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Straight out of Cape Cod: The origin of community choice aggregation and its spread to other states

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ABSTRACT

This policy history describes how community choice aggregation was created in Massachusetts by a small group of advocates and subsequently spread across the US. Twenty-one interviews with key participants, primary materials from government and personal archives, and newspaper articles were used to attribute and corroborate these events. A new finding is that community choice aggregation was created as part of electric sector restructuring efforts in Massachusetts in 1997, but that this new policy was barely perceived by many stakeholders in the larger restructuring process, and was included by legislators in response to advocates who organized local governments through direct democracy strategies. Kingdon's multiple streams approach provides a useful framework to understand how organizing by advocates led to successful passage of legislation in Massachusetts. The spread of community choice aggregation to other states occurred through organizing that combined advocacy with policy learning and emulation. CCA has since been adopted by more than 1800 local governments that represent more than 36 million people in six states. This article concludes by discussing the early outcomes, current status, and some prospective implications of community choice aggregation.

1. Introduction

How systems and markets work depends on the nature of the actors within them. Infrastructure is often described in terms of monopolies and economies of scale, but consumers can also band together to negotiate more favorable prices, services, and terms from suppliers. In the energy system, for example, industries, or groups of companies or cities, often negotiate together rather than separately.

Community choice aggregation (CCA) is a policy concept where a municipality aggregates residents and sometimes small businesses within their jurisdiction – or joins with other municipalities – to purchase energy from suppliers on behalf of their residents. The municipality essentially takes over energy procurement from the utility monopoly, which continues to deliver energy and charges the CCA for delivery. CCA goes by many different names in different states, such as municipal aggregation, community choice energy, and governmental aggregation. Two key features that distinguish CCA from other kinds of aggregation are that it can be initiated by a local ballot initiative or municipal officials, depending on the state, and individual residents can opt-out if they do not want to participate.¹ Depending on enabling legislation and motivations of the community, CCAs can provide a mix of services offered by retail and utility companies. CCAs are subject

to the same state-level utility regulation as companies serving similar functions, but unlike privately-owned retail providers or incumbent utilities, CCAs are subject to laws and norms that encourage transparency and accountability, such as open meeting and disclosure laws, elections of local officials, and/or ballot referenda.

Communities form CCAs to obtain cleaner and/or cheaper power than offered by the incumbent utility, and to establish local control. To do this, CCAs typically sign contracts to purchase energy from suppliers. Utilities still own the physical infrastructure and deliver the contracted power, i.e., act as 'wires' companies only. But established CCAs have also begun to expand into planning and building new local energy resources, piloting new services and rate structures, and engaging in local economic development. Many scholars point to CCA as a major new development in the energy system and a potential pathway towards greater energy democracy [2,3], energy transition [4], and public control [5], while others have expressed concerns about the effect of CCA growth on existing utilities, markets, and systems [see, for example, 6].

However, the rapid growth of CCA across the US in multiple states has gone relatively unnoticed in the academic literature until recently [7,8]. This is perhaps due to CCA's many different names,

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¹ Other states such as Connecticut, Maine, and New Hampshire developed opt-in aggregation laws earlier, which require residents to choose to join, but these did not lead to many aggregations if at all [1]. Aggregated power purchasing among municipalities specifically for government uses has been employed in both Rhode Island and Texas.

Population in cities and towns forming CCAs

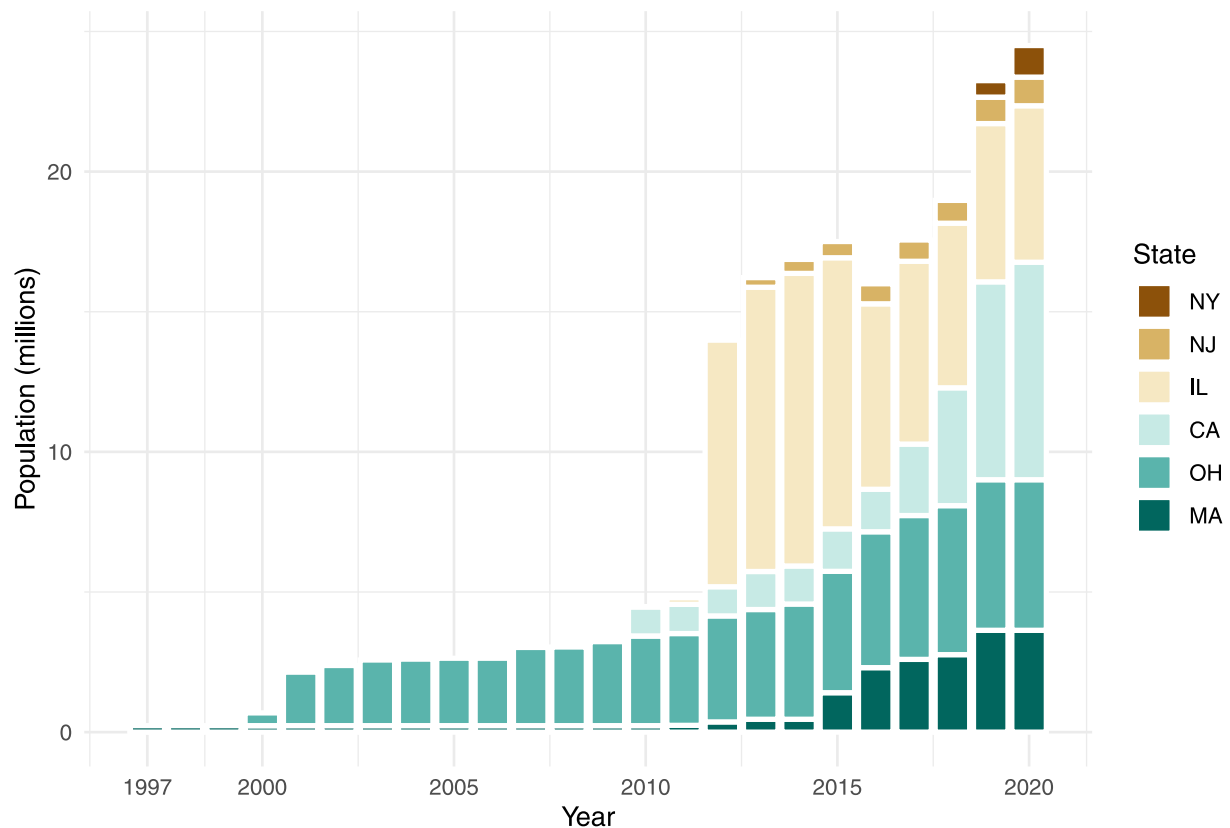


Fig. 1. Total population represented by municipal governments that have formed CCAs in the six states where there has been the most activity. CCA was first enabled by Massachusetts legislation in 1997; the considerable delay in implementation is discussed in Section 6. These figures are not adjusted for customers opting-out.

the fact that it is only enabled in specific states, along with most attention going to one state, California, where CCA has grown most rapidly [9]. As of October 2021, ten US states have passed legislation to authorize CCA. Rhode Island was the first to implement CCA in 1996, but virtually all CCA formation has occurred in six states that subsequently enabled CCA: Massachusetts, Ohio, California, Illinois, New Jersey, and New York. Three more states have recently passed legislation authorizing CCA but have not yet implemented it statewide (New Hampshire, Virginia, and Maryland, which is piloting it in one county). Seven more states are reportedly considering such legislation (Arizona, Colorado, Connecticut, Michigan, New Mexico, Oregon, and Washington) [10].

Based on public records through the end of 2020 [11–16] and 2019 census data (the best available at the time of this writing), in six states, at least 1892 municipalities have either formed or joined CCAs over the past 24 years. The total population living in the jurisdiction of these governments is more than 36 million people, or more than 11% of the total population of the US in 2019. Approximately 30 million people live in the jurisdiction of governments currently associated with CCAs. While this is a conservative estimate and the exact number will certainly continue to change,² the speeds and trajectories of CCA growth in each state, shown respectively in Figs. 1 and 2, are quite striking. Rapid growth in CCA formation reflects the broad appeal of the new concept, but also its flexibility in evolving to spread throughout the highly fragmented and regulated energy system of the United States.

² To avoid double-counting, I have excluded California counties which usually join to represent unincorporated areas, and gas aggregations, where both gas and electric aggregation are allowed.

This article is a policy history of CCA, beginning in Massachusetts, where the form of CCA that has been most successful was first developed. An important new finding is that CCA was barely perceived to be part of the legislation by principal actors in the electricity restructuring efforts; instead, on a parallel but largely separate track, advocates organized local governments through direct democracy efforts. Twenty-one interviews, government and personal archives, and newspaper articles corroborate the following narrative about how and why the idea of CCA was developed, enabled in legislation and regulations, implemented, and how it spread to other states. The next section introduces theory and methods to aid interpretation of the policy history. The body of this paper describes the background, organizing, and passage of CCA legislation in Massachusetts, as well as the advocacy and diffusion that spread CCA to other states. This paper concludes by considering the early outcomes, current status, and prospective implications of CCA going forward.

2. Theory and methods

2.1. Theory

John Kingdon is a political scientist who introduced the ‘multiple streams framework’ to studies of the policy process [17]. The metaphor of multiple streams indicates that many elements of the policymaking process are separate, meandering, and uncertain [18]. Kingdon’s framework defines three concepts very useful to interpreting this policy history: the policy agenda, policy entrepreneurs, and the policy window.

Kingdon’s framework focuses on ‘agenda setting’, that is, how issues reach the agenda of policymakers and are recognized as problems to be solved by policy. As Kingdon writes:

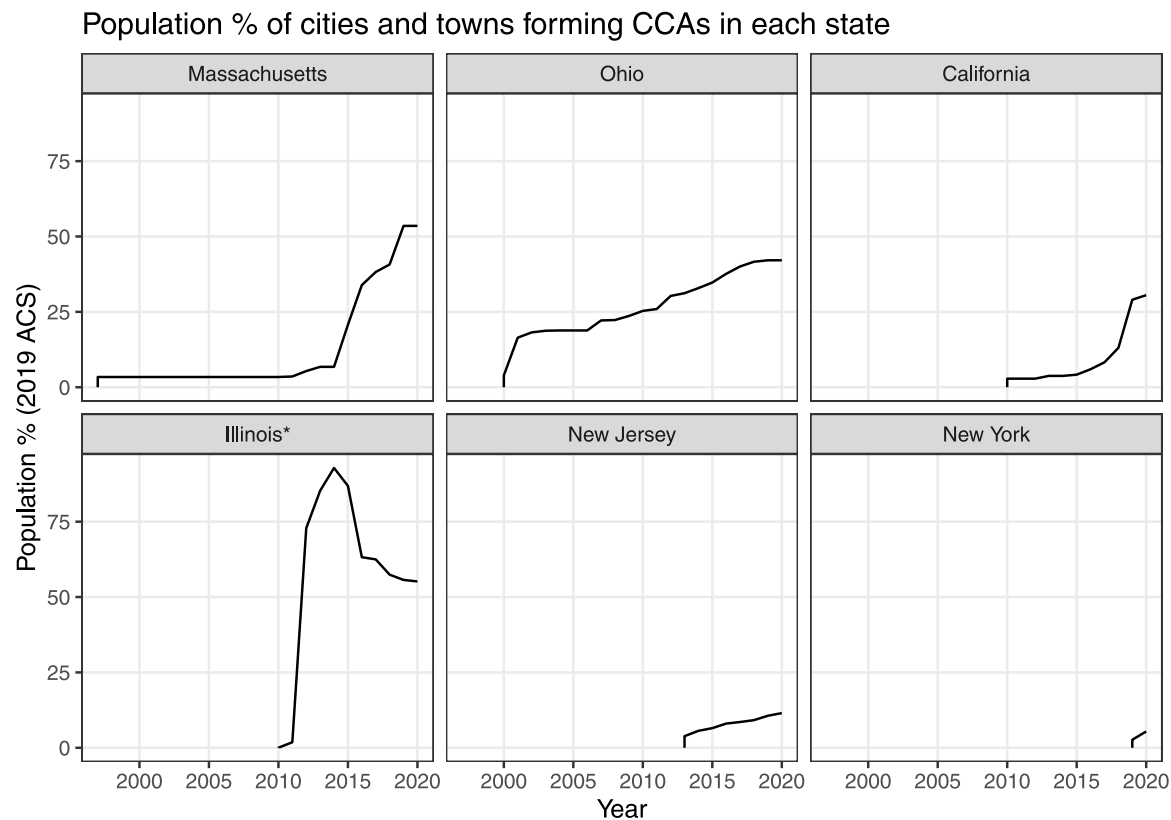


Fig. 2. Percentage of population forming CCAs in six states, based on total population from the 2019 American Community Survey. Asterisk (*) for Illinois indicates lapsed CCA contracts, which has occurred rarely in other states and is discussed in Section 7.3. These figures are not adjusted for customers opting-out.

The *agenda*, as I conceive of it, is the list of subjects or problems to which governmental officials, and people outside of government closely associated with those officials, are paying some serious attention at any given time. (author's italics, 3)

Implicit in Kingdon's theory is the view that multiple participants cannot pay full attention because of unclear priorities; competing interests; and limited time, attention, and information, what we now call 'limited bandwidth' [19]. In this uncertain environment, Kingdon identifies agendas as arising out of 'multiple streams' comprised of problems, politics, and policies. Problems may be recognized because of changes in indicators or metrics, focusing events such as crises, and feedback from constituents or other interest groups. Politics can be driven by changes in public opinion, organized interest groups, or the needs of politicians.

Kingdon is particularly open-minded about where policies can come from, arguing that "ideas can come from anywhere" (71) from what he calls a 'policy primeval soup' created by conversations between groups both inside and outside of government:

Many people have proposals they would like to see considered seriously, alternatives they would like to see become part of the set from which choices are eventually made. They try out their ideas on others in the policy community. Some proposals are rather rapidly discarded as being somehow kooky; others are taken more seriously and survive, perhaps in some altered form. But in the policy primeval soup, quite a wide range of ideas is possible and is considered to some extent. (121-2)

Advocates of proposals operate to bring the streams together by developing policies and waiting for the right moment, whether they come about from general recognition of a problem, a focusing event, or the needs of politicians. Kingdon calls these advocates 'policy entrepreneurs':

These entrepreneurs are not necessarily found in any one location in the policy community. They could be in or out of government, in elected or appointed positions, in interest groups or research organizations. But their defining characteristic, much as in the case of a business entrepreneur, is their willingness to invest their resources – time, energy, reputation, and sometimes money – in the hope of a future return. (122)

Finally, in Kingdon's theory, policies are actively discussed – and are only sometimes solved – when these streams come together in what he calls the 'policy window':

The policy window is an opportunity for advocates of proposals to push their pet solutions, or to push attention to their special problems ... these policy windows, the opportunities for action on given initiatives, present themselves and stay open only for short periods. (165–166)

The spread of CCA policy to other states is partly described by Kingdon's multiple streams approach, since the same group of policy entrepreneurs then deliberately went to other states aiming for the same policy agenda and window (electricity restructuring and legislation, respectively). But other than the first and the biggest states – Massachusetts and California respectively – this same group of advocates seem to have had less of a role in initiating or actively organizing the passage of CCA legislation in the other eight states that have enabled CCA.

Policy diffusion theories are useful to interpret the subsequent spread of CCA. Most other states seem to have adopted CCA by policy diffusion through organizational networks, learning, and emulation [20]. CCA provides some evidence for the idea that policy diffusion occurs between similar states [21], although in this case because states were in the similar situation of restructuring rather than because of their characteristics [22]. While singular past events make it difficult to

distinguish between these theories [23], the local control and benefits offered by CCA indicate that organizational networks, learning, and emulation all seem to be more likely explanations than coercion or competition between states. Policy evolution through diffusion, also known as reinvention, can happen at different speeds and for different reasons [24]. Finally, policy advocacy, entrepreneurship, and diffusion can complement one another [25]. Methods to analyze the historical nature and evidence about the origins of the CCA concept are discussed in the next section.

2.2. Methods

Historical methods are less often used in social science than interpretive or multivariate approaches [26], but this was the only way to explore the origins of the CCA concept since past circumstances could not be replicated [27]. To establish this policy history, I used an approach similar to 'snowball' sampling [28] to combine historiographic archival research [29] with oral history interviews [30]. I first scanned all available materials about enabling legislation for CCA in the state archives of Massachusetts and California, two states frequently discussed for their CCAs, including original legislative drafts, government memos, correspondence, and reports. I also scanned newspaper articles and public records both from the present and the time of legislative passage.

I then identified key individuals from these materials for interviews. All of the interviewees were offered different styles of attribution similar to the journalistic conventions of 'on the record', 'off the record', or 'on background', which were all explained to establish a common understanding [31]. On-the-record comments are quoted and attributed to individuals in the text, with dates and circumstances cited at the first mention of each individual. If these key individuals mentioned other people, I interviewed them as well, resulting in twenty-one total interviews that I recorded and transcribed. I also interviewed some people multiple times, and followed up with questions, recordings, or transcriptions in order to check for consistency, attribution, or to jog additional memories. Additional interviewees who provided useful background information and consented to be identified are thanked in the acknowledgments.

Debates over how to attribute past events and particular consequences to individual actions are closely related to anti-realist or post-positivist debates about the meaning of terms such as validity [32], quality [33], or trustworthiness [34] in qualitative research. As a practical matter, however, many validation methods seek to establish consistency between multiple sources and accounts while paying attention to methods and motivations, similar to corroboration in journalism [35]. The most common techniques include: triangulation between individual accounts, documents, and archival materials; respondent validation in the interview process, by asking multiple people about the same events and time periods to extract a consistent narrative, also known as "member checking"; and presentation of negative cases to explore possible alternative explanations [36].

The consensus account is reported below. For each of the key events and people discussed below, all aspects of the following narrative were checked with at least three and as many as seven other interviews, archival documents, and/or contemporaneous accounts, all indicated in the bibliography. Only one person's version of events differed substantially from the other twenty interviews [37], so portions that could not be verified with other people present are not included below [see, for example, 38,39].

3. The policy agenda: electricity restructuring in Massachusetts in the 1990s

On the cold and clear day of November 25, 1997, the governor of Massachusetts signed the Electricity Restructuring Act into law. Electricity had risen to the top of the policy agenda in Massachusetts

for much of the 1990s because of national changes as well as local concerns. Electricity restructuring loosely refers to many efforts in the 1990s to break up vertically-integrated utilities and introduce wholesale markets and retail choice into the electric power sector. Many groups viewed vertically-integrated electric utilities as standing in the way of increased competition, lower prices, and environmental goals. The energy crises of the 1970s had spurred widespread interest in energy efficiency, concerns about nuclear power, and increased conflict within state public utility commissions [40]. Federal policy changes such as the Public Utilities Regulatory Policy Act of 1978 and the Energy Policy Act of 1992 set subsequent state-led restructuring efforts into motion [41].

In Massachusetts, the state government, business groups, and labor all saw electricity as a major problem because of the state's persistently high prices, long-running disagreements over nuclear power, and reliance on aging, dirty coal- and oil-fired power plants. Academics at Harvard and MIT led research into electricity restructuring and privatization efforts around the world [42]. Many environmental, consumer, and low-income advocacy groups had already begun to pursue the legal strategy of intervening directly in rate cases. As a result, by the 1990s, many groups in Massachusetts were already discussing how to advance and defend their interests in any restructuring of the electric power sector.

William F. Weld was elected as a moderate Republican governor in the heavily Democratic state in 1990. Weld initiated discussion of reforming the electricity sector with an energy plan in 1993 "to secure a least-cost and environmentally sound energy future for the Commonwealth". [43, 1] Weld then convened an electricity task force between various interests in the state, including many groups opposed to restructuring [44]. Dave O'Connor [45], who worked for the governor, identifies Weld, business, and unions as the main advocates for restructuring:

The business community ... had had some experience in negotiating [power supply] contracts with the utility companies prior to restructuring to get lower prices and make longer-term commitments ... They had had enough taste of that to know that if they could be free to take competitive bids, they could get bulk power [in] large amounts at big savings. And so that was the singular piece of evidence that I think led [business] and Bill Weld to believe it was going to be beneficial ... [the business community] certainly formed a bedrock constituency in favor of this. Related to that were the unions, who believed that this would give rise to a spurt of new power plant building, a lot of jobs.

Two of the main stakeholders in Massachusetts had negotiated a separate deal to restructure the electricity industry next door in Rhode Island. The president of one of the state's largest utilities, John Rowe, and one of the leading environmental lawyers, Doug Foy, introduced the idea of a similar 'grand bargain' to Governor Weld in Massachusetts to avoid litigation and to develop a politically-feasible consensus [46]. Weld appointed Dave O'Connor to try to facilitate a deal between various stakeholders. O'Connor recalls:

[Weld] knew that as a Republican, filing a bill with the [Democratic] legislature would probably not be productive, it would not be very likely to get passed. So [Weld] wanted to see if he could use his executive authority to make this happen. I got those stakeholders together: we spent six months behind closed doors discussing, including utilities, unions, the environmentalists, independent producers, municipal representatives, and so on. We conceived of a plan for how to do this, which started with having the utility companies agree to give their customers choice of their competitive supplier. That was approved by the Public Utility Commission. And suddenly, there was this opportunity [for a deal between all of the stakeholders].

In the summer of 1995, the stakeholders reached agreement on implementing radical changes to the energy system, including but not limited to: utilities selling their generation assets, price cuts for consumers for a fixed period of time, the development of statewide energy efficiency programs, labor protections, protection for low-income communities, and the introduction of retail competition [47]. The governor then sent the deal to the Democratic legislature, which formed a committee to study the problem [48]. The legislature eventually preserved much of the deal but also codified many aspects into law when it passed the Act in 1997 [49].

However, not all legislators and groups in Massachusetts were happy with the outcome. Matt Freedman [50] was a law student at Harvard and a lobbyist for Public Citizen, a consumer advocacy organization, and recalls:

I was working with a bunch of Senate offices, the dissidents who were trying to push for alternative outcomes. We were fighting a running battle with the utilities on some of these issues, but it was impossible to win because the deal had already been cut by interested parties through a settlement process. Everybody was already pretty much locked in.

Other activists similarly felt left out of the process and called for repeal immediately after the passage of the bill [51].

However, in contrast to these other advocacy efforts, CCA was included in the final bill. It was not considered at the time to be a major feature of the bill: O'Connor and other staff members in the governor's office never took note of municipal aggregation (as CCA was called in Massachusetts) during the stakeholder negotiations [52]. When the governor's staff summarized the draft legislation, they only noted municipal aggregation in a few short paragraphs [53,54].

The mystery therefore is, how did CCA get into the bill at all?

4. The policy entrepreneurs: creating CCA on Cape Cod

Scott Ridley was working as a local journalist and consumer advocate when he joined the movement against nuclear power in the 1970s. With others, he formed an advocacy group to oppose expansion of the Seabrook nuclear power plant, forty miles from Boston [55]. As the expansion project went over budget, like many other nuclear projects at the time, the utility floated the idea of using municipal debt to finance construction. In order to oppose this plan, Ridley began to research the laws governing municipalities and utilities, and wrote about failing nuclear power projects for national magazines throughout the 1980s.

Ridley then teamed up with Richard Rudolph, a historian at the University of Massachusetts in Boston, to write about a book on nuclear power, but their research led to a broader set of issues. Rudolph [56] recalls:

Once we agreed to work together, I spent the summer going to the Library of Congress, to the National Archives, and did historical research ... We recognized that [there] is a much larger story to be told ... this debate [about the utility industry] has been going on for 100 years.

The resulting book was titled *Power Struggle: The Hundred Year War Over Electricity* [57]. Written for a general readership, the book describes the history of the electricity industry as a struggle between the public and private sector, and found a receptive audience with rural cooperative members, public power advocates, and anti-nuclear environmentalists.

As a result, by the late 1980s, Ridley began consulting on municipal franchises and municipalization. Municipal franchises are the laws by which municipalities allow utilities to operate on their property [58]. Municipalization is the process by which cities acquire ownership of the privately-owned utilities that operate within their boundaries. Ridley worked with the City of Chicago on its negotiations to revise its municipal franchise with its investor-owned utility, Commonwealth Edison,

but the efforts ultimately failed after the unexpected death of Mayor Harold Washington in 1987 [59]. Based on this experience and his prior book research, Ridley began thinking about developing a competitive alternative to traditional municipalization, because he thought that utilities would always oppose municipalization through political power and high costs. A utility industry-sponsored paper written at the time essentially reaches the same conclusions, though with a very different argument about why municipalization would be politically unfair [60].

After Chicago, Ridley returned to Massachusetts and resumed writing as a journalist about the prospects of utility restructuring and its implications for consumers [61]. Ridley says: "[I] kept the idea in mind, as talk began moving forward about more competition in the [electricity] industry a couple of years later. And I was back in Massachusetts at that time ... on Cape Cod, which has really high electric rates".

Cape Cod was where many of the ideas, people, and opportunities converged to develop CCA in the 1990s. Many small towns on the Cape were grappling with rapid growth and high electricity prices, along with the feeling that they were not receiving their fair share of energy efficiency funds collected from across the entire state [62]. Matt Patrick, as director of a local non-profit energy efficiency organization, and Rob O'Leary, as a local Barnstable County official, together had developed an energy plan for the county. Ridley met with them and began to discuss how the region might address high electricity prices. O'Leary [63] recalls:

The visionary guy here was Scott ... he had written the book on utilities and then he had been a reporter, and he'd been involved in this stuff. Matt was an activist ... I held elective office to help make it happen, so there was also that personal dynamic. But Scott had the sense of the system and what we could do. He understood what a utility did.

Ridley, O'Leary, and Patrick began calling legislators, including the chair of the legislature's Energy Committee, Mark Montigny, and his staff person, Paul Fenn. By early 1994 Fenn and Ridley were exchanging information about how to raise the idea of municipal franchising in the legislature [64]. Fenn shared lists of upcoming legislative priorities for the energy committee, and Ridley drafted model legislation based on what he had learned about franchising in other states [65,66]. Ridley testified that summer before Montigny's energy committee in the legislature [67].

The legislation was filed in 1995 as Senate Bill 447 for the "creation and operation of consumer service franchise districts" [68]. While not all of the bill's features were adopted in the later Electricity Restructuring Act, the legislation includes many key features that we now associate with CCA, including local determination by elected officials, public accountability, and enabling cities to pursue energy efficiency and 'green power' procurement [69]. The bill's key features clearly reflected Ridley's previous work in Chicago and Fenn's knowledge of the electric restructuring 'grand bargain' being negotiated at the same time elsewhere in Massachusetts [70].

Despite the work that Ridley and Fenn put into drafting the legislation, the Senate bill was given a study order, a mechanism often used to kill a bill, and no further action was taken [71]. Fenn left the Massachusetts state legislature and moved to California, though he continued to work remotely with Ridley and Patrick on their grants to spread ideas about CCA, local power, and municipalization through newsletters and conferences.

5. The policy window: organizing, passage, and spread of CCA

5.1. Organizing

The remaining group of advocates – Ridley, Patrick, and O'Leary – were not fazed by the bill's failure in the legislature. Ridley says:

It's always best to float some trial balloons and to lay out some basic principles and concepts. You don't expect a bill like that to pass, what you want to do is begin educating people, get people thinking about it, and getting people to raise the questions you'll have to face. You want to flush out all the questions, so that when you sit down to do the real piece, you know what the objections are, you know what the questions are that people have, and how various problems and concerns can be addressed.

This is very similar to Kingdon's description of how policymakers consider and discard new policy ideas.

In the summer of 1995, Ridley, Patrick, and O'Leary continued to advocate for the concept outside the legislature. As a result of the first bill, the Massachusetts Department of Public Utilities (DPU), the state's utility regulator indicated in a docket that it was willing to consider the concept of 'competitive franchises' [72]. The advocates kept talking about the concept in the local press, highlighting its potential to reduce electricity costs [73]. Patrick helped Barnstable County adopt an energy plan and organized discussions of what the county would do in the larger state restructuring process [74].

With restructuring rising on the Massachusetts policy agenda, the advocates organized a statewide coalition of municipalities and consumer groups; criticized the dealmaking happening behind closed doors mediated by O'Connor; and engaged legislators. The need to protect consumers appealed to many different groups. Ridley said:

There was an understanding that there had to be something for consumers here and there was a general mistrust of utilities and of [retail] marketing ... The argument that we need some consumer influence here was something that we fought hard for and that sank in. It was common sense that consumers need to have a platform.

The advocates also began to extend their policy entrepreneurship to put CCA on the policy agenda in other states. Ridley continued to write about the potential of 'competitive franchises' in national industry journals and organized his allies from the consumer advocacy community [75]. Ridley and Patrick worked together and with others to win grants from the Department of Energy's Urban Consortium to develop the idea of competitive municipal franchises [76], and hold conferences on the idea [77]. Looking back, O'Connor observes the following motivations at work for the advocates from Cape Cod:

These guys were [obsessed by] energy efficiency, like zealots. They saw an opportunity to do a much better job in energy efficiency than they felt [the utility] was doing. They felt that they were getting restricted by statewide policies, whereas they could craft something that was a lot more tailored to fit the Cape situation.

O'Leary and Ridley in particular began to organize at the local level among cities and towns, aided by the unique structure of local government in Massachusetts. Regions and counties in Massachusetts are fairly weak, while the state government and legislature have been concentrated for centuries in Boston. However, town meetings, a form of direct democracy has existed in New England towns since the 17th century. Any person can speak in a town meeting, and they allow small towns to experiment with new ideas and to communicate local desires to higher levels of government such as the state [78,79].

Direct democratic traditions in the form of New England town meetings enabled the advocates to organize cities and towns in Massachusetts. O'Leary would present non-binding resolutions in support of towns having the right to choose, which municipalities could endorse without any obligation [80]. O'Leary recalls:

It's good grass roots politics. That's how we did it. Town meetings were great forums to talk to voters directly about important stuff and get some resolutions. And once you had one of those in your pocket, you go around and get 10 of those, and you are off and running.

As the Cape towns began to pass resolutions, interest began to build across the state among legislators, municipal officials, consumer advocates, and environmental groups. O'Leary remembers that more suburban and rural areas across the state in particular resented Boston's dominance of state politics.

Not surprisingly, the utilities opposed the advocates' CCA proposals. O'Leary recalls: "The guy who ran the utility ... was dismissive of us. He was almost laughing as if, this is not going to happen, this is ridiculous, we're the utility, and this is our jurisdiction". But by dismissing the non-binding resolutions of the cities and towns, the utilities actually helped to build resentment, spark interest, and shore up support for the new idea. Later, as more municipalities became interested, utilities worked to undercut local support for the concept by offering new services in communities that they had previously ignored, such as energy efficiency programs to compete with the advocates' proposals.

There was also surprising resistance from those who the advocates initially thought would be their allies. Groups such as municipal associations, municipal light districts, and environmental groups all seemed concerned that the new concept would displace their roles in the existing system and often opposed the proposed legislation. Ridley said: "[They] were fearful of municipalities having greater jurisdiction over energy supply, [this was] much different politically than cutting deals and paying incentives to a small group of private utilities" [81].

5.2. Passage

The two streams of electricity restructuring and CCA finally converged in the policy window when the massive electricity restructuring bill was being developed by the legislature during 1996 and 1997, based on the prior deal facilitated by O'Connor.

Organizing by the advocates – Ridley, O'Leary and Patrick – among cities, towns, and their legislative allies resulted in CCA being included in the electricity restructuring under the cover of larger issues and during the legislative process [82]. The advocates managed to add key features that define what we now consider to be CCA, such as allowing municipalities to procure energy in the competitive market, and allowing individual consumers to opt-out, a provision that enabled CCA to gain support from more legislators. Another feature was giving municipalities back their access and control over energy efficiency funds that the state collects from all ratepayers. Patrick said, "A lot of people didn't think it would fly and they didn't want to jeopardize municipal aggregation by putting that in there. But [I] put it in, I wrote it myself ... maybe a couple of weeks before the bill was going to be voted on." [83].

Thus, when the governor's legal staff summarized key issues in the bill on the morning of the bill signing, they barely mentioned the CCA clauses that the legislature had inserted. The governor's lawyers wrote that "it is not possible in a brief memo even to mention, much less to discuss in detail, everything that this bill does." [84, 1-2]. One paragraph mentions CCA as similar to aggregation options for commercial and industrial users, which is also how the Boston Globe inaccurately described CCA in the newspaper the next day.

In short, CCA was enabled because Ridley, Patrick, and O'Leary organized at multiple levels, but most crucially among cities and towns. Their legislative allies inserted clauses about CCA into the bill either without any of the original stakeholders in the governor's negotiations objecting, or perhaps even noticing. The governor's staff and task force may have taken little notice of CCA either because the entire restructuring bill was too complex to notice this clause; or they saw other issues on the table as more important; or CCA was thrown in as a minor concession to appease less influential stakeholders.

6. Implementation in Massachusetts after 1998

The years after the electricity restructuring legislation in Massachusetts illustrated many of the obstacles that had to be overcome before the concept of CCA could become a functioning reality. While the Cape Cod cities and towns launched the Cape Light Compact as the first CCA in the United States in 1998, it took seven years after the legislation for the Compact to start serving power.

Ridley continued to consult with the Compact, while Patrick and O'Leary were elected to the state legislature. Maggie Downey, who began as a grant writer and is currently the administrator of the Cape Light Compact, recalls struggling with many obstacles after launch [85]. First, as part of the restructuring, the negotiated 'grand bargain' set a low default electricity price for a fixed period of time, known as the standard offer, which made it difficult for the Compact or any new entrant to compete. Second, power marketers were not interested in selling to a large aggregated load, which required Ridley to educate them through conferences and meetings. Enron later realized that CCA could reduce customer acquisition costs and began advocating for it in other states [86]. A third challenge was educating the regulators on how to apply rules to the new concept. These three interrelated problems kept the Compact in limbo for its first three years, but the Compact discovered a loophole in the restructuring legislation: the standard offer requirement didn't apply to 40,000 new customers who had recently moved into the area. Because the Compact could charge these new arrivals a rate that reflected the true cost of electricity, Downey says, "all of a sudden the Cape Light Compact could compete with default service".

Signing their first power contract with a power generator allowed the Compact to embark on their longstanding energy efficiency goals. Ridley developed an ambitious and localized energy efficiency plan to educate the general public; develop programs for low-income customers, businesses, and government agencies; and address new construction, appliances, and lighting. Through these programs, the Compact gave consumers incentives to pursue energy efficiency, enabled local control of energy efficiency funds, and recaptured savings that private utilities previously paid to their shareholders. Downey recalls the Compact immediately intervened in state-level policy discussions about divestiture of power plants on the Cape: "We objected, did the analysis and intervened, and we ended up saving [Cape] ratepayers about \$25 million dollars that would have gone to Cambridge customers".

Over the past 23 years, the Compact has won a number of awards for its energy efficiency efforts — which have reduced air pollution from local power plants, saved consumers "more than \$20.7 million annually on electric bills", and helped to build new local community solar resources. The Compact has recently begun an ambitious effort to electrify buildings fully with power and heat from renewable resources with storage [87]. Looking back, when O'Connor compares the Compact to the rest of the state, he says:

Nobody should get any more credit than the Cape Light Compact. Those guys labored in the vineyard for years, and they encountered setback after setback. [The utility] didn't want to help them, the [Department of Public Utilities] wasn't really that supportive ... Other people could have done it and just didn't. And I think it took a long time for municipalities to wake up to this. The Compact should get all the credit for being tremendous visionaries.

7. Spread to other states

Kingdon's theory describes the initial passage of legislation enabling CCA in Massachusetts well, but the subsequent spread of CCA was not the result of any single policymaking or diffusion mechanism as much as a combination of them.

On one hand, after initial passage of CCA in Massachusetts, three of the original advocates for CCA — Ridley, Patrick, and Fenn — all

continued to work as policy entrepreneurs in Kingdon's sense to spread CCA to other states. As in Massachusetts, they used restructuring debates happening throughout the 1990s and early 2000s as their policy window to introduce the idea of CCA to the policy agenda of other states. The three advocates wrote and traveled to other states to connect and testify about the new concept.

On the other hand, the spread of CCA follows many aspects suggested by the policy diffusion literature. Echoing theories that emphasize the role of epistemic communities and organizations in policy emulation and learning, Ridley said: "The idea was out there ... The attorneys that were working on utility issues, that read *Electricity Journal* and other things, they knew about what was going on". National associations for municipal governments such as the National Association of Counties and the International County and Municipal Association became interested. The American Public Power Association, the industry organization for publicly-owned (municipal) utilities helped to publicize the idea through an extensive and positive report on the new policy, which it called 'community purchasing' [88].

The spread of CCA therefore fits *both* Kingdon's theory of advocacy and diffusion theories, because the advocates deliberately mixed them in what they would probably call basic organizing. The CCA advocates deliberately targeted the same policy window in other states (electricity restructuring); sought to spread the idea through writing and direct communication; and it is likely that states learned from one another. Working with Ridley and Patrick, Fenn contacted municipal officials directly. "[I] created a database of a couple of thousand municipalities", Fenn said, "and then mailed a newsletter to all the city council members or town council or select board members in each town to educate them about electric restructuring and particularly about [aggregation] and about the need for it".

As a result of these efforts, Table 1 below shows that legislation enabling CCA swiftly followed restructuring efforts, spreading what was then an entirely new and unproven policy. As predicted by reinvention, or the idea of evolution through diffusion, key differences began to emerge in CCA legislation over time. Four of the states — Massachusetts, New Jersey, New York and California — allow elected officials of municipal governments to initiate aggregation efforts. Three other states — Ohio, Illinois, and Rhode Island — require voter approval through a referendum, which has had distinct implications for how aggregations have formed and/or have not been renewed over time [89]. Reasons for reinvention were not the focus of this research, but likely are the product of each legislature implementing restructuring differently.

The following short sections on Ohio, California, and Illinois present evidence about how advocacy and policy diffusion theories worked together in practice as CCA spread to more states.

7.1. Ohio, 1999

The advocates continued to spread the idea through national networks and regional conferences. Ridley said: "Ohio picked up on what was going on here [in Massachusetts]. Ohio always had a fairly active consumer organization and there was the network of national consumer advocates ... So the idea just got spread around".

Glenn Krassen [92], a lawyer who helped to set up the Northeast Ohio Public Energy Council (NOPEC), the first and still largest aggregation in Ohio, recalls how the advocates from Massachusetts helped to organize Ohio mayors, similar to their direct democracy efforts in Massachusetts:

The legislature started to discuss [restructuring] ... Someone from Massachusetts testified ... I think Matt Patrick ... A small group of elected officials in northeast Ohio [then] said we need to get some benefit for residential and small commercial customers because all the large guys are going to get something ... The mayors definitely spearheaded it ... [CCA] was not originally in the Senate bill [3, deregulation], so it was inserted as a bone for these northeast Ohio mayors.

Table 1

Electricity restructuring and CCA legislation, ordered by year of legislation enabling CCA. AB, HB, SB indicate Assembly, House, and Senate bills, respectively in each state. "PSC Case" is a public service (utility) commission order.
Source: [90,91].

State	Year of electricity restructuring	Year of legislation enabling CCA
Massachusetts	1997, Acts 1997, Chapter 164	1997, Acts 1997, Chapter 164
Ohio	1999, SB 3	1999, SB 3
Rhode Island	1996	2002, HB 7786
California	1996, AB 1890	2002, AB 117, SB 790
Illinois	1997, 2002*	2009, HB 362
New Jersey	1999	2009, AB 2165
New York	1997, 1999*	2016, PSC Case 14-M-0224
Virginia		2018, HB 1590
New Hampshire	1996	2019, SB 286

Others in Ohio recall learning of CCA from the Massachusetts legislation, though the eventual Ohio legislation took a simpler form [93].

NOPEC now serves more than 240 Ohio communities, 20 counties, more than 500,000 electricity and more than 400,000 natural gas customers. Reflecting on the twenty years that NOPEC has been operating, compared to Ohio's for-profit retail marketing firms and its oft-bankrupt utility companies, Krassen attributes NOPEC's success to its reputation and motivations:

[NOPEC] is not for profit, that's what differentiates us ... It's self-governed by the political subdivision members. We have very customer friendly products, you can leave without an exit fee for individual customers, and we're a safe choice. ... We may not be the lowest price at any particular month, but we are very competitive and we do a good job and people know that we're not going to rip people off. ... We've given like \$43 or 45 million in grants to our member communities. We have a PACE [property assessed, clean energy] loan program, where we have very low interest rates. We loan money for projects in our communities. We have sponsorship programs. We do consumer advocacy. ... Our whole reason to live is to basically do good things for our communities and our customers, which is a little different mindset than [our competitors].

7.2. California, 2002

California's adoption of aggregation legislation closely resembled the previous passage of aggregation legislation in Massachusetts in 1997. For good reason: after leaving his position as a legislative staffer in Massachusetts, Fenn moved to California in 1995 to get involved in politics, ended up forming a non-profit advocacy organization, and used many of the same advocacy strategies that Ridley, Patrick, and O'Leary were employing at the same time in Massachusetts. Patrick allocated grant money to support Fenn's efforts in California. Freedman, the Harvard Law student, moved to California around the same time to work as a ratepayer advocate and recalls: "[Fenn] was just fixated on the idea of municipal aggregation".

However, there was not much popular support for the concept in California, partly because it was new and still untested in Massachusetts, but also because the larger national environmental groups again saw other issues as more important. Alan LoFaso [94], a state legislative staffer when California was debating electricity restructuring in the mid-1990s, says:

Fenn tried to get aggregation into what passed as Assembly Bill 1890 ... My best recollection is that some minor environmental players were probably talking about [CCA], but I think that the main environmental players like Sierra Club and National Resource Defense Council who fashioned themselves as insider players, were probably much more focused on ... protecting energy efficiency programs and renewable generation programs.

The key difference for Fenn between California and Massachusetts was that he was now working as an outsider, rather than as a staffer. Fenn recalls:

In '95 [I] started to try to get the legislative committee handling deregulation to allow a CCA provision in the bill, and I couldn't get any traction and so I formed a coalition in opposition. It was the only coalition in opposition to AB 1890 ... I [got] Citizen Action, the PIRGs [public interest research groups], and Public Citizen. But that was it. All the other NGOs [non-governmental organizations] were on board [with the bill] or neutral. We lost the legislative battle, they passed the bill.

The policy window to pass aggregation in California came later, when Pacific Gas & Electric (PG&E) went bankrupt during the California energy crisis in 2001. Amidst widespread anger at PG&E, San Francisco again attempted to municipalize, but the measure failed in 2001 by less than 5000 votes amidst accusations of vote counting irregularities [95].

Around the same time as the ballot initiative discussions and the energy crisis in 2001, Carole Migden, then a member of the California state assembly from San Francisco, introduced a bill to enable CCA. Much as the Massachusetts advocates had intended when they first designed CCA legislation, Migden avoided suggesting acquisition of the utilities' transmission infrastructure, aiming instead for the lower bar of CCA formation. LoFaso, who was then chief of staff for Migden, said:

You can rationally characterize Assembly Bill 117 as an offering from a legislator representing San Francisco to respond to local desires for more community empowerment in the delivery of electricity, but without having to jump in the middle of a full-blown municipalization discussion ... [With] the political turmoil in the aftermath of the energy crisis ... [the utilities] were in a state of crisis, so their ability to kill things they found inconvenient was weakened. We knew that if we didn't do something as radical as take away their San Francisco transmission infrastructure, which they would fight like holy hell, there was clearly a political opportunity to act [with] this modest but meaningful municipalization-like policy.

Fenn built outside support for the measure, helping to draft legislation and coordinating with legislative staff, much as he and Ridley, Patrick, and O'Leary had worked together in Massachusetts seven years earlier. Letters supporting the bill came in from consumer advocacy groups, cities, and grassroots activists, organized in part by Fenn. Advocacy in the policy window helped pass CCA legislation, but as LoFaso said of the CCA concept: "[CCA] was still not a top-tier idea at the time ... in all candor, it was the merit of the idea carried the day".

Of all of the states where CCA has been enabled, California is closely watched because of its leading role in energy policy. Municipalities representing 27% of California's population have now formed CCAs [96]. CCAs in California have a wide range of goals, such as procuring renewable energy at lower or competitive prices, creating local jobs, enabling local control, and building new resources. The longest-running CCA, MCE (formerly Marin Clean Energy), has developed the most capacity: it is currently developing new utility-scale solar resources on brown-field sites with local job guarantees and broad support; participating

in statewide energy pilot programs; and integrating local distribution planning with transportation and land use planning [97]. The larger and long-running CCAs have established themselves as investment-grade counter-parties for long-term contracts to build new clean energy resources. But many newer CCAs remain relatively new and unproven. Western Community Energy recently became the first CCA to file for bankruptcy after less than two years of operation [98]. Meanwhile, CCAs continue to form throughout California due to customer desires for more clean energy than the state's utilities are currently providing.

Another factor in public support for CCAs in northern California is continued public disgust with PG&E. The massive utility again went bankrupt in 2019 partly due to wildfires, but was also convicted for the felonies of negligence in 2010 and involuntary manslaughter in 2020. San Francisco has again, now with other large cities, expressed interest in buying their electricity assets from PG&E and called for removal of the company from the generation business [99,100].

7.3. Illinois, 2009

As in other states, CCA was not the largest issue in Illinois' restructuring efforts, but was pushed by environmentalists and consumer advocates, and was seen as a minor concession to residential consumers. Unlike in other states, the utilities and municipally-owned systems didn't fight CCA, because the policy was introduced well after the divestiture of generation assets by incumbent utilities [101]. The Illinois legislature followed Ohio's CCA legislation, but also allowed municipalities to own generating assets.

With energy prices generally falling over the past two decades, CCAs entered the Illinois market offering lower prices and higher renewable content than incumbent utilities, which tended to have longer-term contracts to procure power. As a result, when CCA was introduced in Illinois as "municipal aggregation", it instantly captured most of the state. However, a few years later, when utilities signed new wholesale contracts at lower and competitive market rates, approximately half of the municipalities let their aggregations lapse [102,103]. Kari Lydersen [104], an energy journalist, summarizes these structural advantages and challenges for CCAs in Illinois:

There was a large surge in [CCAs] when there was a major structural price benefit versus the default ComEd and Ameren [incumbent utility] rates. You could save 30%–40% for your city without really doing anything ... [What's left now are cities] that want to achieve a greater environmental benefit for their residents by procuring 100% renewable power ... There is a missed opportunity with CCAs to actually lead in the development of new renewables, mostly because of limits of contract duration (typically 3 years). A 3-year [CCA] contract is not enough to build a new solar or wind farm.

8. Conclusions

This policy history reveals how CCA first started as an idea in a region of Massachusetts; how it was passed into legislation and then law using direct democracy strategies where other advocacy efforts failed; the considerable struggles to implement the idea into reality; and then how CCA was spread to other states. The CCA concept continues to grow and evolve within the energy system. CCA formation has markedly increased in the past five years, as seen in Fig. 2. Approximately half of Massachusetts cities and towns, and almost half of Ohio's and Illinois' populations, are currently in CCAs. In California, the state where CCA has gotten the most attention, more than a quarter of the state's population is now CCA. The majority of the population forming CCAs only formed them recently, but these case studies indicate some of the early outcomes, current status, and prospective implications for the future.

The reviewers of this paper asked what the outcomes and effects of CCAs are likely to be. But in order to evaluate this rigorously, we would

have to compare it to an alternative or counterfactual. For much of the last century, the only option has been utility monopolies. So while we might compare CCAs in California to PG&E, or in Ohio to FirstEnergy, Ohio's equally criminal and disgraced utility [105] — I would argue that creation of *any* alternative is fundamentally important, even if the future implications are not yet clear.

Formation of CCAs in multiple states proves that there is a widespread desire for local control of energy policy, utilities, and infrastructure. Rudolph and Ridley's historical research on utilities directly informed design of the new policy to create a less onerous path than municipalization for local governments to participate in the energy system. While previous scholarship correctly identifies why cities were excluded from the utility consensus [106], or struggled with ownership [107], the growth of CCA should point scholars towards investigating how CCAs might enable the framing of local policies, politics, and institutions towards necessary future energy transitions [108].

Furthermore, many of the interviewees and case studies argue that CCAs fulfill consumer needs that are clearly not being met by the current system. The basis of our academic and policy debates often rest on abstract beliefs about the role of various parties in the energy system. Some of the more egregious ones include: consumers make informed choices; regulators restrain predatory behavior and look out equally for all customers; or utility regulation responds to the public's interest in stable prices and cleaner energy. The case studies in this paper and much other academic evidence call these beliefs into question. CCAs, with their basis in democratically-elected local governments, are trusted to represent the interest of their residents in a way that other institutions and policies are not. I therefore suggest that scholars should investigate which institutions and ideas help build desired outcomes in a more pragmatic (Deweyan) sense [109], rather than assuming that desired outcomes will follow from particular ideologies. For example, CCAs and retail choice can perform similar functions, but retail choice has been thoroughly studied with less evidence of success [110] and many more abuses [111].

I also find it hard to evaluate at this early stage some of the other advantages of CCA, especially price. While most interviewees say that most CCAs have found relatively modest price advantages (less than 10%), there is limited academic empirical work on this [112,113]. Economists theoretically disagree about whether CCAs can offer any price advantage [114]. One place of clear advantage of CCA over retail is in customer acquisition costs [115]. To date, where CCAs have captured significant price savings, such as in Illinois, it was because they entered later in markets with declining energy prices — especially for solar — and these price advantages could not be maintained.

The establishment of CCAs as an alternative institutional form in the energy system still may lead to new possibilities and developments. More established CCA formations in Massachusetts, Ohio, and California have been able to remain cost-competitive while pursuing other local goals, such as building and procuring more renewable energy, promoting energy efficiency, and better coordination with local governments in planning, transportation, and economic development.

So far, CCA has fulfilled its original intention of providing an alternative path to build local knowledge, expertise, and capacity in the energy system while avoiding direct confrontations with utilities over municipalization. Features such as local democratic control of energy, the desire for cleaner sources of energy, combined with organizing at the municipal level, have all proven to be effective and are likely to continue to be so in the future. How CCAs mature, function, and compete within the larger energy system remains to be seen.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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