

CSSN Research Report 2021:1: Who's Delaying Climate Action in Massachusetts? Twelve Findings

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The Climate and Development Lab
Institute at Brown for Environment and Society
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Produced by the Climate and Development Lab

The **Climate and Development Lab** is a think tank at Brown University informing a more just, equitable, and effective global climate change policy. It is housed at the Institute at Brown for Environment and Society (see IBES.Brown.edu). The **Institute at Brown for Environment and Society** (IBES) supports research to understand the interactions between natural, human and social systems. Our teaching programs prepare future leaders to envision and build a just and sustainable world.

About CSSN

This report is being released through the **Climate Social Science Network** (CSSN.org), a global network of scholars headquartered at the Institute at Brown for Environment and Society, launched in October, 2020. CSSN seeks to coordinate, conduct and support peer-reviewed research into the institutional and cultural dynamics of the political conflict over climate change, and assist scholars in outreach to policymakers and the public.

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Executive Summary

To understand who exerts influence on state-level climate policy, the Climate and Development Lab at Brown University has systematically reviewed statehouse lobbying and testimony for and against climate and energy legislation in Massachusetts. This policy briefing reviews legislative committee testimony on priority climate change and clean energy laws, and lobbying reported by industrial and environmental organizations related to these bills. The briefing is based on systematic collection and analysis of 1,187 pieces of testimony on environmental organizations' priority bills from 2013 to 2018, and 4,072 lobbying visits as reported to the Massachusetts Secretary of State over the period 2005-2018.

Our focus on influence in the legislative process stems in part from what data is accessible: we do not examine the executive branch or the regulatory sphere, although we recognize that these are critical areas where industries – particularly the utility industry – have influence.

Our systematic review shows that the vast majority of public testimony given in legislative committee hearings supports climate action. Major energy and utilities corporations and their trade groups only rarely submit public testimony in opposition to legislation advancing climate action here. Despite seeing strong support in legislative testimony for environmentalists' priorities, however, the evidence shows a completely different story behind closed doors. We find that the state's regulated utilities and their allies are the most successful actors in the state climate and energy policy landscape. The study finds that the Associated Industries of Massachusetts (AIM) lobbies and testifies nearly completely in line with the utilities; advocates and legislative insiders interviewed for the study described utilities as having substantial influence over energy policy in the state. Fossil fuel companies, real estate agencies and their trade groups, and power generators also play significant roles opposing environmentalists in the legislature.

Despite strong public support for climate action, most pro-climate bills and legislative priorities fail before reaching a vote. We found strong support for climate action in public hearings: Approximately 90% of all testimony we collected on environmentalist priority bills was delivered in support of environmentalists' positions. Public opinion is not the barrier to climate policies in Massachusetts. Rather, leadership's tight control over the House, the process of handling bills, the openness to lobbying in which corporations far outspend environmental and social advocates, and the lack of transparency together create a hostile environment for ambitious climate legislation. When the Massachusetts legislature has advanced climate and energy policy, it has been in spite of, not because of, these factors.

The study can be summarized in a dozen findings we document with quantitative and interview data:

- 1:** Four distinct industry coalitions lobby against environmentalists
- 2:** Testimony in legislative committees is nine to one in support of climate action
- 3:** On lobbying, clean energy advocates are outspent more than 3.5 to one
- 4:** Renewable energy interest groups stick to narrow industrial interests
- 5:** Utilities lobby against solar energy, but support large hydro & wind power
- 6:** Utility companies are uniquely successful throughout the legislative process
- 7:** AIM (Associated Industries of Mass.) lobbies and speaks against rapid climate action
- 8:** The fossil fuel industry lobbies heavily against pipeline rules, divestment, and carbon pricing
- 9:** The real estate industry resists residential energy efficiency bills
- 10:** Power generators fight hydro and wind supply
- 11:** Opponents no longer deny the reality of climate change, but focus on cost and reliability
- 12:** Climate action is tightly controlled by State House committees and leadership

We recommend far greater transparency on committee and floor votes, better reporting on lobbying and committee inputs, better controls on utilities, and broader engagement by renewable energy companies in climate policy.

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Introduction

In 2008, Massachusetts was among the first of the United States to commit itself to economy-wide climate change action by passing the Global Warming Solutions Act (GWSA). The GWSA included a binding target of at least 80 percent emissions reductions by 2050, and an interim target for 2020. Since then, a series of states enacted more ambitious emissions reduction targets and programs, but the MA legislature only finally passed its Roadmap bill January 3, 2021. Although important progress has been made in Massachusetts, the state remains heavily dependent upon fossil fuels for electricity generation, building heat, and transportation. Scarce climate and clean energy legislation passed in recent sessions prior to the 2021 Roadmap bill, despite substantial efforts by climate action coalitions, a Democratic supermajority in both chambers of the legislature, and a notable lack of public industry opposition.

For example, Emily Norton, Executive Director of the Massachusetts Sierra Club, argued at the end of the disappointing 2017-2018 legislative session that “[t]he world needs Massachusetts to be leading the transition to a clean energy economy, and instead we are offering half measures and timidity... Beacon Hill has sided with the status quo of fossil fuel and utility companies, over the innovation of clean energy and high tech economies.”¹

In the absence of ambitious climate legislation at the federal level, state legislative efforts have become key arenas for advancing climate and energy policy. Unfortunately, most research and reporting concerns what goes on in Washington: we know remarkably little about how lobbying and influence work at the state level, and the impact they have on critical climate- and clean energy-related legislation making its way through state legislatures.

To understand who exerts influence on state-level climate policy, the Climate and Development Lab at Brown University has systematically reviewed statehouse lobbying and testimony for and against climate and energy legislation. This policy briefing reviews testimony in legislative committees that were considering priority legislation on climate change and clean energy, and lobbying expenditures and visits to the Statehouse and state agencies reported by industrial and environmental organizations related to these bills. The briefing is based on systematic collection and analysis of 1,187 pieces of testimony on environmental organizations’ priority bills from 2013 to 2018, and 4,072 lobbying visits as reported to the Massachusetts Secretary of State over the period 2005-2018.

Our focus on influence in the legislative process stems in part from what data is accessible: we do not examine the executive branch or the regulatory sphere, although we recognize that these are critical areas where industries - particularly the utility industry - have influence. In addition, the industries we examine have long histories and nuanced power relationships throughout the wider country that should be examined further.

¹ Sierra Club. “Sierra Club Disappointed With Energy Bill, Says Does Not Match Urgency of Climate Change,” July 30, 2018. www.sierraclub.org/press-releases/2018/07/sierra-club-disappointed-energy-bill-says-does-not-match-urgency-climate.

Our systematic review shows that the vast majority of public testimony given in legislative committee hearings supports climate action—major energy and utilities corporations and their trade groups only rarely submit public testimony in opposition to legislation advancing climate action here. Despite seeing strong support in legislative testimony for environmentalists’ priorities, however, the evidence shows a completely different story behind closed doors. We find that the state’s utilities and their allies are the most powerful actors in the state climate and energy policy landscape. Fossil fuel, real estate, and power generation interests also play significant roles opposing environmentalists in the legislature.

Finding 1: Four distinct industry coalitions lobby against environmentalists.

Key Findings

- Nine identified coalitions seek to influence climate and clean energy policy in MA.
- Four of those coalitions—utilities, real estate, fossil fuel, and power generation companies—routinely oppose climate policies.
- These coalitions are defined by their distinct interests within the sphere of climate and energy policy.

Although the Massachusetts legislature suffers severe transparency issues (discussed below), it publishes detailed lobbying records which allow for in-depth analysis of the organizations lobbying on climate policies. We combined records of lobbying on 291 pieces of climate and clean energy legislation over the period between 2013 and 2018. The records show when interest groups lobbied on legislation, and what position they recorded: *support*, *oppose*, or *neutral*. This dataset forms a network of interest groups in which two actors have tighter bonds between them when they more often lobby the same positions on the same bills. After constructing this network, we identified nine interest group coalitions with distinct roles in the climate policy space using a network clustering algorithm (Figure 1); these clusters were named based on the leading group or groups in the coalition. The *social greens* group included 35 organizations that focused on climate change action and related social protections; most of these groups are environmental or social advocacy nonprofits. Four coalitions routinely oppose climate and clean energy bills: those led by the utilities, fossil and chemical companies, real estate companies, and fossil fuel power generation companies. Of this set, the utilities are both the largest coalition and contain the highest-spending interest groups, which are Eversource and the Associated Industries of Massachusetts. However, utilities also lobbied in favor of a significant number of climate bills, while the three other opposition coalitions almost solely opposed legislation supported by environmental groups.

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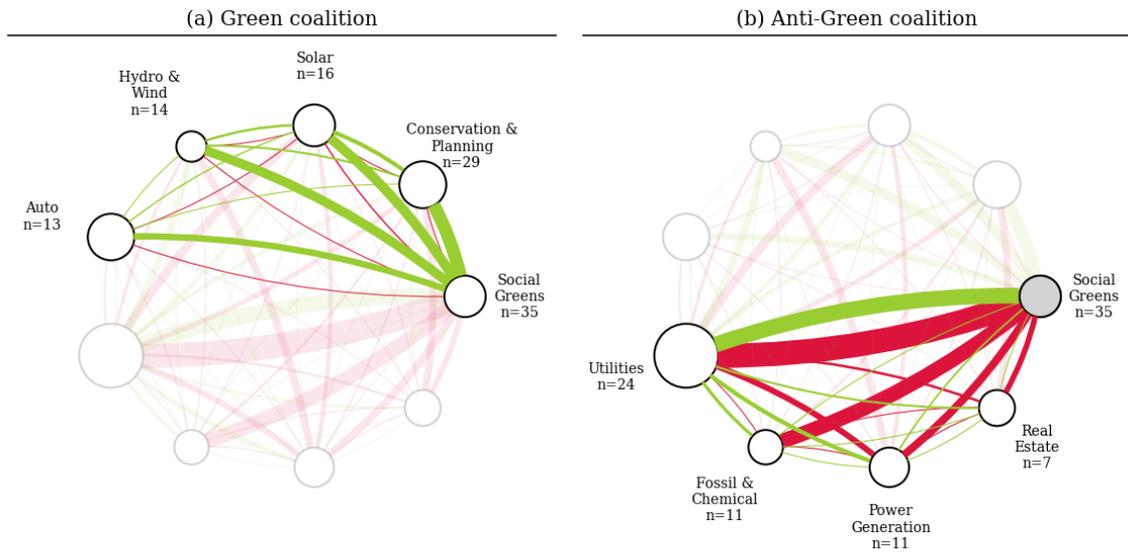


Figure 1: Lobbying coalitions in Massachusetts for and against climate and clean energy legislation, as determined by the Infomap algorithm, which groups nodes in a network so that clusters are maximally informative. Edges indicate lobbying agreements (green) and disagreements (red) between coalition members. Node sizes represent the total spent on lobbying by members of each coalition from 2013 to 2018.

Finding 2: Testimony in legislative committees is nine to one in support of climate action

Key Findings

- Public testimony reflects widespread public support for climate action in Massachusetts shown in polls.
- Four industries testified most frequently against environmentalists: heating oil and alternative fuels, fossil fuels, utilities, and real estate.
- Unaffiliated individuals (not official representatives of a company or organization) submitted the majority of testimony, and almost always supported clean energy.

We systematically collected written testimony and notes on oral testimony on a combined total of 53 bills that environmental organizations saw as a climate priority from 2013-2018. The vast majority (about 90%) of all written and oral testimony we collected on these bills supported environmentalists' positions.² This was true across legislative sessions, bill topics, and whether testimony was given orally or in writing.

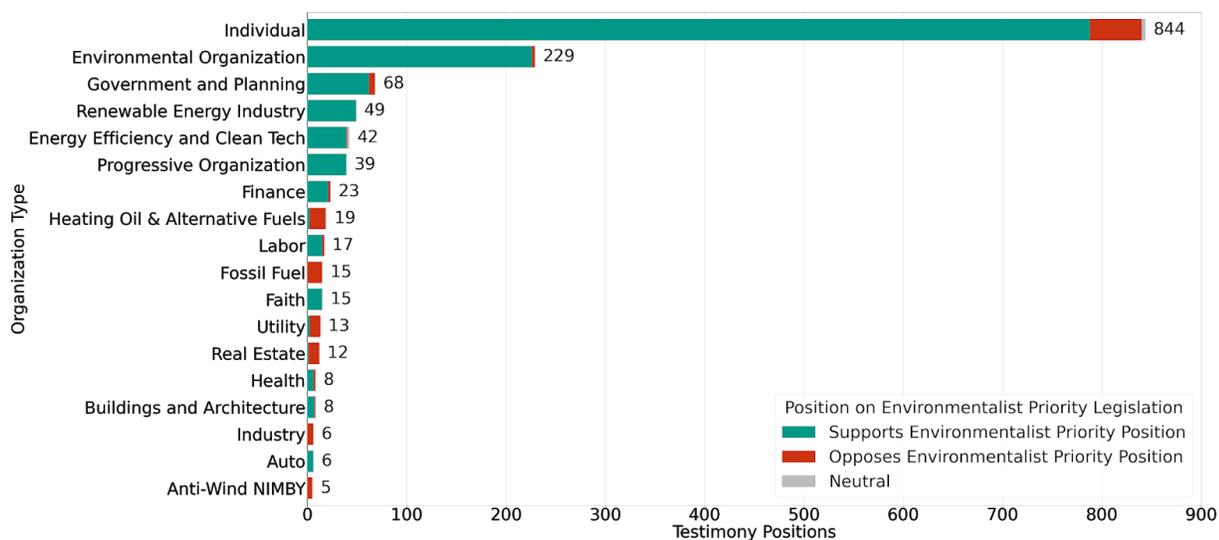


Figure 2: Ninety percent of public testimony delivered in Massachusetts legislative committees on energy and climate change is in favor of climate and clean energy bills.

² Using lists of priority climate legislation from four environmental organizations (Mass Power Forward, Environmental League of Massachusetts, Sierra Club - Massachusetts Chapter, and Clean Water Action), we systematically collected 877 positions (support, oppose, or neither) on priority legislation from written testimony and 569 positions on priority legislation from notes on oral testimony. Written testimony was provided to us by state house legislative committees, and notes on oral testimony were collected by InstaTrac, a private state house reporting service.

Figure 2 summarizes 1,453 bill positions in Massachusetts legislative testimony from 2013-2018, categorized by testifier type. Each N represents a piece of testimony on one piece of legislation. Only organization types with five or more pieces of testimony are shown.

Several industries - primarily heating oil & alternative fuels, fossil fuels, utilities, and real estate - testified against environmentalists' positions on legislation most of the time (Figure 2). Despite heavy lobbying by these industries behind closed doors, these groups rarely showed up in public hearings or submitted written testimony on environmentalist priority legislation. These industries and their arguments are explored later in the report, but overall these groups tended to say that they support addressing climate change, just not the specific legislation in question.

The vast majority (about 90%) of all written and oral testimony we collected on these bills supported environmentalists' positions. This was true across legislative sessions, bill topics, and whether testimony was given orally or in writing.

Notably, the most common source of support for environmentalist priority legislation in public hearings came from individuals speaking on their own behalf (Figure 2). Whether by email, letter, or speaking in a public hearing, individuals showed up frequently to support climate and clean energy legislation. Notably, the only issue that drew opposition to environmentalist priorities from individuals speaking on their own behalf was a set of onshore wind siting bills in 2013. For bills not related to wind siting, only four people testifying on their own behalf opposed environmentalists on all other bills combined.

<u>Top Supporting Testifiers</u>	<u>Top opposition testifiers</u>
<p><i>(staff, leadership, or official representatives supported environmental priority positions 10 or more times)</i></p> <ul style="list-style-type: none"> ● Clean Water Action¹ (Supported 31 environmental priority positions) ● Sierra Club (29) ● Acadia Center (23) ● Climate XChange/Climate Action Business Association (19) ● Environmental League of Massachusetts (18) ● New England Clean Energy Council² (12) ● League Of Women Voters of Massachusetts (11) ● New England Chapter of Environmental Entrepreneurs (11) ● Conservation Law Foundation (10) ● Northeast Energy Efficiency Partnerships³ (10) 	<p><i>(Opposed environmentalists 3 or more times)</i></p> <ul style="list-style-type: none"> ● Massachusetts Petroleum Council (Opposed 9 environmental priority positions) ● National Grid⁴ (8) ● Greater Boston Real Estate Board (6) ● Massachusetts Energy Marketers Association⁵ (6) ● Associated Industries of Massachusetts (4) ● Massachusetts Association of Realtors (3) ● Wind Wise Massachusetts (3) <p><i>Counts do not include testimony by members.</i> ¹ 1 time opposed environmental priority position ² 1 time opposed, 1 neutral ³ 1 time opposed ⁴ 2 times supported environmental priority position ⁵ 1 supporting position, 1 neutral position</p>

Table 1: Top testifying organizations in support and opposition, 2013-2018.

Finding 3: On lobbying, clean energy advocates are outspent more than 3.5 to 1

Key Findings:

- Trade associations representing the fossil fuel, real estate and power generation industries are among the top ten groups opposing climate and clean energy legislation.
- Eversource, the Associated Industries of Mass. and National Grid also appear near the top, and frequently oppose the same legislation.

Professional lobbying firms provide interest groups with immediate access to the top decision-makers in Massachusetts, and some top firms employ former legislative leaders and even governors. In terms of lobbying expenditures, corporate actors far outspent nonprofits, both individually and when comparing aggregate coalition spending. The disparities are most obvious when comparing central actors in each coalition. Eversource and the Associated Industries of Massachusetts are two of the top three actors in the utilities coalition by spending and lobbying count on this legislation, and each spent over \$2 million on lobbying in Massachusetts over the period studied – the highest amounts among these interest groups. Conversely, the Environmental League of Massachusetts and Clean Water Action, two of the most central actors among the *Social Greens* – representing an array of mostly low-spending environmental, clean energy, and progressive nonprofits – spent \$461,000 and \$22,000 total over the same period, respectively. In general, the top ten pro-climate action and anti-green interest groups spent a total of \$47,239 per year and \$165,122 per year on average over these six years, respectively (a 3.5-fold difference).³

³ This may be an underestimate of this difference, since groups like the Massachusetts Municipal Association was included in the top ten and lobby on many other issues. The same may be the case for other firms and trade groups.

Top Supporters of Climate & Clean Energy Bills

Organization	Number of bills supported	Total spending 2013-2018
Environmental League Of Mass.	82	\$461,449.00
Clean Water Action	40	\$22,232.00
Conservation Law Foundation	40	\$103,779.00
Mass. Audubon Society	32	\$115,716.00
Northeast Clean Energy Council	29	\$244,928.00
Mass. Municipal Assn.	26	\$1,499,695.00
Union Of Concerned Scientists	25	\$20,554.00
Toxics Action Center	21	\$16,920.00
Bcc Solar Energy Advantage	21	\$215,949.00
Sierra Club	20	\$133,166.00

Top Opponents of Climate & Clean Energy Bills

Organization	Number of bills opposed	Total spending 2013-2018
National Grid	56	\$1,366,566.00
American Petroleum Institute	33	\$871,335.00
Eversource	32	\$2,238,201.00
Associated Industries Of Mass.	26	\$2,154,482.00
Exxon Mobil Corporation	23	\$279,560.00
NAIOP (commercial real estate)	16	\$1,158,838.00
Transcanada Power Marketing Ltd.	12	\$144,140.00
Mass. Assn. Of Realtors	12	\$928,966.00
Greater Boston Real Estate Board	11	\$651,232.00
Mass. Energy Marketers Assn.	10	\$114,033.00

Table 2: Lobbying spending by the top ten supporters and opponents of climate and clean energy bills over three legislative sessions in Massachusetts, 2013-2018.

Finding 4: Renewable energy interest groups stick to narrow industrial interests

Key Facts:

- Renewable energy industry groups spend between 1.5 and 2 times as much as social green groups on lobbying, on average.
- While social greens lend considerable support to renewable-friendly legislation, clean energy interest groups do not actively support social greens on issues such as carbon pricing or climate targets.

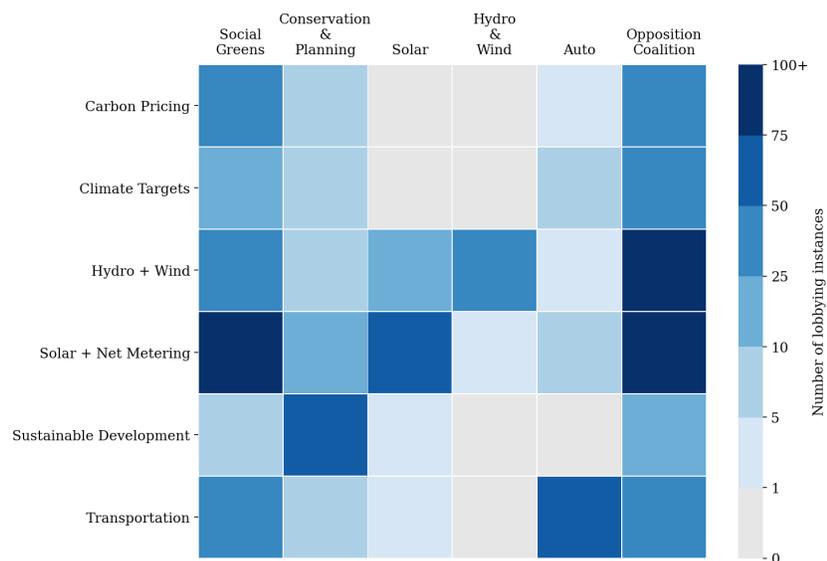


Figure 3: Number of lobbying instances on selected issues by coalition. All lobbying positions (support, neutral and oppose) are summed together. The color scale therefore gives a measure of interest group engagement on each issue, but does not indicate whether that engagement was supportive or oppositional.

Environmental NGOs are among the lowest-spending lobbying groups in Massachusetts. The disparity between NGOs and corporate actors described in Finding 3 above fits a broader national and international pattern, and stems at least in part from legal caps placed on the amount that nonprofits can spend on lobbying under IRS regulations. At the same time, interest groups in the Social Green coalition unify the environmental agenda in the state legislature. They lobby on a diverse array of issues and frequently support other interest groups such as the electric automotive, solar, hydro, and wind industries. Social green groups registered 101 lobbying instances on solar and net metering legislation — more than any other coalition — and 27 instances on hydro and wind legislation (Figure 3).

Clean energy industry interest groups rarely, if ever, repay the favor by lobbying for broader climate legislation. For example, during 2013-2018, social green groups attempted to pass legislation to tighten greenhouse gas reduction targets and institute a carbon tax in Massachusetts. Only two solar companies, and no hydro or wind companies, recorded any lobbying on these bills. A similar pattern holds true in testimony: the renewable energy industry rarely testified on issues not narrowly related to expanding renewable energy. This contrasts with the utility and fossil fuel industries' engagement on a wide array of energy legislation. Despite the evident major benefits that such legislation would provide to renewable energy producers, no members of the solar or hydro & wind coalitions lobbied on either of these issues. Conversely, interest groups in the four opposition coalitions *did* lobby against broader climate legislation.

Clean energy industry interest groups rarely, if ever, repay the favor by lobbying for broader climate legislation.

Many social green groups have small lobbying budgets of a few thousand dollars a year, and generally rely on in-house lobbyists and volunteers who rarely cultivate long-term relationships with legislative leadership and their staff. Large renewable energy companies, on the other hand, often hire professional lobbyists. Some of these lobbyists are in major firms with deep ties to legislative and administration leadership. The most recent lobbying disclosures (from the 2019-2020 session) reveal that some of the highest lobbying contracts in the state come from the offshore wind industry. If lobbying can serve as a proxy for political resources, then this disparity and the gap in mutual support shown above indicate that on broader climate and energy legislation, crucial support is missing.⁴

We captured testimony from only two renewable energy interest groups on carbon pricing. One of those, Solventerra, argued that “putting a price on carbon pollution will help level the playing field in the energy sector” and “make energy markets function more efficiently and drive demand and innovation in the clean energy sector. It will incentivize people and businesses to reduce use of fossil fueled energy by becoming more energy efficient and switching to lower carbon energy sources.”⁵ This testimony, however, is the exception to this finding.

⁴ Even on omnibus bills, renewable companies rarely testified on bigger bills, and when they did, only narrowly discussed particular sections and their own businesses. Green Earth PV, for example, testified in support of expanding financing options for renewables (PACE), saying they wanted to bring their energy efficiency business from Connecticut to Massachusetts. The Clean Energy Venture group is an exception, testifying for carbon pricing in 2015 and 2017.

⁵ Roger Freeman, President of Solventerra, 10/27/2015 testimony on MA Senate Bill 1747, An Act Combating Climate Change.

Finding 5: Utilities lobby against solar energy, but support large hydro & wind power

Key Facts

- Utilities and their allies strongly opposed increased net metering for solar, while supporting some legislation to expand large-scale hydropower and wind.

The state's two largest utilities, National Grid and Eversource, along with organizations in their lobbying coalition, lobbied in support of legislation to promote large-scale hydropower and wind energy (Figure 4a). These projects would result in substantial contracts for the state's largest utilities. Conversely, solar electricity is often decentralized on residential and commercial rooftops and therefore "behind the meter," meaning it cuts into electric utilities' revenues. In testimony, utilities positioned wind and hydro as favorable renewable sources, in contrast to solar energy, which they characterized as unreasonably expensive and against which they lobbied heavily (Figure 4b). In addition to criticizing solar energy's supposed high costs, utilities testified and lobbied against net metering initiatives. These laws allow property owners to only pay for the net energy they had to buy from the grid, subtracting the amount they produced locally.

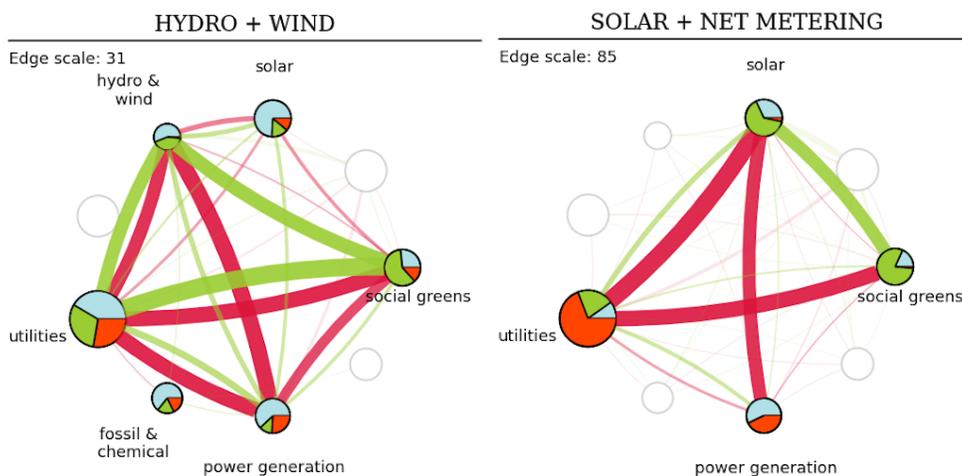


Figure 4: Coalition lobbying agreements and disagreements on bills relating to (a) hydro and wind power, and (b) solar and net metering. Pie charts indicate the proportion of opposing (red), neutral (blue), and supporting (green) positions on these bills by members of each coalition. Lines indicate overlapping or conflicting positions between coalitions.

The utilities rarely testified publicly on climate and energy legislation. Of the testimony we did capture from the utilities, National Grid testified against solar net metering in the 2013-14, 2015-16, and 2017-18 sessions, arguing that solar energy should not be supported when offshore wind and large-scale hydropower are cheaper. As Eversource put it in written testimony in 2015, *“Since solar and wind have zero emissions, we can do the same for the environment but at a fraction of the cost with more wind than solar. [...] So wouldn’t it make sense from a customer and environment perspective, to let these resources compete for customer dollars rather than have the state mandate more of the higher cost resources?”*^{6,7} Eversource and National Grid are members of and donors to the national utility trade group, *Edison Electric Institute*, which has organized efforts across states to undermine solar net metering incentives and distributed generation. In addition, Eversource and National Grid are members of several notable pro-gas trade organizations, including the American Gas Association and Associated Industries of Massachusetts. Utilities use ratepayer money to fund these lobbying groups.⁸

National Grid testified against solar net metering in the 2013-14, 2015-16, and 2017-18 sessions

⁶ Eversource, September 29, 2015, written testimony on Senate Bill 1965, An Act Relative to Energy Sector Compliance with the Global Warming Solutions Act.

⁷ A recent study conducted by Synapse Energy showed that small-scale solar in New England saved utilities and ratepayers more than \$1.1 billion from 2014-2019. <https://www.synapse-energy.com/new-england-solar-savings>

⁸ See the report by the Energy and Policy Institute: Paying for Utility Politics: How ratepayers are forced to fund the Edison Electric Institute and other political organizations <https://www.energyandpolicy.org/utility-ratepayers-fund-the-edison-electric-institute/>

Finding 6: Utility companies are uniquely successful throughout the legislative process

Key Facts

- National Grid, Eversource, and the Associated Industries of Massachusetts together spent \$5.75 million on lobbying over the period.
- Bills supported by utilities had a significantly higher chance of progressing through the legislature and ultimately passing both chambers.

Despite rarely testifying, the utility industry appears to be the most successful coalition in the Massachusetts legislature on climate and energy issues. The two major utilities in the state - National Grid and Eversource - along with their political allies, spent the most of any coalition in our study on lobbying. Of all the groups we studied, the bills they opposed were most likely to fail, while they also saw the most success in getting bills passed that they supported.

Climate-friendly legislators submit many pro-climate bills at the beginning of each session. Utilities lobbied against two-thirds of those introduced bills which environmental groups supported (Figure 5). However, the preferences of the two groups, as expressed in reported lobbying, converged as legislation moved through the chambers. Members of the two coalitions disagreed half as often (35% of the time) over engrossed legislation, and less than one quarter of the time (23%) over the seven pieces of legislation that were passed by both chambers and signed into law by the Governor. Utilities' preferences accounted for this shift – as legislative committees modified the language in climate legislation, utilities favored that legislation more.

In interviews we conducted, environmental groups and former legislators attested to the prominent role utilities play in steering state climate and energy policy. Said one interviewee, "I've never been in a conference committee and heard someone say API [the American Petroleum Institute] can't get there on X so it's not gonna happen. But I've been in multiple shouting matches where utilities did determine the outcome. There's much more power there than people appreciate." They continued on to say that utilities "literally own the railroad" when it comes to getting new renewable energy projects on the grid, which can act as a deterrent against public opposition from renewable energy companies.

"I've never been in a conference committee and heard someone say API [the American Petroleum Institute] can't get there on X so it's not gonna happen. But I've been in multiple shouting matches where utilities did determine the outcome. There's much more power there than people appreciate."

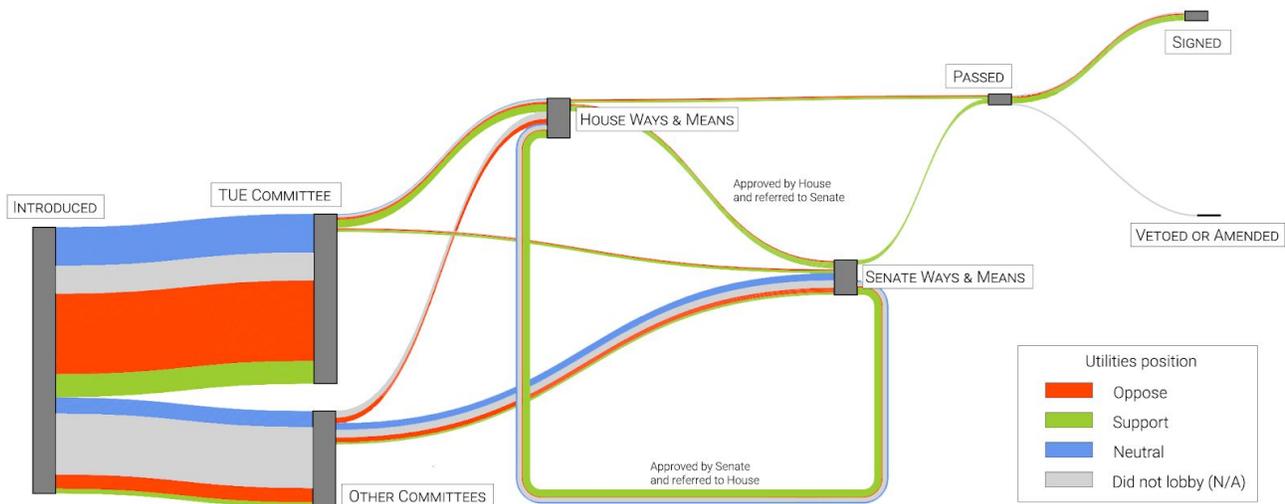


Figure 5: Utilities successfully oppose the bulk of climate legislation, gaining passage out of initial and subsequent committees only of bills they support. Sankey diagram showing the fate of climate and clean energy legislation in Massachusetts 2013-2018 and Utilities’ average position (support = green, oppose = red, neutral = blue).

Despite strong support for climate action in public hearings, the vast majority of bills die in committee. Bills that utilities supported were far more likely to make it into the powerful ways and means committees, and then eventually be enacted into law. Similarly, bills that utilities opposed were far less likely to move forward, and utilities’ preferences had a far higher correlation with outcomes than did any other coalitions’. Of the 245 climate and clean energy bills that were introduced from 2013-2018, only 43 made it out of the initial joint committee, and only 9 were ever voted on by the full legislature.

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Finding 7: AIM (Associated Industries of Mass.) lobbies and speaks against rapid climate action

Key Facts

- Associated Industries of Massachusetts (AIM) is one of the most powerful industry associations in the state and has consistently opposed climate legislation.
- AIM lobbied multiple times against legislation to promote renewable energy, to set a price on carbon, and to regulate natural gas.
- AIM's lobbying positions on these bills matched the utilities' closely enough that our clustering algorithm placed them in the same coalition.

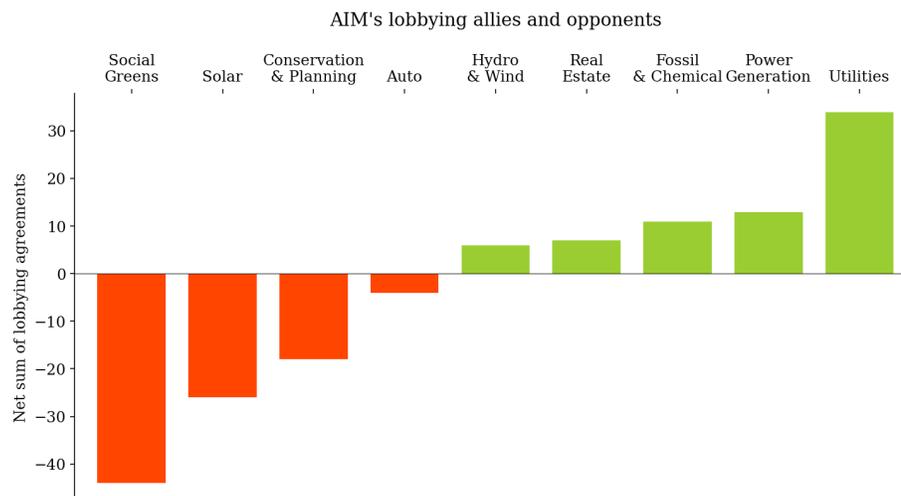


Figure 6 - Summary of AIM's lobbying agreements and disagreements with members of each interest group coalition. Net sum of AIM lobbying in favor (+1) or opposed to (-1) the same bill as allies/opponents.

The Associated Industries of Massachusetts (AIM) is the largest trade group for industries in the state and holds substantial sway in the legislature. The group supports Vineyard Wind despite having opposed the previous Cape Wind proposal, since the price of electricity per KWH under the new project is one-third of what it was in the earlier one.⁹ They have strongly supported importing electricity from HydroQuebec, but

⁹ J. Chesto, Associated Industries of Mass. joins the effort to save Vineyard Wind, Boston Globe. (2019). <https://www.bostonglobe.com/business/2019/11/12/associated-industries-mass-joins-effort-save-vineyard-wind/HZNh1b3yj5tyxhQu0J8EtL/story.html>.

opposed increasing the state's Renewable Portfolio Standard, claiming that existing laws will already get the state to net zero, so that increasing the RPS would only increase costs.¹⁰

AIM's central role at the legislature is shown in Figure 6. The figure shows that the group frequently lobbied with utilities, and also with fossil fuel and chemical associations. Similarly, they consistently lobbied against environmentalists and clean energy advocates. AIM's lobbying aligned with the utilities' so closely that our coalition-finding algorithm placed them within the utility coalition. Our interviews suggested that utilities dominate AIM and other local chamber of commerce committees on energy policy. AIM also argues publicly that MA needs more gas and is a member of the gas-supporting Mass Coalition for Sustainable Energy, in contrast to studies from the Massachusetts Attorney General and others which find this need does not exist.^{11, 12, 13} AIM is a member of the Mass Coalition for Sustainable Energy, a business group promoting natural gas in the state.

Like the utilities, AIM rarely showed up to testify in State House hearings. In one notable position, AIM argued for eliminating all climate programs and replacing them with a single carbon tax, claiming that this would be more efficient. Robert A Rio, Senior Vice President and Counsel for Government Affairs at AIM argued on June 20, 2017 against S1821 the carbon pricing bill, saying that: "the bureaucratic and inefficient refund mechanism envisioned in this bill guarantees failure. Administrative costs will be large, reducing potential rebates and with the program arbitrarily picking winners and losers for additional rebates, most "payers" will not receive anything in rebates near what they pay...S.1821 as written is not an effective way to combat climate change...We believe there is a better way."¹⁴

AIM... frequently lobbied with utilities, and also with fossil fuel and chemical associations. Similarly, they consistently lobbied against environmentalists and clean energy advocates.

¹⁰ Renewable-Energy Mandate Endangers Hydro Deal, Chris Geehern, AIM Blog. (2018). <https://aimnet.org/blog/renewable-energy-mandate-endangers-hydro-deal/>.

¹¹ C. Geehern, Natural-Gas Constraints Bad for Business, Bad for Environment, Associated Industries of Massachusetts Blog. (2018). <https://aimnet.org/blog/natural-gas-constraints-bad-for-business-bad-for-environment/>.

¹² P.J. Hibbard, C.P. Aubuchon, Power System Reliability in New England, Analysis Group, Inc, 2015. <https://www.mass.gov/doc/ago-regional-electric-reliability-options-study-report/download>.

¹³ Mass Coalition for Sustainable Energy. "About." Mass Coalition for Sustainable Energy. Accessed January 14, 2021. <https://massforenergy.org/about/>.

¹⁴ Robert A Rio, Senior Vice President and Counsel for Government Affairs at Associated Industries of Massachusetts argued on June 20, 2017 against S1821, An Act Combating Climate Change.

Finding 8: The fossil fuel industry lobbies heavily against pipeline rules, divestment, and carbon pricing

Key Facts

- The Fossil and Chemical coalition consistently lobbies to stop legislation supported by the social greens coalition.
- Fossil fuel firms and industry organizations testified 15 times against the priority legislation of major clean energy and climate coalitions in Massachusetts from 2013-2018, and never in favor.
- The top lobbying organizations on energy in the state were the American Petroleum Institute, Exxon Mobil Corporation, and the American Chemistry Council.

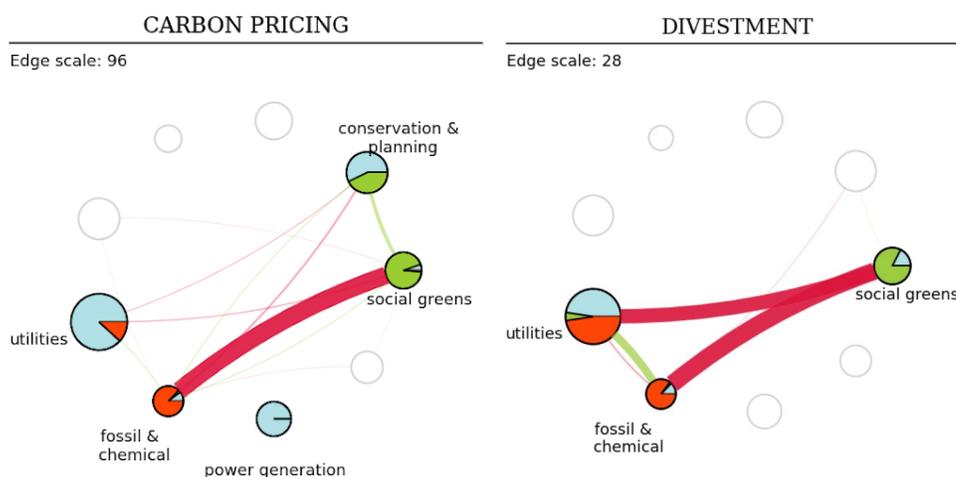


Figure 7 - Coalition lobbying agreements and disagreements over carbon pricing and divestment bills.

The fossil fuel industry was represented in three distinct groups in our analysis: the American Petroleum Institute (API, the prominent trade group for the petroleum industry), natural gas pipeline companies, and the heating oil & alternative fuels industry.

While the fossil fuel industry frequently claims they are a fundamental part of the solution to climate change, we found that the fossil fuel industry almost never supported environmentalists' positions on key climate and energy legislation.

While the fossil fuel industry frequently claims they are a fundamental part of the solution to climate change, we found that the fossil fuel industry almost never supported environmentalists' positions on key climate and energy legislation. Led by the Massachusetts Petroleum Council—the local chapter of the American Petroleum Institute (API)—the sector lobbied and testified against bills to divest the state pension from fossil fuels, bills to ban drilling using hydraulic fracturing (fracking), bills to implement carbon pricing, and numerous other climate action priorities.

In contrast to earlier fossil fuel industry-funded denial of the reality of climate change, its importance, or the role of their products in creating the problem, we notably found no instances of outright climate change denial in their public testimony from 2013 to 2018. Instead, their arguments hinged on defending the reputation of the fossil fuel industry, arguing that the fossil fuel industry is a leader in climate action, and claiming that fossil fuels are a necessary part of the economy. David O'Donnell, Associate Director of the Massachusetts Petroleum Council, in written testimony submitted to the legislature¹⁵ lamented that "It has become somewhat fashionable to cast fossil fuels in a negative light. Yet there are enormous social benefits to using fossil fuels, such as poverty reduction and increased mass mobility of peoples and goods that continue to this day and will for the foreseeable future." He continued with an apocalyptic scenario: "If fossil fuel use were to end tomorrow, the economic consequences would be catastrophic (starvation would follow, for example, as tractors' fuel tanks ran dry). Petroleum-based personal care, food, clothing, and packaging products feature heavily in the daily lives of billions of people."

Interviewees stated that the fossil fuel industry and API are not as powerful in Massachusetts as the utility industry, but their consistent involvement and lobbying spending is notable. In addition to API, natural gas pipeline companies are a powerful part of the oil & gas industry in the state. The two large pipeline and natural gas infrastructure companies in Massachusetts were absent at public hearings: Kinder Morgan only appeared once in the testimony we collected from 2013 to 2018, while Enbridge and Spectra Energy never testified (in the testimony we were able to collect). While Spectra Energy spent \$1.3 M on lobbying over the period, they almost always recorded their bill position as 'Neutral'. In addition to their lobbying, much of the fossil fuels and pipeline industries' power seems to reside in the regulatory sphere, where several former pipeline company officials hold key positions in the ISO (the New England grid operator) and the Department of Public Utilities.¹⁶

While Spectra Energy spent \$1.3 M on lobbying over the period, they almost always recorded their bill position as 'Neutral'.

The heating oil & alternative fuels industry, while far smaller in spending and revenue than the other fossil fuel actors, testified frequently against climate action priorities relative to other actors. Led by the Massachusetts Energy Marketers Association, they held to a narrow focus on their industry, arguing against proposed carbon pricing mechanisms that could make their products more expensive and against certain fuel efficiency efforts that would impact them.

¹⁵ October 10, 2017, David J. O'Donnell, Associate Director, Massachusetts Petroleum Council, submitted written testimony on Massachusetts bill H3281, An Act Related to Public Investment in Fossil Fuels

¹⁶ Because our study is focused on the legislature, we did not examine these relationships further here. Departments of Public Utilities and Public Utility Commissions are the focus of a new research project of the Climate and Development Lab.

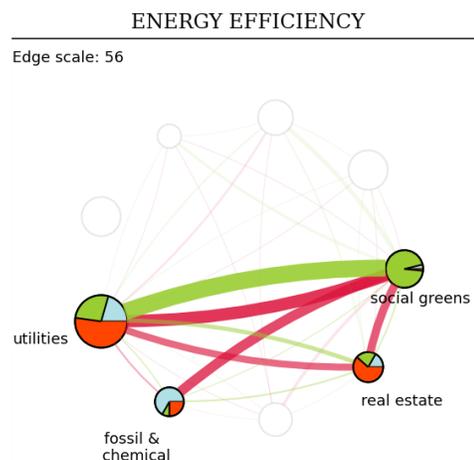
Finding 9: The real estate industry resists residential energy efficiency bills

Key Facts

- Despite not being mentioned in previous research on state-level climate politics, the real estate industry testified eleven times against the priority legislation of climate and clean energy advocates (and once in favor).
- The main lobbying organizations for the sector are NAIOP Mass., the Greater Boston Real Estate Board, and the Mass. Association of Realtors.

The real estate industry is rarely considered an important player in climate politics. However, led by the Greater Boston Real Estate Board, a group of commercial real estate brokers (NAIOP MA), and the Massachusetts Association of Realtors, real estate groups lobbied 114 times on climate and clean energy legislation. They primarily testified and lobbied against efforts to regulate home and real estate energy efficiency.

Figure 8 - Coalition lobbying agreements and disagreements over energy efficiency bills.



Their public testimony to legislative committees, almost wholly against climate and clean energy organizations, couched their opposition in equity arguments, claiming that regulating home energy efficiency would hurt homeowners. 2017 written testimony from the Greater Boston Real Estate Board¹⁷ on *An Act Relative to Home Energy Efficiency* argued that “Many of the older homes that would be significantly impacted by this legislation are located in less affluent communities where residents have few resources to upgrade their home.

Real estate groups lobbied 114 times on climate and clean energy legislation. They primarily testified and lobbied against efforts to regulate home and real estate energy efficiency.

¹⁷ Written Testimony submitted by the Greater Boston Real Estate Board in opposition to Massachusetts bill S1839, 11/6/2017

The ratings could cause depressed values of those older homes especially those located in Gateway Cities where residents may not be able to afford the energy upgrades needed for a positive score.” Their argument concludes that “However well intended, this new scheme may in fact result in a disparate impact on those with the fewest resources and a widening of the gap between the haves and the have nots in the Commonwealth.” Similarly, the Massachusetts Mortgage Bankers Association said mandatory energy audits upon sale of property “will stigmatize older homes resulting in a decline in value and perhaps the unintended consequence of redlining neighborhoods.” Not discussed are the building’s annual energy costs that will be borne by home purchasers. A final line of argument, taken by the Greater Boston Real Estate Board in 2015¹⁸ is essentially based on individual liberty: “We believe that energy efficiency is something that many homeowners are already moving toward. Our members strongly believe that homeowners should move in this direction at their own pace, without a mandate that causes them to incur substantial costs or impede their ability to afford the home they desire.”

¹⁸ Written testimony on 6/30/2015 against Senate Bill 1761, An Act relative to home energy efficiency

Finding 10: Power generators fight new utility-backed hydro and wind supply

Key Facts

- Power plants in Massachusetts are largely natural-gas fired; plant operators resisted subsidies and incentives to renewables and the importation of hydroelectricity from Canada.
- Exelon Corporation, New England Power Generators Association, and Transcanada Power Marketing Ltd. were top organizations in this sector, and among the highest-spenders on lobbying.

Most power generators in Massachusetts are represented by the New England Power Generators Association (NEPGA). The group is mostly composed of traditional fossil fuel companies, but a number of wind and solar energy companies are also members. NEPGA and individual fossil fuel power generators lobbied primarily against new large-scale renewable energy contracts, which were advanced to meet the state's emissions reductions goals. In particular, they advocated against the inclusion of large-scale hydropower from Canada in the state's power procurement. They made points about costs, on how importing hydro-generated electricity would hinder the ability of solar and wind firms to drive ambitious decarbonization in-state, and how hydro purchasing would cause a massive net flow of money and jobs out of the state.

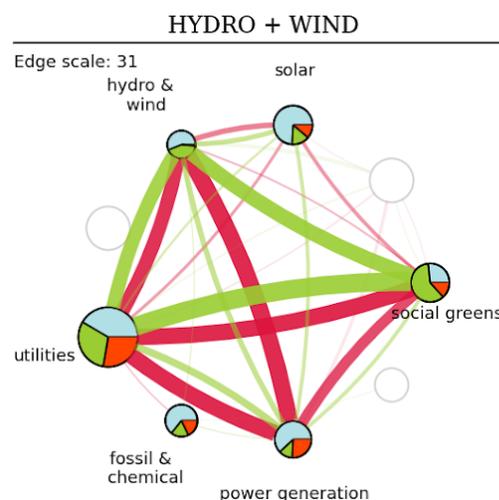


Figure 9 - Coalition lobbying agreements and disagreements over hydro and wind power bills.

Power generators rarely testified in Massachusetts from 2013-2018. In 2015 Dan Dolan, NEPGA President¹⁹ testified against a carbon pricing bill, saying that “Massachusetts should be proud of [its] leadership, but also recognize the costs, challenges and consequences with attempting to dramatically exceed clearly set goals emissions goals [sic] through out-of-market mechanisms like Senate Bill 1747.” This argument is discussed in the following section.

¹⁹ Dan Dolan, President, New England Power Generators Association, Written testimony submitted in opposition to Massachusetts Senate bill 1747, An Act combating climate change, 10/27/2015

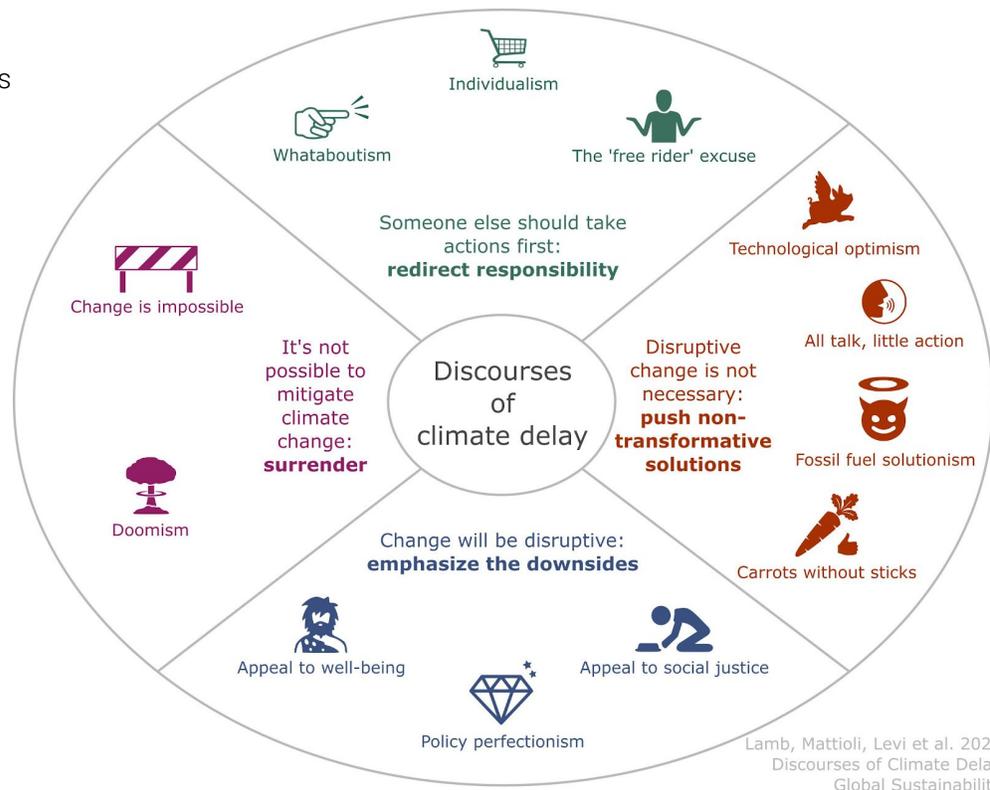
Finding 11: Opponents no longer deny the reality of climate change, but focus on cost and reliability

Key Facts

- Only one piece of testimony of the nearly 1,200 we studied denied that climate change is caused by humans.
- Opponents of climate action asserted that the particular policy at hand was poorly designed, unnecessary, or would unfairly punish marginalized groups.

Throughout 1,187 pieces of testimony in six years of committee hearings in Massachusetts, we uncovered only one piece of testimony, submitted by an individual, which questioned the scientific reality of human-caused climate change. Rather, testimony submitted against climate priority bills in the state proclaimed the testifiers' commitment to sustainability and climate action, but also declared strong opposition to the particular policies proposed. The commonalities are striking: arguments primarily focused narrowly on the bill in question, asserting that the particular policy was poorly designed, unnecessary, or would unfairly punish marginalized groups.

Figure 10 -
A typology of discourses of climate delay



We categorized arguments in the testimony using a typology of “discourses of delay.”²⁰ This typology, drafted by an international team of social scientists, characterizes arguments against climate action that do not directly deny the scientific reality of climate change, but rather seek to delay action, or rationalize inadequate solutions. Discourses of delay seek to do one or more of the following: redirect responsibility, push non-transformative solutions, emphasize the downsides of action, or surrender to climate disaster. In addition, we examined whether or not each piece of testimony argued that more gas infrastructure is needed to reduce energy prices, an argument that natural gas companies have funded public relations efforts to propagate (notably via the Mass Coalition for Sustainable Energy).

Discourses of delay seek to do one or more of the following: redirect responsibility, push non-transformative solutions, emphasize the downsides of action, or surrender to climate disaster.

Policy Perfectionism argues that we should seek only well-crafted solutions that are supported by all affected parties; otherwise we will waste limited opportunities for adoption. The majority of opposition testimony we uncovered utilized a policy perfectionism discourse. This testimony emphasized the high cost of taking action, essentially saying they supported the goal of the legislation but that this particular policy is not well-designed. Frequently, unintended consequences are mentioned, and the overlaps of a bill with existing policy. Utilities made arguments of not wanting to rush solar adoption, via increasing the “net metering” cap, because there were better routes forward.

The Associated Industries of Massachusetts, in opposing a statewide carbon price bill, stated in their testimony that they support their own version of a carbon price - one which would eliminate every other statewide climate program in order to allow free competition. Robert A Rio, Senior Vice President and Counsel for Government Affairs at Associated Industries of Massachusetts, argued on July 18, 2017 against H3473, saying “This carbon tax should replace the carbon tax instituted under the state’s participation in the Regional Greenhouse Gas Initiative (RGGI)...All current programs that deal with energy efficiency and renewable energy that are funded by ratepayers or taxpayers should be eliminated, including those currently directed at the transportation sector.”

The majority of opposition testimony we uncovered utilized a policy perfectionism discourse.

Appeals to social justice focused on the costs of climate action for low-income and minority residents. These testifiers expressed concern for small communities or marginalized groups as a reason to not take action. Employed most by realtors, this argument was often utilized to argue that requiring home energy audits would be a burden on housing affordability and could deter home ownership. Michael Ferrante, President of the Massachusetts Energy Marketers Association in written testimony submitted June, 30, 2015 in opposition to Massachusetts House bill 1761, argued that “...establishing an energy rating and labeling system will be an albatross around the necks of untold numbers of homeowners who are trying to sell their homes. This could force people to spend money on energy efficiency improvements they simply

²⁰ See W.F. Lamb, G. Mattioli, S. Levi, J.T. Roberts, S. Capstick, F. Creutzig, J.C. Minx, F. Müller-Hansen, T. Culhane, J.K. Steinberger, et al. Discourses of climate delay. *Global Sustainability*. 3 (2020) e17. <https://doi.org/10.1017/sus.2020.13>.

do not have, force them to drop the price of their home, or slow or deter the sale of their property causing great financial harm and personal anguish.” Brent Wm. Gardner, Vice President of Government Affairs, Americans for Prosperity submitted written testimony in opposition to Massachusetts bill S1747 on 10/27/2015 saying “S.1747 will raise the already high energy bills in Massachusetts, making it more difficult for families to heat their homes and keep the lights on.”

“Establishing an energy rating and labeling system will be an albatross around the necks of untold numbers of homeowners who are trying to sell their homes.”

–Michael Ferrante,
President of the Massachusetts Energy Marketers Association

Fossil-fuel Solutionism argues that the fossil fuel industry is already leading on reducing emissions via energy efficiency and moving to lower-carbon fuels, and that the industry should be recognized for its accomplishments - not demonized. These views are advanced by many heating oil and alternative fuel groups in Massachusetts, industrial consumers, and the American Petroleum Institute and its local affiliate in the state. For example, David J. O’Donnell, Associate Director of the Massachusetts Petroleum Council, in written testimony on Massachusetts House bill 3281 on October 10, 2017, said: “And, as most of the scientific community represented on the Inter-governmental Panel on Climate Change agreed as recently as 2014 that other energy sources, including natural gas, are likely to prove indispensable in the ongoing global effort to combat climate change.”

Premature Success-ism argues that we (the U.S., Massachusetts) are world leaders in addressing climate change; that we have approved an ambitious target and have declared a climate emergency. A number of testimonies on Beacon Hill pointed to the 2008 Global Warming Solutions Act as proof that Massachusetts was already on track to meet its carbon emissions targets. This success story, rather than being used as a reason to take further action, was instead used to say that taking additional action beyond this plan was both unnecessary and could incur additional costs that would not be needed. Premature successism was used by many different groups on a variety of issues, for example to say that natural gas leaks are already being fixed. Existing action is also seen to justify not acting in the future. Dan Dolan, President of the New England Power Generators Association in written testimony submitted on October 27, 2015 in opposition to Massachusetts Senate bill 1747, for example, argued that “Since 2011, carbon dioxide emissions have been cut dramatically in New England. Massachusetts should be proud of this leadership, but also recognize the costs, challenges and consequences with attempting to dramatically exceed clearly set emissions goals through out-of-market mechanisms like Senate Bill 1747.”

A number of testimonies on Beacon Hill pointed to the 2008 Global Warming Solutions Act as proof that Massachusetts was already on track to meet its carbon emissions targets.

In written testimony in opposition to Massachusetts bill S1753, Joseph Newman, Director of Government Affairs for National Grid argued on 10/6/2015 that “S.1753 calls for the creation of multifamily low- and moderate-income rental housing energy efficiency. This is already a focus of existing energy efficiency programs. This bill would create competing programs and would lead to consumer confusion. For these reasons, we respectfully request that the Committee place this legislation into a study order.” Study bills defer action for at least two years and often kill an initiative.

A final discourse of delay we heard frequently on Beacon Hill was **Individualism**, which argues that individual actions are the way to solve climate change, not prescriptive public policy and regulations. As quoted above, the Greater Boston Real Estate Board in their June 30, 2015 Written testimony on Massachusetts against Senate Bill 1761 argued that: “that energy efficiency is something that many homeowners are already moving toward. Our members strongly believe that homeowners should move in this direction at their own pace, without a mandate that causes them to incur substantial costs or impede their ability to afford the home they desire.”

Finding 12: Climate action is tightly controlled by State House committees and leadership

Key Facts

- The vast majority of climate-related legislation dies in committee, where committee membership is decided by leadership and votes are not public.
- Major climate legislation that passed from 2013-2018 was nearly unanimous.
- Only 9 of 245 introduced bills passed.

In addition to the specific industries delaying climate action in Massachusetts, most interviewees we spoke with named the legislative structure itself — particularly its hierarchy and lack of transparency — as a key barrier to progress. Data collection was far more difficult and incomplete in Massachusetts than in its neighboring Rhode Island and Connecticut legislatures, and the state received an “F” from the Center for Public Integrity for Public Access to Information in 2015. As we were told by one committee staffer, “we don’t need to provide this information to you: there’s no public records law here.”

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Of the 245 climate and energy bills introduced over a six year period, only 43 made it out of committee to a floor vote. Nearly every committee that determined those outcomes voted in secret, leaving little opportunity for the public to hold legislators accountable for voting against climate action. Bills all went through the powerful and obscure Ways and Means Committees (Fig. 5) and then conference committees, where they were drastically rewritten.²¹ Furthermore, all of the votes on climate and clean energy happened via voice vote, so at no step of the process was any individual senator’s or representative’s position on a bill recorded.

The committee votes that determine the bulk of legislative outcomes in the state, beyond occurring in secret, also happen under tight control by legislative leadership. The House Speaker determines who is on each committee, along with the budgeting process, party campaign funds, and the flow of information. As one interviewee put it, “It does seem that the House is a dictatorship and not a democracy.”²²

²¹ For a study of the MA case, see Basseches, J.A., 2019. “It happened behind closed doors”: Legislative buffering as an informal mechanism of political mediation. *Mobilization: An International Quarterly*, 24(3), pp.365-388.

²² Interviewee chose to remain anonymous

Recommendations

Based on our systematic analysis of lobbying records and public testimony in legislative committees in Massachusetts on climate change and clean energy, we have six recommendations:

1. **Sharply improve transparency:** Legislative process should not be so obscured from the public eye. Citizens and advocacy organizations cannot afford the expensive professional lobbyists, lawyers and PR professionals hired by the organizations opposing climate legislation. They cannot afford expensive private statehouse reporting services.
 - a. Committee hearings should be recorded and broadcast over the internet and archived in a user-friendly portal. Written testimony should likewise be catalogued and archived and available on the web.
 - b. Reporting of lobbying activities needs to be far more detailed and rigorous; when not offering technical comments, lobbyists must not be allowed to report having held “neutral” positions when lobbying on a bill.
 - c. Lobbying records should be cleaned and made consistent with tools for their analysis on state-supplied websites.
 - d. Committee votes should be transparent and public.
 - e. Floor votes need to be conducted by recorded roll call.
2. **Build capacity and collaboration in stakeholder organizations:** To be effective in advancing sophisticated and effective policy, clean energy and climate advocates require the institutional knowledge of longtime staffers and legislative insiders, as well as engaged memberships and funders. They need tools to collect and analyze data provided by statehouse offices and agencies. And they need structures for coordination to advance the legislation that is introduced. Legislative efforts need to be complemented by strong electoral work in coalition with much broader sets of actors in the state and beyond.
3. **Clean energy companies should engage more broadly on climate policy in climate advocacy:** While the renewables and energy efficiency sectors lobbied and testified on a narrow set of policies specific to their industries, fossil fuels and utilities lobby broadly on a wide set of climate and energy policies. While we recognize the substantial financial and political capital imbalance between renewable energy companies and the traditional energy industry, many policies that would substantially bolster renewable energy in the state do not see industry support. The renewable energy and energy efficiency industries should broaden their scope.
4. **Rein in the utilities:** Utilities were identified as powerful actors who sometimes support renewable energy (especially, offshore wind and purchasing hydroelectricity from Canada) but often block other climate bills. These are state-regulated monopolies, who should not be able to use ratepayer funds to lobby at the Statehouse. Utilities were cited by renewables developers as threatening delays in hook-ups if green energy firms took positions contrary to theirs, and their role in

regulatory agencies such as the DPU and PUC is reported to be one of frequently slowing climate change efforts. Climate action is necessary and inevitable, utilities and regulators need to lead on advancing ambitious action.

5. **Citizens and advocates need to understand the new discourses of delay** that are being utilized to undermine efforts to reach the state's ambitious climate action targets. These are far more subtle than outright denial of the existence of climate change.
6. **Narratives around the delaying efforts of powerful state-level actors can inform citizens and policy-makers.** The fossil fuel industry, primarily represented by the Massachusetts Petroleum Council, is a well-known opponent to climate policy. We identified other major obstructionist groups to climate action in Massachusetts who have received less public attention. These include real estate industry groups, the Associated Industries of Massachusetts, the Massachusetts Coalition for Sustainable Energy, and major utilities firms. Since ratepayers often unknowingly subsidize utilities' lobbying, the public has a strong interest in understanding how these companies wield such strong influence in the legislature.

Appendix: Data Sources

Testimony

In 2019 we compiled available lists of priority legislation from 2013-2018 related to climate and clean energy issues from four major environmental coalitions and groups in Massachusetts (Mass Power Forward, Environmental League of Massachusetts, Sierra Club - Massachusetts Chapter, and Clean Water Action). We used this bill list, along with companion bills from the other chamber of the legislature, as the sampling frame for our testimony analysis. We reached out to staff of the legislative Joint Committees handling these bills and visited each committee office repeatedly to request testimony. We were able to collect written testimony from outside actors on 39 of the 62 priority²³ pieces of legislation on which we requested testimony, with more testimony missing from earlier sessions. Additionally, we collected notes on oral testimony on 48 out of 62 pieces of legislation taken by InstaTrac, a private subscription service.²⁴ Taking written and oral testimony into account, we collected testimony on 53 of the 62 pieces of legislation.

Using this list, we systematically collected 877 positions (support, oppose, or neither) on priority legislation from written testimony and 569 positions on priority legislation from notes on oral testimony.²⁵

Of testimony opposing environmentalists (the smaller category), there was minimal overlap between the hearing notes collected by InstaTrac and the written testimony documents we received from legislative committees.²⁶ This suggests that both data sources (written testimony from committee files and oral testimony notes from InstaTrac) are patchy, and that there are significant areas of missing data. However, these gaps in the data appear random, and related more to operational shortcomings of committee procedures and InstaTrac staffing, than they are to any systematic bias.

Testimony was categorized based on what type of organization testified, what kinds of bills the testimony addressed, and whether or not the testifier spoke in an official or leadership capacity for the organization. We characterized testimony as supporting or opposing environmentalists' positions by comparing testifiers' positions on legislation with bill positions taken by the four statewide environmental organizations' priority bill lists.

²³ Earlier in the study we requested testimony on a larger body of testimony than the final testimony list. Of these, we received written testimony for 82 of the 116 bills we requested.

²⁴ Comparisons of InstaTrac notes with several available audio recordings of hearings revealed significant amounts of testimony missed entirely by Instatrac. We compared notes reported by InstaTrac with our own for three hearings in 2017, and an additional hearing in 2019. InstaTrac captured 63 pieces of testimony out of 131 pieces of oral testimony we transcribed from audio recordings of hearings. The absence was apparently random: there was no apparent bias in which testimony was missing. For those offering oral testimony, InstaTrac captured the main points of their testimony.

²⁵ Testimony by state legislators was not included in the study.

²⁶ For 81 pieces of InstaTrac oral testimony against environmental priority positions, only eight overlapped with our written testimony.

Lobbying & Legiscan

We scraped public records filed on the Massachusetts State Secretary website by lobbyists and their clients and employers. We searched through all interest group sectors listed for each year since 2005, recording each interest group, who it paid for lobbying and how much each year, as well as the activities registered by the lobbyists. For the years of interest to this study (2013-2018), the online records also contained lobbying positions (support, oppose, neutral) on individual bills, which we recorded. For the years 2011-2013, records were not tabulated by individual bill, and instead were grouped by the 'position' the lobbyist recorded — so a record might look like "H 123, H 2532, S 1289 - positive." Bill numbers were scraped from these records using a regex formula that encompassed multiple formats of bill numbers, such as "HB1234" and "House Bill 1234". During these years lobbyists also recorded a significantly higher number of lobbying positions per year than in the period 2014-2018, perhaps due to the less cumbersome reporting method. The change in density of records indicates that records from the latter period may underestimate the total amount of lobbying. To eliminate this bias we sampled 20,000 records from each year. Years prior to 2011 did not have complete records of lobbying positions.

We systematically cleaned this database to ensure that all recorded entities were referenced consistently throughout, correcting inconsistent spellings and, where applicable, renaming old records to reflect changes in the names of companies. This process resulted in a dataset containing 134,933 lobbying positions taken by 1,994 organizations on 16,911 bills and amendments in the three legislative sessions recorded. We paired this dataset with the legislative records maintained by Legiscan, which tracks the sponsors, votes, amendments, outcomes, and further information on every bill in the Massachusetts state legislature.

The subset of legislation analyzed here was generated by a keyword search of legislation from 2013-2018 of the following terms: "zero-emission" "power plant" "pipeline" "solar panels" "fossil fuel" "fossil fuels" "ratepayers" "carbon emissions" "energy storage" "greenhouse gases" "solar power" "net metering" "wind turbines" "natural gas" "energy efficiency" "global warming" "geothermal" "clean energy" "climate mitigation" "wind energy" "green energy" "solar energy" "renewable energy" "greenhouse gas" "climate change". This longer list of legislation was narrowed based on reading bill titles, summaries, and texts in order to remove bills not relevant to climate or clean energy and combined with the list of priority legislation from environmental groups, resulting in a total of 315 bills. These bills were then categorized by primary issue. Choice of primary issue was based on the bill title, bill summary, keyword search results, and finally each bill's actual text. These categories were created to track the primary purpose of the bill based on categories of interest, not to record all potential policy impacts. Finally, the list of bills and interest groups was narrowed to include only interest groups that lobbied on two or more bills in the subset, and bills that were lobbied on by one or more interest groups, resulting in a final list of 291 bills.

Coalitions were Identified using the InfoMap algorithm²⁷ on a network of support and opposition between interest groups compiled from lobbying records on 291 climate/energy bills. The organizations in each coalition are listed by centrality from top to bottom and left to right. Each coalition was assigned a name representative of the top interest groups in the cluster; note, however, that there are some discrepancies

²⁷ M. Rosvall and C. T. Bergstrom, "Maps of Random Walks on Complex Networks Reveal Community Structure," *Proceedings of the National Academy of Sciences* 105, no. 4 (January 29, 2008): 1118–23, <https://doi.org/10.1073/pnas.0706851105>; M. Rosvall, D. Axelsson, and C. T. Bergstrom, "The Map Equation," *The European Physical Journal Special Topics* 178, no. 1 (November 2009): 13–23, <https://doi.org/10.1140/epjst/e2010-01179-1>.

between the names given and the individual members. For instance, neither Associated Industries of Mass. nor Offshore Wind Mass. Llc are utility companies, but both ended up in the *Utilities* cluster.

The Infomap algorithm allows analysis of network structure at different resolutions. The resolution scales primarily with the Markov time; a higher Markov time describes a slower flow between modules (lower resolution) while a lower Markov time describes a faster flow (higher resolution). There is no necessarily correct scale at which to analyze a given network structure, so the decision is at least in part up to the researcher: which resolution(s) strike the best balance between detail and robustness? For this network we used a Markov time of 0.85, with the reasoning that this scale exposes coalitions that become lumped together at lower resolutions (primarily *Solar* and *Hydro & Wind*, which merge with *Social Greens*) while still maintaining relatively coherent coalitions overall. We removed three coalitions from this list with 5 or fewer members and a small number of lobbying instances.