

What Went Wrong for TCI?
Political Economy and Pricing Transportation Emissions

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Author's Note

This paper follows steps one through seven of the Institutional Framework for Policy Analysis and Design to analyze the policy development process of the Transportation and Climate Initiative (Polski and Ostrom). It builds on the first paper for the course, which analyzed steps one through three. The first paper has been significantly revised based on the professor's comments and as the facts of TCI have changed. The final paper benefited from feedback from Lia Eggleston, Anastasia Hufham, and Barbara Riley, a residential college writing tutor.

The Transportation and Climate Initiative is currently in a state of flux. Within the period of writing this paper, the governors of Massachusetts, Connecticut, and Rhode Island withdrew from the cap-and-trade program. This paper thus reflects the state of the world as of December 9, 2021, but the facts of this case are likely to continue to change in the coming weeks.

1. Policy analysis objective: Why has every state withdrawn from TCI?

In the fall of 2010, 33 environment, energy, and transportation officials from 11 Northeast and Mid-Atlantic states and Washington D.C. signed a declaration of intent to reduce greenhouse gas emissions in the transportation sector (“Declaration of Intent”). The declaration recognized that the transportation sector—which accounted for 30 percent of emissions in the region—must be decarbonized in order to “prevent major impacts of climate change globally.” (“Declaration of Intent”). Thus, the Transportation and Climate Initiative (TCI) was formed: a new regional initiative to reduce transportation emissions.

The signatories’ declaration of intent was an invigorating call to action, promising “early adoption and deployment” of clean energy technologies:

We understand that the future of transportation and job growth in our states requires forward thinking, the early adoption and deployment of clean energy technologies and a regional approach to clean transportation. We also understand that talking about the future is not enough. We must act. (“Declaration of Intent”)

The state agency heads affirmed the “efficiency and value” of regional collaboration. TCI would “build upon existing partnerships” such as the Regional Greenhouse Gas Initiative (RGGI), a program established in 2005 to decarbonize the power sector (“Declaration of Intent”). RGGI is a cap-and-trade program: it allows energy companies to buy a limited number of permits to pollute each year, and this number of permits decreases every year. RGGI has been largely categorized as a success: participating states reduced emissions from power plants by over 40 percent between 2005 and 2015 (Marcacci).

From 2010 to 2018, officials in the 14 jurisdictions collaborated with environmental organizations, businesses, and academic researchers to explore potential policy options (North Carolina and Virginia also joined the coalition during this period, bringing the total number of

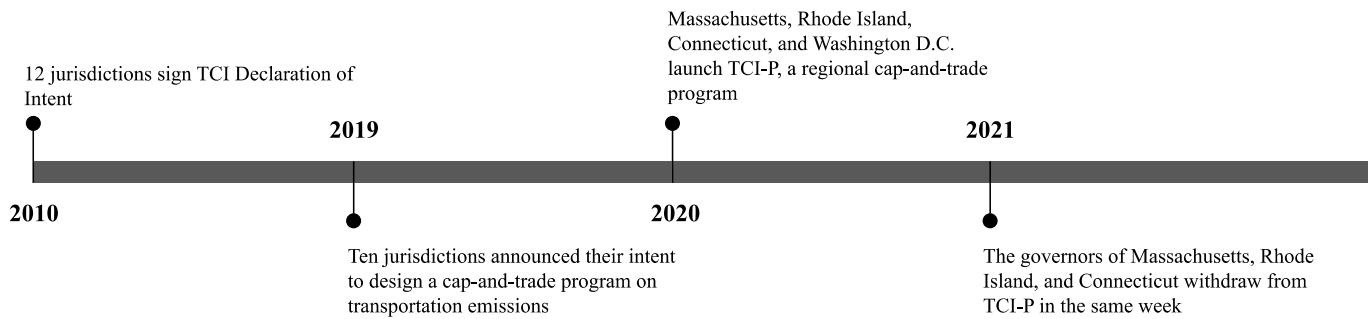
participating jurisdictions to 14). In 2018, ten of the 14 jurisdictions announced their intent to design a cap-and-trade program on transportation emissions (“Timeline”). The next year, Massachusetts, Rhode Island, Connecticut, and Washington D.C. signed a Memorandum of Understanding establishing the Transportation and Climate Initiative Program (TCI-P), a “multijurisdictional cap-and-trade program consisting of individual programs adopted and implemented under the independent legal authority Signatory Jurisdiction” (“Memorandum of Understanding”). In an accompanying statement, eight other states noted they would “continue to collaborate” as part of TCI, but did express any concrete plans to implement TCI-P, the cap-and-trade program (“Next Steps for the Transportation and Climate Initiative”).

Rather than employing the collaborative framework established by RGGI to design a novel program that met the unique physical and material conditions of the transportation sector, state regulators had proposed the wholesale adoption of the same policy mechanism: cap-and-trade. The architects of TCI-P were indeed taking a “blueprint approach.” Some even called TCI-P “RGGI on Wheels” (“TCI and Transportation Cap-and-Trade”). Yet the political and economic conditions of pricing emissions in the power sector and pricing emissions in the transportation sector are unmistakably distinct.

Today, 11 years after the hopeful 2010 declaration, none of the inaugural jurisdictions will implement TCI-P in January 2023 as planned (“Timeline”). On November 16, 2021, Connecticut Governor Ned Lamont withdrew from TCI-P (Altimari and Keating). Two days later, Massachusetts Governor Charlie Baker left the pact. (Abel). Governor Baker had always maintained that Massachusetts would only move forward with the cap-and-trade program if multiple states committed. Connecticut's withdrawal was the last straw for the administration, which asserted that the program was now “no longer the best solution for the commonwealth’s

transportation and environmental needs” (Baker). The next day, Rhode Island Governor Dan McKee withdrew as a result of the “recent events in Connecticut and Massachusetts” (“McKee Drops Support”). Though D.C. Mayor Muriel Browner has not released any official statement on the future of TCI-P in her city, it is highly unlikely that she will pursue the program alone. Figure 1 provides a timeline of the events described above.

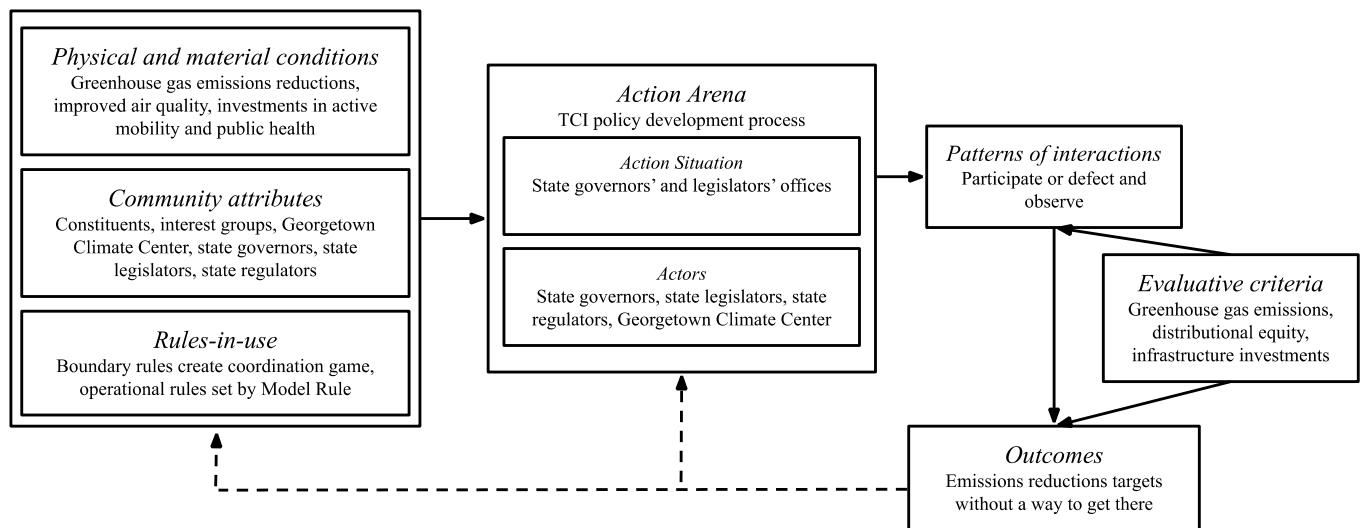
Figure 1. Timeline of the TCI policy development process



Notes: Figure shows major events in the TCI policy design process. The twelve jurisdictions to sign onto the original Declaration of Intent were Connecticut, Delaware, Washington, D.C., Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The ten jurisdictions to announce their intent to design a cap-and-trade program were Connecticut, Delaware, Maryland, Massachusetts, New Jersey, Pennsylvania, Rhode Island, Vermont, Virginia, and Washington, D.C.

In this paper, I apply the Institutional Framework for Policy Analysis and Design (IAD) to investigate why the number of participating jurisdictions in TCI-P dropped from 14 to four, and most recently, from four to zero. Given that TCI-P is a new policy initiative, I proceed forward through the IAD (Figure 2). Sections two through four establish the unique political-economic setting of TCI. Sections five and six evaluate the rules governing the action arena and the action situation of the TCI policy development process. Section seven concludes by analyzing outcomes and prospects for the future.

Figure 2. The Institutional Framework for Policy Analysis and Design applied to the policy development process of TCI



Notes: Figure applies the IAD to the policy development process of TCI. Figure summarizes the defining characteristics of each step, but does not provide a complete overview of each step of the framework.

2. Physical and material conditions: Local solutions to global crises and the problem of passing costs to consumers

Primary good

Given that TCI-P is a cap-and-trade program, the primary service it would provide is reducing the amount of carbon dioxide in the atmosphere. The TCI-P Memorandum of Understanding recognizes that transportation emissions account for approximately 42 percent of emissions of each of the signatory jurisdictions (“Memorandum of Understanding”). The program would reduce participating states’ emissions by 30 percent by 2032, and therefore would be a primary contributor to each state’s emissions reductions goals (“Memorandum of Understanding”). In Connecticut, for example, the Governor’s Council on Climate Change reported that transportation emissions must be reduced to 29 percent below 2014 levels by 2030 (“*Taking Action on Climate Change*”).

The atmospheric concentration of carbon dioxide necessary to avoid the catastrophic impacts of climate change is both nonexcludable and highly subtractable, and is therefore a common-pool resource. Without some form of coordination to overcome the free-rider problem, it is highly unlikely that wholesale fuel providers will limit their supply of gasoline. TCI-P would impose such coordination.

However, there is a clear discrepancy between the scope of TCI-P and the primary good it would provide. Indeed, a majority of voters in TCI-P jurisdictions believe they should do their part to reduce carbon emissions (“Poll”). But TCI-P is a local solution to a global problem. The combined emissions of the four inaugural jurisdictions account for less than one tenth of one percent of annual global emissions (International Energy Agency).

Secondary good

TCI-P couples global emissions reductions with local improvements in air quality, therefore providing public health benefits. Improving air quality is inevitable in any emissions reductions program: limiting fuel combustion simultaneously reduces carbon dioxide and its co-pollutants such as nitrogen dioxide, sulfur dioxide, and particulate matter.

Like the global carbon budget, air quality is also a common-pool resource. Unlike local action to reduce global emissions, however, local action to improve air quality results in local benefits. By 2032, TCI-P would result in \$230 million in annual public health benefits in the four participating jurisdictions (“TRECH Project Research Update”). These health benefits largely result from reduced emissions from highways in east-coast cities. For example, New Haven is situated between the Merritt Parkway, Interstate 91, and Interstate 95. The high volume of traffic on these highways directly affects the city’s air quality and causes public health problems for

residents (Hufham). New Haven ranks as the fifth most challenging city for people with asthma to live in the U.S. (Asthma Capitals 2021).

The cap-and-trade program would produce and provide both reduced carbon emissions and improved air quality. The program would cap carbon emissions by requiring fuel suppliers to participate in auctions to buy emissions allowances each year. The number of available allowances would decline every year, guaranteeing emissions reductions (“Modeling Summary”). The classic economic argument follows: by letting the market set a price on carbon, emissions can be reduced in the most cost-effective way.

However, some economists have argued that using market-based mechanisms to address two fundamentally different problems—local and global pollution—undermines progress on both fronts (Fowlie). Environmental justice advocates lobbied for restrictions on TCI-P allowance trading that prioritized co-pollutant reductions in communities with the most pollution burden (“Sierra Club Statement”). After decades of disproportionate harm, some advocates were frustrated by another ‘economically efficient’ solution.

This tension—which also troubled RGGI and California cap-and-trade—is magnified by the immediacy of the costs TCI-P would pass onto consumers. Unlike RGGI, for example, in which increased costs to utilities are passed to consumers in the form of larger electricity bills, increased costs to wholesale fuel supplies would result in increased gasoline prices. According to the “Frequently Asked Questions” on TCI’s website, the program would only increase gasoline prices by 5 cents per gallon: “Similar to the difference in prices often found between two gas stations on the same street” (“Frequently Asked Questions”). However, 5 cents per gallon is the lower bound in TCI’s own modeling results. The upper bound is 17 cents per gallon. Other sources assert that TCI-P will increase gas prices by even more. The Center for State Policy

Analysis at Tufts University concluded that the program could increase gas prices by 24 cents per gallon (“Assessing the Impact of TCI”). Controversy over the impact of TCI-P on gas prices has led both progressive and conservative critics to label TCI as a regressive gas tax. Progressive critics assert that the program would increase costs for low-income consumers who can least afford a tax hike or an electric car, and who already spend a disproportionate share of income on energy (“Major Environmental Group”). Conservative critics argue that the program is a regressive tax on commuters and truckers who rely on their vehicles for their livelihoods (Faulkner).

The program’s central response to such criticism has been its strategy for revenue investment. Like RGGI, all TCI-P revenue would be invested in participating jurisdictions, with at least 35 percent of proceeds invested in “overburdened and underserved” communities (“Modeling Summary”). If all 14 jurisdictions chose to implement the program, it would generate \$2 billion to invest in clean transportation programs to further reduce greenhouse gases and other air pollutants (“Modeling Summary”). But this has not assuaged many progressive critics, who hold that “reliance on direct and indirect trading is likely to disproportionately impact EJ communities” despite revenue investment (“Major Environmental Group”).

Tertiary goods

The program would therefore produce an additional set of goods resulting from revenue investment, such as improved public transportation, zero-emission vehicles, electric vehicle charging infrastructure, high-speed internet in rural communities, and safer bike lanes and sidewalks (“Frequently Asked Questions”). The economic nature of these goods varies: high-speed internet, for example, is a toll good while safer bike lanes are a public good. While the

cap-and-trade program would produce the revenue for clean transportation investments, individual state agencies would provide these goods. This would allow each jurisdiction to select investments based on their distinct physical and material conditions.

We can briefly examine Rhode Island as a case study to illustrate this point. Given that most of the population is located in Providence, there is ample opportunity to make forms of transportation such as biking or walking competitive with single-occupancy vehicle travel (“Clean Energy and Transportation Mobility Report”). Rhode Island has a single transit provider and statewide planning organization, as well as only one major utility, making coordinated transportation and energy improvements much easier than in neighboring states. The state also faces unique challenges. A substantial increase in electric vehicles would put new stress on existing electrical grid infrastructure, which is already facing substantially increased demand as the residential heating sector is converted from oil and gas to electric (“Statewide Climate Resilience Action Strategy”). In addition, further reliance on the grid increases vulnerability. During Superstorm Sandy, for example, nine substations lost service, cutting electricity to 120,000 Rhode Islanders (“Statewide Climate Resilience Action Strategy”). In April 2020, Allison Archambault, an administrator at the Rhode Island Department of Environmental Management, stated: “There’s a slew of investment portfolios and strategies out there, but no decisions have been made yet on where the money should be invested” (Shimberg).

Regardless of state-specific revenue investment decisions, TCI-P modeling shows that annual investments will more than offset increases in gas prices for the average consumer (“Modeling Summary”). By 2032, the program is expected to increase gross domestic product and disposable personal income by \$570 million and \$420 million, respectively (“Modeling

Summary”). But critics fixate on gas prices. Consumers have high discount rates, especially when it comes to the perceived price tag on their daily commute.

3. Community attributes: Skepticism around implementation, political impasse, and a fundamental opposition to paying to pollute

We turn to an analysis of community attributes to evaluate the cultural and political context of TCI. The Northeast and Mid-Atlantic are heterogenous regions reflecting the political, ethnic, and cultural diversity of the nation at large. According to the TCI website, however, “they share a collective aspiration to become the leading region for sustainability and clean energy development in the country” (“About Us”). Who is the “they” in this statement? There are five groups of participants in the policy development process: constituents, interest groups, TCI’s regional facilitator (the Georgetown Climate Center), state legislators and governors, and state regulators. While constituents and interest groups do not directly participate in the action situation, it is important to explore their attributes given that they inform those of the other actors. Therefore, I explore constituent and interest group attitudes specifically with reference to TCI, rather than their attributes at large.

Constituents

In November 2020, Climate Nexus and the Yale Program on Climate Change Communication conducted an analysis of constituent preferences in a poll of 3,800 voters in TCI states. The survey’s findings overwhelmingly support the claim on TCI’s website: 70 percent of voters supported TCI as a way to “jumpstart the struggling economy in the wake of the COVID-19 epidemic” (“Poll”). Important to note is the fact that the survey was conducted by Our

Transportation Future, a pro-TCI organization, and thus the survey questions all reflect TCI in a positive light. Further, the political science literature indicates that public opinion polls often overstate public support of the policies in question (Berinsky).

Nevertheless, the survey's broader findings suggest that voters support programs that reduce emissions and pollution through regional collaboration. Almost three quarters of respondents said that if the federal government doesn't reduce pollution, their state government should ("Poll"). Eight in ten voters supported their governor working with other governors in the region ("Poll"). Nearly nine in ten voters said that reducing pollution and reducing traffic congestion were key concerns ("Poll").

Local news outlets reported these statistics as a rallying cry for TCI-P. However, the last section of the survey, which asked voters how much they trusted local officials, was conspicuously missing from local reporting. Only 18 percent of voters trusted officials "a lot," compared to 44 percent who trusted climate scientists "a lot" ("Poll"). Though constituents supported the idea of TCI, they were skeptical of local government officials' ability to provide information about the program—and therefore likely skeptical of officials' ability to implement the program.

The Climate Nexus Poll did not include the cost of the cap-and-trade program in its questions, therefore likely over-representing constituent's positive attitudes towards TCI-P. A poll conducted by the Massachusetts Fiscal Alliance earlier that year found that 46 percent of Massachusetts voters were in favor of TCI-P without knowing its 17-cent cost, but only 31 percent of voters supported the program knowing its cost ("MassFiscal Submits Results").¹ In addition, the poll found that 61 percent of voters strongly or somewhat opposed Massachusetts

¹ The Massachusetts Fiscal Alliance polled based on a 17-cent increase in gas prices, which is the upper bound on how much TCI will increase gasoline prices according to program's modeling results.

joining TCI-P if neighboring states did not join, leading Massachusetts Governor Baker to promise to withdraw from TCI-P in the absence of regional collaboration (Lisinski).

Interest groups

The 400 submissions to TCI-P public input portal reflect three broad categories of interest groups: conservative groups which oppose TCI-P, progressive groups which oppose TCI, and environmental and labor groups which support TCI-P (“Program Summary and Response”).

Conservative groups and organizations with ties to the fossil-fuel industry organized letter-writing campaigns, authored opinion pieces, and appeared on talk-radio to criticize the program (Faulker). In particular, gasoline retailers and state truckers lobbied heavily against the bill, asserting that modelers underestimated the increased costs of gasoline (Alitmari and Keating). In the fall of 2021, as Connecticut lawmakers were debating granting legislative authority to TCI-P, the Republican party organized a series of rallies to stoke opposition to the program (Figure 3).

One notable progressive interest group that opposes TCI-P is the Sierra Club, which was an early supporter of the program but did not support the final MOU “in solidarity with several environment justice partners” (“Sierra Club Statement”). Indeed, many environmental justice groups criticized TCI for failing to center environmental justice at the beginning of the policy development process (“Clean Water Action”). Since receiving such criticism, TCI has aimed to address equity concerns through the 35 percent required minimum investment in overburdened communities, the creation of an “equity advisory board,” and a commitment to create complementary policies that “amplify the impact” of the program on environmental justice (“Model Rule”). But environmental justice groups argue that this is too little, too late (“Clean

Figure 3. Connecticut protestors label TCI-P a “gas tax”



Notes: Republicans organized a protest against TCI-P, calling the plan a gas tax. They rallied in Berlin on Sept. 22, 2021. Source: Hartford Courant.

Water Action”). In addition to TCI-P’s failure to proactively center equity early in the policy development process, however, these critiques also reflect a growing sentiment on the left that market-based mechanisms alone cannot sufficiently address equity (“Vision for Equitable Climate Action”). Policies like TCI-P aim to design their way around environmental justice concerns, but there is a fundamental philosophical opposition to “paying to pollute” the carbon pricing policies will never overcome (Miller).

Regional facilitator: The Georgetown Climate Center

The Georgetown Climate Center (GCC) is the official facilitator of TCI. GCC's website asserts that "the tradition of U.S. environmental regulation is a "cooperative federalism" model where early state action often paves the way for stronger federal programs" ("Supporting Climate Partnerships"). Its mission is to work with states to create innovative systems to reduce emissions as potential models for federal action.

GCC differs from other interest groups because it is directly involved in the policy development process. Staff at GCC work with state governors, legislators, and regulators in each of the jurisdictions to facilitate decision-making. For example, they organize regular discussions between state regulators, host stakeholder events, produce research and papers to support state work, and maintain the program's website. GCC has been criticized by progressives for failing to meaningfully engage with environmental justice groups, and by conservatives for failing to accept industry feedback ("TCI Fiction and Fact").

GCC provides the central means for conflict resolution in the TCI policy development process given the lack of regular information sharing between states. That is, GCC facilitators work with state legislators and governors to convince them of the viability of the program after one or many states withdraw. However, GCC has an inherently limited amount of power for conflict resolution—it has virtually no political capital. The D.C.-based staff at GCC are likely not even constituents of the policy makers with whom they work. Though GCC facilitators aim to convince state governors and legislators to support TCI-P by emphasizing the economic and public health benefits of regional collaboration, their efforts may not overcome policy makers' provincial attitudes.

State governors and legislators

State governors are the chief policy makers in this process. Of the 14 participating jurisdictions, only New Hampshire and Vermont have Republican governors. State legislatures are important insofar as they are necessary to grant legislative approval to implement the program. Rhode Island and Connecticut are the only jurisdictions which required legislative approval to implement TCI-P (the other jurisdictions either withdrew from the program or did not need legislative authority to implement it). Both state legislatures are majority Democrat. Notably, during the 2021 legislative session, the Rhode Island state legislature passed the landmark “Act on Climate 2021” bill which set legally binding emissions reductions targets.

State regulators

State regulators are insulated from the political process. They remain committed to TCI regardless of whether the program is implemented in their state (“Next Steps for the Transportation and Climate Initiative”). Many recognize that their states have legally binding emissions targets without sufficient mechanisms to meet them. Nearly every TCI state environmental agency website has a bright webpage boasting about the program and its benefits. Yet after more than ten years of interagency meetings and an intense two-year model rule development period, regulators cannot implement their program.

4. Three levels of rules-in-use

Constitutional

Under U.S. constitutional rules, states cannot make laws on behalf of other states. Each state must voluntarily implement TCI-P in order to take a regional approach. This constitutional level boundary rule has important consequences for collective choice level payoff rules: a critical

number of jurisdictions must agree to implement the program in order to make it politically and economically viable for a given jurisdiction to voluntarily implement it.

Collective choice

Collective choice level rules best address our policy analysis objective. These rules determine which states are eligible to participate in the cap-and-trade program, and how the operational rules may be changed.

Position rules specify that participants at the collective choice level are state governors, state legislators, state regulators, and staff at the Georgetown Climate Center. While each of these actors respond to interest groups and constituents, interest groups and constituents themselves do not have access to the collective choice level action arena.

Boundary rules determine the process for receiving legislative authority to regulate the wholesale fuel supplier market. Of the four inaugural jurisdictions, Washington D.C. and Massachusetts could implement the program in January 2023 as planned, while Rhode Island and Connecticut require legislative approval. This would require passing a bill that creates a statutory framework to implement TCI-P. This bill must receive majority approval in both chambers of each state's congress before being signed by the state governor.

Authority rules specify the actions state regulators, policymakers, and facilitators may take. Gubernatorial leadership is a critical element of a state's support for TCI-P. For example, when Governor Baker of Massachusetts signaled he would no longer implement TCI-P, state regulators still in support of the program did not have authority to overturn or challenge his decision.

Aggregation rules determine decision-making in the action situation. In this case, the action situation is the state governors' and state legislators' offices and legislatures. Governors' decisions are based on a complicated array of factors, including current political and economic conditions in the state and the strength of the lobby for and against the policy. State legislators make decisions in a similar manner. They aim to represent the specific concerns of their constituents, though are also swayed by interest group lobbies.

Scope rules specify that the program would be implemented across the entire state.

Information rules affect the amount and type of information that each actor receives in the action arena. State governors and legislators have access to regional surveys of constituent beliefs to determine whether or not they support the program, as well as public feedback on the TCI website.

Finally, payoff rules determine how the political and economic costs and benefits of TCI impact state governors, legislators, and regulators. Given that Massachusetts, Rhode Island, and Connecticut share borders, citizens of Rhode Island would experience the benefits of Massachusetts reducing air pollution, and vice versa. Therefore, regional collaboration is crucial to the success of the cap-and-trade program.

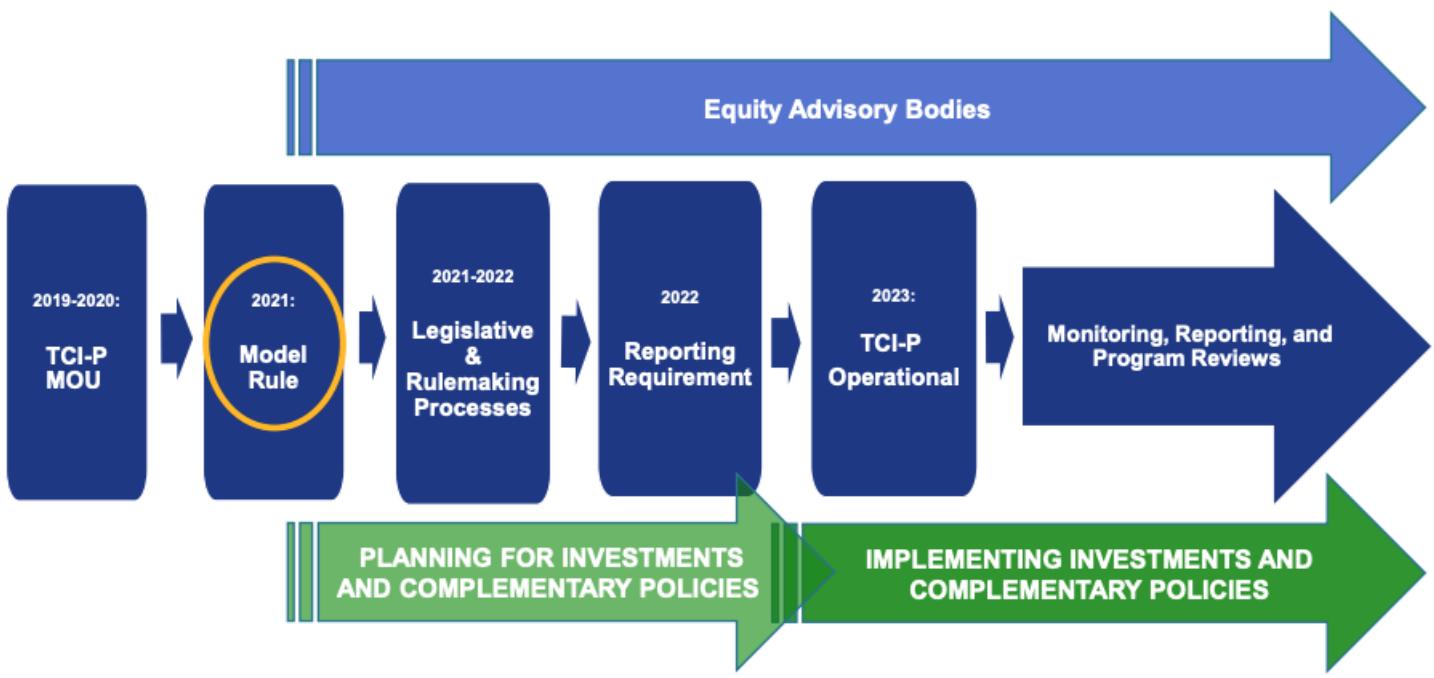
Operational

The operational level rules are determined in part by the Model Rule, which provides a model for how each state may implement its version of the cap-and-trade program. The Model Rule is not binding. Though state lawmakers approved the Model Rule in the four inaugural TCI-P jurisdictions, regulators in each state would work to draft a state-specific version of the Model Rule if the state decides to move forward with the program. In this way, operational rules may

differ by jurisdiction. This feature is especially important in the context of scope rules for revenue investment. For example, while the Model Rule specifies that states should invest at least 35 percent of revenue in “overburdened and underserved” communities, Connecticut planned to invest 50 percent of revenue to reflect that these communities bear a significant burden of pollution damage in urban areas (“Model Rule”, “Transportation and Climate Initiative Program”).

Information rules dictate the state regulators must follow an intentional process for soliciting and responding to public input (Figure 4). Though there is no written rule stating

Figure 4. Opportunities for public input



Notes: Figure shows opportunities for public input in the policy development process. Source: Transportation and Climate Initiative.

that regulators have more access to the public input portal of TCI-P, state regulators do receive more information than what is available on the program website.² State regulators are in constant communication about the development of TCI-P, in contrast to state legislators and governors.

State regulators are thus tasked with a “two-level game” similar to that described by Putnam (1988). They must first agree with other state regulators across the region on the regional Model Rule. They must then bring the draft Model Rule back to their state legislature and/or governor for approval. Applied to the IAD framework, we see that state regulators must first agree on the operational level, before receiving legislative and/or gubernatorial approval at the collective choice level. Therefore, our policy analysis objective is conditional on operational level rules. That is, we seek to understand why so many states have withdrawn from the program given the operational rules themselves.

5. Integrate the analysis: A failed coordination game

Action Situation

We focus on the action situation on the collective choice level: the decision-making process determining whether or not state governors and lawmakers support TCI. We have already established the participants as state governors, state legislators, state regulators, and staff at the Georgetown Climate Center. Interest groups and constituents do not directly participate in this action situation, though each of the participating groups aim to represent their perspectives.

The action situation on the collective choice level is far more opaque than the action situation at the operational level. Whereas intentional information rules dictate that state regulators must follow a specific process for soliciting and responding to public feedback—and

² As an intern in the Rhode Island Department of Environmental Management, I had access to much more detailed public feedback than what is available on the website for the general public to view.

that staff at GCC must regularly update the program website to reflect operational level progress—state governors and legislative officials are not required to periodically share updates in their decision-making processes. As a result, state governors and legislators lack information about the intentions of policy makers in other states. For example, the day that Massachusetts Governor Baker withdrew from the program, Rhode Island Governor McKee reasserted his commitment. The next day, McKee withdrew.

State governors and legislators can take one of two actions: continue to pursue TCI, or withdraw support from the program. In Rhode Island and Connecticut—the states that required legislative authority to implement TCI-P—state governors’ and legislators’ actions are linked. The state governor, however, has far more control over outcomes than any single legislator. For example, Connecticut Governor Ned Lamont withdrew from the program because he believed his state legislature would not approve it (Altimari and Keating). Though Lamont maintained that he would sign the bill if it received congressional approval, without his support, its passage is unlikely.

When Rhode Island Governor Dan McKee announced his withdrawal from TCI-P, state legislators reaffirmed the necessity of the program. In an opinion piece published in the *Providence Journal* the day after the governor withdrew, Senator Alana DiMario and Representative Terri Cortvriend—both of whom sponsor the bill which would grant Rhode Island legislative authority to implement TCI-P—argued that the program remained the best solution to reducing emissions in the transportation sector (DimMario and Cortvriend). They asserted that the reasoning behind Governor Lamont’s withdrawal was “unacceptable and short shortsighted,” and that Rhode Island must “continue to lead the way” despite Connecticut’s

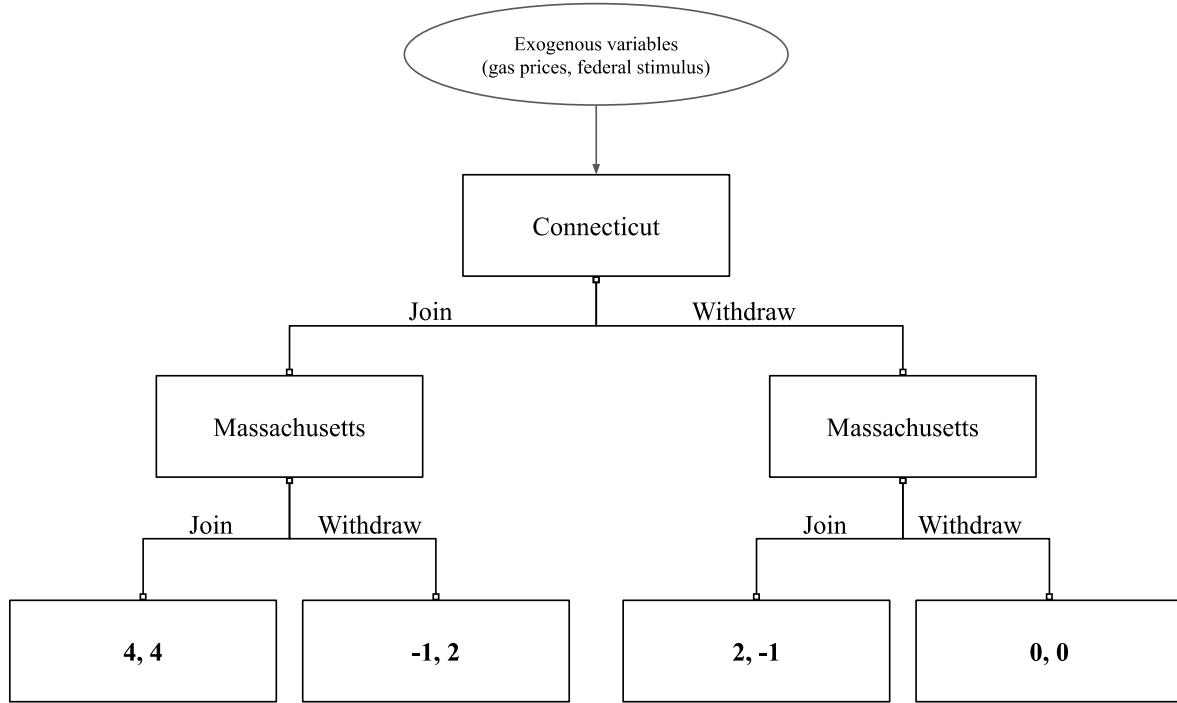
withdrawal. Again, however, without gubernatorial support, TCI-P is unlikely to receive legislative approval in Rhode Island or Connecticut.

Actors

State governors' and legislators' decisions are in part influenced by the political and economic context in each of their states. However, the constitutional level boundary rules dictate that each actor's decision is primarily driven by the actions of policymakers in other states. More concretely, exogenous factors such as an increase in gasoline prices or federal stimulus dollars may cause state governors or legislators to join or withdraw from TCI-P (from here on, I refer to state governors and legislators as "the state"). But once a given state joins or withdraws from the program, another state's action is primarily influenced by that decision. The fewer the number of remaining states in the program, the more influence a single state's decision has on those of other states.

Figure 5 shows this decision tree as a simplified two-way sequential game between Connecticut and Massachusetts. The game is sequential given that states are not forced to make simultaneous decisions. In addition, I assume a lack of information sharing: each state will only learn about another state's decision after it is final. In the first branch of the decision tree, exogenous variables influence Connecticut's decision to join or withdraw from TCI-P. In the second branch of the decision tree, Massachusetts' decision to join or withdraw is primarily dictated by that of Connecticut. Exogenous variables may also influence Massachusetts' decision, though their effect is accounted for in Connecticut's action given the small sizes and close proximity of these states. That is, rising gas prices or increased federal stimulus are likely to impact Connecticut and Massachusetts in a similar manner.

Figure 5. Simplified schematic of actors' decision-making framework



Notes: Figure shows a simplified version of each actor's decision-making framework. An individual state makes a decision based on exogenous variables such as gas prices or an increase in federal funding. The next state's decision is driven by the first state's decision. The best equilibrium is (join, join), while the worse equilibrium is (withdraw, withdraw).

If Connecticut chooses to join TCI-P, Massachusetts' dominant strategy is also to stay in the agreement. That is, Massachusetts will receive a greater payoff if it also decides to join TCI. This is the best equilibrium: all states receive the greatest payoff as they all benefit from reduced transportation emissions, improved air quality, and sustainable investments.

If Connecticut withdraws from the program, Massachusetts also chooses to withdraw from the program. If Massachusetts were to join the program without Connecticut, it would have to bear all of the political and economic costs without the benefits of regional collaboration. As of this writing, Connecticut and Massachusetts have just entered this worse equilibrium.

This model is a simplified version of states' decision-making framework. In the actual policy development process, states make their decisions in a 14-way game in which some

information sharing is likely. In addition, no state purely bases its decision on exogenous factors; all states make their decision based on what they believe other states will do. But the most important insight from this model holds: once the number of defectors becomes sufficiently large, it is no longer fiscally prudent nor politically feasible for any single state to join.

6. Patterns of interaction: Too many ‘observer’ states

Given that TCI-P is a new policy initiative, there is a high level of uncertainty in the policy arena. RGGI is the only model on which actors base their assumptions of how actors will behave in the policy arena. In the policy development process of RGGI, seven states elected to implement the program, while New Jersey, Pennsylvania, and Virginia became ‘observer’ states, waiting to join the program until it was proven successful in the inaugural jurisdictions.

The state governors of the early defectors from TCI-P likely planned to follow a similar path as these observer states. If TCI-P was successful in Rhode Island, Connecticut, Massachusetts, and Washington D.C., these governors would consider implementing the program. However, in the case of TCI-P, too many states opted to become ‘observer’ states. With no inaugural state to observe, this strategy is impossible.

7. Outcomes

TCI-P will not be implemented in any state, at least for the foreseeable future. The strength of the fossil fuel lobby and conservative and progressive interest group critiques—coupled with legislators’ aversion to raising taxes on gasoline—was the central cause of ten states’ decision not to join the four inaugural jurisdictions in implementing the cap-and-trade program.

New Hampshire Governor Christopher Sununu, a Republican, asserted that he “would not force Granite Staters to pay more for their gas just to subsidize other states’ crumbling infrastructure” (Plumer). Vermont Gov. Phil Scott, also a Republican, expressed concerns that Vermonters had no choice but to drive long distances and that he “simply cannot support proposals that will make things more expensive for them” (Plumer).

New Jersey Governor Phil Murphy’s decision to withdraw was influenced by the state’s strong environmental justice coalition. As a spokeswoman for the governor stated: “It is especially critical that we reduce emissions in communities historically burdened by disproportionate amounts of pollution, which are also among the communities most vulnerable to the adverse effects of climate change” (Plumer).

Rising fuel prices and the influx of federal stimulus resulted in Connecticut’s recent withdrawal from the program—which in turn prompted Massachusetts’ and Rhode Island’s withdrawal. According to the U.S. Energy Information Administration, the average price of gasoline in the New England region has increased by 66.5 cents since April, reaching a seven-year high (Altimari and Keating). Connecticut Governor Ned Lamont stated: “We had a hard time doing [TCI-P] when gas prices were at historic lows. So it’s probably not the year to do it this year with gas prices where they are” (Altimari and Keatin). In addition, increased gasoline prices raised revenue from Connecticut’s petroleum gross receipts tax which funds that state’s Special Transportation Fund, decreasing the need for the revenue collected from TCI-P (Altimari and Keating). Further, Connecticut will receive millions of dollars for infrastructure projects from Biden’s \$1 trillion infrastructure bill (Altimari and Keating). Whereas the urgent need for regional collaboration was apparent under the Trump Administration, the Biden Administration’s unprecedented prioritization of climate has decreased states’ incentive to collaborate with their

neighbors. The influx in federal dollars eliminates the need for the tertiary goods that many advocates used to justify the political and economic costs of TCI-P.

Environmental groups such as Save the Sound, one of Connecticut's most outspoken advocates of TCI-P, were "incredibly disappointed" by Governor Lamont's decision. Charles Rothenberger, an attorney at Save the Sound, expressed frustration at the Governor's shortsightedness:

We know that oil prices are incredibly volatile. That is one of the strongest reasons to implement TCI and provide transportation alternatives that won't subject Connecticut's citizens to the whims of distant oil markets. We can't base long-term decisions about our climate commitments, transportation infrastructure, and Connecticut residents' health on the conditions of this moment—we need to look at trends and needs over time and plan for decades to come. (Altimari and Keating)

Here, Rothenberger takes issue with the high discount rates of politicians: instead of making long-term decisions based on his state's climate goals or his residents' health, Governor Lamont withdrew from TCI-P because of unfavorable present-day conditions. As Figure 5 shows, exogenous variables were the central drivers of Connecticut's decision to withdraw from TCI-P, as opposed to endogenous variables such as the desire to meet climate commitments.

Connecticut's withdrawal from the program sparked Massachusetts Governor Baker to act on his earlier promise: "The Baker-Polito administration always maintained the commonwealth would only move forward with TCI if multiple states committed, and, as that does not exist, the Transportation Climate Initiative is no longer the best solution for the commonwealth's transportation and environmental needs" (Fisher). This statement was based on his understanding of his constituents' community attributes: a majority of Massachusetts voters opposed joining TCI if neighboring states did not join.

Once Connecticut and Massachusetts left the pact, Governor Dan McKee's decision naturally followed. McKee stated: "The Transportation and Climate Initiative depends upon the involvement of at least three jurisdictions to go forward as a program" ("McKee Drops Initiative"). Rhode Island's withdrawal comes painfully close to the passage of the "Act on Climate 2021" bill, which is Rhode Island's first law to legally mandate emissions reductions. Terry Gray, Director of the Rhode Island Department of Environmental Management, stated: "We will have serious difficulty meeting the new law's reduction mandates without a strong commitment and plan to reduce emissions from the transportation sector" (Kuffner).

The program's failure to sufficiently address environmental justice critiques prevented interest groups from building a broad coalition across the left and center that was strong enough to withstand the fossil fuel lobby and shifting political conditions: rising gas prices and increased federal investment. However, underlying each states' decision to withdraw was the constitutional level boundary rule: without participation from the majority of TCI states, the political and economic costs of the program did not outweigh the benefits.

The 10-year history of TCI provides optimism for the program's adaptability despite the failure of the cap-and-trade program. Though all of these states have withdrawn from the agreement, the pact for regional collaboration stands. States must now think imaginatively about how they will reduce emissions in this sector to meet their legally- and existentially- mandated emissions reductions goals. Indeed, the federal stimulus will jump start TCI projects such as bus electrification, improved public transit, and electric vehicle charging infrastructure. But it does not provide a sustainable source of revenue. According to Nancy Goodman, vice president for policy at the Environmental League of Massachusetts, TCI-P may be revived in a few years to be

able to provide that revenue: “Timing is everything. I don’t feel we’re giving up on TCI” (Shemkus). Kate Zyla, executive director of GCC stated: “That blueprint is available, and it is ready to apply whenever the time is right” (Abel).

Whether TCI-P is revived or state regulators focus on developing new initiatives, all state governors, legislators, and regulators must learn from the failures in the policy development process. They must be cautious about using cap-and-trade to simultaneously address global and local pollution. They must center environmental justice at the beginning of the policy development process. They must increase constituents’ trust in their ability to provide information. They must effectively communicate the public health and climate benefits of future programs such that consumers look beyond their upfront costs. And perhaps most importantly, they must devise better means for information sharing such that one state’s withdrawal does not doom the entire program.

References

- Abel, David, “Two Crucial Pillars of the State’s Plan to Cut Carbon Emissions Have Crumbled. Where Does It Go from Here? *The Boston Globe*.
<https://www.bostonglobe.com/2021/12/07/science/two-crucial-pillars-states-plan-cut-carbon-emissions-have-crumbled-where-does-it-go-here/>. Accessed 8 Dec. 2021.
- “About Us” *Transportation and Climate Initiative*.
<https://www.transportationandclimate.org/content/about-us>. Accessed 6 Oct. 2021.
- Altimari, Christopher and Keating, Daniela. “Gov. Lamont Says He Will No Longer Push for Climate Change Legislation That Republicans Say Could Raise Gasoline Prices. Governor Also Says Tolls Are Not Needed with Federal Infrastructure Spending and Increasing Tax Revenue.” *Hartford Courant*. <https://www.courant.com/politics/hc-pol-ned-lamont-tolls-tci-20211116-q2f7u2kp7bhm3bwhtakjgobsfm-story.html>. Accessed 19 Nov. 2021.
- Asthma Capitals: Top 100 Most Challenging Cities to Live In With Asthma.
<https://www.aafa.org/asthma-capitals/>. Accessed 5 Dec. 2021.
- Berinsky, Adam J. “Measuring Public Opinion with Surveys.” *Annual Review of Political Science*, vol. 20, no. 1, 2017, pp. 309–29. *Annual Reviews*,
<https://doi.org/10.1146/annurev-polisci-101513-113724>.
- “Children with Asthma.” *2020 Rhode Island KIDS COUNT Factbook*.
<https://www.rirkidscount.org/Portals/0/Uploads/Documents/Factbook%202020/Individual%20Indicators/children-with-asthma-2020fb.pdf?ver=2020-04-03-103659-843>.
- “Clean Energy and Transportation Mobility Report.” *Mobility and Innovation Working Group*. <http://climatechange.ri.gov/documents/mwg-clean-trans-innovation-report.pdf>.

“Conservatives, Fossil-Fuel Front Groups Attack Regional Effort to Reduce Transportation-Sector Emissions.” *EcoRI News*, 16 Dec. 2019, <https://www.ecore.org/climate-change/2019/12/16/opposition-growing-to-transportation-emission-program>.

“Criteria Air Pollutants.” *US EPA, OAR*, 9 Apr. 2014, <https://www.epa.gov/criteria-air-pollutants>.

“Fast Facts on Transportation Greenhouse Gas Emissions.” *US EPA, OAR*, 25 Aug. 2015, <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emission>

Fitch, Mark. “Republicans Partner with No Tolls CT to Stop New Gasoline and Truck Taxes.” *Yankee Institute*, 28 Apr. 2021, <https://yankeeinstitute.org/2021/04/28/republicans-partner-with-no-tolls-ct-to-stop-new-gasoline-and-truck-taxes/>.

Fowlie, Meredith, et al. “Climate policy, environmental justice, and local air pollution.” *Economic Studies at Brookings*, Oct. 2020.

“Frequently Asked Questions: Transportation & Climate Initiative Program.” *Transportation and Climate Initiative*, 30 Marc. 2021, <https://www.transportationandclimate.org/TCIP-FAQ>.

Hufham, Anastasia. “Alders Pass Resolution Supporting Transportation Climate Initiative.” Yale Daily News, 11 Oct. 2021, <https://yaledailynews.com/blog/2021/10/11/alders-pass-resolution-supporting-transportation-climate-initiative/>.

“IEA – International Energy Agency.” *IEA*, <https://www.iea.org/data-and-statistics/data-products>. Accessed 26 Oct. 2021.

Lisinski, Chris. "Baker Pulls Mass. out of Emissions Pact, Citing Lack of Buy-in from Other States." *WBUR*. <https://www.wbur.org/news/2021/11/18/baker-pulls-mass-out-of-emissions-pact-citing-lack-of-buy-in-from-other-states>. Accessed 5 Dec. 2021.

"Major Environmental Group Urges NJ NOT to Join Weak Climate Pact - Calls for Stronger, Faster, Environmentally Just Measures." *Clean Water Action*, 28 Oct. 2020, <https://www.cleanwateraction.org/releases/major-environmental-group-urges-nj-not-join-weak-climate-pact%C2%A0-calls-stronger-faster>.

Marcacci, Silvio. "RGGI Carbon Market Invests \$1 Billion In Clean Energy." *Clean Technica*, 22 April 2015, <https://cleantechica.com/2015/04/22/raggi-carbon-market-invests-1-billion-clean-energy/>.

Miller, Jacob et al. "Episode 6: Carbon Pricing Hits a Brick Wall on the Left." *Pricing Nature*, 10 May 2021, <https://pricingnature.substack.com/p/episode-6-carbon-pricing-hits-a-brick-9fb>.

"Next Steps for the Transportation and Climate Initiative." *Transportation and Climate Initiative*.

<https://www.transportationandclimate.org/sites/default/files/TCI%20Next%20Steps%2012.20.pdf>

"Poll: Seven in 10 Voters Support Transportation and Climate Initiative 'As Part of the Recovery from the Pandemic.'" *Our Transportation Future*, <https://www.ourtransportationfuture.org/tcipoll>. Accessed 23 Oct. 2021.

Plumer, Brad. "A Plan by Eastern States to Cap Tailpipe Emissions Gets Off to a Slow Start." *The New York Times*, 21 Dec. 2020. NYTimes.com, <https://www.nytimes.com/2020/12/21/climate/cap-trade-cars-emissions.html>.

Polski, Margaret and Ostrom, Elinor. "An Institutional Framework for Policy Analysis and Design," *Working Paper No. 98-27*, 1999.

"Regional Greenhouse Gas Initiative (RGGI)." *Center for Climate and Energy Solutions*, 16 June 2021, <https://www.c2es.org/content/regional-greenhouse-gas-initiative-raggi/>.

"Rhode Island Statewide Climate Resilience Action Strategy." *State of Rhode Island*, 2 Jul. 2018, <http://climatechange.ri.gov/documents/resilientrhody18.pdf>

"Rhode Island Population Projections 2010-2040." *Rhode Island Statewide Planning Program*, Apr. 2013, <http://www.planning.ri.gov/documents/census/tp162.pdf>

"Sierra Club Statement on Transportation and Climate Initiative Final Memorandum of Understanding." *Sierra Club*, 22 Dec. 2020, <https://www.sierraclub.org/press-releases/2020/12/sierra-club-statement-transportation-and-climate-initiative-final-memorandum>.

Shemkus, Sarah, et al. "With Regional Transportation Pact Stalled, What's next for Massachusetts' Climate Strategy?" *Energy News Network*, 2 Dec. 2021, <http://energynews.us/2021/12/02/with-regional-transportation-pact-stalled-whats-next-for-massachusetts-climate-strategy/>.

Shimberg, Naomi. "Next for TCI: Draft Model Rule, State Level Implementation, and New Findings on Program Benefits." *Climate-XChange*, 15 Apr. 2021, <https://climate-xchange.org/2021/04/15/next-for-tci-draft-model-rule-state-level-implementation-and-new-findings-on-program-benefits/>.

"Supporting Climate Partnerships - Georgetown Climate Center." Georgetownclimatecenter.Org, <https://www.georgetownclimate.org/about-us/supporting-climate-partnerships.html>. Accessed 8 Dec. 2021.

“TCI and Transportation Cap-and-Trade” *Climate Justice Alliance*. <https://nyc-eja.org/wp-content/uploads/2020/12/TCI-Fact-Sheet-EJ-Concerns-final-1.pdf>

“The Vision for Equitable Climate Action.” *Equitable Climate Action*,
<https://equitableclimateaction.org/>. Accessed 28 Oct. 2021.

“Title VI Program 2015-2018.” *Rhode Island Public Transit Authority*, Jan. 2016,
https://www.ripta.com/wp-content/uploads/2020/05/title_vi_program_2015_2018_submitted_january_2016_final.pdf.

“Timeline of the Transportation and Climate Initiative.” *Transportation and Climate Initiative*,
https://www.transportationandclimate.org/sites/default/files/TCI%20Timeline_formatte_d_10.20.pdf.

“TRECH Project Research Update” *Harvard T.H. Chan School of Public Health*, 6 Oct. 2020, <https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2343/2020/10/TRECHResearchUpdate10.20.pdf>.

“Transcript: December 21st, 2020 Coronavirus Briefing Media.” *Office of the Governor*.
<https://www.nj.gov/governor/news/news/562020/approved/20201221d.shtml>. Accessed 27 Oct. 2021.

“Transportation and Climate Initiative Memorandum of Understanding.” *Transportation and Climate Initiative*, 21 Dec. 2020,
<https://www.transportationandclimate.org/sites/default/files/TCI%20MOU%2012.2020.pdf>.

Transportation and Climate Initiative Declaration of Intent.” *Transportation and Climate Initiative*, Jan. 2010, <https://www.transportationandclimate.org/sites/default/files/TCI-declaration.pdf>.

“Transportation and Climate Initiative Modeling Summary.” *Transportation and Climate Initiative*, Mar. 2021, https://www.transportationandclimate.org/sites/default/files/TCI-P_modeling-summary_12-21-2020.pdf.

“Transportation and Climate Initiative Program Summary and Response to Input by Topic.” *Transportation and Climate Initiative*, 10 June 2021, <https://www.transportationandclimate.org/sites/default/files/TCI-P-Summary-and-Responses-to-Input-by-Topic.pdf>. Accessed 23 Oct. 2021.

“The Transportation and Climate Initiative Program.” CT.Gov - Connecticut’s Official State Website, <https://portal.ct.gov/DEEP/Climate-Change/Transportation-Climate-Initiative>. Accessed 8 Dec. 2021.

“Union Members 2020.” *Bureau of Labor Statistics*, 22 Jan. 2021, <https://www.bls.gov/news.release/pdf/union2.pdf>. Accessed 26 Oct. 2021.

“Updates on TCI-P” 2021. *Georgetown University Law Center*.
<https://vimeo.com/561879790/e2f40ce2f6>.