As an alternative to heavy regulatory involvement (“command and control”) dictating the specific terms by which polluters should be controlling their harmful emissions, cap-and-trade offered an alternative solution. The government would be responsible for setting an emissions ceiling (total cap) for whatever pollution needed to be reduced, assign ratio-based allowances to each individual firm that emitted, and then get out of the way and allow a market to form that allowed firms to make their own decisions on how they would meet their allowance (i.e. through reducing production, investing in cleaner fuels, pollution control technology, or trading with other firms that were below their allowance level to avoid the fee). It is noted that the Waxman-Markey bill also included a renewable electricity standard of 20 percent by 2020, but this was not the main mechanism by which emissions reductions would be achieved.

To understand the context for the 2009 vote, it is instructive to review the longer political history of cap-and-trade, which began originally as an emissions-trading approach within the Clean Air Act. It became more widely recognized after President Reagan used it to target leaded gasoline levels in the 1980s. Following this application, President H.W. Bush experienced widely heralded success with it to reduce coal-fired power plants’ sulfur dioxide emissions causing acid rain. Such an approach at the time was seen as a bipartisan common-sense solution leading to the 1990 Clean Air Act Amendments passing the House on a 401 to 25 vote.

However, after the mid-1990s, Congress did not pass any further federal cap-and-trade legislation. Consequently, similar to state-level adoption of RPSs, a federalism dynamic emerged when state-level cap-and-trade agreements began to be negotiated borne out of state-level responses to federal inaction on addressing the management of carbon dioxide emissions. Following similar regional RPS blocs (WGA, RGGI, etc.), by 2009 24 states had adopted varying policy prescriptions to price carbon through a diversity of trading schemes and agreements. Such widespread adoption lead to the ongoing concern regarding the potential for finding interstate commerce to be constitutionally unsound and may have in part incentivized federal involvement to help simplify such diverse state-by-state policies. In one researcher's words, "as different statewide greenhouse gas (GHG) reduction policies...emerge[d] in the United States, more and more businesses...call[ed] on the federal government to enact a single, uniform policy" (Larsen, 2008).

While earlier cap-and-trade type bills targeting carbon dioxide emissions had been introduced in Congress in 2003 by Sens. McCain (R-AZ) and Lieberman (D-CT), and similar legislation was introduced again in the next two sessions, 2009 featured a unique opportunity given the unified government control by the Democrats. Reps. Waxman and Markey introduced the American Clean Energy and Security (ACES) Act, a bill similar in many regards to the McCain-Lieberman bill as well as many of the state-level cap-and-trade approaches. After thorough debate on issues ranging from defining the terms of renewable energy to equity concerns and the reliability of carbon markets, the bill language had ballooned to 1,400 pages and was deemed to have included considerable giveaways (i.e. only 15% of the emissions permits wouldn't have been distributed at no cost to emitters). Nevertheless, a vote was called on

June 26, 2009 and it narrowly passed 219-212 due to the votes of eight key House Republicans, all with cap-and-trade programs back in their home state being set up.

Statements from this “Elite Eight” group indicated their calculation was based in part on how the bill might impact New Jersey relative to other states. For example, Rep. LoBiondo’s Communications Director Jason Galanes, when asked why Rep. LoBiondo supported such a policy highlighted that this legislation is “in the best interest in New Jersey” (Friedman, 2009). Spokespeople for both Reps. Lance and LoBiondo were also reported to highlight ACES impact in leveling the playing field for their home district by pointing out “the legislation won’t have a negative impact on New Jersey business...because its standards are weaker than what New Jersey already has in place” (Friedman, 2009).

Following the House’s narrow passage of ACES, the Senate version of the bill was led for the next year by Sens. Kerry (D-MA), Lieberman (I-CT), and Graham (R-SC), along with another bipartisan Senate proposal to include a dividend component to address the cap leading to rising energy costs for consumers. Ultimately, the Senate failed to pass its own version of the first national bill to price greenhouse gas emissions that had passed in one chamber. Ever since, it has been an ongoing debate as to what caused the failure. Whether the main factors also included consumers’ fears of rising energy costs, the lack of trust regarding alternative energy markets from the fall-out of Enron trading, or the power of big special interests like the oil industry, it was clear that partisanship and party-line voting were largely responsible. In the words of the head of the Environmental Defense Fund president Fred Krupp (who had been on the original team working to implement President H.W. Bush’s cap-and-trade effort for sulfur dioxide), the reason the bill failed was that cap-and-trade itself “became too polarizing and too

paralyzing in the effort to win over conservative Democrats and moderate Republicans to try to do something about climate change and our oil dependency” (Broder, 2010).

2.3.3 Case 3: Green Building Standards

Given the large footprint that buildings have in our national energy consumption (estimates place it at around 40% of total energy use and greenhouse gas emissions⁴) many states have opted to provide standards to guide initial design and construction to include energy-efficiency measures. In a study that focused on state-level policy diffusion, Bromley-Trujillo et al. (2016) included a measure to capture green building standards that operationalized the policy as one that required newly public buildings being constructed to meet minimum requirements for energy efficiency as well as potentially requiring older buildings to meet minimal efficiency standards. Historically, this state to federal level diffusion is measured within this chapter by a 2007 House amendment vote (roll call vote 16) on the HOPE VI Improvement and Reauthorization Act (H.R. 2534). The HOPE VI act would have “required federally funded housing developments and community revitalizations for the low income and elderly to meet residential and commercial buildings criteria for efficiency” (League of Conservation Voters, 2008). Rep. Shelley Moore Capito (R-WV) proposed an amendment that would have made these requirements voluntary while also eliminating the green goals and definitions and the resulting vote is analyzed in the next section.

⁴According to the U.S. Energy Information Administration (<https://www.eia.gov/tools/faqs/faq.php?id=86&t=1>)

2.3.4 Case 4: Hybrid Electric Vehicle Standards

Air quality concerns drove the early movement in state policy to adopt incentives to improve the efficiency of automobile engines through both tail-pipe regulation standards (California) as well as additional incentives in the form of tax rebates, sales tax, or registration fee exemptions and access to high occupancy vehicle (HOV) lanes. While earlier efforts like the Energy Policy Act of 1992 also provided excellent case studies for federal votes on extending state-level policy, this earlier vote fell out of the search criteria within the past 15 years and took place at a time when far fewer states had adopted established influential and equivalent policies beyond California. Enter H.R. 5351, the Renewable Energy and Energy Conservation Tax (REET) Act of 2008.

Following a back-and-forth policymaking session between both bodies of Congress that had followed common practice in rolling benefits like clean energy and transportation tax credits into a larger omnibus tax extension package, H.R. 5351 passed the House on February 27, 2008 (Roll Call vote 84) by a 236-182 vote (League of Conservation Voters, 2008). The Congressional Research Service analysis highlighted that HR 5351 planted the seeds for eventual additional credits by establishing “a new tax credit for each qualified plug-in hybrid vehicle placed in service (§201). The base amount of the credit would be \$4,000” (Sissine et al., 2008). It also maintained the 2005 Energy Policy Act means for handling early adopter advantages that future federal hybrid/electric vehicle credits would follow in that when a company reached 60,000 plug-in hybrid vehicles total in sales, that company would no longer be eligible for additional credits after the next business quarter. Following the federal vote, several states that were providing hybrid/electric tax breaks “repealed them or allowed them to expire, such as Georgia

and Illinois, while another ten states enacted additional EV taxes of \$50–200 per year” (Stokes & Breetz, 2018).

Connecting these stories back to the chapter’s original hypothesis, these examples featured a clear relationship between Republicans with key votes also hailing from states that had implemented stringent environmental policies (relative to the equivalent non-existent federal policy). As a result, these four cases highlight the key district-level identities that play in any member’s decision on an issue. In a new political era where federalism is being re-imagined once more in environmental policy, the lessons learned from the Waxman-Markey bill (cap-and-trade) and the Udall Amendment (RPS) as well as the efforts to nationalize green building standards and hybrid electric vehicle incentives teach us of the importance of state-level initiatives serving as powerful drivers for increasing pressure for federal adoption.

2.4 Data and Methods

Much of the data is in the form of roll call votes and as a result the chapter’s tables mainly features cross-tabulations. When considering the relative effect of additional control variables (population, length in Congress, etc.) we also integrated logistic regression analysis. We separately analyzed the individual votes of the four bills discussed above. The unit of analysis was the individual lawmaker and the dichotomous dependent variables were the votes on each of these bills. Our independent variables include whether or not the state had a similar policy (RPS, C&T, green building standards, and hybrid electric vehicle incentives) in place at the time of the vote in the U.S. House, the party of each member of Congress, and a League of

Conservation Voters score to control for ideology for this specific issue area.⁵ The DSIRE database proved an invaluable resource (see footnote 1), as it can be challenging to accurately assess the policy inventory for which states featured these policies and standards as of votes that took place around a decade ago. For a snapshot of which states were providing hybrid electric vehicles incentives in 2008, I relied on the work of Gallagher & Muehlegger, 2011, who created a comparative table that highlighted the hybrid electric vehicle incentives and policies in place by 2008 by state and even metropolitan areas. As a result, the Electric Vehicle variable was operationalized as any state that offered at least one of the following incentives: HOV lanes, Income Tax credit, Sales Tax exemption, vehicle emissions test exemption, registration or excise tax exemption or rebate, or a State Government Purchasing Requirement (parking fee reductions were not included) (Gallagher & Muehlegger, 2011).

2.5 Results

Our analyses demonstrate that for both of the first two cases members of Congress (both Republicans and Democrats) were far more likely to vote in favor of increasing environmental regulations if their state had already implemented similar regulations while the state-level impact was less pronounced for cases 3 and 4.

⁵ These bills appear as “key votes” for the LCV scorecard in the respective years in which the votes were taken. As a result, they have been removed these votes from the scorecard and recalculated the LCV score for each MC.

2.5.1 Renewable Portfolio Standards

Table 2 is composed of cross-tabs for the vote on the Renewable Portfolio Standards in the House. Table 2a is the vote by party for this amendment. The vote was fairly partisan with

Table 2a. Udall Amendment Vote (by Party)

Vote	Democrat	Republican	Total
No	38 17.0%	152 82.6%	190 46.7%
Yes	185 83.0%	32 17.4%	217 53.3%
Total	223	184	407

* Yes/No indicates vote on Amendment 6 to HR3221, 110th Congress, August 4, 2007. Some sources may include three additional Democrat votes in favor – those are from delegates from DC, Guam, and the Virgin Islands.

Table 2b. Udall Amendment Vote (for Democrats by States with RPS and Without)

Vote	State Does Not Have RPS	State Has RPS	Total
No	28 45.2%	10 6.2%	38 17.0%
Yes	34 54.8%	151 93.8%	185 83.0%
Total	62	166=1	223

* Yes/No indicates vote on Amendment 6 to HR3221, 110th Congress, August 4, 2007.

Table 2c. Udall Amendment Vote (for Republicans by States with RPS and Without)

Vote	State Does Not Have RPS	State Has RPS	Total
No	85 92.4%	67 72.8%	152 82.6%
Yes	7 7.6%	25 27.2%	32 17.4%
Total	92	92	184

* Yes/No indicates vote on Amendment 6 to HR3221, 110th Congress, August 4, 2007.

83.0 percent of Democrats in favor and 82.6 percent of Republicans against. There were defections on both sides - roughly 17-18 percent from each party voted against their party's majority position. Table 2b further breaks down the vote for the Democrats by adding the variable of whether or not the home state of the congressperson had already installed state-level regulations for renewable portfolio standards.

There is a clear gap between the votes from Democrats that did have such statewide regulations and those that did not – only 56.3 percent of Democrats from states that did not have RPS voted in favor of the legislation, while 93.8 percent of Democrats from states that did have such a policy voted in favor of the Udall Amendment. Table 2c shows analogous results for Republicans members of Congress. Again, a far higher proportion of members from states with similar policies in place at home were more likely to vote in favor of the bill. Only 8.7 percent of Republicans from states without a RPS voted in favor of the amendment, while 27.2 percent of Republicans from states with a RPS voted in favor.

It could be the case that the congressmembers that voted for the Udall Amendment's federal RPS extension were not at all affected by the state policy. As a result, this chapter investigated whether this vote was due to such members hailing from more liberal states and consequently being more likely to favor such a regulation nationwide. This chapter also investigated whether members that voted in favor of the bill represented more liberal districts relative to the MCs in their party that voted against it. In order to check for the relative role that party, ideology, and district preferences play in member's voting calculus, several logistic regressions were run to test for such possibilities. The independent variables included dummy variables for party (0=Democrat) and for whether the home state of the members of Congress

had a RPS in place at the time of the vote. LCV ideological scores were used from the 110th Congress and a measure of district preferences (Congressional district constituent's ideal point

Table 3. Logistic Regression for Vote on Renewable Portfolio Standards

Variable	Model 1	Model 2	Model 3	Model 4
State has RPS	8.30*** (6.70)	6.66*** (5.27)	3.72*** (4.54)	4.67*** (4.15)
Party	0.036*** (-10.80)			6.07* (2.31)
LCV Scores		1.06*** (11.07)		1.08*** (6.00)
District Preferences			0.00042*** (-9.35)	.0497** (-3.08)
Constant	1.43 (1.51)	0.011*** (-9.58)	0.482** (-3.12)	0.0028*** (-5.51)
N	407	407	406	406
Pseudo R ²	.43	.59	.42	.62
Log Likelihood	-160.02	-116.83	-163.24	-107.09

Entries are Odds Ratios with t-statistics in parentheses. Dependent variable is yes/no vote on Udall amendment. RPS is a dichotomous variable (1=state has RPS). LCV scores are the League of Conservation Voters scores for each member of Congress adjusted by taking out the votes for the bills in this chapter (scores range from 0, not supportive of environmental legislation to 100, very supportive). Party is 0=Dem, 1=Rep. District Preferences is measure of district-by-district preferences from Tausanovitch and Warshaw (2013); downloaded from americanideologyproject.com.

* p<.05, ** p<.01, *** p<.001.

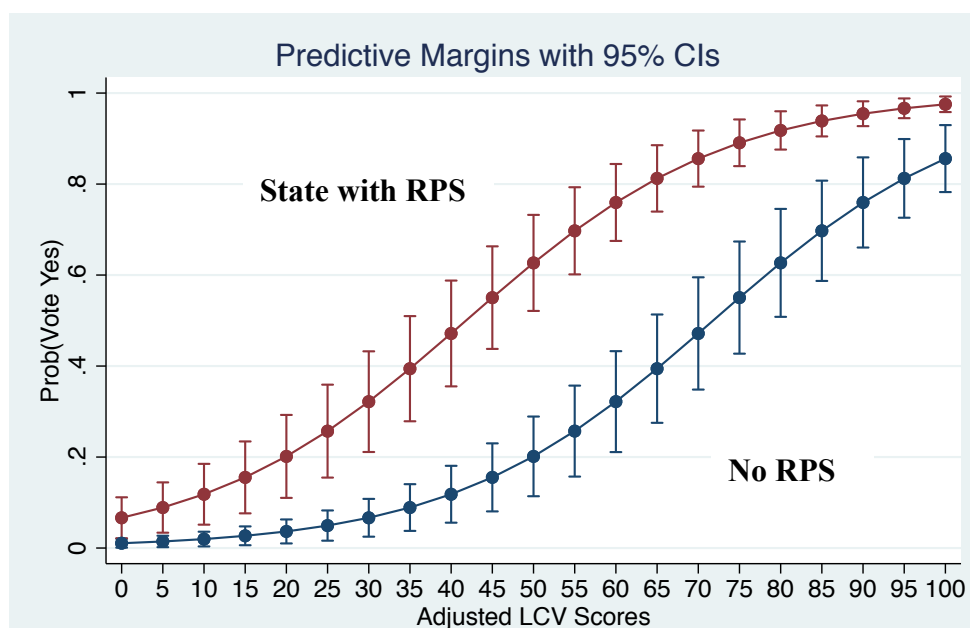
preference in left-right ideology) from Tausanovitch and Warshaw (2013).⁶ The results are presented in Table 3.

In Model 1 the Udall Amendment's yea/nay vote was regressed on the RPS dummy variable and a party dummy variable. The findings highlight that the RPS dummy variable had

⁶ We note that the Party and NOMINATE variables are highly correlated ($r = .95$).

an odds ratio of 8.30 – meaning that members from states with a state-level RPS policy in place were over eight times more likely to vote in favor of the bill. The odds ratio for the party variable indicates that being a Republican makes it less likely a Congressman would support the bill. Model 2 featured the RPS variable as well as adding the League of Conservation Voters scores (which range from 0 to 100 with higher scores indicating greater support for environmental issues). The odds ratio for the ideology variable was 1.06, indicating that as the independent variable moves from low to high, the member was more likely to vote in favor of the Udall amendment. The RPS dummy variable had an odds ratio of 6.66, still statistically significant as in Model 1. Model 3 featured the RPS variable (odds ratio of 3.72) and the measure of district preferences. The district preferences variable ranges from roughly -1 to .4 (liberal to conservative) and the odds ratio is less than one, indicating that members from districts with more conservative preferences were far less likely to vote for the bill than members from districts with more liberal preferences. Finally, in Model 4 all of our explanatory variables were added to the model together. Again the RPS variable was found to be statistically significant with a value of 4.67. The other variables are statistically significant and take on expected values, although the party variable is now reversed, indicating that after controlling for the other variables (Congressmembers' ideology and district RPS preferences) Republicans were more likely than Democrats to vote for the bill.

In order to better understand the dynamics at work, the conditional probabilities of voting in favor of the Udall amendment were charted for Figure 2. The two lines indicate the probability of voting “yes” for national renewable portfolio standards. The x-axis represents the LCV scores that range from 0 (low support for environmental issues) to 100 (high support).



** Figure represents marginal effects of environmental voting history and whether the Congressperson's home state had a renewable portfolio standards effect at the time of the vote (rps=0 means no renewable portfolio standards in that state).*

Figure 2. Probability of Voting Yes on Udall Amendment for Members from States with and without Renewable Portfolio Standards.

Clearly ideology affects all members' likelihood of supporting this legislation, with the probability declining as we move from left to right. More importantly, the upper line is the probability for members from states with an RPS in effect at the state-level. As a result, Figure 2 presents a clear and significant difference between these two groups (RPS states vs. non-RPS states) that holds over both parties. Consequently, this chapter finds when a congressperson represented a state with a RPS already in place, he or she was significantly more likely to vote in favor of the amendment.

2.5.2 Regional Cap & Trade

The results for this chapter's second case study – the Waxman-Markey cap-and-trade bill – were similar to those from the RPS example. Democrats were more likely to vote in favor of the bill relative to Republicans, and members of Congress from both parties were more likely to vote in favor of the bill if their home state had a cap-and-trade policy in place at the time of the vote.

Table 4a shows that 211 of the 255 Democrats (82.7 percent) voted in favor of the bill, while only 8 of the 176 Republicans (4.6 percent) voted in favor. While only eight Republicans supported the bill, their votes made the difference between passing and failing - the bill narrowly passed with 219 in favor and 212 against. Table 4b breaks down the Democrats votes by those from states with a cap-and-trade policy statewide and those without. Of the 148 Democrats from states with a cap-and-trade policy, 139 voted in favor (93.9 percent), while only 72 of the 107 Democrats (67.3 percent) from states without cap-and-trade voted in favor of the bill. Table 4c represents the data for Republicans. All of the eight Republicans who voted in favor of the bill came from states with cap-and-trade already in place while 100% of Republicans from district without a cap-and-trade policy voted against the bill.

The Table 5 logistic regression models display the approach taken to control for party, ideology, and constituent preferences within the Waxman-Markey vote. It was possible that the Republicans that supported the bill were simply more liberal than their co-partisans or that Democrats that voted against the bill were from the more centrist wing of the party. Table 5 shows the results of our analysis. Model 1 controls for the party of members and both are significant and in the expected direction – Republicans were less likely to vote for the bill and

Table 4a. American Clean Energy and Security (ACES) Act Vote (by party)

Vote	Democrat	Republican	Total
No	44 17.3%	168 95.4%	212 49.2%
Yes	211 82.7%	8 4.6%	219 50.8%
Total	255	176	431

Table 4b. ACES Act Vote (for Democrats by States with C&T and Without)

Vote	State Does Not Have C&T	State Has C&T	Total
No	35 32.7%	9 6.1%	44 17.3%
Yes	72 67.3%	139 93.9%	211 82.7%
Total	107	148	255

Table 4c. ACES Act Vote (for Republicans by States with C&T and Without)

Vote	State Does Not Have C&T	State Has C&T	Total
No	116 100%	52 86.7%	168 95.4%
Yes	0 0%	8 13.3%	8 4.6%
Total	116	60	176

members of Congress from states with the policy were over eight times as likely to vote in favor of the bill. Model 2 incorporates LCV scores and the estimates continue to make sense – conservatives were less likely to vote for the bill and members from states with cap-and-trade were more likely to vote for it. Model 3 uses the constituent preferences variable and the results continue to refine the influences observed. Congresspersons from states with cap-and-trade were nearly twice as likely to vote for the bill (odds ratio is 1.77) and members representing more

Table 5. Logistic Regression Cap & Trade Vote

Variable	Model 1	Model 2	Model 3	Model 4
State has C&T	8.36*** (5.69)	6.69*** (4.79)	1.77* (1.99)	4.07** (3.22)
Party	0.007*** (-10.88)			0.635 (-0.47)
LCV Scores		1.09*** (8.64)		1.07*** (3.87)
District Preferences			0.00005*** (-10.02)	.0024*** (-4.81)
Constant	1.98** (3.40)	0.0006*** (-7.76)	0.751 (-1.43)	0.004** (-3.37)
N	431	431	430	430
Pseudo R ²	.57	.66	.47	.72
Log Likelihood	-129.07	-101.147	-157.41	-84.81

* Entries are Odds Ratios with t-statistics in parentheses. Dependent variable is yes/no vote on Cap & Trade amendment. RPS is a dichotomous variable (1=state has C&T). LCV scores are the League of Conservation Voters scores for each member of Congress adjusted by taking out the votes for the bills in this chapter (scores range from 0, not supportive of environmental legislation to 100, very supportive). Party is 0=Dem, 1=Rep. District Preferences is measure of district-by-district preferences from Tausanovitch and Warshaw (2013); downloaded from americanideologyproject.com.

* p<.05, ** p<.01, *** p<.001.

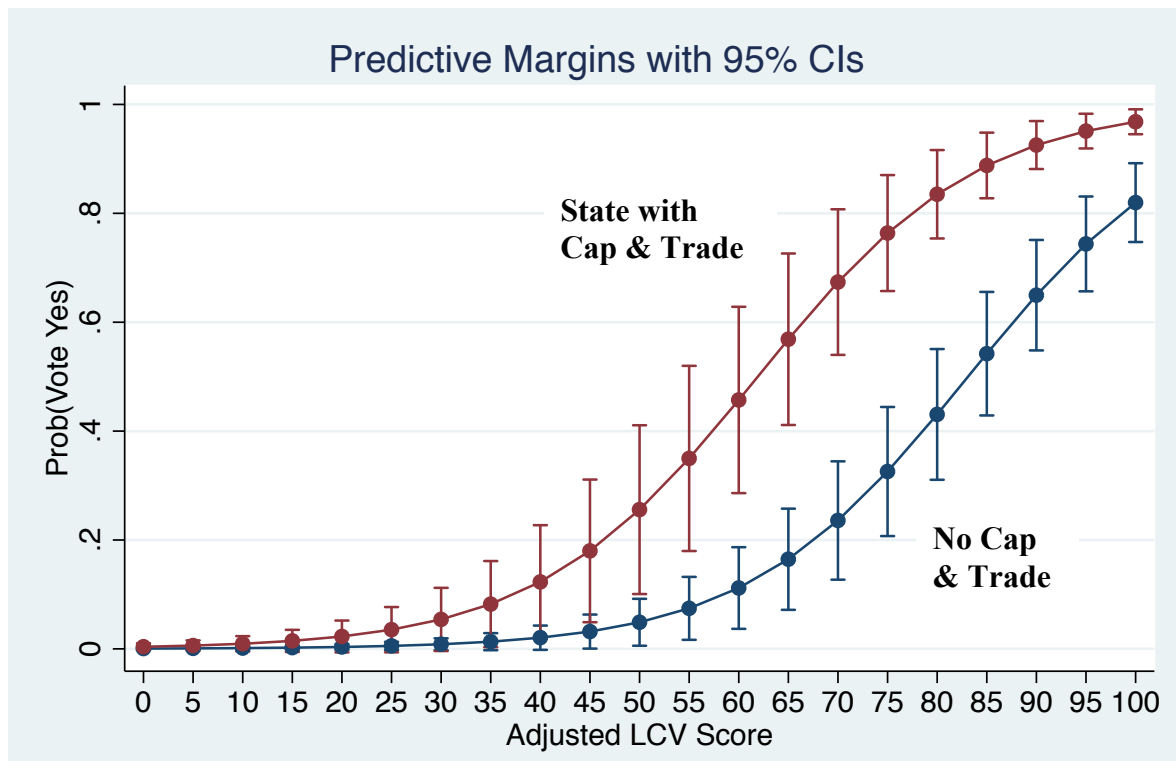
conservative districts were less likely to vote for the bill. Finally, Model 4 adds all of the variables on the right hand side of the equation and the findings are in the expected direction along with all of the variables except the party dummy variable remaining statistically significant. The odds ratio for the state-level cap-and-trade variable is 4.13, indicating members from states with a cap-and-trade policy were more than four times as likely to vote in favor of the bill relative to members representing states that did not have such a policy in place. These findings supports the notion that state-level policies can and do affect voting in the U.S. House of Representatives.

Next, in order to examine the marginal effects of ideology and state-level policy on the probability of voting in favor of nationwide cap-and-trade regulations we turn to Figure 3.

Figure 3 is similar to Figure 2 – there is an ideological effect with more environmentally supportive members being more likely to support the bill than those that had historically voted less favorably for the environment. Secondly, there is a large gap between the two lines, even outside of the 95% confidence interval ranges that indicates that members of Congress from states, both Republican and Democrats, with cap-and-trade in place at the state-level, were more likely to vote in favor of the bill.

2.5.3 Green Building Standards

The House vote on extending a federal Green Building Standard is featured in Table 6. Table 6a is the vote by party for this amendment. The vote was quite partisan with 97.7 percent of Democrats in favor and 89.67 percent of Republicans against. There were defections on both sides – roughly 2 to 10 percent from each party voted against their party’s majority position. Table 6b further breaks down the vote for the Democrats by adding the variable of whether or not the home state of the congressperson already featured state-level green building standards.



** Figure represents marginal effects of environmental voting history and whether the Congressperson's home state had a cap-and-trade policy in effect at the time of the vote.*

Figure 3. Probability of Voting Yes on Cap & Trade for Members from States with and without Cap-and-Trade Regulations.

The broad majority of Democrats that did have such statewide regulations as well as those that did not voted in favor of the legislation. Table 6c shows analogous results for Republicans members of Congress. Of note is that a far higher proportion of members from states with similar policies in place at home were more likely to vote in favor of the bill. Only 4.41 percent of Republicans from states without green building standards voted in favor of the amendment, while 13.04 percent of Republicans from states with green building standards voted in favor.

Table 6a. HOPE VI Improvement & Reauthorization Act of 2007 Vote (by party)

Vote	Democrat	Republican	Total
No	5 2.25%	165 89.67%	170 41.87%
Yes	217 97.7%	19 10.33%	236 58.13%
Total	222	184	406

Table 6b. HOPE VI Act Vote (Democrats by States with/out Green Building Standards)

Vote	State Without Green Building Standards	State With Green Building Standards	Total
No	2 3.45%	3 1.83%	5 2.25%
Yes	56 96.55%	161 98.17%	217 97.75%
Total	58	164	222

Table 6c. HOPE VI Act Vote (Republicans by States with/out Green Building Standards)

Vote	State Without Green Building Standards	State With Green Building Standards	Total
No	65 95.59%	100 86.97%	165 90.16%
Yes	3 4.41%	15 13.04%	18 9.84%
Total	68	115	183

2.5.4 Hybrid Electric Vehicle Incentives

The House vote on extending national-level hybrid electric vehicle incentives is featured in Table 7. Table 7a is the vote by party for this bill. The vote gathered bipartisan support, but with 96.5 percent of Democrats voting in favor and 91.1 percent of Republicans against. Table 7b further breaks down the vote for the Democrats by adding the variable of whether or not the home state of the congressperson already featured state-level hybrid electric vehicle incentives.

Table 7b highlights that the broad majority of Democrats backed this legislations regardless of whether their home state had similar regulations, though of the 8 Democrats that opposed the legislation only 1 came from a state with hybrid electric vehicle incentives. Table 7c highlights the results for Republicans members of Congress based on whether their home-state had any incentives in place. Similar to the other policy cases studied, a higher proportion of members from states with similar policies in place at home (12.24 percent) were more likely to vote in favor of the bill than those without hybrid electric vehicle incentives (5.38 percent).

Next we turn to the logistic regressions models to control for party, ideology, and constituent preferences within the both the HOPE VI and REECT votes. Again, as it was possible that the Republicans that supported these bills were simply more liberal than their co-partisans or that Democrats that voted against the bill were from the more centrist wing of the party, so assessing the influence these critical factors played was important. Table 8 shows the results of this chapter's analysis. Model 1 features the controls for the Green Building standards states and Model 2 features the Electric Vehicle scenario. The results indicate that the party of members of Congress predict the direction of the vote in both cases, with it being significant in Model 1. Both models also depict the odds ratios for members' votes and find that the strength of the state-level policy is less strong in both votes – finding that members of Congress from states with the policy are roughly about twice as likely to vote in favor of the respective bill. The adjusted League of Conservation Voters scores and constituent preferences variables were also included highlighting consistent findings that conservatives were less likely to vote for either bill and members from states with the respective policies were more likely to vote for it. The adjusted

Table 7a. Renewable Energy & Energy Conservation Tax (REET) Act of 2008 Vote (by party)

Vote	Democrat	Republican	Total
No	8 3.52%	174 91.1%	182 43.54%
Yes	219 96.48%	17 8.9%	236 56.46%
Total	227	191	418

Table 7b. REECT Act Vote (Democrats by States with/out Electric Vehicle Incentives)

Vote	State Without Electric Vehicle Incentives	State With Electric Vehicle Incentives	Total
No	7 8.43%	1 0.69%	8 3.52%
Yes	76 91.57%	143 99.31%	219 96.48%
Total	83	144	227

Table 7c. REECT Act Vote (Republicans by States with/out Electric Vehicle Incentives)

Vote	State Without Electric Vehicle Incentives	State With Electric Vehicle Incentives	Total
No	88 94.62%	86 87.76%	174 91.1%
Yes	5 5.38%	12 12.24%	17 8.9%
Total	93	98	191

League of Conservation Voter score was the only variable found to be significant in both elaborated models. Lastly, in order to examine the marginal effects of ideology and state-level policy on the probability of voting in favor of nationwide green building standards and electric vehicle incentives we turn to Figures 4 and 5 respectively. The results for both are similar to the findings displayed in Figures 2 and 3 – highlighting there is an ideological effect with more

Table 8. Logistic Regression for Vote on Green Building Standards & Electric Vehicle Standards

Variable	Model 1: Green Building	Model 2: Electric Vehicles
State has Building Code	2.35 (1.57)	--
State has Electric Vehicle Code	--	1.84 (.97)
Party	0.97*** (-2.84)	0.994 (-0.61)
LCV Scores	1.06*** (3.45)	1.09*** (4.36)
District Preferences	.0743 (-1.24)	.139 (-1.10)
Constant	4.1 (0.06)	.016 (-1.64)
N	283	284
Pseudo R ²	.79	.76
Log Likelihood	-40.01	-45.398

Entries are Odds Ratios with t-statistics in parentheses. Dependent variable in Model 1 is yes/no vote on Moore Capito amendment to the HOPE VI Improvement and Reauthorization Act of 2007, H.R. 2534 and in Model 2 is yes/no vote on H.R. 5351, the Renewable Energy and Energy Conservation Tax Act of 2008. Model 1's Building Code is a dichotomous variable (1=state has Building Code). Model 2's Electric Vehicle is a dichotomous variable (1=state has Electric Vehicle incentives). LCV scores are the League of Conservation Voters scores for each member of Congress adjusted by taking out the votes for the bills in this chapter (scores range from 0, not supportive of environmental legislation to 100, very supportive). Party is 0=Dem, 1=Rep. District Preferences is measure of district-by-district preferences from Tausanovitch and Warshaw (2013); downloaded from americanideologyproject.com. * p<.05, ** p<.01, *** p<.001.

environmentally supportive members more likely to support the bill than those that had historically voted less favorably for the environment. However, in Figures 4 and 5 feature a reduced gap (though still in the same direction) between the two lines, indicating that members of Congress on either side of the aisle from states with green building standards (Figure 4) and hybrid/electric vehicle incentives (Figure 5) in place at the state-level, were more likely to vote in favor of the bill. In fact, neither policy was shown to feature the same strength of predictive margins as the first two policies explored above, though the probability range for states with green building standards almost exceeded the predictive margins with 95% confidence intervals

included in the mid-range of adjusted LCV scores of the HOPE VI Act (Figure 4) and for hybrid electric vehicle incentives in the REECT vote (Figure 5).

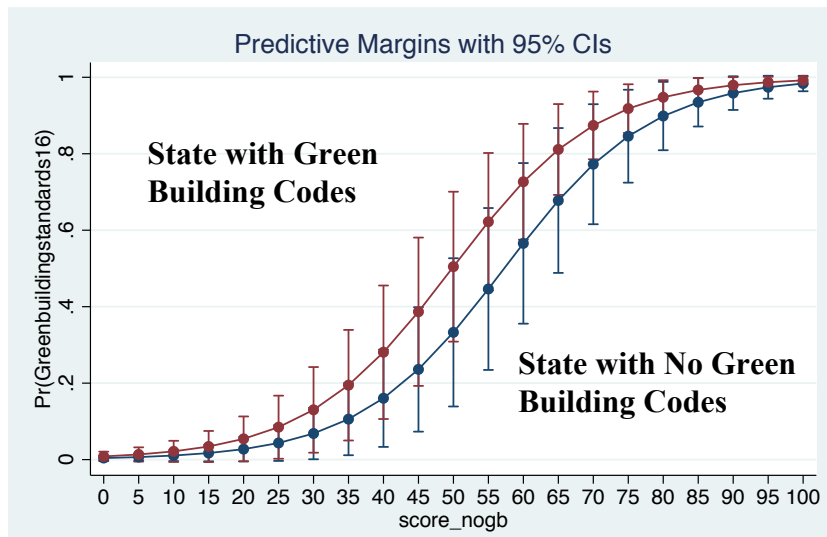


Figure 4. Probability of Voting Yes on HOPE VI Improvement & Reauthorization Act for Members from States with and without Green Building Regulations.

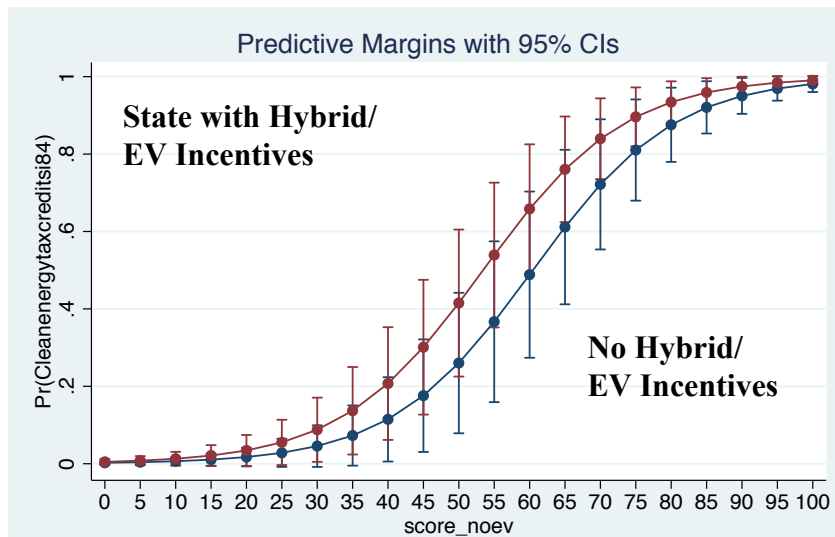


Figure 5. Probability of Voting Yes on Renewable Energy & Energy Conservation Act of 2008 for Members from States with and without Hybrid/Electric Vehicle incentives

2.6 Conclusion

Overall, there are many factors that impact why and when members of Congress decide to vote the way they do, even when it is against the majority of their party's interests or specifically related to environmental policies (Cragg, Zhou, Gurney, & Kahn; 2013; Simas, 2013). However, one domain of voting behavior in Congress that the academic literature has not thoroughly explored is the tension, particularly within the environmental policy realm, when a member's home state representation conflicts with their federal level decision to vote along party lines. These findings contribute to an emerging dynamic and highlight how state-level regulatory environmental policy can affect voting for similar policies at the federal level.

This chapter has examined classic environmental policy case studies that capture this dynamic to further distinguish how much influence these home state policies held in incentivizing the member to extend state benefits nationally. By analyzing four key roll call votes on the Congressional floor over the past fifteen years this chapter builds on the growing body of literature that has examined the influence and impact state-level policy has created on the federal policymaking process specifically within the environmental policy sphere (Teske, 2005; Rabe, 2006, 2007).

Interestingly, this dynamic works for both Democrats and Republicans. In many of these key votes, Democrats were shown to be more likely to vote in favor of any environmental policy on whether their own state had already adopted a policy to nationalize rather than exclusively based on where they fell on the ideological spectrum. On the other hand, a key number of Republicans who typically voted against national legislation pertaining to environmental regulations, were also willing to support some of these bills. This chapter establishes that one

reason why a conservative member may support increasing environmental policy nationwide is that their home state already has such a policy in place. In other words, even if an elected member does not necessarily support tighter regulations, if he or she thinks their state has a competitive disadvantage because the state government put such a policy in place, then they may have been motivated to level the playing field for their state by requiring all states to adhere to these stricter standards.⁷

These case studies highlight the importance of state-level environmental policies superseding Democrat's stance on federal environmental policy regardless of their ideology. Additionally, within these examples Republican members of Congress voted against their party's usual stance against regulations and one of the distinguishing factors appears to be their state government already passing similar regulation. Other factors not examined, such as party leadership, campaign contributions, etc. may also come into play for voting behavior (Brulle, Carmichael, & Jenkins, 2012).

This dynamic suggests an additional reason for policy entrepreneurs and interest groups to pursue state-level policy changes with an eye for eventually pressuring the federal government to pass legislation favored by that coalition group. Specifically, if a pro-regulatory group has not been successful at the national level in persuading Congress to adopt their federal goals (i.e. given the diversity of party membership, the size of economies involved, etc.), focusing on larger states in which passing such policies may be more likely appears to be an alternative strategy. If successful at getting state legislation established with similar policy outputs, members of the

⁷ This logic of competitive disadvantage could just as easily apply to Democratic members as well, though it is more plausible for conservative members of Congress to generally disfavor increasing environmental regulation.

congressional delegation from that state – who may otherwise oppose such regulations – would be further incentivized to vote in favor of the legislation.

This chapter finds that this dynamic—state-level environmental policies affecting the voting behavior in Congress – also presents further avenues of interesting research questions. Other research has already begun to examine such diffusion of state-level policies like net metering, additional electric vehicle incentives and green building standards, but more work remains to be done in understanding these policies eventual interaction with related federal votes (Bromley-Trujillo et al., 2016; Stoutenborough & Beverlin, 2008). Also, is this phenomenon limited to environmental regulatory legislation or is it at play in other legislative domains as well? Policies ranging from minimum wage to anti-discrimination laws would all provide interesting additional test beds for the theory. This research has also highlighted the need to understand the inverse to the dynamic explored - would decreasing regulatory provisions at the federal level be similarly affected by decreasing regulation at state policy? Overall, this chapter's findings provide stories that highlight a countervailing upwards pressure to the usual story of regulation among the states as strictly a “race-to-the-bottom.”

CHAPTER 3

DO ADVOCATES MATTER? STATE-LEVEL ACTORS IN PURSUIT OF CLIMATE POLICIES ADDRESSING MARKET FAILURE

Components of sections 3.3.2 and 3.3.3 appear in “Lessons from Canadian Climate Policy Efforts for America’s Green New Deal,” by Brett Cease, Mark Purdon, & Ross Astoria, (2019) Public Administration Review Blog (Bully Pulpit) Symposium: The Green New Deal Pathways to A Low Carbon Economy. Cease conducted most of the drafting, literature review research, and writing while benefiting from the original research project edits and feedback provided by Drs. Mark Purdon and Ross Astoria throughout its publication process.

3.1 Introduction

In an attempt to manage the diversity of climate risks that come from burning fossil fuels, an increasing number of governments of all levels have begun to pursue policies that create *disincentives* for producing and consuming carbon-based fuels (Carbon Pricing Leadership Institute, 2016). The literature has provided a wealth of descriptive writing on the variation within the world’s current carbon pricing policies (both implemented and in design), however there has been limited political economic theory and explanation offered in describing the actual variation seen at the subnational level of campaign strategies in the United States (Rabe, 2018). A cohesive literature is missing that connects how the dynamics of policy entrepreneurship and coalition-building has influenced and shaped state-level initiatives.

This chapter provides both theoretical and empirical contributions to research on state-level carbon pricing initiatives through its focus on comparative case studies of four longitudinal

U.S. state policy initiatives utilizing elements of the Advocacy Coalition Framework (Sabatier & Jenkins-Smith, 1993) and an exploratory causal research design. Impacts are assessed of key political, economic, and social/demographic variables on the outcome of these initiatives and their proposed carbon pricing policy design.

In the early 1990s, researchers Paul Sabatier and Hank Jenkins-Smith collaborated to develop the Advocacy Coalition Framework, a then-emerging theory that utilized psychological insights of individual behavior, examinations of subsystem-level interaction between governmental and advocacy/research organizations, and longer time periods to better understand the complexities of policymaking process (1993). Since its inception, the Advocacy Coalition Framework has been utilized by hundreds of articles and applied to diverse research areas from science, drug policy and domestic violence, to environmental topics and the proliferation of nuclear policy (Sabatier and Weible, 2007). As a result, this widespread diversity Advocacy Coalition Framework as an approach has become a “foundation for guiding theoretically driven inquiry into some of the questions that lie at the core of policy process research:

- How do people mobilize, maintain, and act in advocacy coalitions?
- To what extent do people learn, especially from allies and from opponents? ...
- What factors influence both minor and major policy change?”

(Weible et al., 2011, p. 357).

Ultimately, this framework will be applied to the case study analysis of four U.S. subnational governments pursuing their own ambitious climate policies. This examination explores whether state-level carbon fee initiatives are most likely find durable policy success when they “find ways to sustain and expand political support over time and be implemented

with transparency, credibility, and an ability to make adjustments as circumstances change” (Rabe, 2018, p. 241).

3.2 Theory

The Advocacy Coalition Framework builds off of work like Kingdon’s Policy Streams Approach (1995), which views the policy formation process as composed of three distinct flows (or ‘streams’)— the problem, policy, and politics streams – converging to form a policy window and leading to policy change. Building on this framework is a rich body of additional research that examines the role specific actors (‘policy entrepreneurs’) play in advocating for solutions within these key windows to influence policy change (Guldbrandsson and Fossum, 2009, Lerum Boasson, 2018).

Policy change in any subsystem happens infrequently. Given this reality, the Advocacy Coalition Framework finds that one of the main drivers behind change occurring are external factors - defined by changes in “socioeconomic conditions, the governing coalition, and policy decisions from other subsystems” (Sabatier & Weible, 2007, p. 193). When these external factors shift, effective coalitions discern that conditions have changed and spend the time organizing their own systems of communication to be ready to respond effectively to influence change with policy output. In other words, “an external event will not cause subsystem change unless at least one coalition has the skill to exploit its new opportunity” (Sabatier and Jenkins-Smith, 1993, p. 222).

The Advocacy Coalition Framework also defines a concept known as coalition opportunity structures, which essentially entails two critical elements – the degree of consensus

required by coalitions to seek compromise and the openness of the political system. The openness of the political system references both the number of venues involved in any policymaking process and level of access advocates have to each of these venues. Thus, it is important to consider all of these dynamics as well as the incentives all stakeholders face when examining their level of investment in the negotiating process and whether they find it attractive or not worth their involvement (Leach and Sabatier 2005). Another key component of the Advocacy Coalition Framework takes place when policy subsystem actors begin to view oppositional figures to their coalition as “less trustworthy, more evil, and more powerful than they probably are” (Sabatier & Weible, 2007, p. 194; Sabatier, Hunter, and McLaughlin, 1987). This process is known as the ‘devil’s shift’ and it erodes trust and communication between the coalitions involved in the policy subsystem.

The Advocacy Coalition Framework further defines coalition belief systems formulated by one of three levels – deep core, policy core, and secondary beliefs (Weible et al., 2009). While deep core beliefs (i.e. conservatism or liberalism) are almost impenetrably static and permanently held by coalition members, they influence the policy core beliefs that coalitions tend to form around. For example, “while conservatives generally have a strong preference for market solutions, some of them recognize significant market failure (e.g., externalities) in...pollution problems and thus are willing to support much more governmental intervention in this policy area compared with other policy areas” (Sabatier & Weible, 2007, p. 195).

Effective coalition leaders then translate these policy core beliefs into coalitions that are organized broadly around secondary beliefs that contain more nuanced policy preferences and agreed-upon principles specific to the subsystem they are advocating within. The coalition

members agree to come together in support of policy output changes that will benefit their interests. In this way, the status quo for any subsystem will provide benefits to other entrenched coalitions until a new advocacy coalition coordinates a new agreement across a broad group of stakeholders. This new agreement identifies a mutually held diagnosis of what is at the root of the challenge and pushes together for further changes perceived as desirable. While external factors can predispose a policy subsystem to be ripe for policy output to evolve and change, it is contingent on effective entrepreneurs to coalesce the stakeholders involved around a common beliefs system and bring out actual changes to policy.

In order to both cast the widest net of capturing stakeholders to agree to their principles, while still striving to make progress towards specific policy goals effective coalition leaders “strive to translate components of their belief systems into actual policy before their opponents can do the same. In order to have any prospect of success, they must seek allies, share resources, and develop complementary strategies” in order to influence change (Sabatier & Weible, 2007, p. 196). While coalition leaders can coordinate resources as highlighted above to influence change they can also respond to outside transformations that may take place, including shifts in belief change within some of the policy stakeholders, leading to the dominant coalition being replaced by a newly arisen minority coalition. An external event like an environmental disaster or new report can also lead towards effective coalition leaders seizing on this kind of focusing event (Kingdon, 1995) to redistribute resources and lead towards a reshuffling of coalition size and strength.

While considerable research in the past has examined how coalitions coordinate to achieve a desired policy objective utilizing network data (e.g. Zafonte & Sabatier 1998; Weible

et al., 2009; Sabatier & Weible, 2005), there remains limited scholarship into the process, particularly within state-level policies oriented around addressing climate change. There is also limited understanding behind why actors choose to participate and get involved in the first place within any environmentally-focused coalition. Whether it is a perception of costs being low, benefits being overly exaggerated (e.g. due to devil shift occurring), or other factors, it has been argued that “one of the underdeveloped aspects of the Advocacy Coalition Framework is the absence of clearly conceptualized institutional variables that structure coalition formation and behavior” and additional research in this area has been encouraged (Sabatier & Weible, 2007, p. 209).

On the other hand, one area of the Advocacy Coalition Framework literature that scholars have coalesced around to provide considerable clarity for are the identification of six categories of coalition resources that influence the strategy and ultimate success of any policy subsystem actor in influencing policy outputs. They are:

- “formal legal authority to make policy decisions
- public opinion
- information
- mobilizable troops
- financial resources
- skillful leadership” (Sabatier and Weible, 2007, p. 201–202).

This chapter utilizes the Advocacy Coalition Framework to examine the role that these six resource categories plays in the state-level climate policymaking process (see Figure 6). To help refine the focus of the qualitative description of each coalition interviewed in this chapter, key events that redistributed these resources for the advocacy coalitions are also examined, as are competing coalitions within each state, leading to changes in the power distribution in the

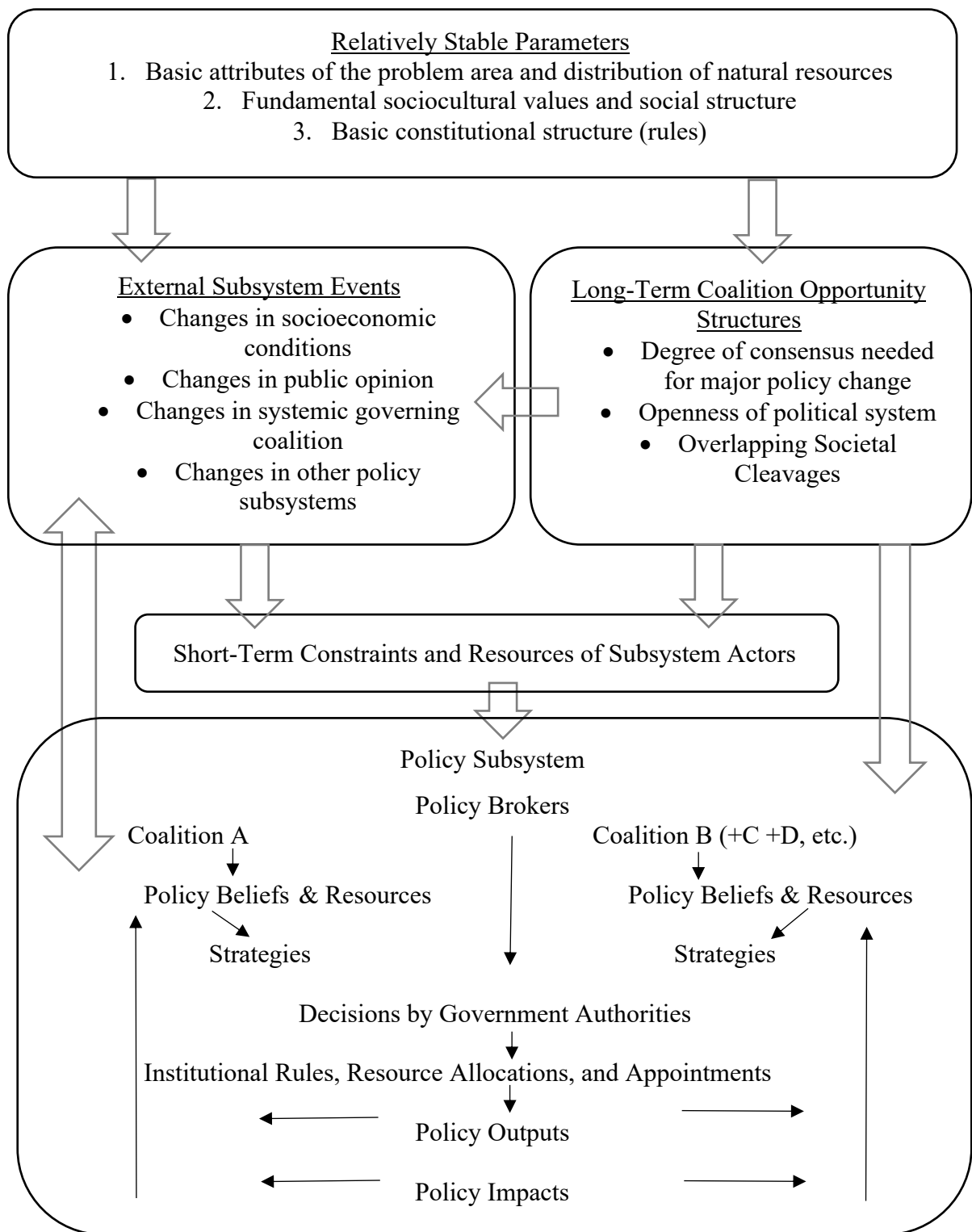


Figure 6. Advocacy Coalition Framework in State-Level Carbon Pricing Campaigns (adapted from Sabatier & Jenkins-Smith, 1998; Sabatier and Weible, 2007)

subsystem as well as the ability for advocacy coalitions to respond more effectively. Figure 6 expands on the potential inflection points where external events, opportunity structures, and resource deployment can all influence the desired final policy outputs for each coalition.

Overall, the Advocacy Coalition Framework lends light to the importance of stakeholder engagement processes including all impacted constituencies (subsystem policy actors) and the key political leadership needed to move policy output through to passage. The following research distinguishes the role and influence that each state's advocacy climate coalitions played in the design and ultimate passage (or failure to pass) within their respective subnational governments' policies. This aligns with Sabatier and Weibel's (2007) contention that the Advocacy Coalition Framework's purpose is in fact broadly intended to explore and "explain belief change and policy change over long periods" (p. 193).

3.3 Carbon Pricing Policies & Context

Before delving into the policy specifics of state-level coalitions in the United States, it is instructive to review a broader history of carbon pricing design where it has been implemented throughout the larger world. Carbon pricing policies have rapidly become an increasingly predominant environmental policy tool around the world, with 46 national and 28 subnational jurisdictions beginning to implement such instruments as of 2018, representing more than a 90% increase in the number of policies since the beginning of 2012 (World Bank, 2019). In total, these policies now cover over 19.6% of annual global GHG emissions—approximately 11 gigatons (10⁹ tons) of carbon dioxide (World Bank, 2019). While the adoption of these policies has been inconsistent throughout the world and experienced growth and decline where they have

been implemented, if current policies planned are implemented, by 2020 more than one-quarter of the world's emissions will have a carbon price (Klenert et al., 2017; Rabe, 2018).

There have traditionally been two primary forms of pricing policies—emission trading systems (which represent a majority of the instruments currently) and more direct carbon taxes (Baranzini et al, 2017; Strand, 2013). Emission trading systems, otherwise known as cap-and-trade policies, are an output regulatory approach that typically set a jurisdictional emissions ceiling (or “cap”) and then distribute or auction off the corresponding number of pollution permits up to a set portion of this amount. This creates the incentive for those industries that have lowered emissions below their allotment to trade extra allowances to other emitters. This in turn, provides a market incentive to reduce emissions while also creating an additional cost in the form of an enforcement mechanism (i.e. regulators). Regulators monitor and assess which firms produce more pollution than their cap and penalize those emitters that exceed their allotted total (Cramton, MacKay, Ockenfels & Stoft, 2017). By creating a market with supply and demand for emissions allowances, emission trading systems effectively establish a price for greenhouse gas emissions through their trading value. They often have a price floor and or ceiling to make sure the permits stay within a predictable range. The emissions cap provides both the enforcement mechanism to require emission reductions to take place as well as the provision of certainty for future years' expectations on the market's direction. With emissions trading systems, greenhouse gas emissions “can also be priced through payments for emission reductions. Private entities or sovereigns can purchase emission reductions to compensate for their own emissions (i.e. ‘offsets’) or to support mitigation activities through results-based finance” (Cramton, MacKay, Ockenfels & Stoft, 2017, p. 128).

The other main form of carbon pricing policy comes in the form of carbon taxes, an input approach that establishes a set price to pay per ton of CO₂ emitted (or another greenhouse gas equivalent) (Marron & Toder, 2014). On the international level, carbon taxes (also called fees, rebates, levies, etc.) also usually control for the price variation between countries' policies with border adjustments, often aimed at carbon-intensive imports and exports to minimize the temptation to offshore emission intensive industries or only purchase carbon-intensive fuels from international markets without an equivalent policy (Cramton, MacKay, Ockenfels & Stoft, 2017; Keen & Kotsogiannis, 2014). While both policy approaches attempt to address the social cost of carbon's significant market externality, emission trading schemes establish a fixed quantity and then let the market determine the price for which those permits should be traded at; carbon taxes, on the other hand, establish the price and then let the market determine how much of the good will be produced and consumed (Cramton, MacKay, Ockenfels & Stoft, 2017). To some extent, the overall strengths of either policy approach is that they account for externalities through a cap or tax, channeling the power of price signals to encourage individual-level behavioral changes; they both benefit from the basic human motive to comparison shop for less expensive substitutes and save on relative costs.

Carbon taxes directly establish a price on carbon or carbon dioxide emissions by implementing a tax rate on certain greenhouse gas emissions (downstream in the economy) or on the embedded carbon content of fossil fuels (normally upstream before they enter the economy). As a result, one of the main differences between carbon tax policies and emission trading schemes is that carbon tax policies' emissions reduction outcomes are not pre-defined. As such, the carbon price is more predictable but not the overall quantity emitted (Stram, 2014).

Additionally, the scope of sectoral coverage for carbon taxes are typically much more broadly applied. Emissions trading policies historically been focused on one particular sector (i.e. electricity for markets like RGGI or the initial Californian Western Climate Initiative), while a carbon tax is often applied across all energy choke points, having the potential to encompass not only electricity based emissions, but transportation, manufacturing, and even agriculture. This type of approach also allows the flexibility for pricing to remain more standardized across districts - from the subnational to even the international level. Additionally, carbon taxes also have the potential to entail lower-cost compliance measures (much of the fuel material being assessed a fee already is weighed and taxed through existing programs) and minimize the complications in levying penalties against (existing WTO provisions permit countervailing duties on good being imported from other countries as long as domestic goods are assessed the same fee).

Overall, both emissions trading systems and carbon taxation policy have to contend with uncertainty—either in price or overall emissions cap—and both can be adjusted and co-exist within the domestic or international realm together (Goulder & Schein, 2013; He et al, 2015). Ultimately, as Cooper (2017) poses, carbon pricing policy preference is largely one that should be decided between controlling the stock or the flow. Policymakers need to consider if they find it more politically expedient to design policy around pricing externalities based on the overall amount of carbon emissions allowed to be emitted or to the current rate of fossil fuels entering into the economy.

3.3.1 The Political Economy of Carbon Pricing

Scholars who have traced the policy life cycle of carbon pricing policies – from the formulation of proposals, to the policy adoption, implementation, and evaluation stages – have highlighted the challenges that come at each stage to build a broad enough coalition of political support to ensure passage to the next stage (Harrison, 2018, Jenkins, 2014; Meckling et al., 2015). While the timeframe for any carbon pricing policy has been relatively brief (the earliest forms began in Scandinavian countries like Norway, Finland, Sweden, and Denmark in the 1990s), both carbon taxes and emissions trading systems have a mixed record of actual economic and environmental effectiveness; this highlights the need for additional examination of countries that have begun to implement such policies to fully understand their impact (World Bank, 2015). Nevertheless, due to considerations for economic efficiency, major institutions like the World Bank, International Monetary Fund, Global Commission on the Economy and Climate have all begun to advise governments towards considering pricing carbon (World Bank, 2015). For example, in their own recent global report, the International Energy Agency recommended that by 2040 an established price of \$140/ton CO₂ equivalent should be in place for developed countries and \$125/ton CO₂ equivalent for developing countries (such as Brazil, India, China, South Africa, etc.) and that all of this could be implemented without harming economic development (Cramton, MacKay, Ockenfels & Stoft, 2017).

Common support for carbon pricing is typically based on appreciation for the transparency, inclusivity, and incentives it can provide (Aldy & Stavins, 2012). Publicly designating prices can serve as a credible comparative base foregrounding commitments between states. Inclusivity is fostered by providing a means to highlight comparative gaps in country's

climate comments. Incentives concerns (i.e. ‘free riders’ or entities benefiting without paying for any of the benefits directly) (Nordhaus, 2015) are addressed by internalizing costs into economic transactions as well as providing an alternative revenue source for developing countries’ adaptation and mitigation costs (Aldy & Stavins, 2012).

These major international institutions have historically been dispassionate on which type of direct carbon pricing policy to steer governments towards adopting. The best fitting policy instrument has depended upon national and economic circumstances. Both emissions trading policies and carbon taxes generate significant revenues for the states to decide where to spend and if applied correctly to stakeholders can be growth enhancing (Bowen, 2015). Additionally, there are other additional pathways governments can find akin to pricing carbon, such as through fuel taxes, the removal of fossil fuel subsidies, and regulatory design that may incorporate a “social cost of carbon” (Rabe, 2012; Cramton, MacKay, Ockenfels & Stoft, 2017). Overall, carbon pricing policy has become in the eyes of many economists one of the more fascinating developments in the past decades, especially given its emerging widespread economic acceptance.

Within the field of political economy research there are several dynamics that are challenging which any governmental intervention faces when seeking to establish a carbon-pricing policy. First and foremost, most of the benefits of any such policy will be far-off and global in scope while the costs imposed are local and immediately impactful. Even though over a long-term time horizon, most countries will benefit from a reduction in greenhouse gas emissions, in the short term any individual country’s efforts to mitigate their emissions largely benefit other countries (Stiglitz, 2017). To make policy conditions even more challenging,

scholars have noted that the vast majority of these benefits politically will not be experienced until the current voters give way to future generations, setting up incentives for putting off action (Stiglitz, 2017). Additionally, pricing carbon also has the potential to change prices on the microeconomic level, impacting households in terms of increasing the costs of certain goods as well as the distribution of these costs across income groups and other factors (Dissou & Siddiqui, 2014; Rausch, Metcalf, & Reilly, 2011; Jenkins & Karplus, 2017).

Looking at climate policy from the international political economy lens, the challenge lies mainly within the realm of what level of government intervention is most efficient and institutionally responsible for effectively addressing the challenge. Climate change affects global public goods and while economic life is defined by voluntary exchange of private goods, economists have pointed out that spillovers do exist (externalities) and an extreme case of this happening comes with public goods (Nordhaus, 2015; Parry, 2015). Public goods are commodities that are prohibitively expensive to exclude individuals from benefiting from (non-excludable) and where extending the benefits to an additional person costs nearly nothing (non-rival) (Nordhaus, 2015). The challenge with global public goods such as the atmosphere is that there are no effective governmental mechanisms or international legal mechanisms to provide structure and guidance (Nordhaus, 2015). Termed, the “Westphalia Dilemma,” this dynamic is present any time countries try to work out climate change related mutual agreements because any international commitments may be forced onto a sovereign state only with provided consent. In the end, any effective solution to addressing climate change must contend with the dual goals of internalizing the cost of public goods while *disincentivizing* free riders. In the words of Nobel laureate William Nordhaus, “the critical economic point about public goods is that private

markets do not guarantee efficient production...efficient production of public goods requires collective action to overcome the inability of private agents to capture the benefits.” (Nordhaus, 2015, p. 28).

Additional challenges that governments are up against in designing effective carbon pricing policy include the considerable tension between the limits of our atmospheric holding capacity and the expanding discovery of additional fossil fuel reserves. On the one hand, the Intergovernmental Panel on Climate Change (IPCC), a robust international group of climate scientists and policymakers issues a quadrennial comprehensive report on the current state of play; the 2014 findings highlighted that we as a collective global society can only emit another 1,000 total gigatons of CO₂ to have a probability of roughly 66% of staying below a two-degree Celsius global mean temperature increase (IPCC, 2014). In 2018, the IPCC further elaborated on the importance of early action by highlighting that there is general scientific consensus that in order to maintain this likelihood, we have only roughly one additional decade of energy use as we currently consume before the global community’s energy supply would need to be almost exclusively non-carbon emitting (IPCC, 2018). On the hand, the global community isn’t experiencing any shortage of available fossil fuels. For example, a global coal renaissance is occurring. Between 2005-2013 three times as many coal plants were built than in any other decade worldwide (Cramton, MacKay, Ockenfels & Stoft, 2017). There are still approximately 16,000 gigatons (10⁹ tons) of CO₂ available from fossil fuel reserves and without significant changes to prevailing market forces, fossil fuel reserves have the potential to use up the remaining storage capacity of earth’s atmosphere (Cramton, MacKay, Ockenfels & Stoft, 2017). As a result, any energy transition may most likely depend on policy intervention given that

overall prices will rise in the long-term, but in the short-term fossil fuel will continue to remain cost-competitive with low-carbon forms of energy. Thus, to understand the diversity and widespread use of why carbon pricing has been implemented across the world, it is instructive to explore several specific policy designs where campaigns have led to successful policy outputs with more depth. The following sections examine the subnational examples (and policy variation) of Quebec and British Columbia in Canada along with the recent carbon fee levy in Britain.

3.3.2 Quebec's Carbon Price Design Features

Climate change poses an enormous challenge for Canada and like the U.S. it has struggled to rein in its emissions.⁸ Similar to the U.S., there are also large differences in emission trends across the country, with maritime provinces like Nova Scotia seeing emissions decline by 33% since 2005 while those of Alberta, home to Canada's oil sands, have increased by 18%.⁹ To meet the goals laid out in Canada's Paris commitments¹⁰, the cornerstone of Canada's federal efforts has been the Pan-Canadian Framework on Clean Growth and Climate Change (Government of Canada, 2016). Canada's framework has sought to establish a flexible carbon pricing mechanism

⁸ Canada's emissions climbed from 602 MtCO₂e in 1990, the reference year for the Kyoto Protocol, to 730 MtCO₂e in 2005 though since down to 716 MtCO₂e in 2017. Retrieved from *National Inventory Report 1990-2019 - Greenhouse Gas Sources and Sinks in Canada*, Environment and Climate Change Canada, Ottawa.

⁹ Retrieved from <https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/inventory.html>

¹⁰ In Paris, Canada committed to reduce its emissions by 30% below 2005 levels by 2030 to approximately 511 MtCO₂e, which represents a reduction of 219 MtCO₂e, though it may also have recourse to an as yet undefined "international mechanism" to achieve this target Government of Canada (2015) *Canada's INDC Submission to the UNFCCC*, United Nations Framework Convention on Climate Change (UNFCCC), Bonn. Canada has required developing a flexible approach that accommodates regional variation, all the more important given that Canadian provinces possess considerable jurisdiction over matters pertinent for climate change including energy and natural resources. Bélanger A (2011) Canadian federalism in the context of combating climate change. *Const F* 20:21.

that reinforces existing provincial initiatives—particularly those in British Columbia, Alberta and Quebec—while also introducing a suite of smart regulatory policies to enhance climate action (Di Matteo, Clemens, & Emes, 2014; Krupa, 2015). Indeed, it is increasingly recognized that carbon pricing and regulations (such as clean fuel standards, renewable portfolio standards, etc.) should be considered as complimentary policy options, though care needs to be given for ensuring proper policy alignment and sequencing to be effective (Jaccard, 2016; Pahle et al., 2017).

One important characteristic of Canadian climate policy has been the degree to which certain provinces have demonstrated leadership and willingness for policy experimentation, including the two provinces explored in this chapter: Quebec’s cap-and-trade system and British Columbia’s (BC’s) carbon tax (Boyd, 2015; Chalifour & Papy, 2015). Another important characteristic is that Canadian’s believe climate change is occurring on a higher level when compared with public opinion studies in the United States (Mildenberger et al., 2016). Additionally, It is important to recognize that the Canadian federal government carbon price is only a backstop measure, required in situations where provinces themselves have not implemented a price-based system (e.g. a carbon tax) or cap-and-trade system. Also significant, the Canadian federal backstop is revenue-neutral, meaning that any revenues generated by the federal carbon pricing mechanism are returned to residents of the province by the federal government. In such situations, the federal carbon price begins at \$10 CDN per tCO₂e in 2019, rising to \$55 CDN by 2022.

Notably the emissions coverage is quite comprehensive for provinces who were early adopters of carbon pricing policies, covering all major economic sectors and approximately 85%

of total emissions in Quebec and 70% in BC, respectively (Houle et al., 2015; Beale et al., 2015). The most recent data indicates that Quebec's Green Fund raised around \$2 billion CDN from 2013-2017 while BC's carbon tax raised roughly \$7.3 billion CDN from 2008-2016 (Mascher, 2018). However, the revenue design decisions of both provinces contrast markedly in important ways.

Quebec's strategy for addressing emissions has been to put a price on carbon through a cap-and-trade system as well as a suite of government programs through a Climate Change Action Plan (CCAP). Quebec's emissions trading system has been discussed in more detail elsewhere (e.g. Purdon et al., 2014; Purdon and Sinclair-Desgagné, 2015), but briefly, prices on the Quebec carbon market currently stand at approximately \$23 CDN/per ton of CO₂.¹¹ The Quebec trading system has been connected to the cap-and-trade system that California established¹² in part to provide a larger market for tradable carbon permits that both governments issue as well as to capitalize on building on an already established and functioning system rather than creating an entirely new approach. These figures are much lower than what would be expected had Quebec firms not been able to purchase lower-cost emission allowances from Californian ones (Purdon and Sinclair-Desgagné, 2015).

The CCAP initially envisioned expenditures of \$2.7 billion though this has since risen to \$3.7 billion CDN as new initiatives have been introduced.¹³ These include an ambitious 2030

¹¹ Retrieved from https://ww3.arb.ca.gov/cc/capandtrade/auction/may-2019/summary_results_report.pdf. *CA-QC Joint Auction Summary Results Report - May 22, 2019*, California Air Resources Board & Ministère de l'Environnement et de la Lutte contre les changements climatiques, Sacramento & Quebec.

¹² Retrieved from <http://www.environnement.gouv.qc.ca/changements/carbone/documents-spede/questions-reponses.pdf>, Trudeau, (2018) *Le système de plafonnement et d'échange de droits d'émission de gaz à effet de serre : l'expérience québécoise*, Institut canadien du droit des ressources Laval.

¹³ Retrieved from <http://www.environnement.gouv.qc.ca/changementsclimatiques/plan-action-fonds-vert.asp>, MDDELCC (2018) *Plan d'action 2013-2020 sur les changements climatiques: Bilan Mi-Parcours 2017-2018*,

Energy Policy as well as the establishment of a special agency to promote energy transitions known as Transition énergétique Québec (TÉQ) in 2017¹⁴The CCAP and TÉQ are largely financed by carbon revenues generated from the quarterly auctions of emissions allowances, which are deposited in a special Green Fund.

Initial management of the Green Fund attracted considerable criticism which prompted significant institutional reform. A comprehensive study of the Green Fund by Quebec's Auditor General identified several issues requiring attention including the need for more measurable and results-based objectives, procedures to monitor the achievement of these objectives and improving the management structures for programs financed. This led to the adoption of a new legal framework in 2017, which included the establishment of a Green Fund Management Board to improve the Fund's performance.¹⁵ Similarly TÉQ adopted a master plan in 2018, which has incorporated measurable performance targets.¹⁶

The proof of any economic and environmental benefit will arrive with longer-term studies. To date, emissions in Quebec have fallen 9.1% below 1990 levels, though they have been plateauing since 2014¹³ However, this does not account for emission allowances purchased by Quebec firms from California counterparts through the linked carbon market. Quebec firms

Ministère du Développement durable, de l'Environnement et de la Lutte contre les Changements Climatiques (MDDELCC), Québec.

¹⁴ Retrieved from <https://transitionenergetique.gouv.qc.ca/en/aboutTÉQ> (2017) *Mission de Transition énergétique Québec*, Transition énergétique Québec (TÉQ), Québec.

¹⁵ Retrieved from <http://www.environnement.gouv.qc.ca/cgfv/> CGFV (2018) *Fonds vert : Cadre de Gestion*, Conseil de gestion du Fonds vert (CGFV), Québec.

¹⁶ Retrieved from https://transitionenergetique.gouv.qc.ca/fileadmin/medias/pdf/plan-directeur/TEQ_PlanDirecteur_web.pdf, TÉQ (2018) *Conjuguer nos forces pour un avenir énergétique durable - Plan directeur en transition, innovation et efficacité énergétiques du Québec 2018-2023*, Transition énergétique Québec (TÉQ), Québec.

have often satisfied their mitigation obligations through the purchase of offsets from California, meaning any resulting positive economic and environmental benefits are largely enjoyed in California. Thus, one takeaway for other policymakers who desire carbon pricing revenues to initiate domestic economic rejuvenation, is that linked markets that include offsets may appear suboptimal. Nevertheless, the advantage of this approach in Canada has been that firms are pricing carbon into their decision-making and reducing emissions at lowest-cost amongst linked partner jurisdictions.

3.3.3 British Columbia's Carbon Price Design Features

BC adopted a revenue-neutral carbon tax in 2008 that has been called ‘perhaps the closest example of an economist’s textbook prescription for the use of a carbon tax to reduce GHG emissions’ (Murray and Rivers, 2015). The simple, transparent Pigouvian tax has been imposed upstream in the economy and was originally introduced in 2008 at \$10 CDN, rose to \$30 CDN by 2012 and only recently began rising by \$5/year in 2018 and with the plan to increase \$5 annually until reaching \$50 CDN in 2021 (Purzycki, 2016). Its key distinguishing design feature—revenue-neutrality—aimed to return the revenue back to people via tax cuts and targeted payments for affected populations (low-income and rural households). However, the policy’s design has evolved since, including the repeal of the carbon tax’s revenue neutrality provision in 2017 (BC, 2017), with important consequences.

Two issues have proven particularly challenging with BC’s efforts towards maintaining a revenue-neutral carbon tax and both of which highlight the importance of design considerations that policymakers face. First, while the impact of how BC recycled the revenue collected was

initially progressive and directed more towards protecting low-income households from the rising energy costs associated with the tax, researchers have highlighted that it has since shifted towards offering more corporate tax credits and having more of a regressive impact (Harrison, 2012; Harrison, 2013; Beck et al., 2015). Second, a real tension exists between the objectives of recycling carbon tax revenues back into the economy and funding ‘green initiatives’ and other initiatives that also advance climate commitments but require government funds.¹⁷ BC’s carbon tax framework has even begun to fold in unrelated tax credits. Some of these are relatively small and constituent-oriented,¹⁸ while others include credits that benefit wholly unrelated industries such as the film industry.¹⁹ Thus, another takeaway for carbon pricing policy architects spotlights the importance of transparency in revenue design. BC did not prioritize as highly nor highlight as prominently the tangible benefits its programs provided to constituencies like other successful models of subnational carbon pricing have done.²⁰ As a result, BC’s original twin goals of market-based climate mitigation coupled with economic growth appear to have begun to be subsumed by revenues going to non-climate-related special interests while generating considerable opposition.²¹

¹⁷ Retrieved from http://bcbudget.gov.bc.ca/2018/bfp/2018_Budget_and_Fiscal_Plan.pdf#page=82
British Columbia Budget 2018: Budget and fiscal plan 2018/19-2020/21.

¹⁸ The Children’s Fitness and Art Credit, the Small Business Venture Capital Tax Credit, and the Tax Training Credit. (Rabe, 2018, p. 113).

¹⁹ 2013’s Interactive Digital Media Tax Credit, 2014’s Film Incentive Tax Credit and Production Services Tax Credit, and 2015’s Scientific Research and Experimental Development Tax Credit (Rabe, 2018, p. 113).

²⁰ Retrieved from <https://www.rggi.org/investments/proceeds-investments>

²¹ Retrieved from <https://www.nationalreview.com/2019/02/carbon-taxes-lessons-from-canada/>

3.3.4 United Kingdom's Carbon Price Design Features

The United Kingdom has experienced a mix of successes and limited policy impacts in terms of carbon management, including the 2008 landmark legislation, “The Climate Change Act” (Bache, Bartle, Flinders, & Marsden, 2015). Beginning in 2013, the country imposed a carbon tax (or “carbon price floor”) on fossil-fuel power generation (House of Commons, 2018). The fee currently stands at approximately \$25 per ton of carbon dioxide (any additional price increases have been frozen through at least 2020) and was in addition to the additional price (roughly \$5-\$7 per ton over this time period) that electricity producers paid due to the EU's emissions trading scheme. Since this strong price increase went into effect, the United Kingdom's coal use has declined 90% between 2014 and 2017, with gas and renewables generation taking its place in the energy mix. The United Kingdom's carbon price floor has also lead to the United Kingdom moving up thirteen places (from 20th in 2012 to 7th in 2017) in a list of 33 countries' utilization of low-carbon electricity according to a 2018 study headed up by the Imperial College London (Staffell et al., 2018). Thus, the United Kingdom experience highlights the policy impacts that can take place, even over a relatively short-term, in transitioning a country's energy mix away from more carbon-intensive fuels and towards low-carbon electricity generation.

With an understanding of the elements behind the policy design and implementation decisions of other units of governance that have adopted a price on carbon, the remaining sections of this chapter will focus on the specific dynamics that advocacy coalitions in four U.S. states faced in their own carbon pricing policy design process and what factors influenced both the design as well as (for some) eventual implementation process.

3.4 State-Level Advocacy Coalitions & Carbon Pricing Policy

At the time of this chapter's research, there was a wide diffusion of climate-related state-level policy being introduced across the country. In order to further refine the focus, this chapter narrows the case selection towards those policies that were oriented (at least initially) around carbon pricing. The 2019 session saw 16 states that had introduced some type of carbon pricing legislation in at least one of their state governmental bodies.²² While the larger U.S. climate change policy community has begun to track and analyze the design and impact of bills, there has been little research done on the comparative origins and motivations behind the overall forces at work in the policymaking process. To further refine this list an additional determinant for the case study selection criteria included in this chapter is illustrated by selecting states that could fully elaborate the 2 x 2 grid presented in Table 9. Table 9 highlights this chapter's examination of two competing dynamics between whether the resources available for advocacy coalitions were able to be leveraged to lead towards policy output and adoption in state coalition settings that featured variation in the alignment of state political leadership. In this case, resources is operationalized as a measure of the relative power and strength of the advocacy coalition compared with other policy subsystem actor's connected to the legislative proposal. And leadership alignment is measured by the level of support the state's top legislative political leadership (those with agenda setting powers) provided the legislative proposal in influencing the design of each state's subnational policy.

²² According to the State Carbon Pricing Network's research, August 24, 2019: <https://climate-xchange.org/network/#1552398501766-4ab0d83b-3c49>

Within the bounds of this chapter, to complete the 2 x 2 grid - carbon pricing bills that originated within four U.S. state or district legislatures (District of Columbia, Massachusetts, New York, and Oregon) were explored – each of these states over the past legislative session featured a Democratic supermajority in at least one of their legislative bodies to help provide a standardized background to minimize political representation variation. However, outside of this supermajority status, the four states selected feature considerable diversity in their policy design as well as the diversity in political, legal, and demographic challenges that made up the policymaking landscape for their passage.

Table 9. Key Competing Trade-off Dynamics State-Level Initiatives Face

	Aligned Political Leadership	Non-Aligned Political Leadership
Passed	New York	Washington, DC
Did Not Pass	Oregon	Massachusetts

As highlighted by the Advocacy Coalition Framework body of work, while many factors influence whether or not a coalition is successful in having their campaign principles effectively implemented into policy output, some of the most crucial are outside of the control of coalitions (alignment with policy brokers' goals, favorable external events, policy core beliefs of the other coalitions, etc.). As a result, while it is clear that advocacy coalitions perform a critical role in pushing for the final passage of any carbon pricing policy output, this chapter's hypothesis examines the strategic role a coalitions' resources play as the main focus.

H1: In comparing state-level policies, coalitions that effectively outcompete with competing coalitions through broadening their coalition of stakeholders and leveraging elements within their resource purview (information, skillful leadership, financial resources, public opinion, and mobilizable troops) will be more likely to support the passage of strong and ambitious carbon pricing policy outputs.

In other words, this chapter's research predicts that when compared with other state stakeholders and policymakers working in the same subsystem, the advocacy coalitions with the broadest mobilizable troops, the deepest access to financial resources, the most impact in influencing public opinion, etc., will be more likely to lend successful support for strong and ambitious carbon pricing policy outputs than will those that have not. Overall, this chapter does not advance the argument that one category of coalition resources is most important or influential, but instead examines the coalition frameworks, strategies, and resources involved in each stage of the sequence on the subnational level. While this chapter is only a preliminary analysis based on qualitative interviews with advocacy coalition leaders, it is clear that the considerable variation in the carbon pricing policy formation strategies introduced across the states examined highlights the need for further study to lead towards a more precise understanding of the role that advocacy coalitions play in employing all of the resource factors highlighted above towards the design process, passage, and implementation of carbon pricing policies throughout the United States.

To help understand and compare some of the background details that define the policy subsystems that all four state campaigns worked within, Table 10 compares the key legislative and coalition structures, including the number of lawmakers (by party) in each state house, the

leadership position on each of the pieces of legislation as well as the number of coalition partners. For example, the leadership alignment of both New York's and Oregon's Speaker of the House and Senate President contrasts with the limited support that both Massachusetts leaders have provided as well as the surprising late legislative switch that took place in Washington, DC. When comparing length of session for each state (or district) – New York and Massachusetts both meet full term generally speaking on odd numbered years and for half the year (January – July) on even years. The District of Columbia council meets throughout the year with longer recesses in the summer and the state of Oregon convenes annually with odd-year sessions lasting up to 160 days and even year sessions running for much shorter 35 day sessions. Table 10 also displays the bill numbers for each campaign's favored policy.

One of the most important areas of research within the Advocacy Coalition Framework is the process by which coalitions form policy core beliefs from the diverse secondary beliefs of the larger coalition membership. One way of examining this process is through comparing each of the four campaign's coalition principles as highlighted in Table 11 below and explored with more depth in each of the state coalition's case study description.

All four state-level advocacy coalitions inherited a long history of political advocacy in their respective states that the case studies explore below. The Advocacy Coalition Framework operates with a longer-term time horizon in its scope and each campaign has had some form of a coalition presence active for at least the past five years through various evolutions. As a result, Table 12 is provided to help provide a brief integrated timeline including key policy output events for all four state campaigns to contextualize the progression of organizing efforts and climate-oriented legislation that took place over the past twenty years.

Table 10. Comparing State-Level Legislative & Coalition Structures

	DC	Massachusetts	New York	Oregon
Key Policy & Status	Clean Energy DC Omnibus Act of 2018 (Passed)	(H2810) (S1924) Summary (In Committee)	S2992 (became S6599) in the Senate. A3876 (became A8429) in the Assembly (Passed)	The Clean Energy Jobs Bill (HB 2020A) (Held In Senate Committee)
No. of Law-makers ²³	13 on Council (11 D and 2 Independent) (D Supermajority)	40 Senate (34 D- 6 R) 160 House (127 D -32 R- 1 I) (D Supermajority)	63 Senate (40 D -22 R) 153 House (106 D -43 R- 1 I) (D Supermajority)	30 Senate (18 D -11 R) 60 House (38 D - 22 R) (D Supermajority)
Leadership ²⁴	Chairman Phil Mendelson co-introduced the adjusted bill with Councilwoman Mary Cheh (signed and lead council's efforts)	House Speaker DeLeo (has not cosigned) Senate Pres. Spilka (has not cosigned)	House Speaker Heastie and Senate Pres. Stewart-Cousins both named the CCPA as a way forward on climate in 2019's session	House Speaker Tina Kotek, Sen. President Peter Courtney and Gov. Brown publicly committed to passing the Clean Energy Jobs Bill
Number of individuals and groups signed on ²⁴	Businesses: 20 Environmental NGOs: 13 Community, Justice & Labor Organizations: 13 Religious Advocacy Groups: 3 70+ Total	Founding Members: 12 Business & NGO Members: 40 50+ Total	Businesses: 8 Environmental NGOs: 81 Environmental Justice: 6 Faith Leaders: 198 180+ Total	Businesses: 830 Organizations: 50 Farmers: 215 Elected Officials: 63 Faith Leaders: 128 1,300+ Total

²³ Retrieved from <https://ballotpedia.org/>

²⁴ Retrieved from campaign websites <https://www.dccclimate.org/>, <https://masscleanenergyfuture.org>, <http://www.nyrenews.org>, <https://www.reneworegon.org/>

Table 11. Comparing State-Level Coalition Principles (compiled from the language featured on each of the coalitions main public websites)²⁴

DC	Massachusetts	New York	Oregon
<p>1. Science: Investing in renewable energy and energy efficiency will help us achieve DC's strong emission reduction targets of 50% by 2030 and 80% by 2050. By transitioning to 100% renewable electricity and reducing emissions from the urban and transportation sectors, we will be well on the path to achieve these goals.</p> <p>2. Social and Environmental Justice: Millions of dollars will be allocated to assisting low-income families each year through ratepayer assistance, efficiency, and other programs.</p> <p>3. Economics: Retrofitting buildings and incentivizing clean transportation will allow people to save money on fuel and bills.</p> <p>4. Durability: Renewable energy is popular among DC residents, and there is strong demand for local leadership on climate change in lieu of federal action.</p>	<p>1) Sufficient Fee/Tax Rate</p> <p>2) Gradual phase-in</p> <p>3) Economy-wide</p> <p>4) Fully compensate most households</p> <p>5) Protect business competitiveness</p> <p>6) Provide additional assistance to vulnerable households</p> <p>7) Further protect all sectors</p> <p>8) Funding for vital programs</p>	<p>1. We seek a sustainable future for the earth and its people</p> <p>2. We recognize climate change represents a serious threat to all and especially to vulnerable people such as workers, people of color, seniors, youth, and the poor.</p> <p>3. We understand that unchecked corporate power jeopardizes a sustainable future.</p> <p>4. We can address both the climate crisis and the inequality crisis with the same set of policies.</p> <p>5. We support rapid movement toward 100% clean renewable energy.</p> <p>6. Climate protection must serve as a means to greater economic justice and stronger local economies.</p> <p>7. Climate protection must serve as a means to challenge environmental and racial injustice</p> <p>8. We must ensure economic security & job placement program for existing workers and young people.</p> <p>9. We must ensure community participation and oversight in decision making.</p>	<p>1. Science Based to Protect Oregon's Future: The Cap Ensures Oregon Meets its Greenhouse Gas Goals</p> <p>2. Holding Polluters Accountable: Pricing Pollution - Reducing Greenhouse Gases, Creating Regional Partnerships</p> <p>3. Equitable & Just Transition: Investing in Climate Solutions to a Clean Energy Economy</p> <p>4. Shared Governance: Inclusive Representation & Transparent Accountability</p>

Table 12. State-Level Carbon Pricing Timeline

1997

OR: House Bill 3283 passed, establishing the first mandatory price on carbon dioxide emissions in the United States through updating Oregon’s rules for siting energy facilities.²⁵

2005

NY: The governor of New York joined with the governors from CT, DE, ME, NH, NJ, and VT to sign the Memorandum of Understanding (MOU) formalizing their joint agreement to reduce carbon dioxide emissions. This mid-Atlantic to northeast regional agreement eventually become known as the Regional Greenhouse Gas Initiative (RGGI), the first market-based regulatory program to reduce carbon dioxide emissions in the U.S.²⁶

DC: The Washington, D.C. City Council enacted a Renewable Portfolio Standard (RPS) of 20% greenhouse gas (GHG) reductions by 2023 that applied to all retail electricity sales in the District.²⁷

2007

OR: Two representatives introduced HB 3545, a bipartisan cap-and-trade bill focused on the electricity sector –undergoing two hearings, but not receiving a floor vote. HB 3543 passed creating Oregon-specific GHG reduction goals, along with two new institutions: the Global Warming Commission and the Oregon Climate Change Research Institute.

Oregon joins the newly created Western Climate Initiative, along with AZ, CA, NM, and WA aimed at providing a collaborative body among states to tackle climate change regionally.¹⁶

MA: RGGI expanded to include Massachusetts, along with MD and RI. 10 total signatory states agreed to be jointly responsible for setting up auctions to sell allowances for emissions and use the revenue to invest in renewable energy projects, energy efficiency, and other energy-saving household programs.¹⁸

²⁵ Retrieved from https://www.reneworegon.org/history_of_carbon_pricing_in_oregon

²⁶ Retrieved from <https://www.c2es.org/site/assets/uploads/2013/12/rggi-brief.pdf>

²⁷ Retrieved from <https://programs.dsireusa.org/system/program/detail/303>

2008

DC: The Council amended the District's RPS by adopting the Clean and Affordable Energy Act (CAEA) of 2008 which "increased the percentage and number of benchmarks that utilities must meet, including solar water heater as an eligible technology, increased the alternative compliance payment, and amended reporting requirement."²⁸

MA: Massachusetts passed the Global Warming Solutions Act, with mandates to reduce state greenhouse gas emissions by 25 percent by 2020 and 80% by 2050 (based on 1990 levels).

2013

OR: After multiple carbon tax bills and greenhouse gas emissions fee bills are introduced in the preceding several state sessions, a bill setting in forth a carbon tax study "passes with bipartisan support, marking the most thorough analysis of a state-level carbon tax in the U.S."¹⁵

2014

NY & MA: Member states began implementing rules based on the updates to the 2014 Model Rule – setting a new regional cap for the power sector of 91 million tons CO₂ with a declining rate of 2.5% annually to 2020.¹⁶

2015

NY: Two legislators introduced bills (A8372 Cahil / S6037 Parker) in the House and Senate that tax greenhouse gas emissions from fossil fuel sources and biofuels. "Starting at \$35/ ton and increasing yearly by \$15 /ton until the tax reaches \$185 per ton. 60% of the revenues generated by the mechanism would have been recycled back to low-income and moderate-income households, with the remaining funds invested in renewable energy, transportation and infrastructure."²⁹

OR: Three carbon pricing bills are introduced¹⁵:

"HB 3470: The Climate Stability and Justice Act sought to enforce Oregon's climate goals, put in place a plan by 2018, and require the state to "identify and make recommendations on emissions reduction measures, alternative compliance mechanisms, and market- based compliance mechanisms that sources may use to maximize feasible and cost-effective reductions of greenhouse gas emissions." The bill received one public hearing and two work sessions.

²⁸ Retrieved from <http://dcclims1.dccouncil.us/images/00001/20080819161530.pdf>

²⁹ Retrieved from <http://www.pricingcarbon.org/state-initiatives/>

2015 (cont.)

OR: “HB 3250: This cap-and-dividend bill sought to place legal limits on climate pollution, create auction permits, and return all revenue in equal payments back to taxpayers and their families. The bill received one public hearing.

“HB 3252: Placed a fee of \$60 per ton on climate pollution and directed revenue to create jobs, economic development and transition assistance fund such as assistance for low-and moderate-income households. Also directing Highway Transportation- restricted funds to be used for eligible low-carbon projects, like expanding capacity for high capacity transit. The bill received one public hearing.”

MA: S. 1747 An Act Combating Climate Change, is introduced in the Senate by Sen. Barret and both bills are referred to the Joint Committee on Telecommunications, Utilities and Energy.

2016

OR: The legislature directs the Department of Environmental Quality to study “implementing a market-based greenhouse gas reduction program, specifying several areas of focus, including general policy design, program methods to minimize negative effects on businesses, disadvantaged communities and rural parts of the state, and how such a program would interact with Oregon’s existing climate policies. The Healthy Climate Act (Senate Bill 1574), a cap-and-invest bill is introduced. It receives two public hearings, one work session, and is referred to Ways and Means with a “do pass” recommendation (with amendments).”¹⁵

2017

OR: The Clean Energy Jobs bill (SB 557) voted out of the Senate Energy and Natural Resources committee, but does not receive a floor vote. HB 2135, the bill’s House counterpart, passes the House Energy & Environment Committee and is sent to Ways & Means. The bill is later reintroduced as SB 1070, a priority bill with 33 legislative co-sponsors. “Following the close of session in 2017, four interim workgroups are created to fine-tune the bill in preparation for the 2018 session. The bipartisan groups, led by legislators, meet a dozen times over the fall with hundreds of stakeholders weighing in on issues ranging from transportation, agriculture, utilities, fisheries, tribes, equity, rural, industries, and forestry. Governor Kate Brown hires a Carbon Policy Advisor to work on the policy.”¹⁵

MA: H. 1726 An Act to Promote Green Infrastructure, Reduce Greenhouse Gas Emissions, & Create Jobs is introduced in the House by Rep. Benson. S. 1821, An Act Combating Climate Change, is introduced in the Senate by Sen. Barret and both bills are referred to the Joint Committee on Telecommunications, Utilities and Energy.³⁰

³⁰ Retrieved from <https://malegislature.gov/bills/190/h1726> and <https://malegislature.gov/Bills/190/s1821>

2017 (cont.)

DC: Mayor Muriel Bowser commits Washington, D.C. to reducing district-wide emissions by 80 percent by 2050 in line with the goals of the Paris climate agreement.³¹

NY: Rep. Engelbright introduces A8270, a bill which “enacts the New York state climate and community protection act; relates to climate change; renewable energy program; labor and job standards and worker protection.” In the Senate, S7971 is introduced by Senator Brad Holyman and referred to the Senate Committee on Environmental Conservation.³²

2018

OR: The Clean Energy Jobs bill is re-introduced with more detail in the Senate as SB 1507 and passes out of the Senate Energy and Natural Resources Committee. It is re-introduced in the House as HB 4001, referred to the House Energy & Environment Committee. Hearings are held, but the bill doesn’t receive a floor vote.¹⁶

MA: Massachusetts launched its own emissions trading system, “which directly covers power plants. The ETS is a cap-and-trade system with a cap that will decline annually by 2.5 percent until emissions reach 1.8 MtCO₂ in 2050. Allowances are freely allocated in 2018, but will be auctioned from 2019 onward. The system acts in parallel to RGGI, meaning power plants in Massachusetts must meet compliance obligations in both systems.”³³

NY: Rep. A. Engelbright re-introduces A8270, “an act to amend the environmental conservation law, the public service law, the public authorities law, the labor law and the community risk and resiliency act, in relation to establishing the New York state climate leadership and community protection act.” (A8270, NY Law). In the Senate, S2992 is introduced by Senator Todd Kaminsky and referred to the Senate Committee on Environmental Conservation.³⁴

DC: The Clean Energy DC Omnibus Act passes setting a 100% clean electricity standard for the District by 2032 —“the strongest U.S. renewable energy bill at the time of its passage. The Act uses funds to invest in energy efficiency, created groundbreaking building standards, and is funding local programs to help low-income residents in the energy transition.”³⁵

³¹ Retrieved from <https://thinkprogress.org/environmental-activists-seek-more-aggressive-carbon-pricing-plan-913399646fa6/>

³² Retrieved from <https://www.nysenate.gov/legislation/bills/2017/a8270>

³³ Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/29687/9781464812927.pdf>

³⁴ Retrieved from <https://www.nysenate.gov/legislation/bills/2019/s2992>

³⁵ Retrieved from <https://www.dccclimate.org/>

2019

OR: House Speaker Tina Kotek, Senate President Peter Courtney and Governor Kate Brown all commit publicly to passing the Clean Energy Jobs bill in 2019 (HB 2020) as well as forming and co-chairing the nation's first legislative Joint Committee on Carbon Reduction. The Oregon House passes HB 2020, but the Senate contends with Republican lawmakers absconding to nearby states to prevent a quorum from voting. Sen. President Courtney announces the Senate does not have the votes to pass the bill. Gov. Brown has since vowed to take executive action on climate change policies where legislative efforts have stalled.¹⁵

NY: Governor Cuomo signed the Climate Leadership and Community Protection Act, including a 100% carbon-free electricity standard by 2040 and an economy-wide, net-zero carbon emissions by 2050, making New York the nation's leader in legally-mandated emissions cuts. The CCPA includes a commitment to allocate 35% of the benefits of state climate funding to communities on the frontlines of the crisis.³⁶

MA: H. 2810, An Act to Promote Green Infrastructure & Reduce Carbon Emissions, is introduced in the House by Rep. Benson. S. 1924, An Act Combating Climate Change, is introduced in the Senate by Sen. Barret and both bills are referred to the Joint Committee on Telecommunications, Utilities and Energy.³⁷

3.4.1 District of Columbia (Washington, D.C.) State-Level Campaign Background

The carbon pricing discussion in Washington, D.C. was distinct from elsewhere nationally given the smaller size of the district as well as the advocacy coalition's success at passing ambitious climate legislation. Uniquely, this passage was at the cost of diverging from the original carbon pricing policy goals the advocacy campaign had originally been working to implement. The Clean Energy DC Omnibus Act of 2018 (from here forward referred to as the Clean Energy DC Act) became the supported policy output for the advocacy coalition studied in

³⁶ Retrieved from <http://www.nyrenews.org/news/2019/7/25/statement-by-ny-renews-on-governor-signing-the-climate-leadership-and-community-protection-act>

³⁷ Retrieved from <https://malegislature.gov/Bills/191/h2810> and <https://malegislature.gov/Bills/191/SD1817>

the District of Columbia. To understand more of the dynamic from the Advocacy Coalition Framework perspective several interviews were conducted with the following participants: Camila Thorndike, the Campaign Director for DC Climate Coalition (formerly known as Put A Price On It D.C.), Jamie DeMarco, coalition leader in charge of the DC Neighborhood Advisory Commissions outreach, and Bill Updike, an independent volunteer with decades of policymaking experience.

Put a Price On It D.C. originally formed in the fall of 2015, when roughly 6-7 local environmental organizations including the Sierra Club, DC Environmental Network, and Chesapeake Climate Action Network met to establish a shared vision for how diverse coalition stakeholders could come together to generate public support for more ambitious climate-change oriented legislation in the District. Placing the formation of the coalition on one particular external event is challenging, but Thorndike highlighted the Put a Price on It D.C. campaign origin as beginning from the shared policy core beliefs of the original founding members. The core belief centered on the perspective that only a steadily rising price on greenhouse gas pollution would be strong enough to close the gap between the District's current emissions pathway and the targets established by the best available science highlighted (Thorndike, 2019). Thorndike (2019) highlighted the most recent IPCC (2018) report citing the importance of acting in the next decade as well as the equity implications behind the limited federal action taking place on ambitious climate policy as influences on the coalition's formation.

Thorndike highlighted that before they even rolled out an actual presence on the ground, the founding coalition members began with researching the current state of play for the many different types of carbon pricing policy design throughout the world as well as the advocacy

campaigns that had helped translate these successes (2019). For example, one of the other external events providing policy context during the same time period was the I-732 referendum failure in Washington State; this event highlighted the importance of getting as diverse a group of environmental organizations bought-in and on the same page ahead of the finer details in any coalition policy design process (Thorndike, 2019). In terms of the constitutional limits (re: overarching rules) that the coalition faced, Washington, D.C. faced no legal constraints on using a carbon price to generate and spend revenue as any policy stipulated (though all acts from the District of Columbia's council are subject to a 30 day review by Congress and may be revoked) (Bauman and Komanoff, 2017).

In their review, the coalition identified two key elements that stood out as common themes. First, the importance of smart policy design—framing the policy as “holding polluters accountable” and emphasizing the progressive impact that returning revenue back to households and votes would have on easing public insecurity about rising costs or economic impacts in the district (Thorndike, 2019). Thorndike also highlighted the second key factor in the coalition's work – the importance of a robust outreach strategy. “We knew we needed to educate the public and decision-makers alike about this simple, cost-effective solution” (DC Climate Coalition, 2018).

After going through a serious research phase, the coalition began to put the background research into an on-the-ground coalition in early 2017 through “working with professional facilitators to build a process for an inclusive, transparent, and equitable climate campaign in D.C.” (Thorndike, 2019). One of the first strategic decisions made with their resources was to bring in an outside facilitator, Justin Wright with Active Neutrals, to engage all coalition

members in a process that enabled everyone to bring their policy beliefs and ideas forward and have a facilitated forum to defend them. Thorndike highlighted the critical nature of this process, explaining that with many coalition organizing experiences, it often “becomes about egos and turf. The facilitation helped us build trust between organizations and made sure that everyone felt like they had a place at the table” (2019). The facilitation reinforced the coalition’s principles (Table 11), highlighting that “equity rose to the top, inclusive design so that low-income people wouldn’t be put out, and setting a strong price to lead to emissions reductions” (Thorndike, 2019). This approach also allowed the larger coalition to find agreement in terms of the elements of policy design that they supported – with assigned reading and discussion material to take back to each of their respective organizations in between each meeting. “[Wright] provided us with packaging exercises where as a coalition, we examined four policy scenarios, highlighting the potential elements of our ideal policy – its price schedule, where it might be capped, who is covered, and how the money is invested,” Thorndike (2019) explained, allowing the members to examine how their competing policy beliefs could still mesh together and gain consensus through this series of in-person meetings.

When the coalition was ready to launch, Put A Price On It D.C. intentionally reached out to invite more than 100 DC community organizations into the campaign. The end result was that when the campaign formally launched, it was supported by a diverse array of “social, economic, racial and environmental justice organizations; labor; neighborhood groups; and small businesses across the city” (DC Climate Coalition, 2018).

The coalition also began to pursue getting on the agenda of almost Advisory Neighborhood Commission in the District. DeMarco highlighted that generating public support

from the Advisory Neighborhood Commissions (ANCs) was a key strategic move the coalition focused on. In Washington, D.C., each ward has four to six ANCs, leading to a total of 40 throughout the district. Most organizations that are serious about trying to pass a bill through council takes their proposal first through the ANCs for endorsement (DeMarco, 2019). Each ANC has between five to ten elected members and each member has its own hyper-local district representing a neighborhood of roughly five blocks that they're elected from. According to DeMarco (2019), this level of stratification and hierarchical organization leads to an incredibly powerful way for local community leaders to be engaged in the democratic representative process. The ANC meetings are largely viewed as representing the people most politically and socially engaged in their community, and in response, their support is viewed as important to elected officials for what they think (DeMarco, 2019). Coalitions tend to strategically target specific ANCs within the ward of key council members to generate support. For example, the campaign targeted gaining Councilmember McDuffey's support to pass the legislation so DeMarco's team reached out to the five ANCs throughout the ward and gained the endorsement from three of them for the Clean Energy DC Act (2018). On the other hand, the councilman didn't immediately commit to supporting the act, highlighting that while influential, the ANCs aren't a guarantee for what the council will support, however they still provide an important role in discerning what the council may or may not pass as well as a means to work with and gain public support in a different venue (DeMarco, 2019).

The campaign also spent an significant amount of resources on canvassing, door-knocking, and other intentional strategies to grow grassroots support for the local movement. Thorndike highlighted the ongoing campaign to generate calls, emails and meeting visits with

councilmembers to demonstrate political will for the campaign. They invested in approaches that sought out businesses that wanted to lead on the issue of climate change by supporting a campaign that called for ambitious and equitable local climate action.

While the campaign was building up its constituency in the form of coalition members it was also generating policy output influence by building trust and connections with the D.C. City Council. To help develop the policy formation process between what the council staff was working on and the coalition was interested in advocating for, a small group of volunteers with experience drafting legislation coalesced around serving as specialized technical advisors to help the coalition draft its policy (Updike, 2019). The councilwoman the coalition worked most closely with was Mary Cheh – leading her to be publicly supportive of the ambitious carbon pricing platform and even introducing language that the coalition had crafted with her input.

By the summer of 2017, the coalition had begun building a relationship with Nicole Rentz, Councilwoman Cheh’s lead staffer focused on environmental issues to understand what had already been pursued by the council in terms of examining potential carbon pricing policy options (Thorndike, 2019). Given the timeline of DC’s legislative schedule, the coalition knew that in order for its legislation to be voted on in the fall session, it had to be introduced before the July recess. As a result of lengthy conversations, the small group of technical advisors helped translate the coalition’s policy principles into actual legal writing (Updike, 2019).

Initial stakeholder meetings were held to gain input on the proposed policy’s impact and design. During the early months of 2018, these became more formalized as working groups with opposing coalitions made up largely of businesses and industries that would face impacts from the policy (Thorndike, 2019). Advocacy coalition members noticed that these stakeholder

meetings began to shift towards the end of the spring and on July 10, 2018, an external subsystem event took place that surprised the coalition; late into the policymaking process for the session, Councilwoman Cheh, along with other cosponsoring councilmembers introduced climate-focused legislation departing from utilizing carbon pricing (Thorndike, 2019). Introduced as the Clean Energy DC Act, during the press-conference announcing the bill, Cheh highlighted it as “an important step forward to meeting our cutting edge, progressive goals for greenhouse gas reductions;” it was announced without acknowledging the pivot away from the heavier political lift of a direct price on carbon and towards a policy that hid costs and highlighted benefits more directly (Foster, 2018). Thorndike highlighted the outsized role of local utility Washington Gas in influencing the D.C. Council to introduce the Clean Energy DC Act, rather than pursuing a carbon pricing policy approach (2019). Thorndike highlighted that Washington Gas was directly concerned about the impact that a strong and steadily rising fee on carbon-based fuel emissions would have on their bottom-line and suggested instead to modestly increase the existing surcharge on electricity prices (and double that amount on city natural gas and home heating fuels) to help increase funds to the Sustainable Energy Trust Fund (SETF) (2019).

How did the coalition respond? They faced a decision continue to advocate for their original proposal – but from an outside role with greatly reduced alignment with political leadership – or face having to rebrand their entire campaign focus towards supporting the elements of the policy they still saw as supportive of their “core of basic strategies and policy proposition for achieving deep core beliefs in a given political subsystem” (Ingold, 2011). They chose the latter. After a month of discussions and meetings took place with coalition leaders on

how to effectively respond, the Put A Price On It DC campaign shifted their own campaign resources. The coalition seized on the narrative of opportunity – the proposed omnibus was modeled as a bigger carbon reduction bill than the original carbon pricing bill would have been. As a result of this event, the coalition’s pivot even included retitling the entire campaign as the DC Climate Coalition for the remainder of the policymaking session.

In the fall of 2018, Pepco introduced amendments to the Act that would have allowed the utility “to recoup the costs of energy efficiency investments in the form of increased electricity bills” as well as permit Pepco to “recover revenue lost from those efficiency improvements...allowing them to charge ratepayers twice for the same investments,” according to Thorndike (2019). Many in the coalition were concerned about the intent and last-minute nature of the amendments, and highlighted a strategic response from their base to ask the council to take up these matters when there would be more time to discuss the merits of each of the proposals (Updike, 2019). The eleventh-hour amendments according to Thorndike would also have given Pepco “total monopoly control over how efficiency investments were made, undercutting the longstanding decisions Washington, DC has made to support independent-run efficiency programs instead” (2019). Thorndike highlighted the role that the competing coalition played in this attempt to alter resources allocated them from the policy brokers. Conflict of interest dynamics similar to this competing coalition have played out for monopoly utilities as their business model is largely predicated on the selling of electricity, which incentivizes them to sell as much as possible instead of being incentivized to conserve or benefit from energy efficiency.³⁸

³⁸ For more information see: <https://database.aceee.org/state/utility-business-model>

Due to a combination of factors, including newly rebranded DC Climate Coalition marshalling most of their resources to highlight the adverse impacts from the proposed amendments as well as other influences outside of the coalition's influence, these ultimately did not pass the city council's first vote on the new legislation. In turn, the Clean Energy DC Act passed by a unanimous council vote December 18, 2018. While it was different than the original bill the DC coalition advocated for, it still provided a strong renewable portfolio standard (RPS) in design (see Chapter 2). The legislative language builds on the District of Columbia's renewable electricity requirement to raise it to 100 percent by 2032, placing the District as a leader in terms of the fastest timeframe to reach 100 percent clean electricity among subnational governments (states) in the U.S.³⁹ In addition to the RPS, the Clean Energy DC Act also established efficiency standards for existing buildings as well as designated funds through scaling up an existing utility fee known as the Sustainable Energy Trust Fund (SETF)⁴⁰ for district programs aimed at assisting low-income residents with energy efficiency projects and renewable energy financing as Washington, D.C. transitions to cleaner energy. The new fee increases were estimated to raise an additional \$26 million in revenue. Lastly, the Clean Energy DC Act also built in provisions for the transportation sector by targeting the vehicle excise tax through incentivizing clean cars and raising the fees for vehicles that had lower MPG ratings; the

³⁹ California's standard for 100 percent carbon-free electricity has a timeline by 2045.

⁴⁰ The Clean and Affordable Energy Act of 2008 passed, creating the Sustainable Energy Utility for just this reason. "The SEU is an independent administration that administers DC's current efficiency programs, allowing for a competitive bidding process to undertake efficiency work" (Put A Price On It DC, 2018).

District was also authorized to match any price on transportation fuels that neighboring Virginia and Maryland should adopt in the future (DC Climate Coalition, 2018).

What resource use was most impactful in the coalition's role in the ultimate passage of the Clean Energy DC Act? One of the other key strategic elements the coalition tried to balance was knowing where to push strategically in mobilizing troops and generating public interest without alienating political leadership towards action (Thorndike, 2019). Separate from the coalition's ANC meeting strategy, Updike (2019) highlighted the impact of the more than 100 meetings with the council members and staff as the most impactful part of the coalition's influence. Rather than pursue an agenda of protests and demonstrations, Thorndike (2019) reinforced this view of the smaller group meetings with lawmakers as most impactful, as well as the climate coalition's ability to bring the public support from various organizations that they represented – "giving the council members reassurance to support it and a way to back them up."

The ANC meetings also provided an important training ground for understanding how to communicate the benefits of any particular policy to the larger public. DeMarco (2019) highlighted the challenge of communicating carbon pricing policy in the ANC meetings, explaining his view that "the initial act struggled in part because the interactive design was hard to explain in detail in our five minute window during these meetings." While the coalition will likely never know the precise reason that lead councilmembers like McDuffey to support the Clean Energy DC Act, DeMarco (2019) highlighted that the coalition noticed the councilman's ear being present in the ANC meetings. Ultimately, councilmembers like McDuffey, who had originally not come out in favor of the Clean Energy DC Act, voiced their support. In the end, the case study that the Washington D.C. Climate Coalition provides highlights the importance of

coalition actors investing resources across many of the core areas including public opinion, mobilizable troops, and the flexibility demonstrated behind the campaign's skillful leadership in order to help shape the outcomes of desired policy outputs.

3.4.2 Massachusetts State-Level Campaign Background

As a state Massachusetts is highly saturated with environmental non-profits – ranging from those focusing on 100% renewable energy campaigns to others focused on pipeline opposition (Cronin, 2019). Given the disparate interests behind coalitions that have formed around climate change oriented policies in the state, several interviews were conducted with the following individuals: Dr. Marc Breslow, the former Director of Transportation & Buildings Policy with Massachusetts' Executive Office of Energy & Environmental Affairs and Tim Cronin, the Policy & Partnerships Manager with Climate Action Business Association (CABA).

The core nucleus of the Massachusetts Campaign for a Clean Energy Future (MCCEF) began in 2015 around a framework of organizing support for initial carbon pricing legislation proposed by Sen. Barrett. After several years of organizing around an initial approach and earlier efforts of the Climate Action Business Association (CABA), in 2018 leaders of the founding coalition groups gathered together at a retreat to have open discussion and create the first draft of MCCEF's founding principles. MCCEF is largely composed of climate-focused environmental organizations, while also including civic groups, one union (SEIU 32 BK), health organizations, and the largest environmental justice group in Massachusetts (the Green Justice Coalition).

The steering committee for MCCEF is currently composed of eight members from groups including representatives from Clean Water Action MA, Climate XChange, 350Mass, the Acadia Center, and the Environmental League of Massachusetts. The original steering principles (Table 11) were formed in 2016 following a consensus process of input from the original core groups (Breslow, 2019). After the core coalition groups signed off to approve them, the larger coalition was welcomed into the drafting and feedback process to create what is currently defined publicly on the MCCEF website (Massachusetts Campaign For A Clean Energy Future, 2019). As living demonstration of how policy beliefs are influenced by external subsystem events, MCCEF's principles are undergoing an amendment process in light of the larger regional Transportation and Climate Initiative (TCI) efforts that the state of Massachusetts is a part of to help examine what conditions the coalition members would be willing to support within the framework that TCI proposes. These revisions will ultimately go to the full coalition to weigh in and approve.

Cronin (2019) identified that in Massachusetts's environmental and climate campaign space it can be a challenge for any coalition to marshal the resources to keep all advocacy groups interested and engaged on the same page. The larger MCCEF coalition has a strategy team that serves as the steering committee and in turn fully leverages its network mainly through two primary outreach committees – for communications and grassroots groups. Part of what has provided this alignment within the MCCEF coalition is the structure of a monthly call that Cronin hosts with all environmental Massachusetts grassroots groups invited to participate within. The leadership of the call's agenda is largely decided by the steering committee comprised of four of the MCCEF coalition members to help keep calls focused and on time. The

core group includes calls to action that MCCEF's steering committee has highlighted as important for other coalition partners to share in.

In terms of financial support that the MCCEF coalition has generated to help manage its resources, several of the coalition member organizations received a small initial amount of funding to help hire on a staff position to coordinate resources and help support the facilitation and communication across coalition members; the precise amount and line-by-line allocations are not available publicly. Cronin identified the benefit of centralized funding as a key element for the coalitions success, highlighting that the limited funding goes to staffing, associated costs with printing and emailing, as the coalition has no budget for the coalition's two main committees -focused on communications and grassroots advocacy (2019).

The context for the current campaign's focus in the Massachusetts legislature traces back to earlier sessions that the coalition was also involved in. Comparative research has highlighted that Massachusetts faces no legal constraints or constitutional limits (re: overarching rules) on using a carbon price to generate and spend revenue as any state policy may stipulate (Bauman and Komanoff, 2017). Massachusetts State Senator Barrett introduced his first carbon pricing bill in the Massachusetts Senate in 2013 without a House companion. In 2015, the second time he put out legislation (S.1747), it took place while consulting with the developing coalition as well as other state policy experts in how to best design carbon pricing policy for the state. The coalition helped by offering suggested revisions for the bill language and one of their initial primary considerations was maintaining revenue neutrality to ensure that any proposed policy would not grow the size of the state government. That session's legislation did not gain significant support with cosponsors or the Speaker of the House. However, the 2017 session saw

Sen. Barrett re-introduce a similar bill (S. 1821) along with a House sponsor, Rep. Jennifer Benson, step forward and offer her initial legislative proposal, H.1726. While it gained traction in the larger advocacy coalition space, it did not get through Massachusetts House committees. In 2019, the MCCEF advocacy coalition has coalesced around supporting two bills currently considered in the state House and Senate. The bills are H.2810, “An Act to Promote Green Infrastructure & Reduce Carbon Emissions” and S.1924, “An Act Combatting Climate Change.”

Examining the policy details of both bills there is considerable variation in how the carbon pricing policies are designed. H. 2810 creates “a carbon fee that starts at \$20/ton of carbon dioxide equivalent (co2e) burned and rises to \$40/ton over five years” (MCCEF, 2019). The revenues from the fee are allocated to be returned as follows: 70% to Massachusetts consumers and 30% to be invested in a Green Infrastructure Fund, which “supports renewable energy, energy efficiency, clean transportation, and resilience projects sponsored by municipalities and the state” (MCCEF, 2019). H.1726 includes strong provisions for equity, including higher rebates for lower income and rural households as well as a provision in the Green Infrastructure Fund that 40% of the funds must be spent on projects directly benefiting low-income communities (H.1726). Additionally H.1726 stipulates protections for “industries that may be highly impacted and a worker transition fund” and ensures that funding is “set aside for Fuel Assistance, providing increased funding for households who need help paying their home heating bill” (MCCEF, 2019).

The other policy the coalition is supporting, S.1924, departs from the design of H.1726 by calling on the Governor’s administration to “establish a market-based mechanism to reduce carbon emissions,” but leaves it open to the administration’s ultimate determination on whether

the mechanism will be a carbon fee or cap-and-trade system (MCCEF, 2019). S.1924 sets a timeline by which the Governor’s administration must put in place the regulations for a new market-based mechanism and establishes a carbon pricing requirement to attain the value of \$15/CO₂ ton in year one and \$60/CO₂ ton by year five and revenue allocation is left to be determined by the administration as long as it is designated for consumer or business rebates or allocated to a trust fund (S. 1924). According to Dr. Breslow, amongst the priorities the state of Massachusetts currently faces—addressing public transportation and providing educational funding to low-income districts—are two of the biggest (2019). S.1924 addresses the potential for supporting these priorities by stipulating that the state government has the option with the revenues collected from carbon pricing to return all the money or use it as an investment (i.e. spending 60% on transportation, 30% on educational programs, 5% for economic justice programs, and 5% on electric vehicle projects). While not being as directly prescriptive, S.1924 stipulates that revenues should be spent “so as to mitigate or avoid altogether net financial impact on low income people, rural residents, and unreasonable financial burden on economic subsectors” (MCCEF, 2019).

Dr. Breslow’s perspective, being grounded in over ten years of working with the Massachusetts legislature on clean energy and climate change policy, views the variation between the bills’ designs as in part attributable to the composition of the diverse stakeholders responsible for crafting them (2019). For example, in S.1924, Sen. Barrett comes from a business background and has been consulting with a large coalition of business leaders who are active on market-based climate solutions and want to see Massachusetts not only lead the country in climate-friendly state-level policy, but also protect its economic vitality and preserve their

interstate competitiveness should other states not follow. On the other hand, Rep. Benson in the House of Representatives has engaged her constituents in the legislative drafting process as well as a diversity of local stakeholders from the environmental justice, community organizing, and public health perspectives.

As a result, throughout this year's legislative session competing priorities between members of the coalition have begun to emerge. Many of the coalition members favor the revenue use that H. 2810 provides given its revenue-positive approach and investment in communities that face disproportionate impacts from climate change (Cronin, 2019). Some of these members have voiced concern with the money collected from S.1924 potentially being free to be spent on non-climate causes. There is also competing coalition work from groups that want the legislature to do more ambitious forms of climate legislation, which Cronin underscored as why it remains so important for MCCEF to maintain friendly relations with the larger statewide environmental organization network and state lawmakers (2019). One concern identified by Breslow (2019) that may arise from multiple priorities within the coalition or larger policy subsystem space is the impact such fragmentation could have on the legislative consensus towards any more ambitious climate-oriented policy.

As a result, the MCCEF steering committee faces the challenge of unifying the various stakeholders within the larger coalition. Cronin (2019) highlighted the importance of the H. 2810 provisions in gaining the support of groups like the Green Justice Coalition. While on the other hand, Cronin also highlighted the importance of the coalition pragmatically working with all engaged lawmakers, especially both bill sponsors. For example, Sen. Barrett is the chairperson of the Joint Committee on Telecommunications, Utilities and Energy (TUE), meaning "he is one of

two people that that can effectively choose to halt momentum on any carbon pricing legislation” (Cronin, 2019). As a result, the coalition’s steering committee sees their role in working with strategic actors towards finding common ground to get carbon pricing on the Massachusetts House and Senate floor and as a coalition, not being overly prescriptive with what elements of the final policy design are absolute deal-breakers.

The biggest challenge identified by Cronin the coalition currently faces is the state’s legislative impasse history. One recent climate bill provides a powerful example of the challenge of coalitions pushing uphill against non-aligned state political leadership. In terms of whether the Massachusetts legislature political leadership is in alignment with these policies, both H.2810 and S.1924 have not yet received a public hearing on Beacon Hill. Massachusetts Governor Baker (see Table 12) has been vocally supportive of a carbon price and as well as further extensions of the state’s participation in regional cap-and-trade programs. Even though both bills have garnered significant support⁴¹, Massachusetts’ current speaker of the House, Rep. Robert DeLeo, has not yet been on the record in support of any form of state-level carbon pricing (see Table 12). On the other hand, one climate-related topic that Speaker DeLeo has historically been is green infrastructure. In February 2019, DeLeo (who represents a coastal district) introduced H.3987, the GreenWorks Resilient Communities Investment Plan aiming to help local governments invest over \$1.3 billion over 10 years in green infrastructure with competitive grants through money raised from state bonds.⁴² After roughly only two months, two public

⁴¹As of the time of this writing, H.2810 had received cosponsors from 95 representatives and 11 senators, and S.1924, has received cosponsors from 40 representatives and 25 senators (MCCEF, 2019).

⁴² Retrieved from <https://malegislature.gov/Bills/191/H3987/House/Bill/Text>

hearings, and three committee votes (TUE, House Bonding, and House Ways & Means), H. 3987 passed the Massachusetts House unanimously.

In terms of competing coalitions to MCCCEF in the policy subsystem space, neither Breslow nor Cronin identified current significant overt opposition. Part of the limited number of competing coalitions may stem from interests that represent potentially impacted industries and businesses not feeling significant pressure. Cronin speculated that until legislative momentum builds to a certain tipping point for either H.2810 or S.1924, competing advocacy coalitions that may be impacted are largely staying quiet (2019). One member of a competing coalition, the Pioneer Institute, has begun to publish media articles outlining the impact from these bills, leading to a Boston newspaper editorial board coming out against carbon pricing policy approaches (Cronin, 2019). The coalition has responded to such opposition by activating their own communications committee members to participate in submitting letters to the editor, op-ed, and outreach to media outlets along distributing talking points⁴³ and legislative summaries.

Facing the current dynamic of supporting a variety of carbon pricing proposals that vary in terms of policy design, the MCCEF coalition continues to straddle the balance of keeping members with different policy beliefs aligned towards the common goal of significant carbon pricing policy output. Ultimately, the story of Massachusetts' carbon pricing coalition through the policy formulation process speaks to the important role that advocacy coalitions play in not only helping influence policy design, but it also highlights the current limitations to

⁴³ For example, the coalition has emphasized the following talking points in letters and their communications, “on average, low income households should get back more in rebates than the increase in energy costs while middle income households with average energy costs should break even. Households with higher incomes and those who use a lot of energy will begin to pay a bit more for energy. This slowly increasing cost is an incentive to conserve and to switch to cleaner energy options” (MCCEF, 2019).

understanding how the causal process of a “hurting stalemate” (where both sides dig in and are unable to work out a compromise), is able to be resolved (Sabatier & Weible, 2007). Overall, the Advocacy Coalition Framework offers a helpful framework to understand the role that coalitions play in marshalling their resources towards policy output, and additional context for any policy subsystem’s actors and coalition opportunity structures are needed to provide the level of analysis needed to understand what may emerge from policy outputs similar to the Massachusetts case study.

3.4.3 New York State-Level Campaign Background

New York (NY) Renews is a “coalition of environmental, labor, social justice and community groups all working toward a made-in-New-York solution to the climate challenge...fighting for policy that creates thousands of clean energy jobs, fosters the transition to renewable energy, protects workers, and supports low-income communities disproportionately hurt by climate change” (NY Renews, 2019). After over four years of coalition-building and advocacy work across the state, the coalition’s efforts led to the passage in July 2019 of the Climate Leadership and Community Protection Act (CLCPA), which was heralded by the coalition as “the most ambitious and far-reaching climate bill in the country. No other legislation cuts greenhouse gas pollution from all sectors of the economy, protects communities and workers on the front lines of climate change, ensures that jobs in the new energy economy conform with fair labor standards, and requires all state government decisions to align with climate and equity policies” (NY Renews, 2019).

In examining the dynamics behind the carbon pricing policy output process in New York, several interviews were conducted including with Conor Bambrick, Air and Energy Program Director for Environmental Advocates of New York; and NY Renews coalition partner Nicole Crescimanno, New York State Director with Our Climate. Bambrick has been serving in his role since 2013, as one of five people in the policy team at the Environmental Advocates of New York, one of the original coalition members in NY Renews.

One of the main changes in how the coalition approached the 2019 state legislative session focused on inclusive communications. After dealing with setbacks in the prior legislative sessions not leading to policy outputs the coalition had been advocating for, heading into the 2019 session Bambrick detailed that the coalition stepped back to ask, “how can we work together to move climate policy and how can we do so differently that in the past?” (2019). As opposed to employing more traditional environmental communication focuses on larger-scale and further-off feeling messages, the coalition prioritized putting a new face on the climate message for New York, highlighting the faces of members of communities that are already being impacted by climate change – from those in labor dealing with energy transition, to environmental justice and faith based stories (Bambrick, 2019). The coalition did not face significant constitutional limits (re: overarching rules), in that similar to the Massachusetts and Washington, D.C. coalitions, comparative research highlights that New York faced no legal constraints on using a carbon price to generate and spend revenue as any state policy stipulated (Bauman and Komanoff, 2017).

To begin, NY Renews developed a set of core principles to help coalition members agree upon policy core beliefs that ultimately centered around two pieces of legislation CLCPA and the

Climate and Community Investment Act (CCIA). NY Renews agreed as a coalition to use the Jemez Principles for Democratic Organizing⁴⁴ for their coalition decision-making. Bambrick credits the coalition using that process in providing the chance to develop broader principles while engaging with the legislature as well as the broader public. “We always try to work to consensus, rather than majority vote,” Bambrick highlighted in the coalition’s decision-making process, outlining the importance of the coalition listening to steering committee members whose concerns could be addressed before major strategies were implemented.

To help the coalition determine how they would further implement state-level climate policy into outputs, the NY Renews group expanded from an initial core group of six to seven organizations to a larger statewide steering committee covering 15-17 members that met weekly for coalition calls. One of the committees that formed was concerned with policy development and began to focus on writing initial legislation, producing documentation, and lobbying state legislators. After the NY Renews coalition had formed its policies priorities, the staff at Environmental Advocates of New York along with the other members of the policy committee took the first step at writing the legislative text for what would become the CLCPA, moving from the general concepts the coalition had agreed on (Table 11) to framing the bill – including the principles centered around equity, investment, and labor (Bambrick, 2019). The policy committee then took it back to the larger steering committee, making sure that the coalition stakeholders, including representatives from environmental justice, frontline communities, and labor groups, had the chance to provide feedback. The core policy committee group then

⁴⁴ For more information see <https://www.ejnet.org/ej/jemez.pdf>

reconvened after gaining input from this broader coalition and went back to address the concerns highlighted. Once the coalition's larger steering committee was comfortable with the resulting text, the policy committee began to shop the legislative text around in the New York legislature to see who might be interested in advancing it.

One of the biggest strategic assets that the coalition possessed was information and a familiar knowledge of how the state legislature works, as several of the coalition members had served in prior roles within state legislative offices (Bambrick, 2019). As a result, the policy committee was able to serve as a conduit between legislative staff, bill sponsors, and the larger NY Renews coalition. In 2019, Bambrick recounted that the coalition felt strongly the Assembly's Rep. Engelbright would step into the role of being an ongoing legislative champion. Rep. Engelbright chaired the Environmental Committee that any legislation would have had to go through and after being appointed chair he had begun his own process of convening a climate working group and holding climate hearings. Bambrick said, "we knew [his office] was comfortable and he agreed to act" (2019).

The larger question the coalition faced was finding a corresponding leader in the state Senate. For the past eight years ahead of the 2019 session, the NY Senate had largely faced a stable governing coalition of centrist Democrats and Republicans. This group included eight centrist Democrats called the Independent Democratic Conference (IDC), including Senator Diane Savino of Staten Island, who came from a labor background and helped work on the Community Risk and Resiliency Act (CRRA) of 2014.⁴⁵ After 2012, the IDC held a one-vote majority on any issue that they could unify around, effectively controlling the Senate's priorities.

⁴⁵ For additional information see <https://nyassembly.gov/leg/?term=2013&bn=S06617>

One of the external subsystem events that influenced the ultimate 2019 policy output of the CLCPA passing was the post-2018 election shake-up of the IDC (Bambrick, 2019). The members of the IDC lost all but two of their elections, resulting in the two that were re-elected choosing to rejoin the Senate Democratic Conference (Wang, 2018). In prior sessions, Sen. Savino had been involved with Senate legislation related to climate change such as the CRRRA of 2014, but by 2016 she had handed over climate-focused legislation to other senators and progress continued to stall in the Senate. In Bambrick's (2019) view, after the 2016 presidential election, more people in New York began to pay attention to the topic of climate change and centrist representatives began to feel more pressure to respond, leading ultimately to the external event and policy window the 2019 session experienced with fresh Senate leadership. Ultimately, in 2019, Sen. Todd Kaminsky stepped forward to introduce companion legislation (S.2992) and expressed the goal of being more deliberate in determining how the new conference could work together (Bambrick, 2019).

The larger coalition membership set out to help educate lawmakers on the bill, working together to support the legislature to hold a number of public hearings, and facilitating internal discussions (Crescimanno, 2019). By the end of May 2019, the coalition felt that they had seen progress move further than earlier sessions, but also faced outside pressure from other competing coalitions that called for this session's climate legislation to go further than similar bills that had been introduced in previous sessions.⁴⁶ The coalition worked within the policy subsystem with members of competing coalitions and "made a very concerted effort to find common ground with

⁴⁶ For additional information see <https://www.nysenate.gov/legislation/bills/2017/a107>

many of these groups” (Bambrick, 2019). By utilizing a return their shared principles the coalition was able to field emerging dialogue regarding many of concerns from competing coalition members pushing for 100% renewables on a more rapid timeline and ensure that any policy design invested significantly and equitably in workers and communities who were at risk of being left behind. Beyond the dynamic that was emerging from competing coalitions with more ambitious environmental policy beliefs, the coalition continued to field competing challenges from other stakeholders largely overlapping with the interests in the Republican Senate, but many of these policy beliefs no longer held as much political sway following the IDC’s loss in the election and the change of the governing coalition in the state Senate (Bambrick, 2019).

Governor Cuomo’s office had not been directly involved with much of the ensuing legislative deliberations throughout the session. However, when it was clear that the Assembly and Senate would be arriving at a joint agreement at the end of spring 2019, the governor’s office jumped into discussions towards the end of the session as well. The coalition was prepared when negotiations ensued by setting up a rapid-response network for calls with the emerging counter-offers that took place between the legislative leaders. (Bambrick, 2019). “There was lots of pressure and expectation, while the coalition knew they had the respect of lawmakers as they were advocating for our positions,” the coalition leadership also felt that strong policy would be defensible from all of the groundwork they had laid (Bambrick, 2019).

While the details of the updated legislative text began to come out, the coalition looked for where key provisions were weakened or taken out. The original outcomes from S.2992 and A.3876 established intensity standards that included the requirement that 50% of electricity

generated in the state needed to come from clean renewable energy by 2030, that 40% of the clean energy funds needed to be reinvested in disadvantaged communities, and that 100% of human-caused greenhouse gases would be eliminated by 2050 (NY Renews, 2019). The text established a timeline that “no later than four years after the effective date of this article, the department [of environmental conservation], after public workshops and consultation with the council, the environmental justice advisory group, and the climate justice working group...[along with other] stakeholders, shall, after no less than two public hearings, promulgate rules and regulations to ensure compliance with the statewide emissions reduction limits” (S.2992). This timeline was upheld in the negotiations, and following discussions with the governor’s office, the CLCPA established similar policy timelines, with standards to generate carbon-free electricity by 2040 and a net-zero carbon economy by 2050 (based on 1990 emissions), along with an interim target for 2030 of 40% reductions.⁴⁷ While there were changes in how the text defined “net zero” energy, effectively meaning that 85% would come from NY’s emissions, while the other 15% could be tallied from carbon offsets,⁴⁸ ultimately the other significant departure from the original text came from a weakening of the provision for clean energy funding, moving from the original 40% reinvestment in disadvantaged communities to language that stipulated “no less than thirty-five percent of the overall benefits....for disadvantaged communities” (S.6599).

Overall, the NY Renews coalition was able to strategically employ coalition resources to align the majority of their core policy beliefs with the resulting output that the New York

⁴⁷Retrieved from <https://www.nysenate.gov/legislation/bills/2019/s6599>

⁴⁸For more information see <https://www.vox.com/energy-and-environment/2019/6/20/18691058/new-york-green-new-deal-climate-change-cuomo>

Assembly and Senate had negotiated with the Governor. Instead of ending the session without passing legislation due to a fracture over the ambition of the final proposed intensity standards or how the clean energy funds collected would be spent, the coalition ensured that concerned advocacy coalition stakeholders were consulted with ahead of time, both for what priorities were important to them as well as how they would prefer the revenue to be used. Secondly, the coalition benefitted from policy learning, both from New York's prior legislative sessions as well as other state's attempts to introduce similar carbon pricing policy. This type of preparation in the policy design process highlights the influence of policy diffusion, as the coalition learned from the design process and approaches that took place throughout other state assemblies in the past three sessions beforehand. By taking an approach that balanced advancing incremental gains with major policy updates to provisions central to transforming how the state guides its transition to a low-carbon economy, the coalition ultimately views the resulting legislation as "one of the strongest policies in the nation and we're still working closely together" (Bambrick, 2019). Following the passage of the CLCPA, Bambrick highlighted that the coalition was already gearing up to continue to work on further diversification and expansion of the coalition's membership and starting to plan a retreat to begin focusing on the next legislative session. (Bambrick, 2019).

3.4.4 Oregon State-Level Campaign Background

Renew Oregon is a coalition of "Oregon businesses, non-profits, faith groups, community organizations, and individuals working to make Oregon a leader in the fight against climate change" (Renew Oregon, 2019). In 2019, the state of Oregon's legislature was on the cusp of

passing the first economy-wide carbon pricing bill since California.⁴⁹ The focal point of carbon pricing legislation introduced within the legislative session was H.B.2020 (better known as the Clean Energy Jobs bill), which built upon earlier versions of cap-and-trade legislation (see Table 12 for a more thorough timeline) that did not make it out of committee in previous legislative sessions. Both the speaker of Oregon's House (Tina Kotek, D-Portland), and president of the Senate (Peter Courtney, D-Salem), along with Oregon Gov. Kate Brown, went into the 2019 session publicly committed to ensuring the bill passed. The political alignment of the Oregon House and Senate both possessing governing supermajorities of Democrats added to the strengthened potential for significant climate policy outputs given their leadership in this policy space in prior sessions. And yet, by the end of June, 2019, after making it through the House, and an unprecedented walk-out by Republican lawmakers it was all but confirmed that H.B.2020 would not have the votes to pass the state Senate. To understand more of the strategic decisions and dynamics behind the major advocacy coalition responsible for initiating this session's carbon pricing policy campaigns in Oregon, several interviews were conducted with Shilpa Joshi, Renew Oregon's Coalition Director (Joshi, 2019).

The Renew Oregon coalition was established by four large existing environmental organizations in Oregon (the Sierra Club, Oregon Environmental Council, League of Conservation Voters, and Climate Solutions) that came together to build a bigger coalition that could bridge interests representing groups from labor, faith, agriculture, environmental justice, sustainable forestry, tribal governments, energy efficiency backgrounds together. The intended

⁴⁹ Additional states have joined the Regional Greenhouse Gas Initiative (RGGI) more recently, but RGGI continues to be constrained to the electricity sector, though discussions are ongoing about extending the approach to the newly announced Transportation & Climate Initiative (TCI).

policy objective was to craft ambitious climate policy as the state was falling behind on reaching its emissions reduction goals and had begun to experience seeing the negative impacts from dirtier diesel engines from neighboring states as other states adopted stronger fuel standards (Joshi, 2019). These founding organizations saw the success other coalitions in Oregon had experienced in translating broad engagement into legislative victories such as with achieving paid family leave policy and decided to try building power the same way. As Renew Oregon was getting up and running they immediately had the chance as an coalition to help support two bills – in 2015 to develop a clean fuels program for the state and in 2016 the chance to expand the state’s Renewable Portfolio Standard (see Table 12). The Executive Committee set up a new non-profit status, started fundraising, and hired an organizer to begin expanding the coalition. Initial coalition partners joined based on agreeing to a set of values and in early 2016 the coalition hired on Joshi as their new Coalition Director to help further expand the coalition’s efforts.

Joshi and the coalition identified the next focus of the coalition was to develop a policy framing process that took into account how Renew Oregon would meet the needs of the partner’s mission statements to make sure that participation was worthwhile. Joshi began to hold listening sessions with a broad array of organizations to learn the “lay of the land” in this policy subsystem space beyond the main conventional actors currently engaged in advocacy (Joshi, 2019). Joshi and other coalition leaders held many 1-on-1 conversations with invited organizations that didn’t necessarily have climate in their mission statement, but were dealing with impacts already in the communities they represented (Joshi, 2019).

By the summer of 2016, Renew Oregon had begun to start bringing people together to hold coalition strategy discussions. For example, in Eugene, coalition members across the state were invited for an all-day workshop that had required the members to do preparation work ahead of time to think through what policy designs their group was in favor of and what policy elements were deal-breakers for them. The workshop engaged all members in an exercise to identify, “if [you] could create a policy that would hold polluters accountable, require them to pay for their pollution and reduce that pollution over time, what would that policy have to accomplish for your organization to feel like it was a good use of your time and aligned with your organization’s mission?” (Joshi, 2019). Subsequent in-person coalition meetings continued to be held every three months and in bringing so many groups together to have candid dialogue, Renew Oregon was able to start outlining what kinds of policies would gather the necessary support of their membership. There was also a great deal of discussion and sharing happening online between members with emails and collaborative cloud based tools in between the meetings.

In addition to the policy framing discussion, the coalition also began to form a set of organizing principles during their meetings. The membership meetings identified priorities centered around ensuring that any policy would lead to real emission reductions that was informed by new science,⁵⁰ with the majority of funds invested in frontline communities economic equity programs like worker training and higher job standards (Joshi, 2019). The coalition’s principles (see Table 11) became the “yardstick used to measure the impact and agreement towards policy ideas,” helping the coalition negotiate decisions when choosing to

⁵⁰ See Table 11 and the stipulations of the 2007 Oregon Global Warming Commission

pursue outputs between carbon tax, cap-and-dividend, cap-and-fee, as well as cap-and-trade designs (Joshi, 2019).

Another resource that the coalition starting to focus on strategically was to support their constituents developing relationship with state legislators. Renew Oregon members met with leaders in the House and Senate to help educate and engage staff on the impact and importance of equitable carbon pricing policy (Joshi, 2019). The Oregon legislature of Senate and House Environment Committees in 2015 had seen six bills related to carbon pricing introduced and four introduced in the 2016 session (Joshi, 2019). By the time the 2017 legislative session began, the coalition sought to coalesce around supporting a narrower set of carbon pricing legislation (Joshi, 2019). As a result, in 2017 the coalition supported only two bills, a cap-and-trade as well as cap-and-fee approach (see Table 12). Both were put forth in the Senate and House Environment Committees and the legislature authorized a series of stakeholder workgroups that were run by many of the legislators that Renew Oregon had been building close communication with (Joshi, 2019). The coalition was active in participating in these groups and one benefit from the legwork the coalition focused on during the 2017 legislative session was the identification of holes within the current policy landscape that would need to be addressed in order for the coalitions desired policy output of a cap-and-trade design to be successfully implemented. For example, discussion from the hearings identified that unlike other states, Oregon did not have rate-payer classes as utilities didn't collect income information from their customer bills. As a result, utilities didn't have the capacity to know who would have qualified for assistance beyond those already on federal support programs like LiHEAP (Joshi, 2019). To address this limitation, environmental

justice member groups in the coalition worked closely with rate-payer advocacy groups to help modernize the state Public Utility Commission (PUC).

The coalition saw the 2018 session end without carbon pricing legislation making it through to a floor vote, but also witnessed the plans for the next session to begin with the establishment of a new Joint Committee Carbon Reduction to be chaired by the Speaker of the Oregon House and President of the Oregon Senate along with the chairs of both House and Senate Environment Committees to help ensure this policy output would remain a focus for 2019 (Joshi, 2019). Joshi pointed to the effectiveness of the coalition's ability to mobilize Oregon constituents, highlighting the Oregon Senate and House leadership "saw the immense people power that the Renew Oregon coalition put together in ultimately a short [2018] legislative session" (2019). Renew Oregon supported 16 different lobby days in support of carbon pricing legislation within a five-week legislative session, including public health officials, tribal leaders, young adults, farmers, business owners and over 600 people who attended Renew Oregon's main lobby day in Salem (Joshi, 2019).

To begin the 2019 session, H.B.2020 was introduced in February and sponsored by the Joint Committee on Carbon Reduction. The coalition collectively decided to focus their entire support for the session on advocating for the passage of H.B.2020, which also demonstrated that the policy design process was influenced by Oregon's constitutional limitations. For example, Oregon's state constitution contains restrictions have been interpreted to limit any revenues from additional taxes to be spent in the general fund – with the potential to contribute to education, highways, and the retirement system (Bauman and Komanoff, 2017) and would need a two-thirds majority to pass any new tax (Joshi, 2019). In response, the coalition opted to focus on a

cap-and-trade style approach and the policy design process was influenced by advocating for a policy that matched the goals of the coalition in ensuring that revenues generated could be returned to impacted communities and invested in climate-specific programs (Joshi, 2019).

During the 2019 session, the coalition also focused on expanding the demographic representation of its larger membership as well as the make-up steering committee to represent a broader diversity of community members and organization leaders. Groups like the Affiliated Tribes of Northwest Indians (ATNI), who represent almost 60 tribes across the Pacific Northwest; Sustainable Northwest, a small rural landowners organization; and Pineros y Campesinos Unidos del Noroeste (PCUN), the oldest union of tree and farm workers within the Pacific Northwest, were all brought into the coalition's membership to expand the diversity of the Renew Oregon's mobilizable troops (Joshi, 2019).

In terms of competing coalitions, Joshi identified that there was limited ideological opposition the coalition faced from environmental justice groups in the region, including OPAL Environmental Justice Oregon, largely based on concerns regarding the disproportionate impacts on frontline communities from cap-and-trade policy in California (Joshi, 2019). In response, the coalition strived to ensure that members were empowered and recognized the coalition had transparency around how they made decisions" (Joshi, 2019). The coalition also benefited from policy learning about the limitations within California's cap-and-trade policy and held many workshops and policy dialogues aimed at ensuring that H.B.2020 would be more stringent and equitable than California's experience.⁵¹ While many environmental justice oriented groups including numerous local chapters of the NAACP remained supportive of the coalition's goals,

⁵¹ For more information see <https://www.c2es.org/content/california-cap-and-trade/>

one impact from the outreach work of competing coalitions ultimately lead to other climate-focused organizations becoming less vocally supportive of the coalition backing the cap-and-trade approach in H.B. 2020. For example, the board of Portland-based 350PDX voted to take a neutral position on H.B.2020 after it had previously supported its volunteers working to advocate and raise awareness for this approach (Joshi, 2019).

In the 2019 session, Renew Oregon continued to prioritize educational outreach to the general public to practice communicating about H.B. 2020's benefits as well as internal education to enhance their members' understanding of how the legislature works. The coalition focused their members' ask for legislators to support three specific elements: "no exemptions and as little allowances as possible, the majority of the money collected to be invested in vulnerable communities, and providing no exemptions or a late start for the transportation sector" (Joshi, 2019).

Joshi (2019) identified that while much of the vocal opposition from competing coalitions may have been from groups identified with feeling the coalition wasn't pushing for ambitious enough policy action to address climate change, the coalition also identified the significant opposition that came from industry interests that had higher-carbon outputs as part of their business model (fossil fuel refining, large-scale timber, trucking, etc.). As a result, the coalition also responded rapidly to information regarding what competing industry-oriented coalitions were doing to weaken the emissions reduction targets and spending provisions with the bill (Joshi, 2019).

The coalition saw many of its core policy beliefs translated into the ultimate legislation considered in the Oregon House and Senate. The Oregon Clean Energy Jobs bill would have

limited carbon pollution from Oregon's largest emitters by establishing a framework where only facilities that emit quantities greater than an annual total of 25,000 metric tons of greenhouse gases would be accountable for participating in annual auctions (H.B.2020, 2019). The program would have begun in 2021 with the starting price of roughly \$16 per ton of carbon dioxide equivalent emitted. Each year, a gradually lowering number of permits would be made available throughout the state and these large emitters would have been required to hold a number permits equivalent to how many tons of CO₂ emissions they intended to emit that year (Renew Oregon, 2019). Proceeds from the auction were set to be reinvested into Oregon clean energy programs ranging from transit and agricultural improvements, to energy retrofitting, drought protection, and clean energy infrastructure, as the coalition identified that "equity and a just transition to clean energy are central to the policy" being implemented (Renew Oregon, 2019). In the end, the legislation did not pass out of the Senate. While multiple factors most likely influenced H.B.2020 from becoming implemented policy output, the resulting dynamics within the Advocacy Coalition Framework are analyzed further in the conclusion section below.

3.5 Conclusion

Overall, in examining the external subsystem events, long-term coalition opportunity structures, and short-term constraints and resources of the carbon-pricing coalition actors across all four states, there are several main takeaways that build on the Advocacy Coalition Framework's body of work (Sabatier & Weible, 2007). Regarding external events – it is clear that mainly changes in public opinion and systemic governing coalitions and less so

socioeconomic conditions and other policy subsystems provided a window of opportunity for coalition actors ready to act in each of the campaigns studied. In New York, the successful passage of the CLCPA was in part due to the shake-up of the governing coalition in the Senate between the Independent Democratic Conference's alliance with Senate Republicans. In Washington, DC the coalition capitalized in part on the local public opinion surge in support for climate action following the series of climate science releases. The Oregon coalition also attempted to capitalize on the supermajority the 2018 state elections created in both the Oregon House and Senate. For Massachusetts, the stability of the state government governing coalition has been a contributor to the ongoing lack of policy movement towards adoption in spite of strong ongoing public opinion⁵² in support of additional state-action on climate change.

Within the resources available to any state carbon pricing campaign, the Advocacy Coalition Framework identifies a larger structure of interrelated connections by which a coalition can ultimately organize and influence the subsystem towards their preferred policy. Policy brokers are courted, coalitions strive to compete for limited resources against competing coalitions' efforts and build out their own strength through increasing the number of stakeholders their coalition's shared beliefs represents. As Sabatier and Weible highlighted, all of these strategic decisions are organized by coalitions in attempts to influence decisions by government authorities to modify resource allocations and institutional rules (2007). In the case of Chapter 3, the potential changes to policy outputs and policy impacts are significant - with both Washington, D.C. and New York's state carbon pricing coalitions helping influence the ultimate passage of some of the most stringent energy intensity standards in the country (DC Climate

⁵² Retrieved from <http://news.mit.edu/2018/massachusetts-ready-carbon-pricing-0130>

Coalition, 2018; NY Renews, 2019). The strategic decisions behind the allocation of resources that each state-level coalition utilized highlights the distinct and unique dynamics at play when actors influence how an abstract theoretical concept such as “carbon pricing” can actually be translated into implementable legislation.

Examining the original hypothesis, it is clear that coalition resource allocation is not the only factor in determining policy outcomes. For example, Table 10 compares several lines of evidence for the support demonstrated for each coalition’s preferred policy outputs. Renew Oregon was successful in diversifying the campaigns’ mobilizable troops and gathered more than 1,300 groups’ and individuals’ signatures of support, more than any of the other state coalitions studies, yet the final policy output for the state did not change. The Massachusetts and Oregon case studies highlight the full alignment of resources available to coalitions used strategically to educate and inform policy brokers, yet in both examples non-aligned political leadership (Massachusetts) or competing coalitions (Oregon) ultimately determined the outcome of the legislative session.

Further exploration of state-level carbon pricing case studies utilizing the Advocacy Coalition Framework will potentially yield additional insights into how the framework can apply to other dynamics not examined in this chapter. For example, the literature also highlights the long-term coalition opportunity structures that help frame the success by which coalitions can influence the policymaking process – including the degree of consensus needed for major policy change, the openness of the political system, and overlapping societal cleavages (Sabatier & Jenkins-Smith, 1998). While all four jurisdictions studied in Chapter 3 dealt with competing

coalitions and limited resources, sections 3.4.1 – 3.4.4 explored how the strategic decisions that each coalition made helped influence the final outcome of their preferred policy outputs.

CHAPTER 4

BARRIERS AND INCENTIVES FOR SUSTAINABLE URBAN DEVELOPMENT:

AN ANALYSIS OF THE ADOPTION OF LEED-ND PROJECTS

The content related to the analysis of LEED-ND development, developer survey, and local city official interviews in this chapter along with the subsequent data analysis originally appeared in “Barriers and incentives for sustainable urban development: An analysis of the adoption of LEED-ND projects,” Brett Cease, Hyoung Ah Kim, Dohyeong Kim, Yekang Ko, Cole Cappel, (2019), *Journal of Environmental Management*, Volume 244 (15), pp. 304-312. © 2019 Elsevier Ltd. Cease conducted most of the drafting, literature review research, interviewing, and writing while benefiting from the original research project edits and feedback provided by Dr. Dohyeong Kim. Dr. Hyoung Ah Kim conducted the majority of the Heckman stage modeling and Yekang Ko provided edits and feedback for the chapter throughout its publication process. Sections and subsections 4.1 – 4.5 are used directly from the article with minor modifications including expanding a few of the key discussion areas and renumbering the figures per the dissertation’s organization.

4.1 Introduction

As the U.S. and other major countries and subnational governments struggle to adopt ambitious climate policy - the world contends with yet another environmental challenge. Growing world population trends are bringing more people living in more urbanized cities and neighborhoods, in turn leading to greater potential for reduced environmental quality, urban sprawl, and social segregation (National Academies of Sciences, Engineering, & Medicine,

2016). The origins of prioritizing environmental considerations in land-use decisions within the United States began in the late 1960s after the passage of the National Environmental Policy Act. It took shape globally within the UN's Our Common Future Report in 1984 (UN, 1984). In 1992, the Rio de Janeiro Earth Summit's Agenda 21 (Lafferty & Eckerberg, 2013) stimulated local sustainability actions in cities across the world. This focus led in turn to the expansion of planning movements such as New Urbanism and Smart Growth (Smith, 2015, Wheeler, 2013; Luederitz et. al , 2013) and the development of sustainability assessment tools from individual buildings to whole neighborhoods in scale (Retzlaff, 2009, Berardi, 2012).

One of the major assessment tools to emerge was the Leadership in Energy and Environmental Design (LEED) Green Building Rating System that the United States Green Building Council (USGBC) established in 2000 (Shutters & Tufts, 2016). LEED has provided a comprehensive set of guidelines and qualifications to recognize green building projects that take additional steps of source-reduction (minimizing building waste before it's created), energy-efficiency, and sustainable design in their construction (USGBC, 2017). In 2009, LEED launched an additional program for Neighborhood Development (LEED-ND) that looked beyond the impact of individual buildings to consider the sustainability of entire communities in their development (USGBC, 2014). The LEED-ND framework asks developers to incorporate important site selection-based considerations in the planning process such as the walkability and compactness of the neighborhood, its proximity to possible transit options, as well as its development impact on surrounding wetlands, wildlife, and agricultural uses. The LEED-ND framework, when compared to other neighborhood-scale certifications, also provides stronger

emphasis on the building resources, environment and location of site selection. (Sharifi and Murayama, 2016)

Within the growth and sustainable development practices that LEED-ND projects aim to implement, there remains widespread variation in which areas of the United States have more robustly pursued and completed such projects (see Figure 7).

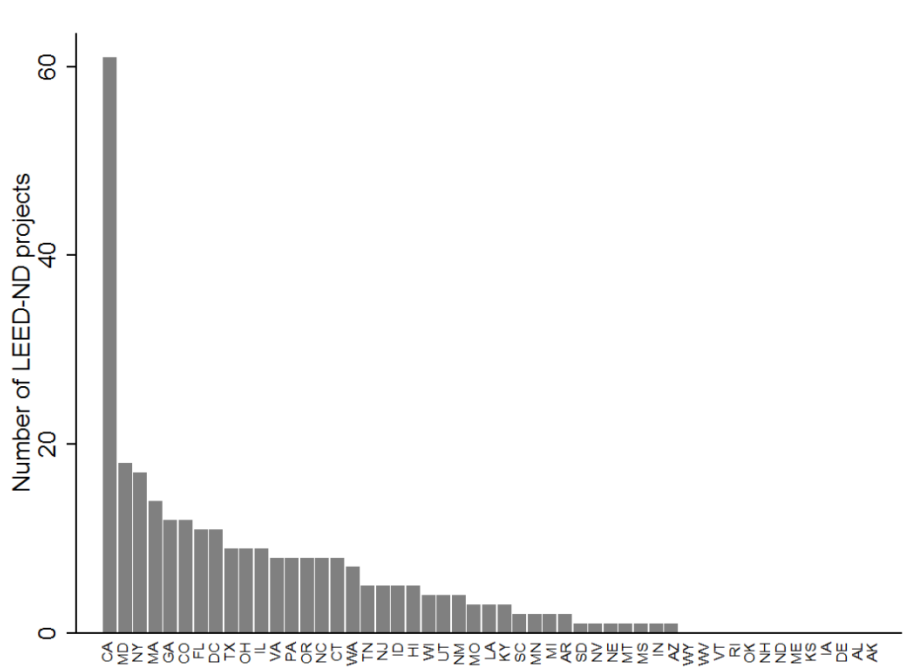


Figure 7. Distribution of LEED-ND Projects Initiated (through 2017) by U.S. State

A considerable portion of the literature's examination of what has limited LEED-ND projects has analyzed its approaches from a conceptual framework (Berardi, 2012; Sharifi & Murayama, 2013; Wangel et al., 2016), but a relatively small amount has integrated industry-based feedback and economic perspectives in examining the drivers behind this variation (Sharifi & Murayama, 2014). Research has also highlighted that political, organizational, and public awareness considerations can play an important role in the adoption patterns and location of

sustainability programs (Garde, 2009), but further study has been needed in examining the economic role that local and state governments (Saha & Paterson, 2008) play specifically within LEED-ND projects. In response, this chapter categorizes the current drivers of sustainable neighborhood development into four main dimensions – economic, policy, public awareness, and organizational – and highlights the barriers as well as the incentives specifically associated with each in relation to LEED-ND projects.

These lines of investigation were pursued via a national-level data analysis focused on the current distribution of LEED-ND projects, state-level developer surveys, and local city planning staff interviews with the latter two grounding the research on the perspectives from two major decision-makers that initiate and implement LEED-ND projects. Through examining the ratio of public to private funding this research explored the impact that funding sources have on the successful completion rate of newly initiated LEED-ND projects. The chapter finds that an initial level of public financial support is correlated with a greater adoption rate of LEED-ND projects within those states (the area of study). In order to understand why certain states may not have pursued LEED-ND developments, the chapter also investigated what barriers were present for developers and planners, focusing on the Texas developer and planning community due to the limitations in its LEED-ND adoption rate and sustainability planning (USGBC, 2018; Foss & Howard, 2015). As a case study, Texas provided a population that includes large potential in adopting additional neighborhood sustainable development projects like LEED-ND and an expansive development community to survey for their perceptions and feedback of such projects (Holman, 2014; Grodach, 2011).

4.2 Literature Review

4.2.1 Barriers to LEED-ND Adoption

4.2.1.1 Economic Barriers

The LEED-ND framework is similar to many neighborhood sustainability assessment programs in that it generates public goods that extend beyond the immediate neighborhood (Cerra, 2017), making it a challenge to capture profit exclusively within the new development. While some studies have highlighted the positive price premiums that have come with eco-certified office properties (Fuerst et al., 2017), others have shown that the LEED-ND label alone did not bring additional sales price value for condominiums, whether due to the free-rider problem or a lack of market acceptance (Freybote et al., 2015). In response, within an economic framework that rewards short-term returns over longer-term pay-offs (Rees & Wackernagel, 2008), historically many developers have been hesitant to invest in sustainability-focused projects related to the potential for smaller short-term returns (Healey, 1995). As governments also face short-term budget constraints, especially in financially strapped local communities and times of economic recession, these limitations can impact their spending priorities away from longer-term sustainability-focused developments (Sekerka & Stimel, 2011).

4.2.1.2 Public Awareness Barriers

The pursuit of local sustainability focused projects is also influenced by public awareness related factors including the historically low ranking of such projects within public opinion polls (Geels, 2013). A 2013 survey of Texas developers found that limited knowledge (along with perceived costs) were major barriers to LEED certification, highlighting the potential benefits

from focused educational outreach (Rabb). Laurian & Crawford (2016) also found that local public support had a significant effect on local sustainability, underscoring the importance of involving both the development community and the larger public for a successful outcome of any sustainability-focused assessment program. However, sustainable development research has also highlighted the challenge that comes from generating conditions that create community involvement participation within the sustainability planning process (Bell et al., 2012).

4.2.1.3 Organizational Barriers

Sustainable development priorities within local governments have historically faced opposition from entrenched interests within the development and business community (Saha & Paterson, 2008). While facing other budget priorities, local governments have struggled with capacity to provide leadership in sustainable decision-making (Healey, 1995) and in response have been found to traditionally focus their planning and development on other more short-term oriented goals (Grodach, 2011; Whittemore 2013). Local governments also face constraints in their ability to efficiently communicate between units of local government and coordinating which jurisdictions hold responsibility in focusing on key sustainability priorities (Carli et al., 2018).

3.2.1.4. Policy Barriers

LEED-ND projects have location-based characteristics that limit pursuit to specific site design and geographic requirements – required internal or adjacent elements that a site either has or does not have (i.e. access to public transit) (Garde, 2009; Smith, 2015). Suzer (2015)

highlighted the lack of flexibility in the weighting system that LEED certification historically has provided, causing project owners and designers to be constrained at times in responding to local environmental priorities. GIS surveys of LEED-ND project locations across the country have found that most projects are associated with highly urbanized locations (Smith and Bereitschaft, 2016). As a result, smaller, less densely populated communities face barriers in LEED-ND's established smart location preconditions and demonstrate the need for complementary neighborhood sustainability assessment tools in order to incorporate additional frameworks (i.e. focusing on sustainable retrofits for such areas) (Talen, 2011). Research by Wangel et al. (2016) and Szibbo (2016) have also highlighted the limited study of LEED-ND's social-cultural and socio-economic livability factors and whether new projects have achieved sustainability outcomes such as economic and ethnic diversity in neighborhood population as well.

4.2.2 Incentives for LEED-ND Development

In response to the barriers that local sustainable development projects may face, incentives across all four dimensions that local governments and developers utilize in pursuing sustainable development projects like LEED-ND are explored below.

4.2.2.1 Economic Incentives

Economic development is one of the largest areas of opportunity that local governments finance and key interventions have been found to stabilize communities (Leigh & Blakely, 2016). Research highlights the important role that local economic incentives can continue to play in nudging developers towards more sustainable building practices. For example, local

governments have used Tax Increment Financing Districts (TIFs) to assist developers (Eversberg & Goebel, 2005). TIFs are established by calculating the taxes generated by a given property at a select point in time and then dedicating a loan for the total amount anticipated in future property tax increases over the current level. In terms of LEED-ND utilization, both the South Waterfront District project in Portland, OR, as well as the Town of Normal Uptown Renewal Project in Normal, IL, have included TIF funding to finance successfully completed projects (De Sousa & D'Souza, 2012; Town of Normal, 2015). In addition to TIF funding, local governments can also offer incentives through deferring land-sale proceeds and issuing debt to help finance infrastructure improvements. The 700-acre gold-certified LEED-ND Mueller neighborhood project in Austin, TX redeveloped former airfield land through this approach, weathering the 2007 recession in part due to the project's access to the more flexible, long-term structure of its loans (Housing and Urban Development, 2015; Sadatsafavi et al., 2014). Lastly, national policies also play an important role in providing economic incentives in the form of tax deductions for green building and sustainable design. For example, until the end of 2017 the Energy Policy Act of 2005 §179D provided developers the opportunity to deduct up to \$1.80 per square foot from taxes for achieving specific energy savings reductions above certain building code performance standards (Energy Policy Act, 2005).

4.2.2.2 Public Awareness Incentives

Public awareness campaigns can provide not only education, but generate interest through recognition, awards and demonstrating greater brand awareness for developers who are associated with green building practices (Mason et al., 2011). Studies have found that framing

sustainable development not only in its environmental benefits, but in its ability to enhance social capital, localize economic development, and more efficiently manage material consumption helps support more effective involvement for targeted communities (Seyfang & Longhurst, 2013). By finding opportunities to highlight the economic benefits (i.e. practical energy savings) that sustainable building practices provide, public support for such programs may become more attractive for undecided potential developers as these benefits are highlighted (Corbett & Muthulingam, 2007).

4.2.2.3 Organizational Incentives

Local governments can also respond to the organizational constraints they may encounter by seeking out programs that help train officials to create capacity and learn how to set up knowledge sharing and transfer and with other local government units (Johnson et al., 2004). Local governments can play a critical role in bringing public and private interests into dialogue on the topic of sustainable development and convene stakeholders together (Bell et al., 2012). Programs like C40 Mayors also work with local governments to provide outside support in identifying funding sources, sustainability networks, and access to capital through grants and other agencies (Cities Climate Finance Leadership Alliance, 2015).

4.2.2.4 Policy Incentives

Local government can serve a powerful role in highlighting the policy context and commitment to sustainability through comprehensive plans that emphasize sustainability in local sustainability and climate action plans (Blanco et al., 2009; Bassett & Shandas, 2010).

Additional incentives such as housing density bonuses, fee reduction, and expedited permitting are all policies at the discretion of local governments to provide to incentivize sustainable development (Bhatta, 2010). As new building standards have become more stringent in spite of additional costs of providing certified buildings, investors have also been found over the long-term to benefit from higher rents, lower holding costs and lower risks of sustainably certified development (Fuerst & McAllister, 2011). Statewide planning done in Oregon and Maryland also provides an example of how strong statewide land use and environmental planning goals set in the 1970s requiring regional and local governments to meet state goals through incentives such as direct grants, technical assistance and strong mandates are still influencing development today (Abbott et al., 1994; Roberts & Bradley, 1991). As a result, one avenue for further implementation for sustainable neighborhood development initiatives like LEED-ND is to align their criteria with these larger initiatives.

4.3. Materials & Methods

This chapter pursued three empirical pathways: a distribution and economic analysis of U.S. LEED-ND projects, a survey of Texas developers, and informational interviews of local North Texas planning officials. The national LEED-ND project distribution analysis explored the role of public funding in achieving LEED-ND certificates with LEED-ND project data at the state-level. Both the survey of local Texas developers as well as the interviews with North Texas planning officials explored the practical reasons and perceived barriers from current developers in low-saturation market regions.

4.3.1 State-level Data Analysis

This chapter utilized the full data set of national LEED-ND projects available from the U.S. Green Building Council (USGBC) website and with consultation from USGBC staff (USGBC, 2018). The limited history of LEED-ND projects did not bear sufficient variation of project types for a metropolitan area level analysis and as such, the data was aggregated into states as a unit of analysis. Figure 7 depicts a choropleth map (by quantile) of the total number of LEED-ND projects that have been initiated from 2009 to 2018. As of February 2018, 286 LEED-ND projects had either been certified or were currently registered, yet LEED-ND projects have not been pursued in many areas and where they do exist, they are geographically clustered.

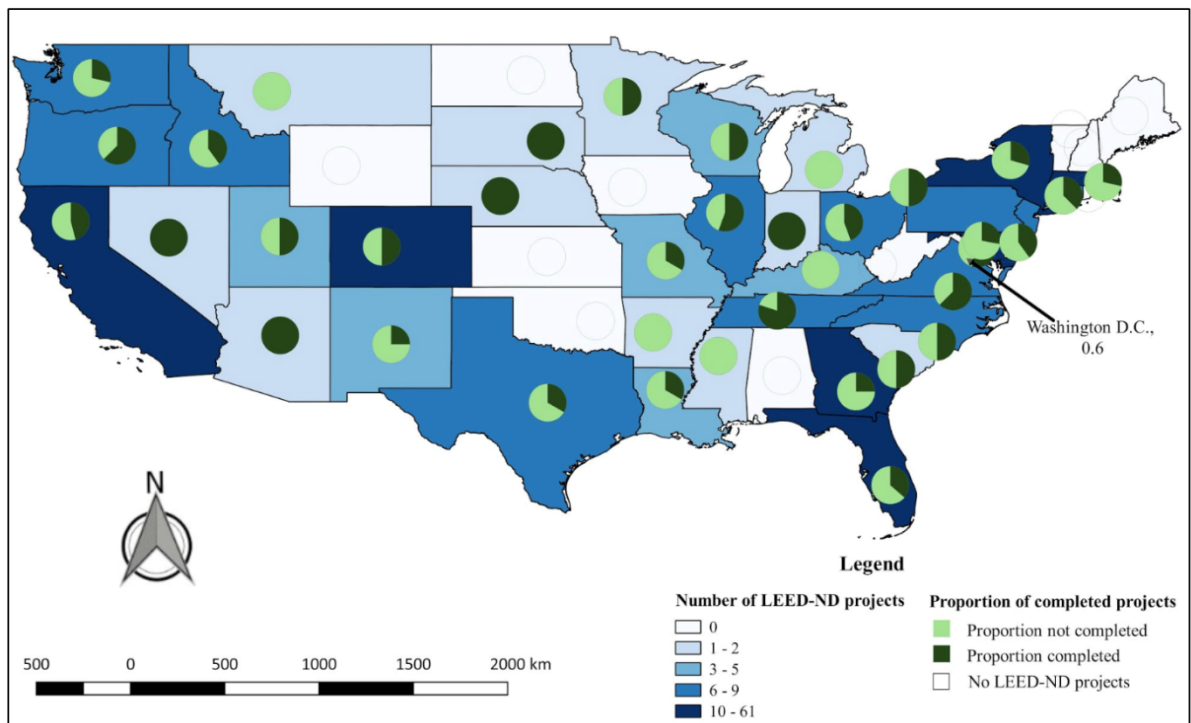


Figure 8. Spatial Distribution of LEED-ND Projects by State (as of February 2018)⁵³

⁵³ While not on the map, Alaska does not have any LEED-ND projects currently registered, and Hawaii has 5, 3 of which are certified and one of those at the platinum level.

Figure 7 highlights the existing variation between states such as California (61 projects), Maryland (18) and New York (17) that have initiated a sizable number of LEED-ND projects compared with others in the Midwest and upper New England that have not yet initiated projects. Figure 7 also reveals the uneven distribution of each state's LEED-ND completion ratio – with some high-attempt states completing fewer projects than others that had initiated fewer overall (i.e. New York has a 20% LEED-ND completion rate while several states such as Nebraska and Nevada feature completion rates of 100%). The variation in projects initiated and completed across the country leads to two important related questions: which barriers and incentives for LEED-ND projects influence whether LEED-ND projects are pursued as well as their completion rates?

This chapter tests the hypothesis that a state (acting as a proxy for local governments within its jurisdiction) with more public funding provisions is more likely to have pursued more LEED-ND project certifications. The main independent variables include the proportion of public-funded LEED-ND projects for each state (operationalized as any LEED-ND project with the owner listed as a government entity) and the proportion of privately funded projects (see Equation (1)).

$$Prop. Public Fund = \frac{No. of publicly funded projects_i}{Total number of Project_i} \quad (1)$$

Recognizing that local governments determine funding for priorities based on many factors outside of exclusively considering sustainability decisions and supporting a private rating system, additional control variables were added to the model. To control for additional economic, population, and demographic influences, data about each state's economic growth, average density of highly populated areas, population totals, and the average LEED-ND project

acreage size were collected from the USGBC databased and U.S. Census Bureau and added as control variables (see Table 13). A measure of political ideology at the state-level (Cook Partisan Voting Index) was also included to account for political ideology influencing state-level sustainability-oriented policy adoption (Cook Political Reports, 2018; Krause, 2011).

Table 13. Descriptive Analysis of LEED-ND Projects

	Count	Mean	S.D.	Min	Max
Log(completed)	33	0.9437	0.7876	0	3.33
Prop. private funds	38	0.6451	0.2926	0	1
Prop. public funds	38	0.1864	0.2595	0	1
Prop. public funds squared	38	0.1004	0.2339	0	1
Economic Growth in 2011 ¹	51	3.4824	3.5047	-3.10	24.50
Avg. project size	51	55.7212	99.2288	0	607.46
Political ideology ²	51	-1.73	11.5932	-22.00	40.00
Population 2011 (in millions)	51	6.11	6.9072	0.57	37.69
Ave. density of cities in a state (1000 people/mi ²)	51	7.594	4.43	23.49	18.10

1. Since the dependent variable in the model was aggregated from 2009 to 2017, a near approximation of the middle point of project adoption was selected as between 2011 to 2012 with the assumption that the political and economic impacts on LEED-ND were consistent during the full period.
2. More positive values indicate the state is considered more strongly supportive of the Democratic party, more negative values for the Republican party.

Because of the non-random nature of whether a sample of states pursue LEED-ND projects, a two-stage Heckman selection model was used to account for the potential of a strong self-selection bias (Heckman, 1977). The following equation indicates the model specifications:

$$\ln C_i = \beta_0 + \beta_1 PRIV_i + \beta_2 PUB_i + \beta_3 PUB_i^2 + \beta_4 Avg.ProjSize_i^2 + \varepsilon_i \quad (2)$$

Selection model:

$$= \gamma_0 + \gamma_1 EG_i + \gamma_2 D_i + \gamma_3 \beta_3 POP_i + \gamma_4 Density_i + \omega_i \quad (3)$$

where lnC_i : Log number of LEED-ND certifications in the state *i*,
EG_i: Economic Growth 2011-2012 in the state *i*,
D_i: Cook's Partisan Voting Index for the state *i* (+ Democrat, - Republican),
POP_i: Population in 2011 in the state *i* (per 100,000),
Density_i: An average density of populated areas in the state *i*
PRIV_i: The proportion of privately funded LEED ND projects within the state *i*
PUB_i: The proportion of publicly funded LEED ND projects within the state *i*
Avg.ProjSize_i: The average size of LEED-ND project within the state *i*

This two-step analysis provided actual estimates for public and private funds in terms of LEED-ND certificate completions in a state. In addition, because of collinearity limitations, the percentage of non-profit funded projects in a state was excluded in the model. A log-level - regression analysis was adopted to transform the state-level variability closer to a normal distribution to better fit the parameters of the regression assumptions given the original distribution of the dependent variable (the number of completed LEED-ND projects) was positively skewed (see Figure 7).

4.3.2 Developer Survey and Local Planning Interviews

The chapter also conducted a survey across the state of Texas to assess the feedback from the critical perspective of developers. The research team worked with local developers to create a 22-question online survey (see the Additional Information section) comprised of multiple-choice and short-answer questions pertaining to developer's level of exposure to and perspectives of the current market for LEED-ND in Texas. The initial outreach list of approximately 3,000 developers statewide was populated through working with local developers with connections to larger state networks and offices throughout Texas. The survey was administered to a smaller

pilot group within the list in August 2016 and then extended to the full list in November and December 2016.

Overall, 36 participants from throughout Texas took the survey. This 1.2% response rate was considerably lower than the original study intended and great efforts were made to increase the number of respondents. Perhaps it was due to the timing of the survey during the winter holiday season, or the limited incentives to participate, but the low rate is an important consideration for subsequent work to find ways to improve upon. The developers who responded came predominantly from private industry backgrounds that featured a mix of project work (more than one selection was possible)—mixed-use (50%) and single/multi-family residential (44.4%) projects were the most represented with fewer focusing on office (33.3%), senior living (5.6%), and retail (2.2%) projects. The land-size the respondents worked with was also quite varied, with the majority developing average parcel sizes between 1 to 20 acres. The respondents mainly worked in the Austin metro region with clusters representing Dallas-Fort Worth (DFW) and the San Antonio metro area as well, consistent with the Austin region's larger concentration of sustainability projects relative to other Texas metro areas (Guy & Moore, 2004).

The chapter also conducted five interviews with planners throughout the Dallas Fort-Worth metro area in July 2017 to identify barriers and incentives from the North Texas planning community's perspective. These interviews (see Additional Information section) provided insights from key local government stakeholders in the Texas sustainable development market while grounding the research in local perceptions and practices held by city planning officials regarding the LEED-ND program.

4.4. Results

4.4.1 State-level Data Analysis

The result of the Heckman model estimation is shown in Table 14.

Table 14. Heckman Selection Model

	Model(1)	Model(2)	Model(3)
	Log(LEED-ND project certification)		
Prop. public funds	2.892** (1.41)	2.951** (1.45)	2.800 (1.71)
Prop. public funds ²	-3.495** (1.52)	-3.338** (1.53)	-3.014* (1.72)
Prop. private funds	0.817 (0.55)	0.880 (0.54)	1.063** (0.45)
Avg (Proj. size)		-0.001 (0.00)	-0.002 (0.00)
Democracy			0.022** (0.01)
Economic Growth 2011			0.008 (0.06)
_cons	0.500 (0.44)	0.500 (0.41)	0.400 (0.37)
select			
Economic Growth 2011	-0.099 (0.06)	-0.093 (0.06)	-0.079 (0.07)
Democracy	0.022 (0.02)	0.026 (0.02)	0.014 (0.02)
Population 2011 in 100000	0.031* (0.02)	0.031* (0.02)	0.029* (0.02)
Avg.Density	0.047 (0.12)	0.033 (0.12)	-0.054 (0.12)
_cons	-0.680 (0.56)	-0.699 (0.56)	-0.575 (0.54)
athrho	-16.526*** (0.10)	-16.130*** (0.20)	-16.766*** (0.22)
lnsigma	-0.277** (0.11)	-0.279** (0.13)	-0.376** (0.13)
Log likelihood	-47.764	-47.573	-45.406
N	51	51	51

Note: * $p < 0.05$, ** $p < 0.01$ *** $p < 0.001$ The robust or sandwich estimator of variance is used

Whether a project utilized public funds, as a single term and a squared term (given the curvilinear relationship upon inspection), was found to be statistically significant at 1% and 0.5% levels respectively in Model (1). To investigate the relationship between the level of public funding and how many LEED-ND projects were certified within a state, a scatterplot was created with a fitted regression line. This plot found an inverse U-shape relationship between the ratio of public funding for LEED-ND projects within states and the number of projects that became LEED-ND certified for that state. In other words, as the ratio of public projects increased, the number of LEED-ND certificates also increased until an inflection point (at roughly 20% of a state's projects receiving public support) where higher ratios of public funds within the state were connected with a lower marginal effect (see Figure 9). To control for any outlier effects, it should be noted that two state values were dropped from the analysis for Figure 9, Nevada and Arizona. Both states' proportion of publicly funded projects were at 1.0, far beyond the other state values.

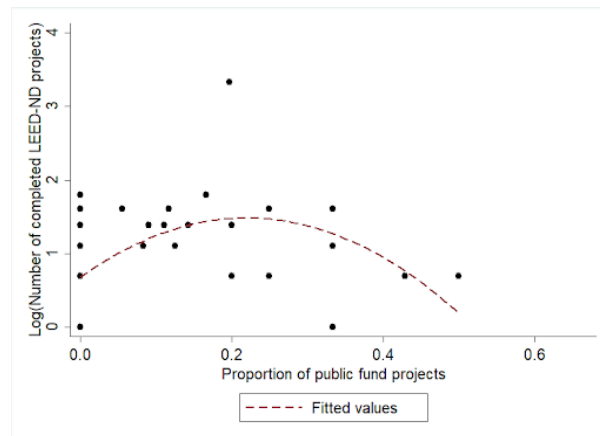


Figure 9. Scatterplot of the number of LEED-ND projects completed and the proportion of public funding by state with fitted regression line

The model specification with the other control variables is shown in Models (1) – (3) of Table 14. Because the LEED-ND certification program is designed for mainly urban environments and density has been found to be a statistically significant factor for other city or county level sustainability analyses (Homsy and Warner, 2014) a density control variable was included to better distinguish its role in whether a state successfully completes LEED-ND projects. The average density of highly compact cities (population > 10000) in a state was not found to be statistically significant in this analysis. In the selection stage of the two-level regression model, only population was found to be statistically significant and positively related to whether a state pursues LEED-ND projects. In the second stage, the more liberal a state's average voter ideology was (Cook Political Reports, 2018), the more likely the projects in that state were to obtain a LEED-ND certificate. Additionally, the economic growth rate was found not to be statistically significant, highlighting that the political character of a state was more predictive of the number of successful LEED-ND completions rather than its overall economic performance over that same time period.

The statistical analysis highlights that initial public funding supporting LEED-ND projects may play a critical role in increasing the completion likelihood of LEED-ND projects. As a result, a strong case can be made that initial limited government support (i.e. tax incentives, reduced permitting times, etc.) plays a significant role in helping stimulate private investment for LEED-ND projects especially in areas without current activity. However, Figure 8 also indicates that the relative impact of public funding diminishes after initial levels of LEED-ND projects are completed in a state. In addition to what other studies highlight, our study finds that funding alone is not the only key driver for successful sustainable development adoption - it is also

critical for local government to involve the community in making decisions on policy design and local spending priorities (Laurian & Crawford, 2016; Whittemore, 2013).

3.4.2 Developer Survey

Highlighting the limited exposure LEED-ND projects have within the overall developer market in Texas, only 50% of the developers surveyed ($n = 36$) had heard of LEED-ND projects before and of those only six (28.6%) had previous LEED-ND building experience (see appendix for full details).

4.4.2.1 Public Awareness Dimension

As only three LEED-ND projects have been certified in Texas (as of this publication), most developers revealed they had first learned of LEED-ND through sources outside of LEED-ND, including other USGBC projects, through reading technical publications, reading sustainability oriented websites, or at a meeting for the Congress of New Urbanism. The survey also asked the developers if they had development experience with other sustainability certifications. Two-thirds of those that had successfully completed a LEED-ND project mentioned they had had prior experience with other sustainability certifications while roughly half of those with no LEED-ND experience still had sustainability experience. For those who had completed sustainability certification developments, projects ranged from other LEED office and commercial buildings to working with Greenbuild, Energy Star for buildings, and local programs.

When asked to choose what kind of additional information would help lead them to pursue LEED-ND development in the future, those who had already completed LEED-ND projects answered at a much higher rate across the categories. For those who were unfamiliar with LEED-ND, the additional information cited as most important included other environmental performance information (heat mitigation, storm-water management, etc.) followed by energy-saving performance, and eligible locations of most suitable LEED-ND sites.

4.4.2.2 Organizational Dimension

While surveying the state’s development community, it was important to understand what their organization’s current priorities as well as any barriers for pursuing new projects were. Table 15 highlights the relative weight that competing priorities played within the decision made by developers to pursue a new project—ranging from long-term economic returns (the highest rating) to social equity concerns (the lowest rating). While social equity received the lowest prioritization, also of note from this survey was the prioritization that Texas developers placed on three other goals ahead of short-term economic gain.

Table 15. Prioritization of Texas Development Organizational Goals

Important Development Strategies	Average Likert Scale Rating (5 being highest; 1 being lowest)
Long-Term Economics	4.3
Improving Quality of Life	3.86
Environmentally Friendly	3.69
Short-Term Economics	3.52
Creating An Iconic Place	3.5
Social Equity	2.9

4.4.2.3 Economic Dimension

The survey also examined the biggest concerns that played in pursuing comprehensive certifications like LEED-ND. For those who had not already pursued LEED-ND projects, the largest concern was the developer's perceptions of higher construction costs and the concern for a noticeable return on their investment. For those who had prior LEED-ND experience, the main limitation identified for pursuing further LEED-ND projects provided was the cost of certification fees.

Practical incentives for implementing LEED-ND projects were also explored including reducing permitting fees and providing tax incentives or density bonuses. One takeaway from the survey was that 75% of developers unfamiliar with LEED-ND identified tax incentives (Talen, 2011) as one of the top ways cities could help developers pursue certification, compared to only 61% of developers familiar with the program.

4.4.2.4 Policy Dimension

Developers also highlighted permitting schedule challenges and additional requirements for the certificate as impediments to their participation in LEED-ND projects. One developer cited the restrictions the LEED-ND framework places going “counter to typical development patterns, e.g. parking quantity and placement” as the largest barrier for participation – highlighting a question for developers of whether such guidelines should lead or follow current public demand (see Additional Information section for full details). For those who had not already pursued LEED-ND projects, the largest concern along the policy dimension, was the uncertainty regarding the approval timeline and an interest in streamlining the process.

4.4.3 Interviews with Local Planners

Most of the DFW-area local planner interviewees held positive views about the LEED-ND program; however, they also emphasized that its substantial costs and the time required to pursue accreditation were significant barriers resulting in the program not being discussed within many conversations with stakeholders in their community including developers.

4.4.3.1 Economic Dimension

Most of the planners interviewed came from cities that provided little to no current local tax incentives and few if any benefits offered to developers who pursued LEED-ND projects. However, some were creative in partnering with a school or local community to provide grants, tax abatements and fee waivers, largely through economic development. Financial constraints were often the largest barrier to pursuing LEED-ND integration. One planner described it as such: “in my experience, there are few developers willing to invest the money to go through the certification process.” Another highlighted that implementing sustainability into development projects did not have to be cost prohibitive, but in current market conditions the extra fees matter.

4.4.3.2 Organizational Dimension

An additional restriction comes from the limited time and resources each planning office has to devote to the competing priorities of long-term sustainability considerations squared with more short term local economic gains for the city. In comparison to prioritizing explicit sustainability goals, most of the planners interviewed focus their local incentives towards

redevelopment of retail sites as well as downtown development in order to provide support for geographic or redevelopment hardship. Both Grodach (2011) and Whittemore (2013) also found planners in Dallas-Fort Worth frame priorities in terms of economic and development much more often than sustainability. One development review manager reported: “we are just trying to survive this current round of development. As the city continues to redevelop, I think we will need to examine sustainability more closely.”

4.4.3.3 Policy Dimension

Location factors were also identified as barriers for the DFW city planners’ ability to engage with LEED-ND programs. For example, planning officials highlighted how LEED-ND program’s requirements to build with smart location and linkage in mind limited the ability to site new environmentally-minded developments while juggling other competing priorities (e.g. wetlands protections, FEMA (Federal Emergency Management Agency) requirements, limited mass transit corridors, and concerns about developments proximal to tracts with health concerns such as brownfields and landfills). As one community development planner said, “talking about [LEED-ND] and influencing change are two different things. Having a project-based neighborhood program is holistic, and developers understand the importance of things like pedestrian walkability and connectivity with pretty pictures. However, seeing it built [through so much red tape] is another story.”

In the end, while the current barriers identified in the interviews and survey are numerous, there was also considerable local interest expressed in working together with LEED-ND. Many planners and developers agreed that LEED-ND provided a useful framework; one

commented that the program provides “a lot of opportunities, and beyond doing it for prestige, the process is there, you just have to be creative.” Another summed up the future direction of the city in explaining that as soon as more incentive programs are figured out, “we may have LEED-ND projects heading this way.”

4.5 Discussion

The chapter’s mixed-method approach provided several findings that make important contributions to the literature. Table 16 below summarizes the main takeaways of this study in terms of the barriers and incentives in comparison to prior literature.

The statistical analyses highlighted that support from the public sector is positively correlated with whether a project receives LEED-ND certification within a state. This study’s clear link between local governments utilizing financial incentives and increased local adoption levels of LEED-ND projects highlights the potential of utilizing economic development tools in creating more public-private development (Skelcher, 2005). Key factors in previous literature associated with successful sustainable development outcomes (such as urban density) were not found to be significant in this research. However, the level of significance ($p < 0.05$) and effect size (greater than 40% initial increase) associated with projects that received public funding in this study does provide a powerful starting point for future studies to further examine.

The Texas developer survey provided an individual-level window into the decisions, perceptions, and experiences regarding LEED-ND projects as well as why many private firms remain uninterested in pursuing such projects. While barriers and incentives across all four dimensions –

Table 16. Four Dimensions Summary (Economic, Policy, Public Awareness & Organizational)

Previous Literature Barriers	Current Research Barriers
<p>Economic</p> <ul style="list-style-type: none"> • Cost (both certification process and components) (Rabb, 2013) • Perception of risk and limited demand (Freybote et al., 2015) • Short-term view (Healey, 1995) • Principal Agent problems (split incentives) (Regales, 2017) • Access to financing (Cites Climate Finance Leadership Alliance, 2015) <p>Policy</p> <ul style="list-style-type: none"> • Additional Regulations Limited flexibility in framework (Suzer, 2015) and site locations (Smith & Bereitschaft, 2016) <p>Public Awareness</p> <ul style="list-style-type: none"> • Limited opinion priorities (Geels, 2013) • Limited awareness concerning Neighborhood Sustainability Assessment tools such as LEED-ND (Sharifi, 2014; Rabb, 2013) • Limited participation (Bell et al., 2012) <p>Organizational</p> <ul style="list-style-type: none"> • Limited leadership prioritization and capacity (Grodach, 2011; Whittemore 2013) • Limited coordination (Carli, 2018) • Opposition from industry (Saha & Paterson, 2008) • Siloed responsibility (Sekerka & Stimel, 2011) 	<p>Economic</p> <ul style="list-style-type: none"> • Developers identified costs (both in construction as well as certification fees) as one of the largest barriers, along with uncertain return on investment. • Planning officials identified limited budgets as a major barrier to pursuing projects like LEED-ND. <p>Policy</p> <ul style="list-style-type: none"> • Developers identified two predominant barriers in terms of the current LEED-ND framework: <ul style="list-style-type: none"> ○ limiting site criteria ○ additional certification steps <p>Public Awareness</p> <ul style="list-style-type: none"> • Developers identified limited exposure to LEED-ND programs in their own local work. • Planning officials highlighted a perceived lack of public engagement or market demand for sustainably developed neighborhoods. <p>Organizational</p> <ul style="list-style-type: none"> • Developers identified long-term economic returns as more important than other goals including environmental and social equity concerns. • Planning officials identified limited time for focusing sustainable development over other city priorities.

Previous Literature Incentives

Economic

- Reduction of costs through taxes or subsidies (with policy) (Talen, 2011, (Eversberg & Goebel, 2005)
- Minimizing economic risk (Rabb, 2013)
- Improving public and private funds access, grants (Blanco et al., 2009)

Policy

- Expediting permit process (Hawkins & Wang, 2013)
- Density bonuses (Bhatta, 2010)
- Integrating sustainable development elements, benchmarks or life cycle assessments within planning framework (Blanco et al., 2009; Bassett & Shandas, 2010)

Public Awareness

- Education & publicity (McNeal et al., 2014; Foss, 2016)
- Providing recognition or awards, demonstrating greater brand awareness (for developers) (Mason et al., 2011)

Organizational

- Providing strong vision/ prioritization of additional key areas (Szibbo, 2016)
- Providing access to capital (Cites Climate Finance Leadership Alliance, 2015)
- Providing training and knowledge transfer
- Convening public/private stakeholders together (goals (Johnson et al., 2004), providing a framework for identifying local sustainability goals (Maclaren, 1996)

Current Research Incentives

Economic

- This study confirmed developers identified reducing costs and providing tax incentives as a key economic priority for further LEED-ND adoption.
- Planning officials identified creative partnering with a school or local community to provide grants, tax abatements or fee waivers as additional key incentives.

Policy

- This study confirmed local planning officials have considered ways to integrate principles into current recommendations, including supporting language in long-term visionary documents and standard ordinances related to reducing energy consumption and expediting sustainable design-oriented permitting process to clarify timeline/process.

Public Awareness

- Developers did not identify LEED-ND certifications as providing local recognition or prestige in this study.
- Developers did identify other environmental performance information (heat mitigation, storm-water management, etc.) and energy-saving performance as areas to improve public awareness towards.
- Planning officials identified highlighting evidence of long-term financial benefit as a key incentive to drive further interest in LEED-ND adoption.

Organizational

- Local planners identified the key role they play in bringing partners together for stakeholder meetings and in identifying the most suitable LEED-ND sites locally. They also identified limited time and resources as often preventing this facilitation.

economic, policy, public awareness, and organizational (Table 12) - were explored, developers identified the current cost and fees of pursuing LEED-NDs project as the most common obstacle of implementation and expansion. Many of the individual responses referenced that the LEED-ND certification alone was not “financially worth it” as it currently stands due to the additional costs associated with pursuing such projects. One developer reflected that “I just don’t think they are cost effective,” and while it may help with neighborhood resistance towards development there is not “a lot of bang for the buck.” Developers did not identify LEED-ND certifications as providing local recognition or prestige, but did identify other environmental performance information (heat mitigation, storm-water management, etc.) and energy-saving performance as areas that with more information available locally would help drive interest.

Planning officials identified the need for evidence of long-term financial benefit and case studies like LEED-ND’s Local Government Guide (USGBC, 2011) as a key incentive to generate further awareness and interest locally. Local planners also spoke to the key role they play in identifying the local sites most suitable for sustainable development like LEED-ND and in bringing public and private partners together for stakeholder meetings and, but also highlighted the limited time and resources their roles demand in often preventing this facilitation.

The Texas developer survey also highlighted the limited number of respondents that had familiarity with LEED-ND projects or had heard of the program before. Public choice theory research highlights that elected officials largely respond to the most vocal and organized platforms (Boyne, 1998) from regular citizen and community groups and if neighborhood sustainability assessment tools like LEED-ND are to have success in expanding the number of regions in which they are pursued, proponents must engage the developer community and larger

public in ways that influence stakeholders. In response, one of the largest opportunities for increasing participation lies in identifying local approaches to improve the level of education and training regarding the community benefits (both monetized and non-monetized) from sustainable development. Especially in areas of the country where LEED-ND projects have not yet gotten off the ground, research has highlighted the importance of not only following standard sustainability reporting design (Maclaren, 1996), but in local officials designing public processes where stakeholders can feel comfortable and respected in talking about diverse perspectives and identifying integrated solutions where goals and seek common ground (McNeal et al., 2014; Tretter, 2013).

Recommendations for future studies include incorporating data that features additional details regarding LEED-ND project history, specific funding sources, and disaggregated project expenses as the current USGBC database online is limited and full information wasn't always available for each project's background. Including such granularity along with a narrower local unit of analysis can shed additional light on distinguishing the relative impact that different types of economic incentives (subsidies, tax deductions, transfer payments, etc.) provide. More advanced time series models to control for temporal variance should be also considered along with surveying additional populations of local planning officials and developers.

4.6 Conclusion

To enhance the ongoing progress being made by U.S. cities to address significant issues associated with sustainability, land-use, and urban sprawl, it is essential that research continue to examine the economic dimension of local barriers and incentives for programs like LEED-ND.

As the current study's results suggest, local governments not only play an informed organizational role in their support for programs that expand public awareness behind the benefits that come from sustainable development, but can also influence local decision-making economically. The chapter's analysis highlights that initial public funding can play a significant role in helping stimulate private investment for LEED-ND projects, especially in areas without current activity. As programs like LEED-ND become more established local governments also have the opportunity to influence the land development industry and local planners to adopt more sustainable design when planning new neighborhoods through incorporating key principles within their zoning and permitting policies as well. By creating best-fitting incentives for local communities across all four dimensions explored in the chapter – economic, policy, public awareness, and organizational - stakeholders have the potential to find avenues to advance the broader triple-bottom line sustainable development goals provided within programs like the LEED-ND framework.

CHAPTER 5

CONCLUSION

5.1 Policy Implications

Ostrom contended that polycentric systems were already playing an important role in reducing emissions, inducing innovation, experimenting with adaptation measures, and lead towards more sustainable policy design (2010). While each of the preceding three chapters have included a discussion and conclusion section in their own right, this final chapter seeks to summarize and consolidate all three findings into a larger polycentric-oriented view for policymakers interested in understanding both the successes and limitations of the subnational climate policies surveyed. Overall, there are three different system levels of subnational governance that have been explored—the micro-level of local sustainability-oriented policy implementation, the meso-level of state-based carbon pricing policy initiatives, and the macro-level interaction examining how subnational climate-related policy has related to federal voting of lawmakers from respective states. Chapter 1 also highlighted the five polycentric prepositions (Local Action, Mutual Adjustment, Trust, Experimentation, and Overarching Rules) in Table 1 along with connections that each have in relation to the dissertation research. As a result, it is instructive to review these prepositions and what findings and implications have been illustrated for each.

5.1.1 Local Action

Polycentric scholars contend that “governance initiatives are likely to take off at a local level through processes of self-organization” (Jordan et al., 2018, p. 15). This dissertation

examined how local governments have adopted and incentivized greenhouse gas reduction and sustainable design in their own local planning and neighborhood development as a means for exploring the impact of local action on larger efforts. Ultimately, while sustainable urban development continues to thrive and prosper particularly in states and communities that have already experienced early success in implementing programs like LEED-ND, the research in Chapter 4 highlights the barriers that many other local governance units face in pursuing similar approaches. While initiatives typically begin at the local level through a self-organized process, in the cases studied, it is also clear that local action is limited by economic constraints, public awareness, and other factors that impact the adoption rate of greenhouse-gas mitigating policies.

Polycentric theory also contends that local action arises as actors identify a problem and self-organize on many levels to address the impacts while maximizing mutual benefits (Jordan et al., 2018). While there is expansive literature that has identified many examples of local actors tending to local challenges, the global scale of what policymakers face in addressing the drivers and dispersed impacts of climate change leads to greater challenges in coordinating and effectively latticing policy efforts. While Chapter 2 highlights the potential for state-level policy adoption to impact the voting calculus of federal lawmakers, Chapters 3 and 4 highlight the many barriers that local actors face when resources are limited and entrenched political and economic interests exhibit disinterest in making changes to the existing paradigms. It is clear from the literature and experiences compiled throughout the preceding pages that a multitude of local and subnational actors are initiating policy design and implementation within their sphere of influence. However, it remains less clear how such collective efforts will organize and be

structured to address these barriers in leading to a broader, economy-wide low-carbon energy transition.

5.1.2 Mutual Adjustment

Polycentric scholars highlight that “constituent units are likely to spontaneously develop collaborations with one another, producing more trusting interrelationships” (Jordan et al., 2018, p. 18). This dissertation examined the processes by which neighboring states and federal votes adapt to what first-mover states initiate as well as how state-level campaigns can influence policy outputs. Chapter 2 highlights the barriers that mutual adjustment faces when attempted to be implemented on the national level, even after a significant bloc of states have begun to adjust and adapt to the earlier policy adopters of approaches like cap-and-trade systems and renewable portfolio standards. Democrats in the cases studied were likely to vote in favor of any environmental policy if their own state had already adopted a policy to nationalize similar efforts. Interestingly, on the other side of the aisle, a key number of Republicans were also willing to support such related bills, leading to the proposed dynamic motivated by bipartisan attempts to level the playing field across states. As a result, Chapter 2 contends that one reason why a conservative lawmaker may support increasing environmental regulation nationwide lies in the process of mutual adjustment to align their home state with the federal playing field. Thus, even if an elected member does not necessarily support a particular climate policy, if they think their state has a competitive disadvantage because the state government put such a policy in place, then they may have been motivated to adjust to the current policy milieu, requiring all

states to adhere to policies that demand stricter standards. This example highlights the limitations that constituent units face when trying to leverage further widespread adoption.

Chapter 4 found that as programs like LEED-ND become more established, local governments also have the opportunity to mutually adjust and influence the land development industry and local planners to adopt more sustainable design when planning new neighborhoods through incorporating key principles within their zoning and permitting policies. Chapter 4 also found mutual adjustment to be key on the state-level. Effective coalition building and responding to the importance of developing trusted networks of communication to coalesce around principles influences change for the desired policy output.

Overall, each of the three chapters confirm the prediction established by the polycentric preposition of mutual adjustment. Once varying levels of governance become established, they will begin to interact with each other in ways that are both “spontaneous and bottom-up...similar to complex adaptive systems” (Jordan et al., 2018, p. 365). This dissertation attempts to not only highlight three distinct levels of subnational policy action, but also begins to trace how their emergence influences the design and decisions that the related constituent units make in response to the implementations initiated by both vertical and horizontal levels of governance and action.

5.1.3 Trust

Key to polycentrism’s response to international climate repertoire is its contention that “trust is likely to build up more quickly when units are able to self-organize, thus increasing collective ambitions.” (Jordan et al., 2018, p. 19). This dissertation examined how state-level and

local initiatives have increased the levels of trust in their own policymaking and coalition building to further increase the chances of policy adoption and found it to be critical for quantifiable policy success.

Polycentricity theory does not presume that every new initiative will add to the sense of trust within a community's current policy and governance milieu. To the contrary, some may even increase competition or lead to ineffective redundancy, eroding the public's trust in yet another approach or institution. Given the importance of knowing which actors withdraw from their commitments in shared governance, Ostrom envisioned trust emerging from when nested systems collaborated to develop systems of monitoring in common with each other (2009). While each chapter focused on a different level of policy design, the tenets of the LEED-ND program, as well as the emerging diffusion of state-level renewable portfolio standards, hybrid electric incentives, and many carbon pricing policies aim to provide a common framework to establish this kind of mutual monitoring to improve the comparison process. The chapters also attempted to distinguish between trust and the other prepositions. For example, the successful climate policy outputs in two states during the 2019 legislative session were explored in Chapter 3 in order to examine whether building trust goes hand-in-hand with other locally focused actions or is developed separately.

5.1.4 Experimentation

Polycentric scholars offer that "the willingness and capacity to experiment is likely to facilitate governance innovation and learning about what works" (Jordan et al., 2018, p. 21). As a result, this dissertation examined how policy experimentation has led to other states and federal votes further implementing policies that were initially successful in their own jurisdiction. While

the causal connection tracing whether experimentation leads to increased innovation has not been explicitly examined through these chapters, the conditions by which policymakers on all levels of subnational government choose to initiate their own experimentation have been explored.

Chapter 2 took the lens of how experimentation at the state-level might influence federal votes aimed at extending early successes to the national level – whether in the form of renewable portfolio standards, cap-and-trade systems, green building standards, or hybrid and electric vehicle incentives. Finding that certain state-level policies can lead to upscaling to the federal level (e.g. gaining support from other members of the Congressional delegation from that state who may otherwise oppose such regulations) suggests an additional reason for policy entrepreneurs and interest groups to pursue state-level policy experimentation. This in effect facilitates learning so that the federal government is also influenced to pass legislation favored by advocacy coalition group with a reputation for political momentum.

One additional component of incentivizing further experimentation is the importance of feedback through evaluation. Not all policy experiments examined through these chapters have had the timeframe yet in order to be fully evaluated for their impact. Additionally, some of the programs that have been implemented for a longer time period have lacked a more robust integration of their evaluation with the policymaking community. While these chapters have not fully examined the role that program evaluation plays in leading to further experimentation, they have explored the dynamic of how specific policies can be “shopped around” once adopted to be expanded into other layers of the subnational U.S. climate policymaking space directly by policy entrepreneurs. As Chapter 3 highlights, if state-level coalitions are successful at boosting

legislation for specific climate-oriented goals through to passage, policy entrepreneurs as well as other units of government stand to benefit from the feedback from these experiments.

5.1.5 Overarching Rules

It is clear that dialogue continues regarding the overarching rules and enforcement response the international community can agree on in terms of climate change policy (UNFCCC, 2019). Overall, these chapters have explored the role that subnational governance plays in establishing and following overarching rules within their own domain. Polycentric research has found that “local initiatives are likely to work best when they are bound by a set of overarching rules that enshrine the goals to be achieved and/or allow conflicts to be resolved.” (Jordan et al., 2018, p. 23). As a result, this dissertation examined how individual state-level policies influenced and interacted with overlapping federal policy layering and initiated additional support for expanding further adoption.

In Chapter 4, the analysis highlighted that overarching rules (e.g. local codes) as well as economic factors (e.g. public funding) can play a significant role in either increasing the barriers to or the incentives for private investment towards urban sustainability focused projects (e.g. LEED-ND); however, in areas without current activity beginning the process of implementing these local rules is a considerable lift. Additionally, in a larger sense, while state-level policy featured as the primary actor responsible for not only influencing many of the policymaking decisions along with enforcing the resultant overarching rules examined across all three levels of governance, the scope of its impact to establish and enforce overarching rules remained constrained.

5.2 Future Study

Drawing on the work across all of the chapters, it is clear that additional research at each level is needed. For example, in Chapter 2, the dynamic of state-level environmental policies affecting the voting behavior in Congress presents further avenues of interesting research questions, including whether this phenomenon is limited to environmental legislation or is also at play in other climate legislative areas of focus as well. While Chapter 2 has highlighted that the story of environmental regulation among U.S. states is not exclusively a race-to-the-bottom affair, there remains further possibilities in exploring the countervailing upwards pressure the lawmakers face in minimizing any state-level competitive disadvantage by adopting national policies (Konisky, 2007). For example, what additional state-level policies when adopted lead to effective pressure for federal-level adoption to level the playing field? Additionally, further elaboration in future models can include measures for party leadership, the relative strength of corresponding state-level policies, measures of constituent support, and likelihood of primary challenges as additional variables to include and analyze.

Chapter 3 provides more depth in understanding the effective role that advocacy coalitions can play in broadening the alignment of stakeholders on the state-level towards supporting the ultimate passage of ambitious climate policies. In its examination of the strategic decisions that coalitions make in utilizing many of the resources that the Advocacy Coalition Framework outlines - it highlighted that skillful leadership, mobilizable troops, and financial assets all have the potential to play a critical role in building support for state-level environmental initiatives. Interviews with the coalition leaders however also revealed that there are additional dynamics that the preliminary application of the Advocacy Coalition Framework

does not fully capture – including the disproportionate role that party leaders can play in not only agenda setting but in influencing public opinion. In addition, it is clear that the interaction between the strategic decisions that coalitions make in investing in influencing the policy design process and building public support for the emerging policy outputs faces a tension that the current configuration of resources that the Framework doesn't fully conceptualize. Given the current research design's limits to qualitative in-depth interviews, and with only one coalition grouping per state, the next steps to take include building out a more in-depth analysis focusing on understanding the competing coalitions' strategic decisions and resource prioritization as well as the development of quantitative measures to help fully capture the dynamics at play within any state-level design. A similar application of the Advocacy Coalition Framework body of work could also yield a deeper understanding behind the policy formation, adoption, and implementation process throughout the variation seen in Canada's provincial carbon-pricing legislation.

Chapter 4 examines the influence and trade-offs that local government units and city planning officials face in working with developers and sustainable design certification programs like the LEED-ND program. To enhance the ongoing progress being made by U.S. cities to address significant issues associated with climate change, it is essential that research continue to evaluate the economic, policy, public awareness, and organizational factors behind the local barriers and incentives for cities adopting programs like LEED-ND. While many of the barriers to implementing sustainable urban design stem from limitations to local zoning, limited budgets, and limited public support for further codes and regulation, examining how such programs initiate adoption of sustainability practices within local policy can help highlight where such

design programs have begun to proliferate, but also where the key components within their ratings systems have begun to be adopted within local policy as well. Additionally, on the international-level there is great potential in additional research comparing the evaluations of LEED-ND outcomes with other sustainable neighborhood assessments, building on the work of Sharifi and Murayama (2015), and Wangel et al. (2015), as well as improving the scope examining how such assessments can lattice with the variation state-level policies and regulations.

5.3 Concluding Statement

Overall, through examining the pursuit of a wide variety of climate policy adoption on the state and local levels, it is clear that significant and important work is being done subnationally throughout the United States in the face of the many challenges that encumber ongoing maturation of federal policy. The findings across all three main chapters within this dissertation highlight several important dynamics central to Ostrom's research. There is no one monolithic unit of governance responsible for providing the full suite of policy responses to any challenge that policymakers face – including climate change. The polycentric nature of the ongoing U.S. response to mitigating the drivers of, as well as the impacts from, climate change allows all levels of governance the ability to “enhance innovation, learning, adaptation, trustworthiness, levels of cooperation of participants, and the achievement of more effective, equitable, and sustainable outcomes at multiple scales” (2010, p. 552). Polycentric systems can help enhance how governance units not only collaborate, but diversify their experimentation of new policy approaches, while finding new ways to engage the public to participate in existing

systems. In laying the groundwork for encouraging other researches to explore deeper understanding in how such nested interconnected systems interact, Ostrom was confident that such an approach could provide three essential services: “describing the landscape of governance, explaining that landscape, and prescribing new ways to make it function more effectively” (Jordan et al., 2018, p. 360).

However, the subnational experience also diverges from Ostrom’s original argument in that where there has been progress made towards ambitious climate-oriented policy adoption at the subnational level, the above chapters highlight that each policy’s design and impact faces limitations and constraints within the five prepositions outlined. Overall, amidst the additional lenses that polycentricity as a theory and body of work can provide, it should not be thought of as the definitive response or means of policy analysis for all of the challenges that effective international and subnational actions on climate change must eventually broach. “Self-organized, polycentric systems are not a panacea,” Ostrom wrote, highlighting that similar to any evolving school of thought, polycentric theory faces its own set of legitimate weaknesses in conceptualizing climate governance (2010, p. 555). Limitations that polycentric approaches face include possibly inconsistent policies, the potential for leakage (emission reductions being shifted between locations or outside the overall market), limitations in the scope of certification, increased incentives for gaming the system, and an inability to curtail free riding.

Stepping back from the normative lens that polycentricity—or any other theory that addresses collective action challenges provides—regardless of the main contributive factors behind any subnational policy, there are important consequences of international political-economic interactions to consider. As policies like the ones explored in this dissertation become

law, researchers highlight several dynamics that must be balanced in order to provide the peace and security benefits that come with cooperative economic relations (Dumas, 2011). For example, only if quantity or price commitments can be compared across a level playing field will overarching rules be more easily established and there needs to be transparent and accurate accounting within each government to establish trust as well as an agreed upon methodology to equate countries efforts that are using different tools (Cramton, Ockenfels, & Stoft, 2017).

It is clear that absent ambitious federal-level action to take on challenges that stem from climate change, the types of policy outputs highlighted in this dissertation fulfill a necessary role. It is also equally clear that the scope and level of emissions reductions these policies are achieving individually and en masse do not on their own equate to the global emissions reductions pathways outlined by the best available science (IPCC, 2018). The global community still has considerable work ahead of itself with diplomacy after the Paris Agreement, as scientifically, the sum total of international emissions contributions calculates to raise temperatures between 1.35 to 2 times more than the two degree Celsius goal (Cramton, Ockenfels, & Stoft, 2017). Thus, the crux of international climate policy lies in promoting many of the same prepositions outlined within the emerging framework that polycentricity provides.

In the context of the Paris Agreement, the world community's governments have all set individual domestic emissions targets they believe are reasonable and are looking for additional economic instruments to efficiently and effectively achieve their goal. The challenge with the Paris Agreement is that the current round of commitments that countries have voluntarily pledged end in 2030 and cooperation research highlights the fragility behind international agreements and their potential for collapse (Cramton, MacKay, Ockenfels & Stoft, 2017). The

nature of this fragility underscores the importance of outlets for governments to build trust and mutual adjustment as “common commitments bind countries only to the extent that other countries also live up to the agreement. This kind of reciprocity creates incentives for cooperation and, ultimately mutual trust” (Cramton, MacKay, Ockenfels & Stoft, 2017, p. 65). The coordination climate policies across international actors entails challenges to the current framework each of which has been attempted to be addressed by the subnational climate-oriented policies explored above. These challenges include efficiency problems (current policy tools being unable to stem global GHG emissions, transparency problems (challenges with leakage and accurate measuring of production vs. consumption emissions), inclusiveness problems (bringing all major emitters to the table for any binding agreement), and incentive problems (reductions constrain/ impede especially the developing world) (Cramton, Ockenfels, & Stoft, 2017). Policymakers involved the design of effective subnational climate policy add to the broader international dynamic by experimenting with approaches that can address the local concerns and barriers analyzed in this dissertation as well as the significant challenges that the international community currently faces. On the international level, there appears to be an ongoing economic consensus that well-designed carbon pricing policies are both (1) one of the most effective policy tools to curb emissions and (2) provide the reciprocity to promote much-needed international cooperation (Cramton, MacKay Ockenfels, & Stoft, 2017).

From the polycentric perspective, various subnational carbon pricing policies can help facilitate governments to find ways to move towards agreement on harmonizing greenhouse gas emissions prices, enforcement mechanisms, independent monitoring, as well as other shared governance challenges. As highlighted by Ostrom, the best kind of governance approaches are

those policy outputs that provide the opportunity to test their impact and collective effectiveness (Jordan et al., 2018). As a result, while the polycentric framework may be still be in development, it highlights the critical role that academic research will play in studying and detailing emerging systems, policies, and regimes. Ongoing polycentric research has the opportunity to highlight effective climate policy for the larger policymaking community to learn from and take back to their own communities in order to integrate their own approaches to manage mitigation and adaptation projects with the hope of benefitting from the expansion of similar policies.

ADDITIONAL INFORMATION

The author will share all data and code to replicate the analyses in Chapter 2. The de-identified interview transcripts for Chapter 3 as well as the IRB protocols are available upon request.

Supplementary data related to Chapter 4, including the developer survey, LEED-ND inventory and interview notes can be found at: <http://dx.doi.org/10.17632/ktwycrxws2.1>.

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BIOGRAPHICAL SKETCH

Brett Cease is currently in his final year of study in the Public Policy & Political Economy Program at The University of Texas at Dallas and began the program believing in the importance of using educational opportunities to serve the larger community. One highlight during his time at UTD included the chance to serve as an Archer Fellow with the EPA's National Center for Environmental Economics in the summer of 2015 in Washington, DC.

Throughout his graduate coursework, Brett has been interested in examining the history, economic rationale, and political decisions behind how all levels of government have begun to structure a price on carbon. Given the crossroads that our country finds itself at in envisioning a new energy future, Brett sees examining such policies for their efficiency and level of equitability as increasingly important in understanding how to best utilize policy design with market-forces to transition our economy in a steady, predictable manner towards energy sources that are abundantly distributed and less politically volatile.

CURRICULUM VITAE

BRETT WAYNE CEASE
Public Policy & Political Economy Ph.D.
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EDUCATION

University of Texas at Dallas	Ph.D. in Public Policy & Pol. Economy	December 2019
University of Texas at Dallas	M.S. in Legislative Studies	May 2017
Bemidji State University	M.S. in Education	May 2015
Augsburg College	B.A. in Psychology	December 2007

PUBLICATIONS

Cease, B., Kim, H., Kim, D., Ko, Y., & Cappel, C. (2019). Barriers and incentives for sustainable urban development: An analysis of the adoption of LEED-ND projects. *Journal of Environmental Management*, 244, 304-312. <https://doi.org/10.1016/j.jenvman.2019.04.020>

Cease, B., Purdon, M. and Astoria, R. (2019). Lessons from Canadian climate policy efforts for America's green new deal, a commentary for the Public Administration Review Bully Pulpit Symposium. <https://www.publicadministrationreview.com/2019/07/16/gnd12/>

Brunell, T. L., & Cease, B. (2018). How do state-level environmental policies impact the voting behavior of national legislators?. *Social Science Quarterly*, 100(1), 289-306. <https://doi.org/10.1111/ssqu.12559>

Gorina, E. Cease, B. Goodman, D. Abraham, R. (2017). Environmental sustainability adoption and financial management in U.S. cities, a commentary for the climate change and public administration symposium at Public Administration Review.

Cease, B. W. (2016). Examining instructional factors that develop environmental attitudes, behaviors, and knowledge. *JSCM (Journal of Safety and Crisis Management)*, 6, 25-42. <http://doi.org/10.14251.jscm.2016.2.25>

SELECTED PRESENTATIONS

Cease, B. (2017). How Do State-Level Environmental Policies Impact the Voting Behavior of National Legislators? The American Political Science Association Annual Meeting. San Francisco, CA.

Cease, B. (2016). The Impact of Instructional Methods on the Development of Environmental Knowledge, Attitudes, and Beliefs in Higher Education Environmental Coursework. The Int'l Conference on Environmental, Cultural, Economic & Social Sustainability. Portland, OR.

Cease, B. (2015). How Environmental Knowledge, Attitudes, and Beliefs Frame Student Learning in Higher Education Environmental Coursework. PPPE Colloquium. Richardson, TX.

Cease, B. (2014). Exploring the Potential Economic and Environmental Impacts of Carbon Tax Policy on the National and Minnesota State-Level. Bemidji State University Sustainable Tuesdays Speaker Panel.

RESEARCH INTERESTS

Carbon pricing policy entrepreneurs, local government environmental & sustainability policy diffusion, Advocacy Coalition Framework applications to climate policies

TEACHING EXPERIENCE

Graduate Teaching/Research Assistant

2014-2017

University of Texas at Dallas: Public Policy & Political Economy

Richardson, TX

Courses: Environmental Economics, Local/State Government, Intro to Sociology, Environmental/Global Health

Social Studies Teacher

2013-2014

Voyageurs Expeditionary High School

Bemidji, MN

Courses: World Studies, U.S. History, Economics, Technology Seminar, Environmental Club

HONORS, AWARDS AND SCHOLARSHIPS

2016 Stan Curry Memorial Scholarship from North Texas A&WMA \$1,500

2016 APSA STEP Section Dissertation Seminar \$500

2016 Phi Kappa Phi Cyrus Cantrell Grant \$500

2016 Keith Lankford Taylor Fellowship \$1,000

2016 Spirit of Service Award for UT-Dallas Student Government

2015 Archer Center Energy & Alumni Scholarships \$1,500

2014-2016 Graduate Teaching Assistantship University of Texas at Dallas ~\$81,000

2013-2014 Graduate Assistantship Bemidji State University ~\$12,000

2003-2007 Presidential Scholarship & Lilly Scholar Augsburg College ~\$85,000

PROFESSIONAL AFFILIATIONS

American Political Science Association

(2016-Present)