



# COMMUNITY CHOICE AGGREGATION

A Cost-Effective Policy Tool that Accelerates  
Competitive Renewable Power Addition and  
Carbon Reduction at Scale

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*Harnessing the Power of Communities*

## About LEAN Energy US

Local Energy Aggregation Network (“LEAN Energy US”) is a national 501(c)3 non-profit organization founded in 2011 dedicated to the accelerated expansion and competitive success of clean energy Community Choice Aggregation (“CCA”<sup>1</sup>) programs. LEAN Energy US aims to accelerate the country’s transition to clean and renewable power, support competition and customer choice in the energy sector, and maintain affordable electricity rates. Bringing clarity and direction to a complex arena, LEAN Energy US provides information resources and market expertise to a national network of local governments, commercial and non-profit organizations, advocacy groups and individuals wishing to pursue or expand CCA in their states and/or communities.

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<sup>1</sup> “Community Choice Aggregation” goes by several names depending upon the state, see Section 2.1

## Keywords

- Community Choice Aggregation (“CCA”) (a.k.a. Community Choice Electricity, Community Choice Energy, Community Energy Aggregation, Local Choice Energy, or Government Energy Aggregation)
- Retail Energy
- Renewable Energy Certificates (“RECs”)
- Voluntary Green Power Market
- Deregulation
- Power Procurement
- Distribution Energy Resource (“DER”)
- Power Purchase Agreement (“PPA”)

## EXECUTIVE SUMMARY

Community Choice Aggregation (“CCA”) is an energy supply model that enables local governments to determine default energy offerings on behalf of the residents and small businesses within their service territory. CCA communities are therefore able to choose and compete for the source and type of electricity supply provided to the local population.

Through a combination of interviews, surveys, focus groups, and publicly available data, this study evaluates and quantifies the market status and potential of CCA in accelerating competitive renewable power additions and carbon reduction goals. CCA programs serve more than 10.6 million electric customer accounts across 1,200 communities with a total annual load of almost 100 million MWh in 2022 (i.e., 7% of the US residential power consumption).

This study reveals that CCA is an efficient, equitable, and cost-effective policy tool for providing competitive pricing and renewable power to a large number of electricity consumers. As a community-based program, many CCAs have sparked the development of new and local renewable power, opt-out community solar, storage, wind and solar power facilities that can provide energy security for low-income and disadvantaged communities. CCAs have also enhanced transportation and building decarbonization. CCA initiatives are uniformly based on communities’ needs. While CCA is a scalable tool for state and federal agencies to reach their environmental, economic, and social targets, the study further documents the urgent need for support from such agencies. Specific study findings include:

### CCA success and impact to achieve U.S. government environmental goals<sup>2</sup>:

- CCA increases the amount of renewable energy on the grid.

E.g., California, Illinois, and New York had between 75% and 100% of CCA programs with default or optional 100% renewable energy offerings in 2020. Massachusetts and Ohio had approximately 30% of their CCA programs with a default 100% renewable energy offering.

- CCA lowers greenhouse gas emission.

E.g., CCA communities with renewable power offerings have lower CO<sub>2</sub> emission levels compared to what would have been produced using the default utilities’ energy products.

- CCA develops the U.S. (voluntary) renewable energy market.

E.g., CCA communities captured 60% of the entire U.S. voluntary green power market<sup>3</sup> in 2021, while CCAs represent less than 10% of the nation’s households.

- CCA enhances climate-oriented innovations that are scalable.

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<sup>2</sup> See examples of U.S. Government goals in Section 4.3

<sup>3</sup> Based on the total number of voluntary green power market customers.

E.g., CCA programs may include Community Distributed Generation, community solar, energy storage, demand response, eco civic prizes, building decarbonization, vehicle electrification, microgrids, etc.

**CCA success and impact to achieve U.S. government economic goals<sup>4</sup>:**

- CCA ensures energy price stability.

E.g., CCA programs have, on national average, offered lower and more stable standard rates than default utilities.

- Communities can save money with CCA.

E.g., CCA programs have provided on average 2-25% savings nationwide for their customers, compared to the default utility's rates.

- CCA is cost-effective.

E.g., communities can launch a standard CCA program with little to no funding resources from the community.

- CCA creates long-term job opportunities.

E.g., CCAs create between 3 and 80 new long-term job opportunities per program and support local workforce development for the construction and management of new clean energy developments.

**CCA's success and impact to achieve U.S. government social goals<sup>5</sup>:**

- CCA is a tool to empower low-income and disadvantaged communities.

E.g., through organizational design, meaningful outreach and engagement, and community investment, CCA develops programs that directly benefit low-income and disadvantaged communities.

- CCA creates local choice and empowerment.

E.g., any community that wants to create a CCA program can start the process, as long as it is enabled in their state.

- CCA is accessible to everyone.

E.g., anyone regardless of their income or understanding of the energy market, can participate in the CCA program of their community.

- CCA has a high level of community engagement.

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<sup>4</sup> See examples of U.S. Government goals in Section 4.3

<sup>5</sup> Ibid.

E.g., many CCA communities have a robust customer service and education plan, support and/or participate regularly in community events, and form advisory committees to act as a liaison between the CCA and the community it serves.

- CCA can offer higher consumer protection benefits than alternative suppliers and some utilities.

E.g., CCA leverages standard terms and conditions that include fraud protection, ability to opt-out, price stability, and transparency.

- CCA provides a high level of customer satisfaction and participation.

E.g., on average, 85-95% of eligible customers participate in a CCA program, with participation rates as low as 70% and as high as 96%.

The study also identifies CCA communities’ primary challenges and provides guidelines to accelerate the adoption of competitive renewable power and Justice40 goals.

BARRIER	SOLUTION
Regulatory challenges	State agencies that choose to regulate CCA programs and communities that deploy them, must proactively educate themselves on the CCA market in order to create regulations that are consistent with CCA communities’ needs and potential. Such agencies need to make their regulatory process efficient, more transparent, and more equitable for CCA.
Inability to access electricity customers’ data	Local communities need direct, timely, and accurate access to default utilities’ customer data at an early stage of their project in order to adequately develop their CCA program. The industry would benefit from a program equivalent to the Green Button, but with custom features for CCAs. The DOE Green Button program requires utilities to share meter interval data with electricity customers. This program should be revised to require participating utilities to provide available interval data for customers participating in CCA programs.
Lack of access to RECs <sup>6</sup>	CCAs should be encouraged and allowed by regulators to spark the development of new renewable generation in ways that change their position from buyers to sellers.
Lack of state and federal funding resources	State and federal agencies are invited to consider CCA as a powerful procurement structure when funding opportunities arise. Agencies should list CCAs as eligible institutions in appropriate funding opportunities and encourage all applicants to partner with CCAs.
Difficulties to enable CCA in new states	Implement legislation enabling CCA (and partial or full competitive electricity supply) markets in all US states.

<sup>6</sup> See glossary.

The study also determines that CCAs are evolving mechanisms which, depending upon local context, may produce different levels of outcomes and success towards competitive renewable power additions and carbon reduction goals.

- **CCA 1.0:** Competitive power bidding and consumer protection for aggregated residential and small commercial loads to retail suppliers under short term retail contracts. Option for customers to add renewable power.
- **CCA 2.0:** CCA 1.0 + Minimum requirement for a percentage of renewable power in retail contract and option for 100% renewable power.
- **CCA 3.0:** Several CCAs join forces and leverage their combined buying power and power demand to carve out a portion of the load for longer term contracting including local and remote renewable PPAs, energy efficiency, etc.
- **CCA 4.0:** Several CCAs join forces to purchase fully renewable energy, comprehensively integrate DERs and PEVs, engage local distribution utility to govern distribution system decisions that are consistent with communities' CCA implementation plans, and to potentially build joint distribution infrastructure.

BENEFITS	CCA MODEL			
	CCA 1.0	CCA 2.0	CCA 3.0	CCA 4.0
Protection of consumers against third-party predatory practices	✓	✓	✓	✓
Protection of consumers against price fluctuation	✓	✓	✓	✓
Aggregation of customers to secure lower cost power	✓	✓	✓	✓
Bi-lateral renewable power procurement at competitive rates (with/without RECs)		✓	✓	✓
Various types of RECs to support new remote/local renewable power plants		✓	✓	✓
80 to 100% renewable energy		✓	✓	✓
Drive the construction of new remote and/or local renewable power plants			✓	✓
Empower communities to decide on the type and location of power			✓	✓
Community animation in the market			✓	✓
Large amounts of local renewables and storage				✓
Full EV integration				✓
Joint utility distribution planning to prepare the grid				✓
Real-time dispatch of local resources to stabilize the grid				✓
Scaled virtual power plants				✓
Energy shed creation and analysis				✓

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## 1 Introduction

Communities are currently challenged by the lack of viable, replicable, and equitable structures for residential and small commercial electricity customers to engage in the U.S. renewable energy market. Meanwhile, Community Choice Aggregation (“CCA”) is one of the most powerful policy tools a community can use to drive systemic transformation, with particularly profound potential in the electricity sector.

CCAs are a community-driven tool that enables bottom-up electricity transformation. With currently 10.6 million customers across eight states, CCAs allow local governments to purchase and/or develop power on behalf of their residents and businesses. In 2022, approximately 100 million megawatt-hours (MWh) of electricity was procured by CCA communities. Communities that participate in CCA programs negotiate their source of energy generation, use bulk buying power to decrease energy costs, spur the development of local renewable energy resources and local clean energy jobs, ensure energy price stability and transparency, while accelerating the transition to renewable energy with every initiative. CCAs work in partnership with the region’s existing utility –at a minimum, they require cooperation from the local utility. Generally, the CCA buys the power, and the utility continues to deliver it, maintain the grid, and provide consolidated billing.

Despite CCA success in eight states, and with several states considering enabling legislation, CCA remains an unknown concept to many federal and state regulators. Local Energy Aggregation Network (“LEAN Energy US”) is a national nonprofit organization specializing in the growth of CCA programs. In service of this objective, LEAN Energy US has developed an extensive database and expertise on CCA markets across the U.S. This study sheds light on the emerging value and potential of CCA in empowering local governments to reform energy sector governance and markets while working with local utilities to decarbonize the electricity grid. Methodology includes a combination of stakeholder interviews, surveys, focus groups, and online data. This research demonstrates the potential of CCA in addressing the U.S. government’s objective of carbon-free electricity generation by 2035. It documents the potential to underpin an equity-driven transition to a net zero emissions economy by 2050.

Specifically, this report focuses on how CCA can accelerate competitive renewable power additions and carbon reduction goals on a state and national level. This study first introduces the background and policy context surrounding CCA markets in Section 2, followed by a summary of the research methodology in Section 3. Section 4 focuses on the market status of CCA across the U.S. and its growth potential in addressing state and federal agencies’ objectives. This report also analyzes the major challenges that CCA stakeholder groups encounter, and it proposes a strategy, paired with guidelines, for state and federal agencies to follow.

## 2 Background & Policy Context

Understanding the context in which CCA has evolved is a prerequisite to evaluating the market status and potential of CCA. Hence, this section provides background information on CCA in the U.S. energy policy sector.

### 2.1 Understanding the Basics of Community Choice Aggregation

Community Choice Aggregation (“CCA”) –also known as Community Choice Electricity, Community Choice Energy, Community Energy Aggregation, Local Choice Energy, or Government Energy Aggregation<sup>7</sup>– is an energy supply model that enables local governments to determine default energy offerings on behalf of the residents and small businesses within their service territory. CCA communities are therefore able to choose the source and type of electricity supply provided to the local population. The default electricity supply is no longer the local investor-owned utility’s (“default utility”) responsibility (see Table 1). Instead, the community chooses alternative energy suppliers to source the new default electricity supply. The default utility however remains responsible for delivering power, maintaining the grid, providing consolidated billing, and other customer services. As opposed to municipal utilities where the community is responsible for generating, transmitting, and distributing its own energy, a CCA model requires much fewer responsibilities and resources.

Table 1. Comparison of responsibilities in a default utility, CCA and municipal utility power supply model.

<i>Parties responsible for...</i>	<b>Default utility power supply model (Traditional)</b>	<b>Community Choice Aggregation power supply model</b>	<b>Municipal utility power supply model</b>
Purchasing power for residents and small businesses	Utility	Community through an alternative energy supplier (usually with the help of a consultant or external program administrator)	Community Utility
Maintaining transmission lines for residents and small businesses	Utility	Utility	Community Utility
Distributing electricity to residents and small businesses	Utility	Utility	Community Utility
Billing residents and small businesses	Utility	Utility	Community Utility

<sup>7</sup> Each CCA-enabling state may refer to this model differently. The term “Community Choice Aggregation” is the most commonly used across the US. In order to avoid any confusion, the term “CCA” is used in this study to refer to Community Choice Aggregation, Community Choice Electricity, Community Choice Energy, Community Energy Aggregation, Local Choice Energy, Government Energy Aggregation, or any other synonyms.

As mentioned by the U.S. Environmental Protection Agency, “CCAs are an attractive option for communities that want more local control over their electricity sources, more green power than is offered by the default utility, and/or lower electricity prices.” By buying power in bulk and aggregating demand, communities gain leverage to negotiate better rates with competitive suppliers and choose greener power sources, which leads to an increased demand for renewable energy resource development (U.S. EPA, 2022).

CCA is a voluntary energy procurement program chosen by the community to provide electricity by default. In order to ensure a higher participation rate, eligible customers<sup>8</sup> are automatically enrolled in a CCA program. In most cases, customers may opt-out of the program at any time at no cost<sup>9</sup>. Given the “opt-out” nature (i.e., automatic enrollment) of CCA programs, most CCA statutes require program administrators/communities to undertake a thorough outreach and education process to familiarize residents and businesses with the program, prior to the start of the program.

The required steps to create a CCA program vary depending on local context. In general, the state must first approve CCA through a regulatory or legislative process<sup>10</sup> (see Table 2) to provide legal ground rules for the development of a new CCA market. Once the state has approved CCA, interested local governments pass a local resolution to authorize a CCA program. In some states, a community may be required to hold a referendum to start or join a CCA program, while in other parts of the country, local elected officials authorize participation in a CCA by a simple majority vote. After passing a local CCA resolution, the community optimally prepares a CCA implementation plan<sup>11</sup>. Given the expertise required to draft a CCA implementation plan, most local governments partner with external consultants, brokers, and/or program administrators. The implementation plan is then sent to a state utility agency for simple filing, or for review and approval. Once approved by the state utility agency, CCA communities are able to shop for alternative energy suppliers through a Request for Proposal (“RFP”) process. Some CCAs also hold procurement processes for developers and owners of renewable energy projects to propose contracts. CCA contracts vary from a standard power supply contract to a Power Purchase Agreement (“PPA”). Standard contracts usually last between 1 and 5 years and are procured through a third party in charge of purchasing the electricity for the CCA’s territory. PPAs can last up to 25 years and allow CCAs to buy power directly from the supplier. Hybrid versions of these two models include a standard power supply contract and one or multiple PPA(s).

Some CCA programs are launched as a collaboration of communities, others are uniquely designed for one community. CCA communities in fully deregulated energy markets<sup>12</sup> will typically hire a consultant or program administrator to facilitate the development and management of the program, however some may decide to fully manage the program on their own. Third-party consultants and administrators are usually paid per kWh through the

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<sup>8</sup> Eligibility for CCA customers may vary by state. In most cases, eligible customers are electricity customers that are contracted with the default investor-owned utility, within the CCA community territory. Electricity customers who are already enrolled with an alternative energy supplier may not be eligible for automatic enrollment in a CCA program; they may however be able to opt-in. In most cases, large electricity customers (e.g., energy-guzzling businesses) are not eligible for CCA.

<sup>9</sup> In California, CCA customers are charged with a low exit fee after a certain period.

<sup>10</sup> The states of California, Illinois, Maryland, Massachusetts, New Hampshire, New Jersey, Ohio, Rhode Island, and Virginia have enabled CCA through a legislative process. The state of New York has a regulatory approval process.

<sup>11</sup> In many, if not most, cases these are required.

<sup>12</sup> Fully deregulated markets allow third-parties other than default utilities to own, generate, and transmit power.

electricity supply contract between the supplier and community. This method allows communities with limited financial and/or staff resources to still be able to create a robust CCA program. A group of local governments developing one CCA program together may otherwise form a consortium/service organization of participating communities or a Joint Powers Authority/Agency (“JPA”). The last approach is favored in California and New Hampshire because it creates a legal firewall between the potential future liabilities of the JPA and the assets of its member municipalities, especially with the incorporation of PPAs.

## 2.2 Historical Context of Community Choice Aggregation

CCA was first established by law in Massachusetts in 1997 as part of a broader legislative change. The state deregulated its entire energy market in a combined effort to create a competitive energy supply market that would lower energy costs for consumers and allow for consumer choice alternatives (Back Bay, 2023). The statute included provisions for the development of local electricity choice through CCA. The states of Ohio, Virginia, California,<sup>13</sup> and Rhode Island followed a similar approach shortly after, succeeded by Illinois, New Jersey, New York,<sup>14</sup> New Hampshire, and most recently Maryland in 2021 (see Table 2). The states of Arizona, Colorado, Michigan, New Mexico, and Pennsylvania are currently actively investigating ways to establish CCA (see Figure 2).

Table 2. Chronology of CCA-Enabled States in the United States

CCA-Enabled State	Year Established	Enabling Statute	Number of active CCA communities	Number of active CCA customer accounts
Massachusetts	1997	<u>Acts 1997, Chapter 164</u>	144	1,130,000
Ohio	1999	<u>Senate Bill 3; Senate Bill 221</u> (2007)	354	2,300,000
Virginia	1999	<u>Senate Bill 1269</u>	0	0
California	2002	<u>Assembly Bill 117; Senate Bill 790</u>	218	5,862,000
Rhode Island	2002	<u>House Bill 7786</u>	7	100,000
Illinois	2009	<u>House Bill 362</u>	379	734,000
New Jersey	2009	<u>Assembly Bill 2165</u>	1	33,000
New York	2016	<u>Case 14-M-0224</u>	101	352,000
New Hampshire	2019	<u>Senate Bill 286</u>	14	78,000
Maryland	2021	<u>House Bill 768</u>	0	0

With California as a noted exception, the CCA structure currently only works in states that have liberalized electricity markets. Semi-deregulated or fully deregulated electricity

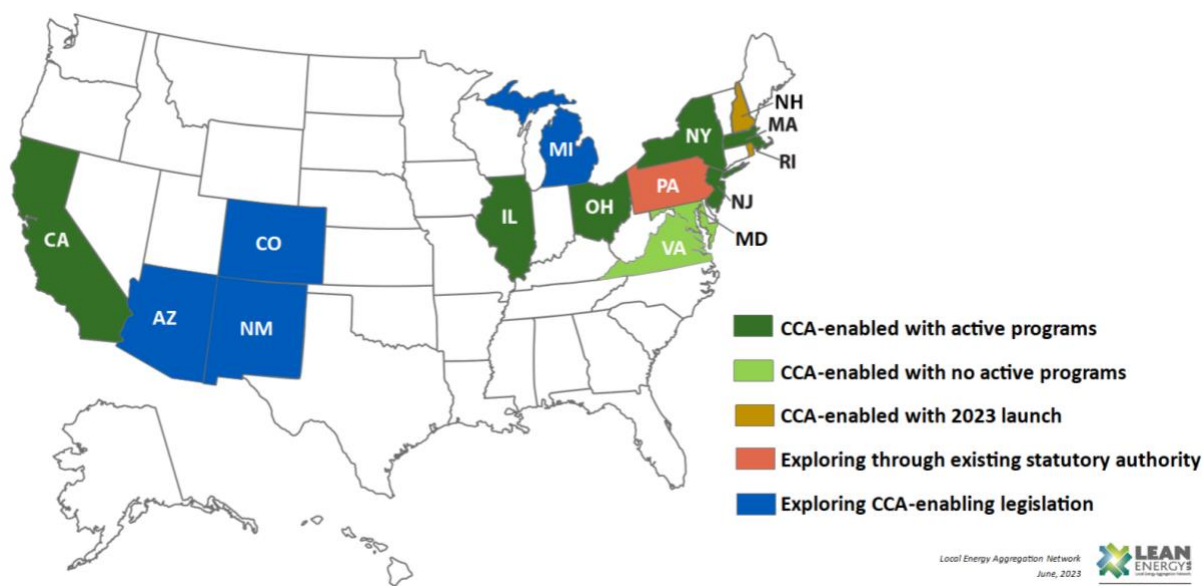
<sup>13</sup> The state of California does not have a fully deregulated electricity market. The market is only deregulated for CCA.

<sup>14</sup> Compared to nine states that enabled CCA via a legislative process, the state of New York established CCA via a regulatory process.

markets allow for competition in a market overseen by a regional transmission organization (“RTO”) or an independent system operator (“ISO”). In other words, alternative suppliers, transmission, and generation companies can fulfill the default utility’s role of providing electricity for the population. On the contrary, vertically integrated states (i.e., regulated electricity markets) have regional monopoly utilities that cover the entire value chain with oversight from state regulators (Coho, 2023; ACCES, 2023). There is, as of now, no opportunity for competition and electricity choice in such structures.

While CCA emerged in the late 90s/early 2000s, the model started to gain popularity in the 2010s (Gattaciecce et al., 2017). Since then, CCA markets have rapidly evolved (O’Shaughnessy et al., 2019), forming a variety of models available for a large group of stakeholders (see Section 4).

Figure 1. Map of CCA-Enabled States and Exploring States as of June 2023.



While most –if not all– CCA communities work under an opt-out structure (i.e., eligible customers are automatically enrolled into the program), this structure has not always been the case. For example, the state of New Jersey first established CCA under an “opt-in” structure. In other words, communities were not allowed to automatically enroll their residents and small businesses, customers had to opt into the program by themselves. The initial New Jersey system was found ineffective as the participation rate remained low. The automatic enrollment of all customers within the CCA’s service territory, except those who opt out or are ineligible<sup>15</sup>, allows a CCA to easily reach the critical mass necessary to attract suppliers, achieve competitive pricing and succeed as a community-based initiative. The state of New Jersey changed requirements to allow for an opt-out provision for residential customers. CCA-enabled states tend to limit the opt-out provision to residential customers and small businesses; large commercial and industrial accounts are asked to participate in a CCA program through an opt-in process.

<sup>15</sup> A variety of customers may be ineligible for automatic enrollment into a CCA program, depending on state regulations. For example, customers that have already contracted with an alternative energy supplier on their own cannot automatically join a CCA program.

### 3 Research Methodology

Through a combination of interviews, surveys, focus groups, and publicly available data, this study aims to evaluate and quantify the market status and potential of Community Choice Aggregation in accelerating competitive renewable power additions and carbon reduction goals.

Results are based on a large quantitative and qualitative dataset compiled between September 2022 and May 2023. In an effort to address the lack of a centralized database for CCA markets, LEAN Energy US also designed a regularly updated interactive CCA map<sup>16</sup> of all active CCA communities as well as an extensive CCA database. Based on key metrics that constitute the environmental, social, and economic features of CCA markets, LEAN Energy US' CCA database is comprised of the following datasets:

- Number of CCA customers
- CCA participation rate
- CCA service rate (compared to the default utilities')
- % of CCA savings
- Reported CCA sales (total annual supply in MWh)
- Reported CCA renewable sales (total annual renewable supply in MWh)
- Quality/Quantity of the Renewable Energy Certificates ("RECs") purchased via CCA
- Quality/Quantity of PPAs contracted through CCA
- % of CCA customers in U.S. voluntary green power market
- Number of new-built renewable power plants through CCA (in MWh)
- Hours of community education
- Types of community engagements
- Number of jobs created through CCA
- CCA carbon reduction rate
- Types of innovative programs created through CCA

The comparative and state-by-state study that is detailed in Section 4 of this report includes data analyses based on, among other criteria, the above-mentioned metrics.

The research team first utilized a systematic approach to collect information from websites of CCA program administrators, local organizations, and state agencies, as well as state and national agency records, utility reports, and past studies/reports related to CCA.

Auxiliary information was collected through the distribution of online surveys to 582 CCA communities, suppliers, and program administrators. The survey questions were tailored to each state with active CCA programs and focused on the following metrics: number of customer accounts, participation rates, types, sources, and prices of renewable energy products, MWh of electricity procured, customer savings, benefits of CCA programs, challenges, opportunities for additional projects, community engagement, and social impact.

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<sup>16</sup> LEAN Energy US' interactive CCA map may be retrieved at <https://www.leanenergyus.org/cca-by-state>

The response rate<sup>17</sup> varied from state to state: 58% in California, 57% in New York, 16% in Illinois, 14% in Massachusetts, and 0% Ohio. The surveys were not sent to CCA groups in Maryland, New Jersey, New Hampshire, and Virginia as there were none to 1 active program there at the time the survey was distributed.

In addition to publicly available data and online surveys, the research team organized two focus group sessions in March 2023 with CCA program administrators and suppliers from California, Illinois, Massachusetts, New York, and Ohio. The first discussion was designed around the topic of CCA Community Engagement and Social Impact. More precisely, participants were invited to discuss community outreach and education efforts, benefits of CCA in communities, and access for disadvantaged communities. The second session focused on CCA future growth, power procurement processes, regulatory, legislative, and financial hurdles, as well as customer base growth or attrition.

The team also conducted 10 individual interviews with CCA suppliers, program administrators, and advocacy groups from California, Illinois, Massachusetts, New York, New Jersey, Ohio, and Rhode Island. Each interview was an opportunity to gather in-depth information and context on the status of local CCA markets.

The subsequent quantitative and qualitative data collected throughout the research process was analyzed to identify key factors and trends related to the social, economic, and environmental impact and potential of CCA.

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<sup>17</sup> Since some survey participants represented more than one CCA community (e.g., CCA program administrator), response rates are calculated according to the total number of CCA customers per survey participant.

## 4 Community Choice Aggregation: An Impactful Energy Policy Instrument

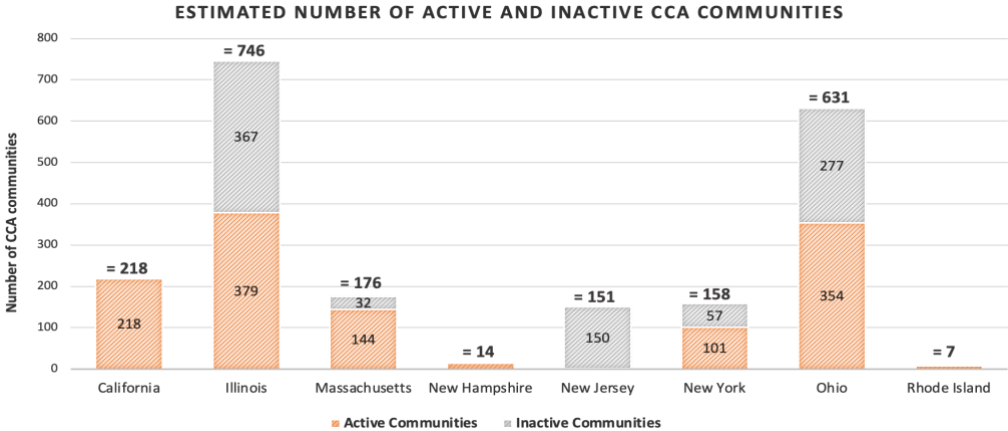
Through a combination of stakeholder interviews, surveys, focus groups, and online data, this section demonstrates the potential of CCA in accelerating competitive new renewable power development and carbon reduction goals across the U.S. Based on a general analysis of the current CCA market status in Section 4.1, Section 4.2 investigates the CCA market of each state in empowering local governments to reform energy sector governance and markets. Section 4.3 focuses on the emerging potential of CCA in addressing the U.S. Government’s environmental, social, and economic goals in the energy sector. Finally, Section 4.4 addresses the main challenges that CCAs face and provides best practice guidelines for state and federal agencies.

### 4.1 National CCA Market Status

Depending upon the state, a CCA program may include one or several participating communities. In order to avoid confusion and misleading results, this report focuses on the number of CCA communities instead of the number of CCA programs. Such communities may represent counties, cities, towns, townships, or villages.<sup>18</sup>

As of June 2023, it is estimated that 2,076 communities across the U.S. had local authorization to participate in a CCA program. At the time of this study, approximately 1,218 of these communities were part of an active CCA program and 858 were inactive<sup>19</sup> across California, Illinois, Massachusetts, New Hampshire, New Jersey, New York, Ohio, and Rhode Island (see Figure 2). Their exact locations can be retrieved on LEAN Energy US’ interactive map. The number of active and inactive CCA communities tends to fluctuate in deregulated markets, in part due to regulatory restrictions and unpredictable utility price fluctuations, particularly in Illinois, New Jersey, and Ohio.

Figure 2. Estimated number of active and inactive CCA communities in the U.S. as of June 2023.



<sup>18</sup> Unincorporated areas are not considered as single local governments in this analysis.

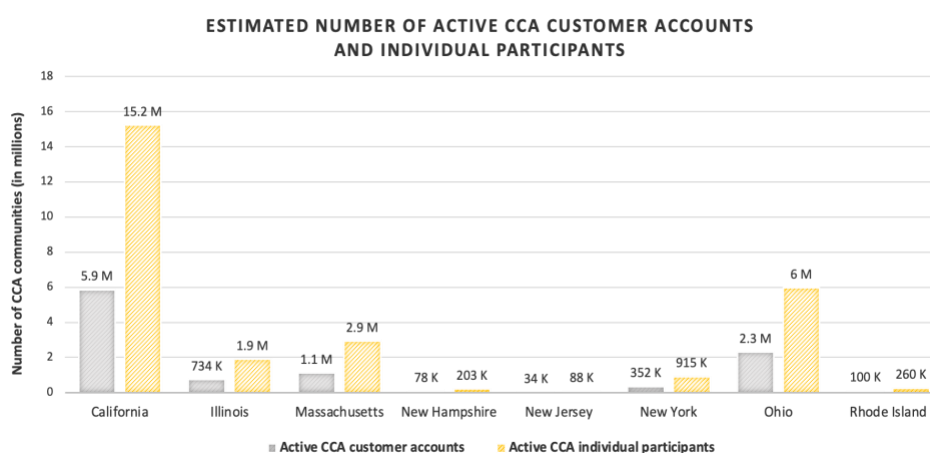
<sup>19</sup> Active CCA communities have at least one CCA contract in place that has not yet expired. Inactive CCA communities have authorized CCA locally but no longer (never) have (had) a CCA contract in place.



CCA programs have thus far been developed in counties, cities, towns, townships, and villages. Interestingly, a 2023 study by the University of Massachusetts Amherst found that smaller sized local governments (e.g., towns) tend to prioritize “reduced rates” when implementing a CCA program, while larger communities (e.g., cities) are primarily motivated by “higher renewable energy levels” (Vicarelli et al, 2023).

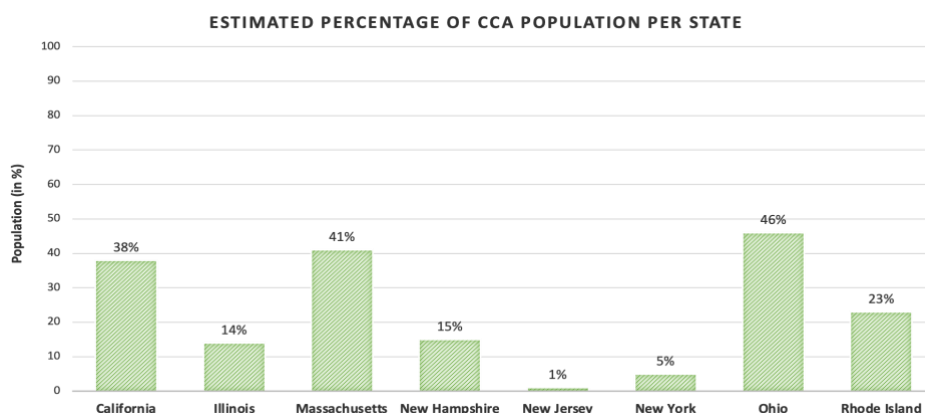
While the states of Illinois and Ohio are leading the CCA market by their number of participating communities, California has outranked any other state with its number of CCA customers. Out of 10.6 million active CCA customer accounts across the country, 55% of them are located in California, followed by Ohio at 22% (see Figure 3).

Figure 3. Estimated number of active CCA customer accounts and individual participants in the U.S.



In an analysis of the percentage of CCA population per state, 46% of Ohio’s total population participates in a CCA program, followed by 41% Massachusetts and 38% in California. While it is estimated that at least 27.5 million people are currently participating in a CCA program, this number should be considered a conservative<sup>20</sup> estimate.

Figure 4. Estimated percentage of CCA population per state.

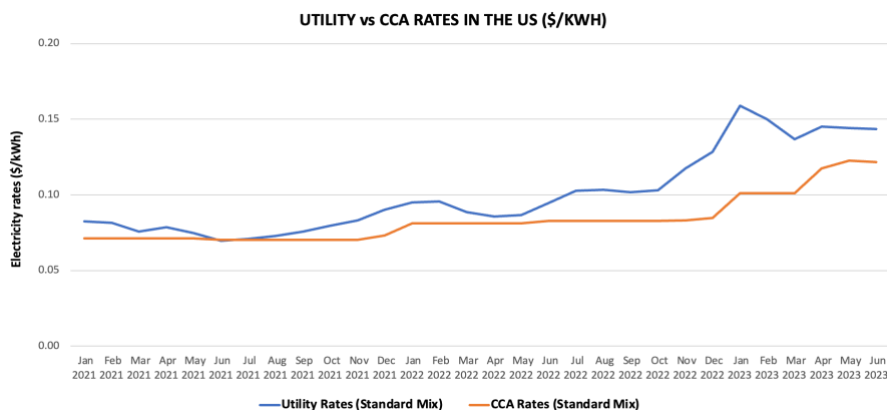


<sup>20</sup> In an effort to appropriately evaluate the number of individuals that participate in CCA programs, the number of individual participants is based on the assumption that there are 2.6 individuals per U.S. household (U.S. Census Bureau, 2021), and that CCA accounts refer to residential customers only. In reality, some CCA programs do not specify whether their total number of CCA accounts includes both residential and small commercial customers or only residential accounts.

A comparative analysis exemplifies to what extent CCA programs ensure price stability through a price comparison between CCA standard rates and default utility standard rates. While CCA programs cannot guarantee savings to customers, the following average rate comparison demonstrates that CCAs have, on average, offered lower standard rates than default utilities between January 2021 and June 2023. CCA communities show their ability to keep costs consistent and competitive through their electricity pricing track record.

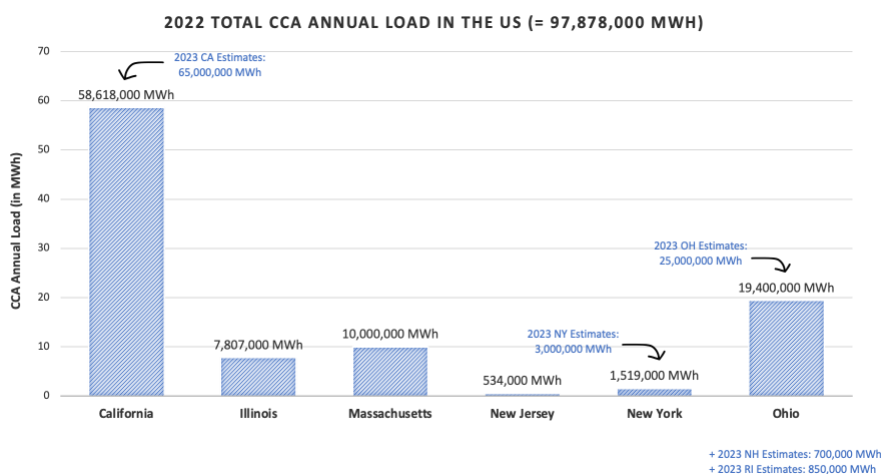
In fully deregulated markets, if a CCA's pricing becomes higher than the utility's, customers can opt out and go back to the utility. In all CCA programs, if a particular CCA's power contract has come to an end and the community is unable to procure a new power contract at a competitive rate, the CCA customers can be automatically returned to the utility. The community can still plan to procure power on more favorable terms in the future.

Figure 5. Utility vs CCA rates in the U.S. (\$/kWh)<sup>21</sup>



In 2022, the total CCA annual load<sup>22</sup> in the U.S. was estimated at almost 100 million MWh. This number is expected to increase by at least 16% by the end of 2023, as more states and communities are entering the CCA market this year.

Figure 6. Total 2022 CCA annual load in the U.S. (n=97,878,000 MWh)



<sup>21</sup> Average of CCA participating default utilities' standard mix rates vs average of active CCAs' standard mix rates in the US.

<sup>22</sup> The 2022 CCA annual load number includes, for most states, MWh used by residential, commercial, and industrial CCA accounts.

## 4.2 State-by-State CCA Market Status

CCAs are evolving mechanisms which, depending upon the state, may produce different levels of outcomes and success towards competitive renewable power additions and carbon reduction goals. This section explores the market status of each CCA state, in comparison with the four existing CCA models, which are described as follows:

- CCA 1.0: Competitive power bidding and consumer protection for aggregated residential and small commercial loads to retail suppliers under short term retail contracts. Option for customers to add renewable power.
- CCA 2.0: CCA 1.0 + Minimum requirement for a percentage of renewable power in retail contract and option for 100% renewable power.
- CCA 3.0: Several CCAs join forces and leverage their combined buying power and power demand to carve out a portion of the load for longer term contracting including local and remote renewable PPAs, energy efficiency, etc.
- CCA 4.0: Several CCAs join forces to purchase fully renewable energy, comprehensively integrate DERs and PEVs, engage local distribution utility to govern distribution system decisions that are consistent with communities' CCA implementation plans, and to potentially build joint distribution infrastructure.

Table 3. Summary of CCA Market Models' Benefits

BENEFITS	CCA MODEL			
	CCA 1.0	CCA 2.0	CCA 3.0	CCA 4.0
Protection of consumers against third-party predatory practices	✓	✓	✓	✓
Protection of consumers against price fluctuation	✓	✓	✓	✓
Aggregation of customers to secure lower cost power	✓	✓	✓	✓
Bi-lateral renewable power procurement at competitive rates (with/without RECs <sup>23</sup> )		✓	✓	✓
Various types of RECs to support new remote/local renewable power plants		✓	✓	✓
80 to 100% renewable energy		✓	✓	✓
Drive the construction of new remote/local renewable power plants			✓	✓
Empower communities to decide on power type and location			✓	✓
Community animation in the market			✓	✓
Large amounts of local renewables and storage				✓
Full EV integration				✓
Joint utility distribution planning to prepare the grid				✓
Real-time dispatch of local resources to stabilize the grid				✓
Scaled virtual power plants				✓
Energy shed creation and analysis				✓

<sup>23</sup> See glossary.

The four levels of CCA structure, and the ability of a CCA program to achieve them, often depends upon the regulations that govern the state where the CCA operates. Each level is representative of specific CCA capabilities, not performance. Not all states that have enabled CCA are currently set up to achieve a 4.0 structure. Levels 3.0 and 4.0 often require fundamental changes in community attitudes and more sophisticated legal structures, such as the ability to sign long-term power purchase agreements (e.g., PPA) and/or engage with community solar developers. Levels 1.0 to 2.0 have limits to their contracting abilities, as such models generally required CCAs to sign short-term energy contracts with the use of a third party. In any case, each CCA structure offers a diverse and effective spectrum of benefits.

#### 4.2.1 California

CCAs in California focus on the rapid transition to highly renewable and/or greenhouse gas-free sources of electricity generation while keeping rates at or below what the utilities charge.

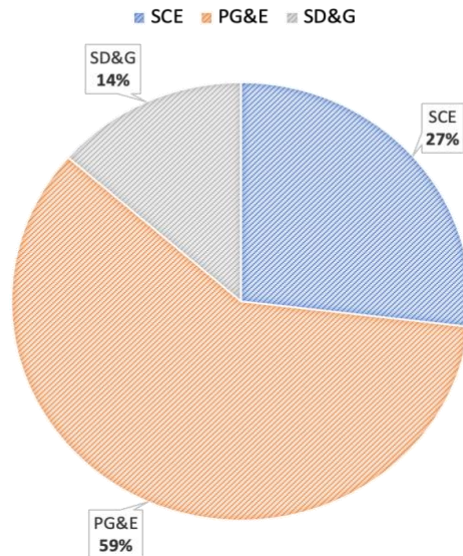
CCAs are set up either by a single community or by two or more communities that create a Joint Powers Authority (“JPA”) to operate the CCA on their behalf. The JPA approach is favored in California as it creates a legal firewall between the potential future liabilities of the JPA and the assets of its member cities and towns, although member cities may be required to provide loans or loan guarantees to enable the JPA to secure bank loans for its initial working capital.

Table 4. CCA key metrics in California.

# of Communities with Local CCA Authorization:	218+511 unincorporated areas
# of Active CCA Communities:	218+511 unincorporated areas
# of Inactive CCA Communities:	0
# of Customer Accounts:	5,862,000
% of State’s Population Participants:	38%
% Participation Rate Avg. (2022):	92%
Annual Load (2022):	58,618,000 MWh
Electricity Supply Contract Range:	10-25 years
MWh New Renewables:	11,258 MW since inception

Figure 7. Number of CCA accounts per utility territory in California.

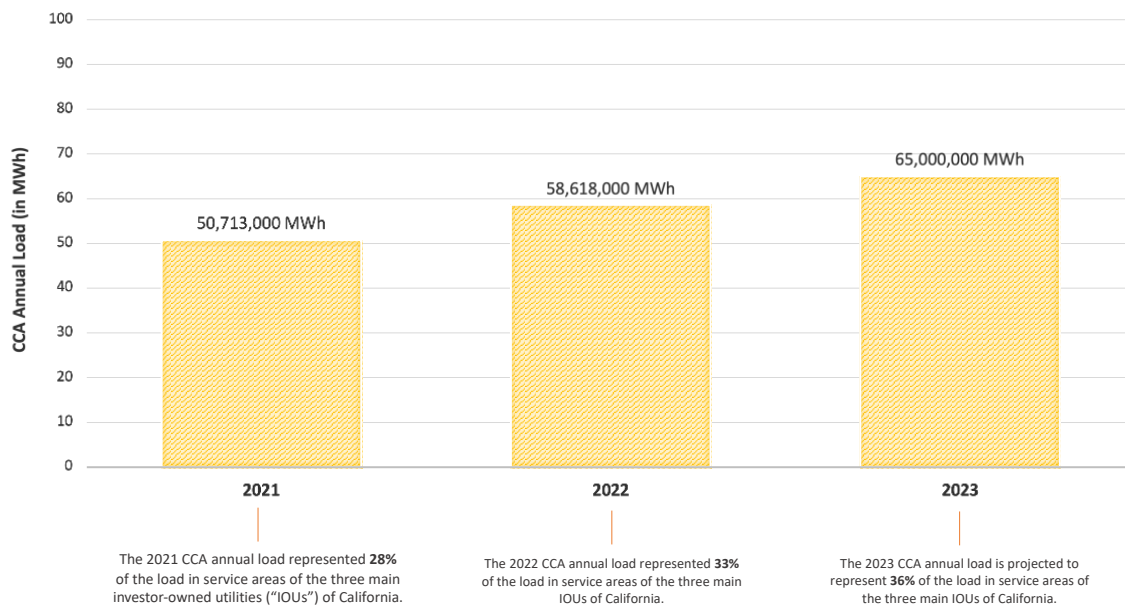
**NUMBER OF CCA ACCOUNTS PER UTILITY TERRITORY IN CALIFORNIA**



In recent years with new CCA launches and communities opting to join already existing CCAs, total annual loads for these programs have steadily increased. The total CCA annual load in California has increased by 16% between 2021 and 2022 and is set to increase by 11% between 2022 and 2023 (see Figure 8).

Figure 8. Total CCA annual load in California.

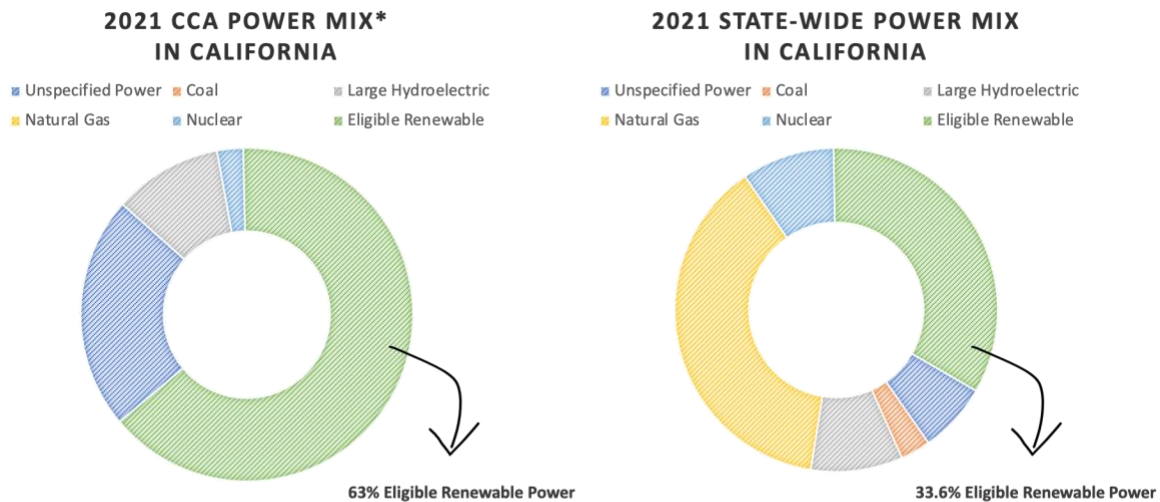
**TOTAL CCA ANNUAL LOAD IN CALIFORNIA**



In 2021, an average of 63% of California CCA's power mix consisted of renewable energy resources. This number is almost double the state-wide power mix, which includes 33.6% of renewable energy (see Figure 9). Contributing factors to a CCA's higher renewable

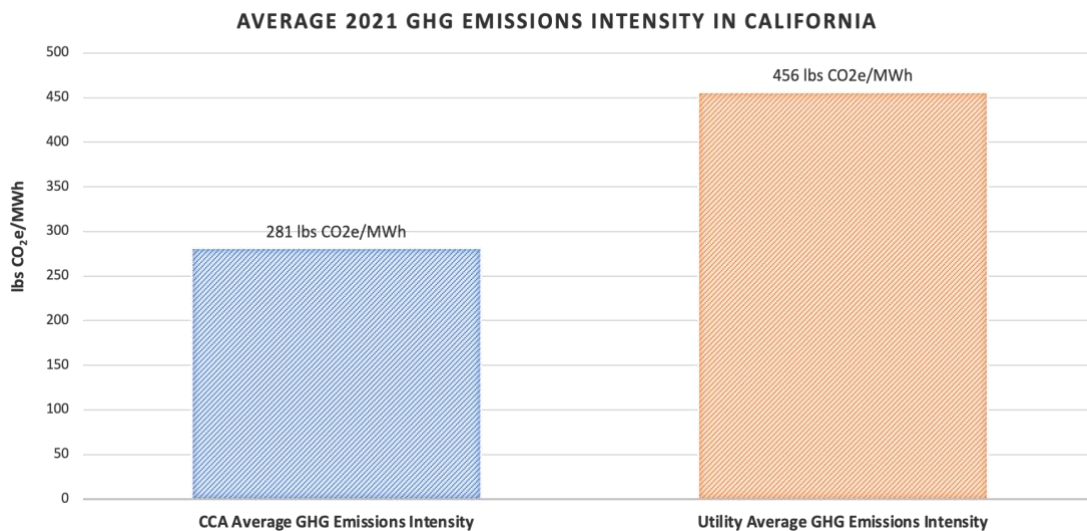
energy mix include an opt-up to 100% renewable option (which 96% of the state’s CCAs offer), several communities choosing to have their default supply product be the 100% offering, and California CCAs’ commitment to supporting the development of new built renewable energy resources (see Figure 11). Consequently, CCA communities emitted 38% less pounds of CO<sub>2</sub>/MWh on average than California default utilities in 2021 (see Figure 10).

Figure 9. Comparison between CCA power mix and State-wide power mix in California in 2021.



\*Note: Based on all 2021 CCA product offerings (n=58).

Figure 10. Average 2021 GHG emissions intensity in California.



California CCAs sign PPAs that range from 10 to 25 years, or 16 years on average, across all contracts.<sup>24</sup> 86% of California CCA new-built renewable energy PPA contracts are based

<sup>24</sup> CCAs in California are designated as load-serving entities; they are subject to similar rules as local utilities. SB 350 (de León, 2015) requires that 65% of RPS procurement must be derived from long-term contracts of 10 or more years.

in California, while the rest come from outside the state; specifically, Nevada, New Mexico, Arizona, and Utah.

According to the California Community Choice Association (CalCCA) that tracks the state’s CCA activity and represents the interest of CCAs at state and regulatory agencies, “CCAs have collectively signed 243 long-term PPAs for a combined 11,258 MW of new solar, wind, energy storage, geothermal, demand response, and biogas” (CalCCA, 2022). The total MWh of new-built renewables sparked through CCA contracts have increased by 14.3% between 2021 and 2022 and more than a third of these projects are operational.

Figure 11. Types of new-built renewables sparked through CCA contracts in California (in MWh).

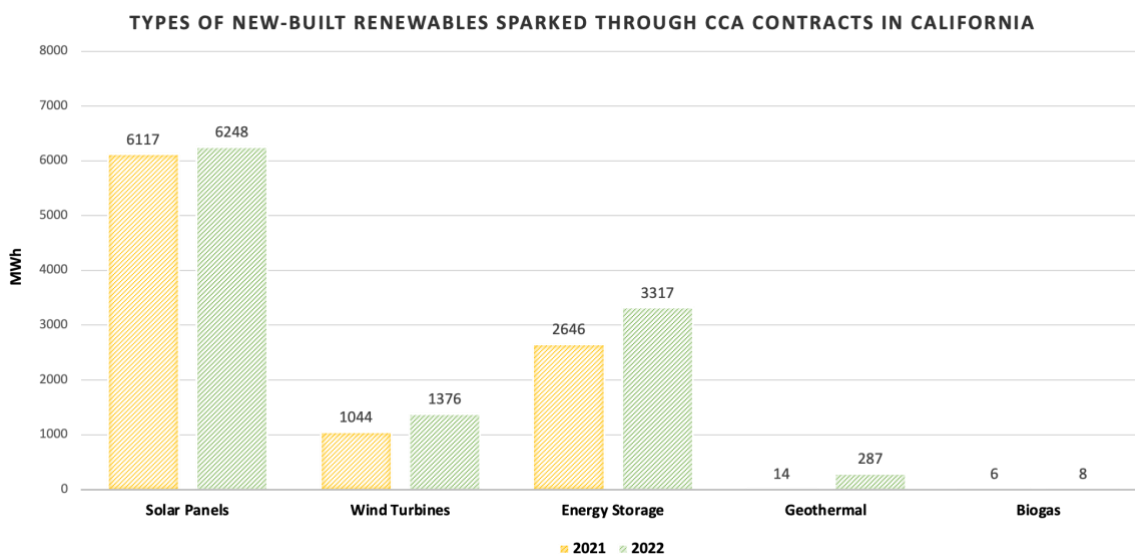
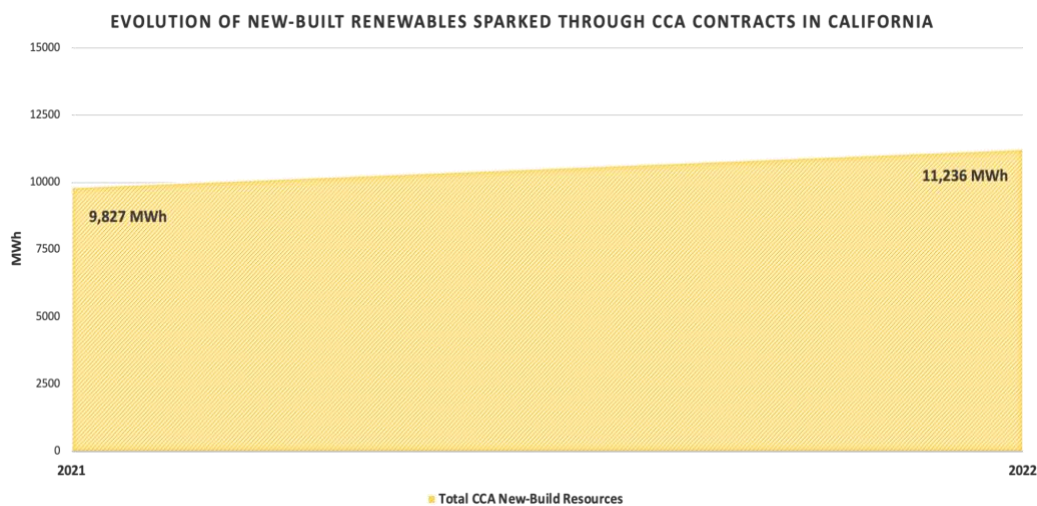


Figure 12. Evolution of new-built renewables sparked through CCA contracts in California (in MWh).



Since early 2022, California default utility (a.k.a. investor-owned utility) electricity rates have been on average 20% higher than CCA rates. This year, CCA rates have been less attractive than in 2022, however, the average CCA standard rate remains lower than the default utilities’.

Figure 13. Utility vs CCA rates in California (\$/kWh).<sup>25</sup>

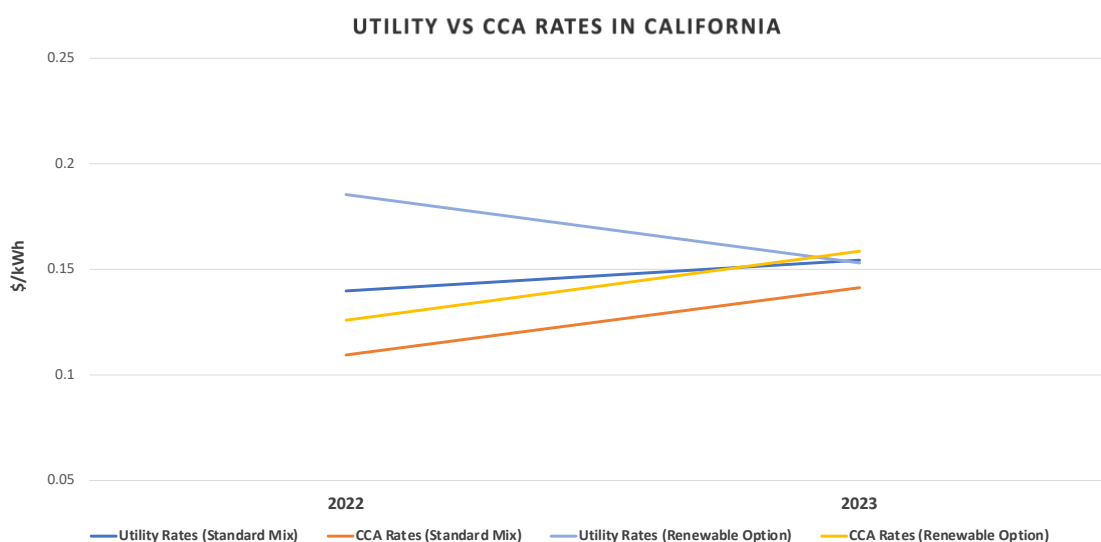


Table 5. Percentage difference between utility and CCA rates in California (\$/kWh).

		2022	2023
0-33% renewable energy source	Public Utilities	\$0.133006 /kWh	\$0.154400 /kWh
	CCAs	<u>\$0.109510</u> /kWh	<u>\$0.141360</u> /kWh
	% difference	<b>21.45%</b>	<b>9.22%</b>
34-55% renewable energy source	Public Utilities	\$0.125446 /kWh	\$0.166443 /kWh
	CCAs	<u>\$0.124493</u> /kWh	<u>\$0.151298</u> /kWh
	% difference	<b>0.77%</b>	<b>10.01%</b>
100% renewable energy or carbon-free source	Public Utilities	\$0.243948 /kWh	<u>\$0.113010</u> /kWh
	CCAs	<u>\$0.130925</u> /kWh	\$0.166362 /kWh
	% difference	<b>86.33%</b>	<b>47.21%</b>

Overall, CCA communities in California have saved their customers millions of dollars every year. Some programs save between 3 and 5% versus the default utility’s electric generation service costs, while others may save 15 to 20% in a year. Additionally, of the 10 CA CCAs that participated in LEAN Energy US’ survey, approximately 20% of their customers

<sup>25</sup> Averages of all CCA electricity rates and default utility electricity rates between January 2022 and March 2023. Customer classes “Residential DR, DR-CARE, DR-FERA, E-1, E-1 CARE, E-1 FERA” were included in the data analysis. None of the rates included generation charges. Some CCAs charge \$2 to \$10 per month, per household, for their optional 100% renewable energy product.



qualified and/or participated as low-income customers under the California Alternate Rates for Energy Program (“CARE”) or Family Electric Rate Assistance Program (“FERA”).

#### 4.2.2 Illinois

Illinois has more communities that have enabled CCA, whether their program is active or not, than all other states combined. To date, 746 communities –including counties, cities, townships, towns, and villages– have authorized CCA locally, of which 379 were active as of May 21, 2022.

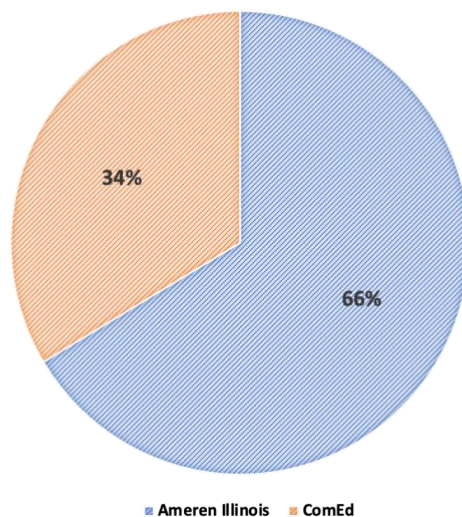
Table 6. CCA key metrics in Illinois.

# of Communities with Local CCA Authorization:	746
# of Active CCA Communities:	379
# of Inactive CCA Communities:	367
# of Customer Accounts:	734,000
% of State’s Population Participants:	14%
Annual Load (2022):	7,807,000 MWh
Electricity Supply Contract Range:	6-36 months

In Illinois, most CCA communities contract with a consultant to choose the energy supplier during the procurement process. After that, the supplier is in charge of managing the program. It is a shared effort between the local government’s staff, the energy supplier, and the aggregation consultant.

Figure 14. Number of CCA accounts per default utility territory in Illinois in 2023.

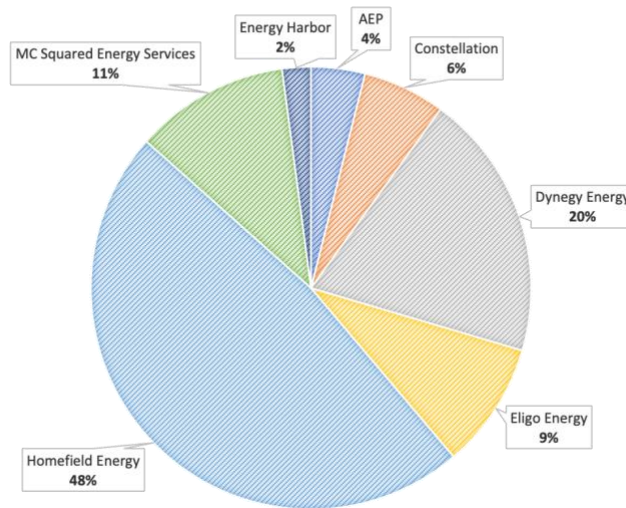
**NUMBER OF CCA ACCOUNTS PER UTILITY TERRITORY IN ILLINOIS IN 2023**



There are currently seven CCA electricity providers in Illinois, spread across two CCA utility territories.

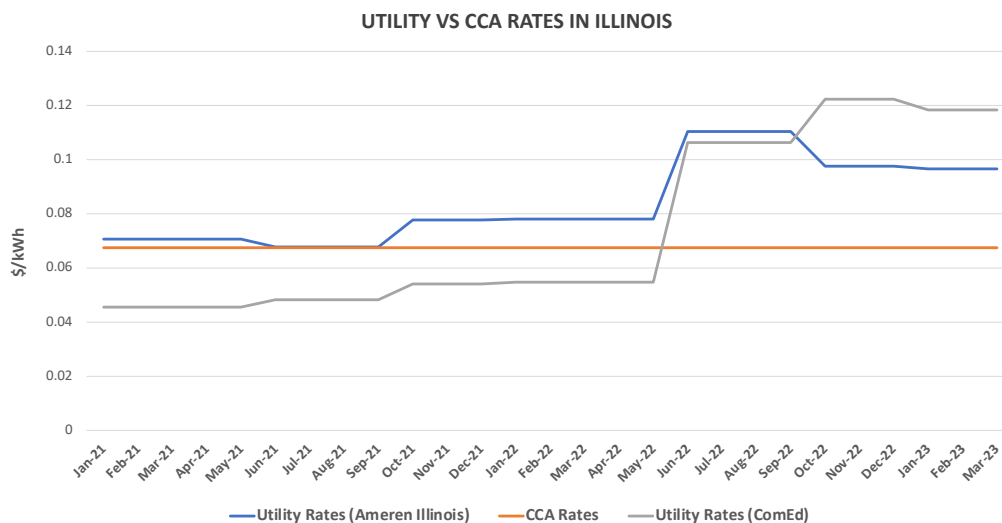
Figure 15. Number of active CCA accounts per power provider in Illinois.

**NUMBER OF ACTIVE CCA ACCOUNTS PER POWER PROVIDER IN ILLINOIS**



As shown in Figure 16, the average CCA rates in Illinois have recently become more attractive in large part because many CCA communities initiated two-year electricity supply contracts at a time when electricity rates were low.

Figure 16. Default Utility vs CCA rates in Illinois (\$/kWh).



Although rate savings have always been the primary impetus for CCA formation in Illinois, some communities have prioritized purchasing electricity generated by renewable resources, particularly wind, as well as solar and hydroelectric energy. Other CCA communities purchase energy from coal, nuclear and combined cycle gas plants, but offset

the associated greenhouse gas emissions by purchasing unbundled RECs and a mix of Green-e Energy Certified and non- Green-e Energy Certified RECs.

According to the U.S. Environmental Protection Agency, 44 of the top 122 EPA Green Power Communities are in Illinois (U.S. EPA, 2021), meaning they have purchased the most amount of voluntary green power. Many CCA programs in the state offer an option to opt-up to a higher mix of voluntary green power at a slightly higher price than the default product offering.

A poll conducted in 2018 shows that 79 to 83% of Illinois residents want to be able to choose their energy supplier, choose clean energy, and want more renewable energy in the Illinois power system (Clean Choice Energy, 2018).

### 4.2.3 Massachusetts

Massachusetts Governor Paul Cellucci signed the nation’s first community choice legislation in 1997. Massachusetts is also home to the country’s oldest CCA program, Cape Light Compact, which launched in 1997. As of today, almost half of the state’s municipalities have active CCAs, with more awaiting implementation plan approval from the Department of Public Utilities.

Table 7. CCA key metrics in Massachusetts.

# of Communities with Local CCA Authorization:	176
# of Active CCA Communities:	144
# of Inactive CCA Communities:	32
# of Customer Accounts:	1,130,000
% of State’s Population Participants:	41%
Annual Load (2022):	10,000,000 MWh <sup>26</sup>
Electricity Supply Contract Range:	6-42 months

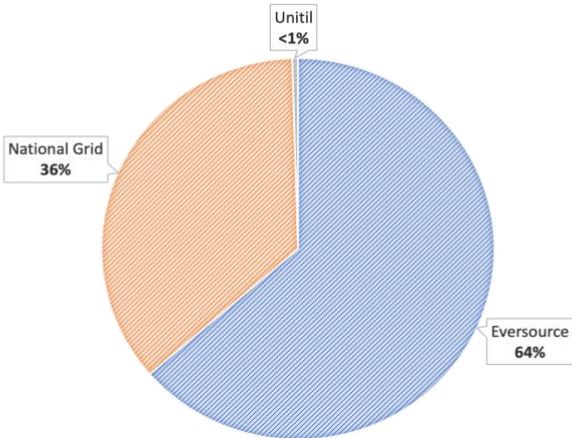
In Massachusetts, most CCAs contract with a third-party consultant to pick the energy supplier during the procurement process and manage the program. Some programs, however, are self-administered.

Figure 17. Number of CCA accounts per utility territory in Massachusetts.<sup>27</sup>

<sup>26</sup> The 2022 CCA annual load number for Massachusetts includes MWh used by residential, commercial, and industrial CCA accounts. The 2022 CCA annual for residential customers only is 7,012,000 MWh.

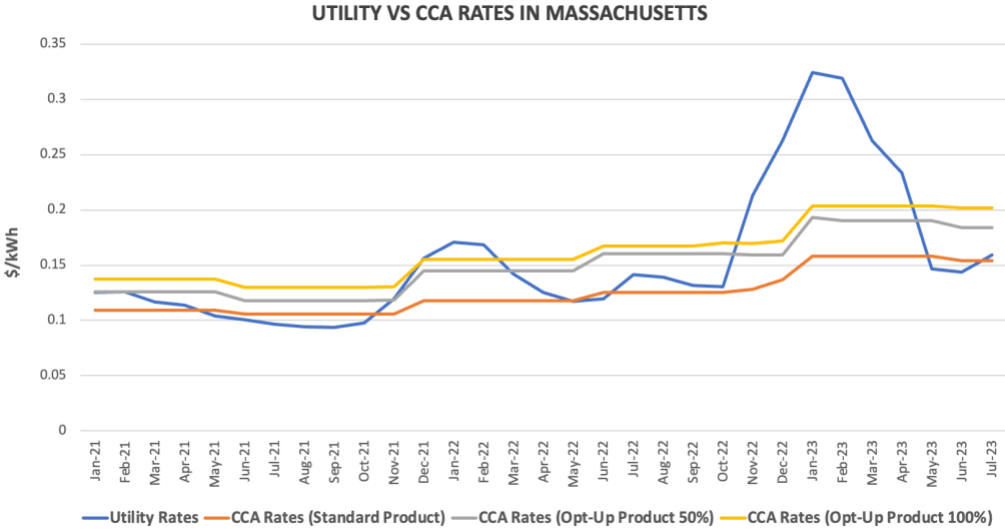
<sup>27</sup> This data excludes large commercial CCA customers (n=13,811).

NUMBER OF CCA ACCOUNTS PER UTILITY TERRITORY IN MASSACHUSETTS



The average CCA rates in Massachusetts are evidence that CCA programs ensure higher rate stability in comparison to default utilities, and price stability.

Figure 18. Utility vs CCA rates in Massachusetts. (\$/kWh)



Although both CCA and default utility rates fluctuate, CCA customers have historically saved 10% on their electricity bills. According to a study by UMass Amherst, 80% of Massachusetts municipalities with CCA programs offer reduced rates compared to the default utility, and 60% of those with reduced rates offer a higher renewable energy product than is required by the state. Additionally, 89% of municipalities with contracts exceeding state renewable energy level requirements achieved savings of approximately \$33,500,000 per year (Vicarelli et al, 2023). Many communities purchase RECs from national wind RECs to Clean Energy Standard Certificates and/or Mass Class I RECs. For example, Cape Light Compact’s program, which serves 150,000 customers, has national wind RECs that would qualify as Green-e. Most of their RECs are unbundled (i.e., purchased separately), although a small portion of their RECs are bundled through a PPA with Farmington Solar, which is a solar farm based in Maine that produces 5 MW of electricity for CCA customers (Cape Light Compact, 2023).

4.2.4 New Hampshire

In 1996, New Hampshire was the first state to pass an Electric Utility Restructuring Act to de-monopolize aspects of the power sector to give customers greater choice, lower costs, and enable market innovations. After this competitive electricity market stalled in its growth for several years, New Hampshire’s Community Power law was passed and became effective October 1, 2019, to help revamp efforts to spark competition.

The state launched its first CCA programs in the Spring of 2023, with 14 communities participating. 10 to 30 additional communities are set to start a CCA program in the coming months.

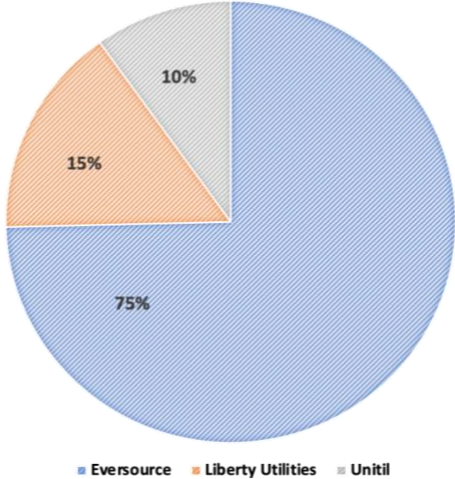
Table 8. CCA key metrics in New Hampshire

# of Communities with Local CCA Authorization:	14
# of Active CCA Communities:	14
# of Inactive CCA Communities:	0
# of Customer Accounts:	78,000
% of State’s Population Participants:	15%
Annual Load (expected, 2023):	700,000 MWh
Electricity Supply Contract Range:	3-30 months

New Hampshire CCA communities are either managed by a third-party consultant with 30-month rate contracts or are part of a JPA with short- to long-term energy contracts negotiated with multiple competing suppliers which secure rates three months at a time.

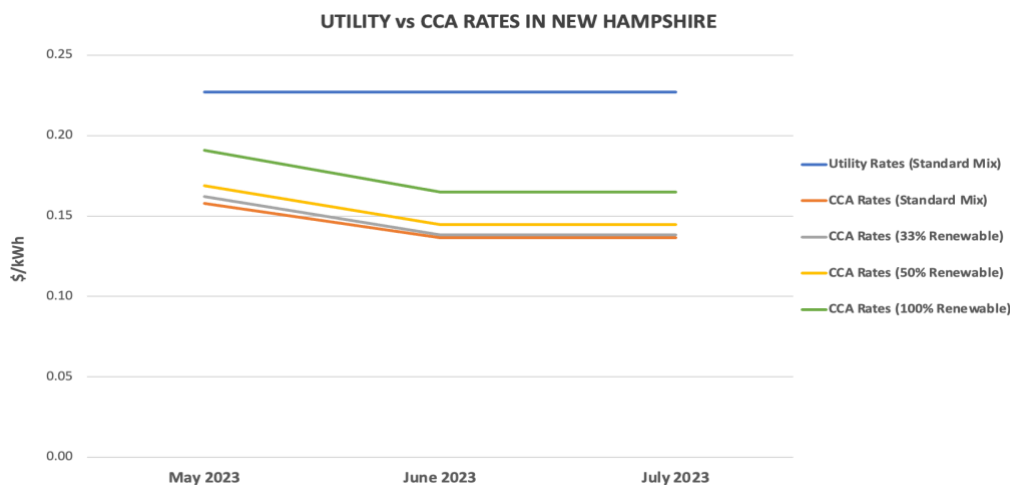
Figure 19. Number of CCA accounts per utility territory in New Hampshire.

NUMBER OF CCA ACCOUNTS PER UTILITY TERRITORY IN NEW HAMPSHIRE



Between May and July 2023, all CCA communities have standard, 33% renewable, 50% renewable, and 100% renewable energy rates lower than the default utility standard rates (see Figure 20). This has been demonstrated to be an excellent opportunity for customers to increase the demand for renewable energy in the state.

Figure 20. Utility vs CCA rates in New Hampshire. (\$/kWh)<sup>28</sup>



The Community Power Coalition of New Hampshire (“CPCNH”)’s ten CCAs are projected to save on average 23% in the first three months of the program, representing \$5,855,000.<sup>29</sup> Additionally, Standard Power and Good Energy’s collective estimates<sup>30</sup> that their four CCA communities will save 25% on their electricity bills in 2023.

#### 4.2.5 New Jersey

In New Jersey, Community Choice came into being in 1999 as part of the electricity deregulation movement. It was followed by a more specific Government Energy Aggregation Act in 2003, but an opt-in requirement and cost cap stymied the growth of these programs. Subsequent legislation removed these barriers and the state’s first CCA programs launched in 2012.

Table 9. CCA key metrics in New Jersey

# of Communities with Local CCA Authorization:	131
# of Active CCA Communities:	1
# of Inactive CCA Communities:	130
# of Customer Accounts:	33,000

<sup>28</sup> Average of three utilities’ standard mix rates vs average of fourteen active CCAs’ rates in New Hampshire. Four CCA programs started in June 2023. NH CCAs are located in Eversource, Liberty Utilities, and Unitil utility territories.

<sup>29</sup> These estimates from CPCNH and are based on comparisons with published utility rates. However, CCA savings cannot be guaranteed.

<sup>30</sup> Projected savings cannot be guaranteed.

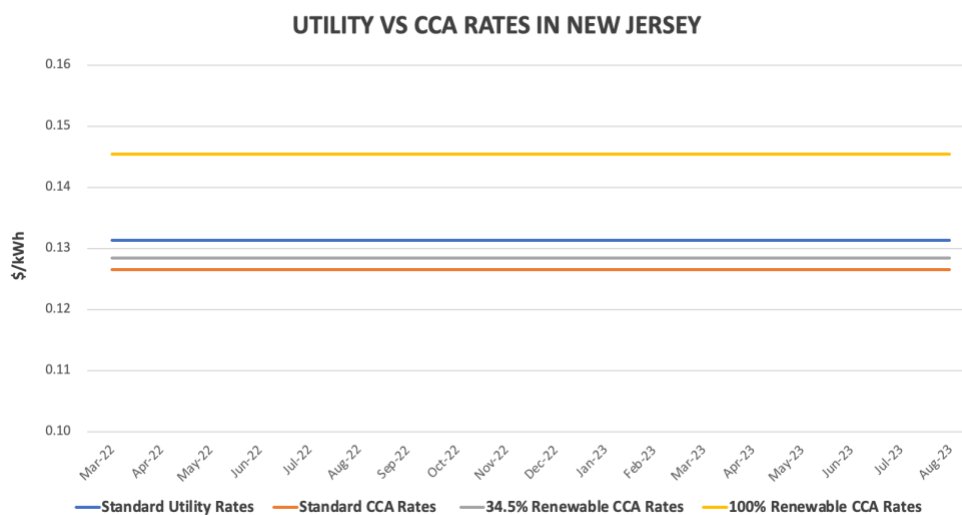
% of State’s Population Participants:	<1%
Annual Load (Estimated, 2022):	534,000 MWh
Electricity Supply Contract Range:	3-24 months

Despite the rise of interest in CCA programs in the past years, the New Jersey CCA market is currently facing major challenges. Current market specialists note that they are unable to compete with the Price to Compare (“PTC”) rates. The Board of Public Utilities (“BPU”) requires CCA rates be lower than the PTC rate, unless the CCA rate includes more than 24.5% of class I and II renewable energy sources (a.k.a. the New Jersey minimum renewable energy requirement for 2022 and 2023), as per N.J.A.C 14:4-6.9.

While this requirement may be seen as protective of customers, New Jersey regulators have unfortunately established a formula to calculate the PTC that, currently, CCAs are unable to compete with. In New Jersey, the PTC formula equals the average standard rate from the past three energy auctions – there is one energy auction per year. Therefore, as of 2023, CCA standard rates must be lower than the PTC rate, which is an average of the utility’s standard rates of 2021, 2022, and 2023. CCAs that offer a standard rate without enhanced renewable content, cannot compete with this PTC rate since the 2021 utility rates were much lower at the time and yet still considered in the current PTC formula. 2021 rates are artificially dragging the numbers down creating a more difficult hurdle for prospective CCAs.

CCA consultants and advocacy groups have been working for many years to change the PTC formula as it is not reflective of the current market. Many New Jersey communities are waiting for the hedges to roll off in the next few years for competitors to join the market again and start a CCA program. According to the New Jersey Board of Public Utilities, 4 million electric customers are eligible for CCA in 2023 (NJBPU, 2023).

Figure 22. Utility vs CCA rates in New Jersey. (\$/kWh)<sup>31</sup>



<sup>31</sup> Average of one utility’s standard mix rates vs average of one active CCA’s rates in New Jersey. There is only one active CCA program in New Jersey, which is located in PSE&G utility territory.

By law, CCA energy contracts in New Jersey cannot be longer than 24 months. CCA programs may offer REC opt-up options as part of their electricity supply contracts. The only active CCA community, the city of Hoboken, offers three types of product offerings:

- Standard offering: state minimum renewable energy requirement (24.5%) + 10% renewable energy sources
- Basic offering: state minimum renewable energy requirement (24.5%)
- 100% Green offering: 100% renewable energy sources

Since CCA programs that deliver a mix of supply that does not enhance the state’s minimum renewable energy requirement are required to have lower standard rates than the default utilities’, CCA customers under standard product offerings have been able to save money. For example, CCA consultant “Gabel Associates” has saved 250,000 residential consumers in 24 New Jersey communities over \$70 million in energy costs to date.

#### 4.2.6 New York

In 2014, New York State began a series of reforms that are referred to as Reforming the Energy Vision (“REV”). These programs are designed to benefit both the environment and the state’s economy by creating many small, local, clean power plants throughout New York and increasing the benefits of retail price competition for residential and business customers. The Order Instituting Proceeding and Soliciting Comments about CCAs was issued on December 15, 2014, and the first CCA in the state submitted its proposal to form less than a week later. The proposal was approved as a pilot on February 26, 2015, and launched roughly a year later. In April 2016, the PSC issued its Order that enabled all New York communities to organize a CCA.

In 2022, 75% of the total energy served by CCA communities was renewable. Despite serving less than 5% of New York State’s population, in 2021, CCAs accounted for more than 30% of New York renewable electricity voluntarily purchased.

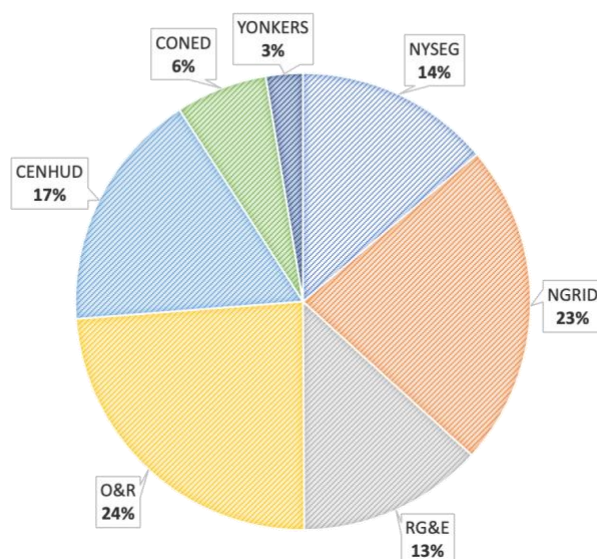
Table 10. CCA key metrics in New York

# of Communities with Local CCA Authorization:	158
# of Active CCA Communities:	101
# of Inactive CCA Communities:	57
# of Customer Accounts:	352,000
% of State’s Population Participants:	5%
Annual Load (2022):	1,518,891 MWh
Electricity Supply Contract Range:	1.5 to 3 years

Figure 22. Number of active CCA accounts per utility territory in New York.



**NUMBER OF CCA ACCOUNTS PER UTILITY TERRITORY IN NEW YORK**



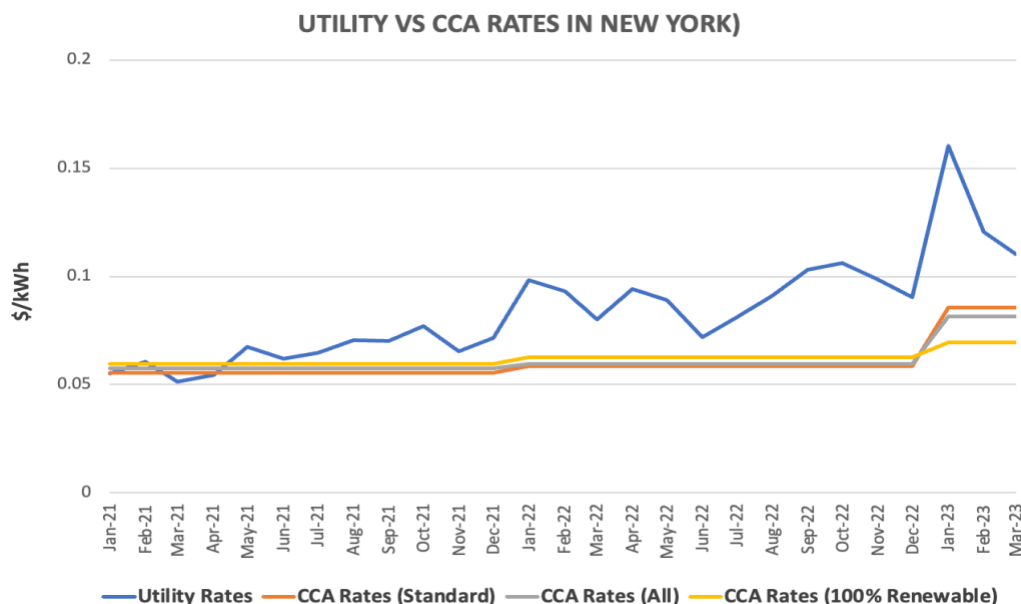
New York CCA programs have consistently been managed by third-party CCA administrators. The average CCA participation rate for “CCA default” eligible customers in New York is 85%, meaning that 15% of customers that are automatically enrolled in a CCA program opt out. According to CCA reports available on the New York Department of Public Service’s website<sup>32</sup>, when CCA customers opt-out of the program, 16% of them move back to the utility, 23% go to an alternative supplier, and 61% simply move or close their accounts.

New York CCAs buy their renewable power in-state only, as it is a requirement to qualify as “renewable energy.” CCA communities use NYS RECs registered through the New York Generation Attribute Tracking System (“NYGATS”). Most New York CCA programs have used 100% NYS hydropower RECs registered through NYGATS allowing CCA communities to avoid 1,300,000 metric tons (“MT”) of CO<sub>2</sub> since 2016, the equivalent to CO<sub>2</sub> emissions from 3.3 natural gas-fired power plants in one year. Alternatively, it is equivalent to carbon sequestered by 1,550,273 acres of U.S. forests in one year (U.S. EPA, 2023).

As shown in Figure 23 below, the average CCA rates in New York have remained more stable and affordable than the utilities’ rates.

Figure 23. Utility vs CCA rates in New York. (\$/kWh)

<sup>32</sup> See filings related to NYDPS-DMM 14-01211/14-M-0224.



2022 was a good year for CCA participants in the state. Each customer participating in a CCA program in New York has saved up to \$180 in 2022, for a total of \$25 million saved with CCA that year.

#### 4.2.7 Ohio

Ohio was one of the first states to authorize CCA as part of the Energy Choice Act of 1999 (SB3). The state is currently served by a patchwork of several electric distribution companies, electric co-ops and CCAs. 80% of CCA programs are managed by a third-party consultant or administrator, the remaining 20% are self-administered.

Table 11. CCA key metrics in Ohio

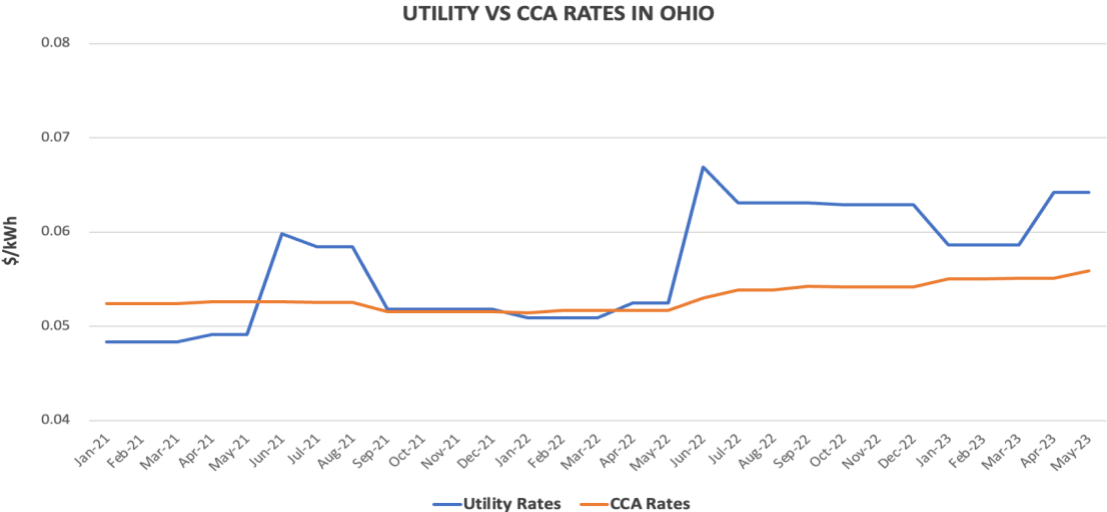
# of Communities with Local CCA Authorization:	632
# of Active CCA Communities:	354
# of Inactive CCA Communities:	278
# of Customer Accounts:	2,300,000 <sup>33</sup>
% of State’s Population Participants:	46%
Annual Load (2022):	19,400,000 MWh <sup>34</sup>
Electricity Supply Contract Range:	1-3 years

<sup>33</sup> At least 550,000 more CCA customers will participate in CCA in the summer of 2023 with a rate of half the utility’s standard price.

<sup>34</sup> Annual load is expected to rise to 25,000,000 MWh in 2023.

As shown in Figure 24, average CCA rates have remained stable compared to the default utility rates in Ohio. Several communities offer various “green power” options through the purchase of unbundled renewable energy credits (“RECs”) to offset the greenhouse gasses emitted by their sources of generation. From standard energy products to 100% renewable energy offerings, most communities purchase Green-e Certified RECs from wind power resources, as it is one of the most inexpensive renewable resources in the Midwest. In 2022, the U.S. Environmental Protection Agency designated 19 CCA communities in Ohio as “Green Power Communities” for offering a high amount of renewable power at competitive prices (SOPEC, 2023).

Figure 24. Utility vs CCA rates in Ohio. (\$/kWh)<sup>35</sup>



CCA communities in Ohio have to date saved hundreds of millions of dollars since the early 2000s (Thomas et al, 2019). For example, Northern Ohio Public Energy Council (NOPEC)’s 220 CCA communities have saved over \$300 million since 2001, and Sustainable Ohio Public Energy Council (SOPEC)’s 20 CCA communities are expected to save \$13 million in the second half of 2023.

4.2.8 Rhode Island

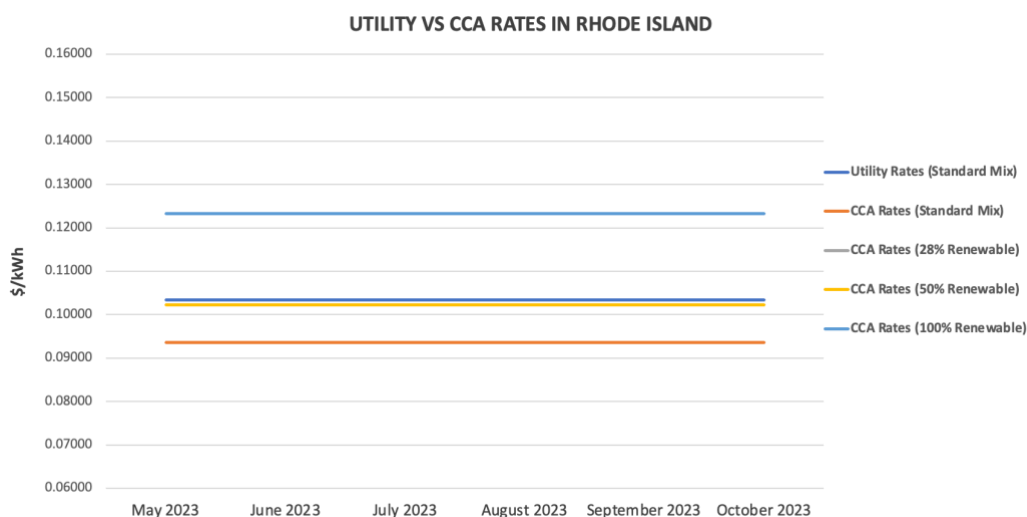
CCA was enabled in Rhode Island through the Utility Restructuring Act of 1996. Rhode Islanders are free to choose electricity from a wide variety of competing companies. Some of these companies offer lower rates, while others focus on greener energy or long-term price stability as their key selling points. Rhode Island is the most recent state to launch its first CCA program, which began service to its customers in May 2023. The four towns and three cities participating in CCA are part of Rhode Island Energy default utility territory and are managed by a third-party consultant.

Table 12. CCA key metrics in Rhode Island

<sup>35</sup> Average of three utilities’ standard mix rates vs average of hundreds of active CCAs’ rates in Ohio. OH CCAs are located in American Electric Power (AEP), The Illuminating Company, and Ohio Edison utility territories.

# of Communities with Local CCA Authorization:	7
# of Active CCA Communities:	7
# of Inactive CCA Communities:	0
# of Customer Accounts:	100,000
% of State’s Population Participants:	23%
Annual Load (expected, 2023):	850,00 MWh
Electricity Supply Contract Range:	5 years with 6-month fixed rate period

Figure 25. Utility vs CCA rates in Rhode Island. (\$/kWh)<sup>36</sup>



As shown in Figure 25, for summer and fall 2023, the default utility rates in Rhode Island are higher than three of the four CCA energy product offerings: CCA standard rates, CCA 28% renewable rates, and CCA 50% renewable rates. The 100% renewable product offering through the CCA is currently higher than the default utility standard rate.

As quoted from a local advocacy group, the programs are expected to “produce a 22% increase in the amount of wind and solar in the mix” (Green Energy Consumers Alliance, 2023), spurring development of new renewable energy resources. CCA communities contracted with a local non-profit through a REC purchasing agreement, which allows any voluntary renewable energy purchased for the CCAs to come directly from Rhode Island. Additionally, the programs are structured to give low-income households a 25 to 30% discount on their electricity bills.

<sup>36</sup> All RI CCAs are located in RI Energy utility territory. The utility rates refer to RI Energy’s rates.

### 4.3 CCA Market Growth Potential and Analysis: Addressing U.S. Government's goals

Based on CCA market status across the country, this section analyzes CCA growth potential with specific examples, in parallel to the U.S. Government's environmental, social, and economic goals in the energy sector.

Participants in LEAN Energy US' focus group sessions and survey identified the top three benefits and priorities of CCA programs as follows:

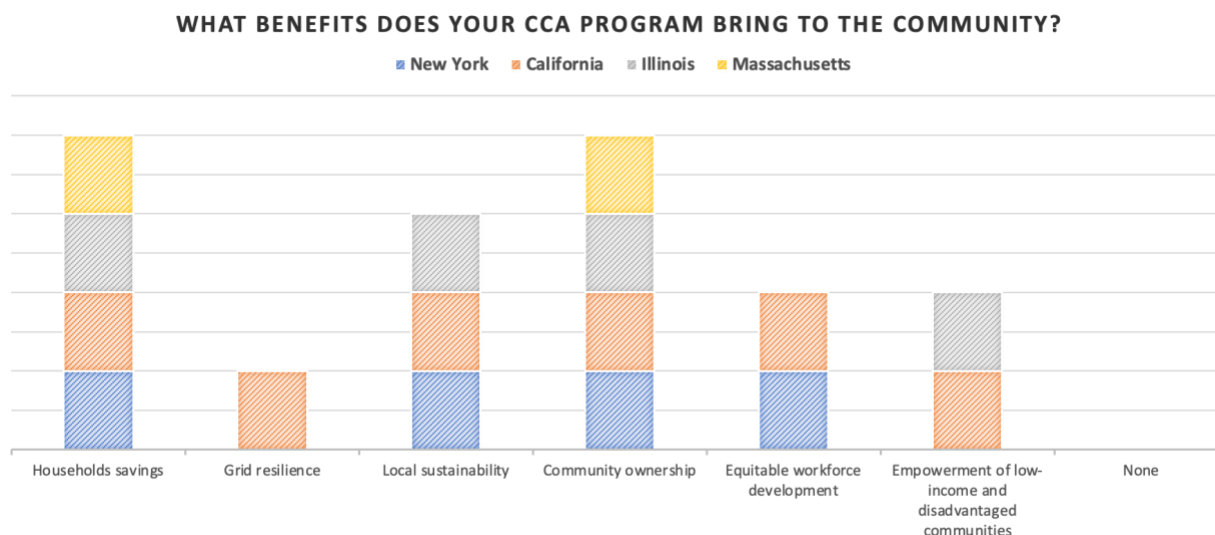
- 1) price stability compared to default utilities (including lower rates when possible),
- 2) local customer choice, and
- 3) higher green energy content.

These benefits and priorities are consistent with the list of CCA advantages elaborated by the U.S. Environmental Protection Agency (U.S. EPA, 2022):

- Potential retail electric rate reduction.
- Enables rapid shift to greener power resources.
- Local control of electricity generation, which can be responsive to local economic and environmental goals.
- Expands consumer choices.
- Can spur local jobs and renewable energy development.

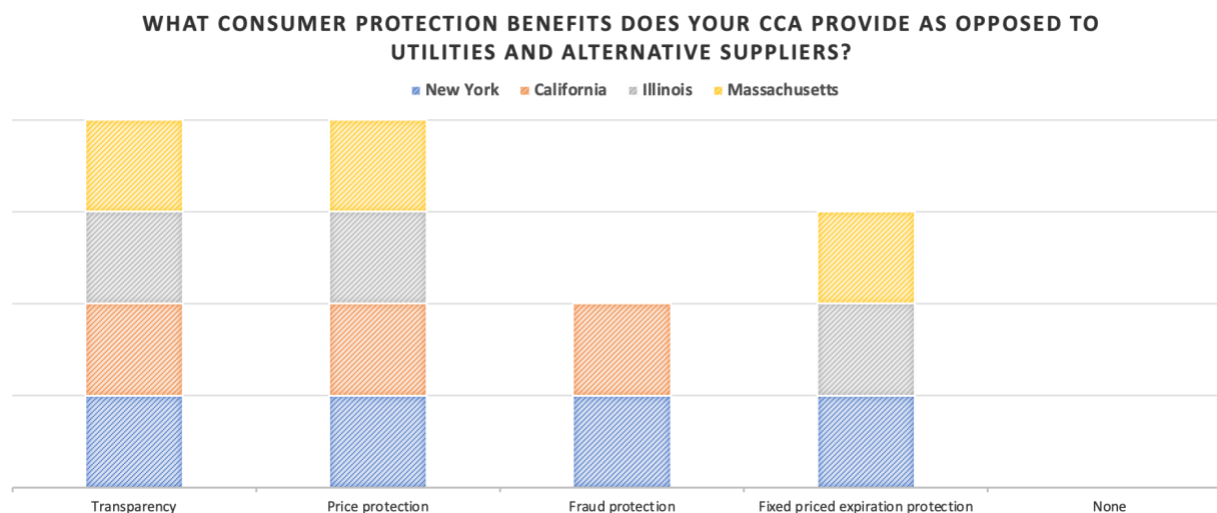
The following Figures 26 and 27 summarize CCA's benefits nationwide according to LEAN Energy US's survey participants from New York, California, Illinois, and Massachusetts. CCA programs allow communities to primarily benefit from household savings and community ownership. Secondary benefits are local sustainability, equitable workforce development, empowerment of low-income and disadvantaged communities, and grid resilience.

Figure 26. Survey responses from "What benefits does your CCA program bring to the community?"



Some participants in the survey also added that CCA creates community investment and local economic development, particularly through green REC programs to support renewable energy generation resources. Moreover, survey participants said that CCA programs provide strong consumer protection benefits such as transparency, price protection, fixed-price expiration protection, and fraud protection, as opposed to default utilities and alternative suppliers.

Figure 27. Survey responses from “What consumer protection benefits does your CCA provide as opposed to utilities and alternative suppliers?”



#### 4.3.1 Addressing U.S. Government’s environmental goals

In April 2021, the U.S. Government set the goal to create a “carbon pollution-free power sector by 2035” (White House, 2021). The same year, the U.S. Government committed to creating a net zero emissions economy by 2050 and established a 2030 emissions target of 50-52% below 2005 levels through the “Nationally Determined Contribution,” under the Paris Agreement (United Nations, 2021). In order to achieve these targets, it is necessary that the U.S. Government funds and supports scale-up community-centered energy innovations. LEAN Energy US believes the U.S. Government should take a more strategic look at CCA as a core mechanism to reach their targets.

- CCA increases the amount of renewable energy on the grid.

One of the main advantages of CCA is its ability to, upon program launch, instantly provide a higher mix of clean electricity to a large number of customers that would normally use a standard product offering with their default utility (which meets only minimal state requirements). For example, 80-90% of New York state residents living in a CCA community power their homes with clean energy, as opposed to 1-5% in areas without a CCA program.

CCA programs provide a default electricity offering (in which a customer is automatically enrolled), often with higher renewable energy content (i.e., Levels 2 or 3 in Table 13) than the default utility’s standard offering. A large majority of CCA programs also include opt-up

energy mix offerings with even more renewable energy content, some with 100% renewable and 100% local renewable options (i.e., Levels 3-5 in Table 13).

Table 13. Levels of CCA renewable energy product offerings.

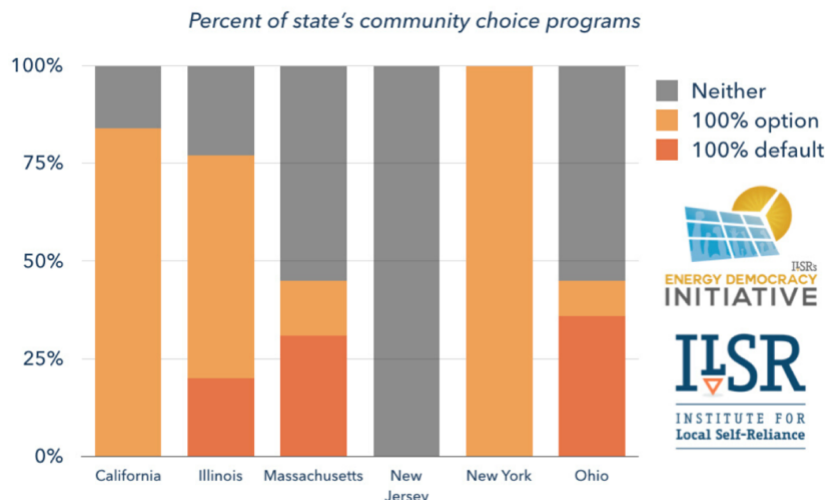
Five levels of CCA renewable energy product offerings				
Level 1	Level 2	Level 3	Level 4	Level 5
Matching renewable content of the default utility standard offering	Higher renewable content than the default utility standard offering	Higher renewable content than a CCA's level 2 (< 100%)	100% renewable energy and local distributed energy	100% local renewable energy, local distributed energy, and microgrids

A few examples:

- All CCA communities in New Hampshire offer three to four types of renewable energy products, from 23%, 33%, to 50%, and 100% renewable.
- Rhode Island CCA communities have a default energy product that includes 5% more renewable energy components than their default utility.
- 60% of all standard CCA product offerings in Massachusetts offer a higher percentage of renewable energy certificates than required by the state (Vicarelli et al., 2023).
- In 2022, 75% of the total energy served by CCA communities in New York was renewable. In 2021, New York CCAs accounted for more than 30% of New York renewable electricity voluntarily purchased.
- In California, 96% of CCA programs offer a 100% opt-up renewable energy option, with a few communities choosing the 100% renewable energy option as their default product,
- Several CCAs under the Sustainable Ohio Public Energy Council's management in Ohio have a default product of Green-e Energy Certified 100% renewable energy from wind certificates.
- The city of Cambridge, Massachusetts supports the development of new local solar energy projects through two product offerings that currently remain cheaper than the utility's electricity products.

Many CCA communities can offer 100% renewable energy products, sometimes locally sourced. As of 2020, the states of California, Illinois, and New York had between 75% and 100% of CCA programs with default or optional 100% renewable energy offerings. Massachusetts and Ohio had approximately 30% of their CCA programs with a default 100% renewable energy offering (Farrell, 2020).

Figure 28. CCA renewable energy offerings per state as of 2020 (Farrell, 2020).



- CCA lowers greenhouse gas (“GHG”) emission.

Given the high percentage of renewable components in CCA energy product offerings, communities are able to decrease their level of CO<sub>2</sub> emissions from what would have been produced using the default utilities’ standard energy products.

CCA communities in New York have avoided 1,300,000 metric tons (“MT”) of CO<sub>2</sub> since 2016. This is equivalent to CO<sub>2</sub> emissions from 3.3 natural gas-fired power plants in one year. Alternatively, it is equivalent to carbon sequestered by 1,550,273 acres of U.S. forests in one year (U.S. EPA, 2023).

In California in 2021, the average CCA greenhouse gas emissions intensity was 281 lbs CO<sub>2</sub>/MWh whereas the average default utility greenhouse gas emissions intensity was 456 lbs CO<sub>2</sub>/MWh. In other words, default utilities emitted 62% more pounds of CO<sub>2</sub>/MWh on average than CCA communities in 2021.

On a more local level, the city of Cincinnati, Ohio abates 250,000 tons of CO<sub>2</sub> per year. This number is expected to rise since its CCA customers will soon receive 15% of their electricity from local solar projects.

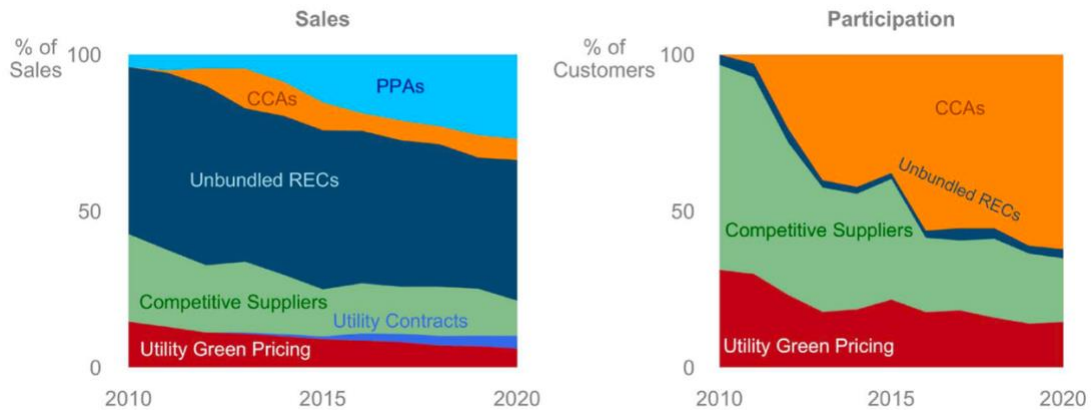
- CCA develops the U.S. (voluntary) renewable energy market.

Given the extent to which CCA programs are developing the voluntary renewable energy market, CCAs are well-positioned to not only contribute to reaching the U.S. government’s goals, but also help states reach their Renewable Energy Standard (“RES”) targets.

According to a National Renewable Energy Laboratory (“NREL”) study sponsored by the U.S. Department of Energy, “4.8 million customers procured about 12.8 million MWh of voluntary green power through CCAs in 2021” (Heeter, 2022). This means that 60% of the total U.S. voluntary green power market customers were CCA customers in 2021, while CCAs represent less than 10% of the nation’s households. The following figure compares CCA with other market mechanisms present in the voluntary market.

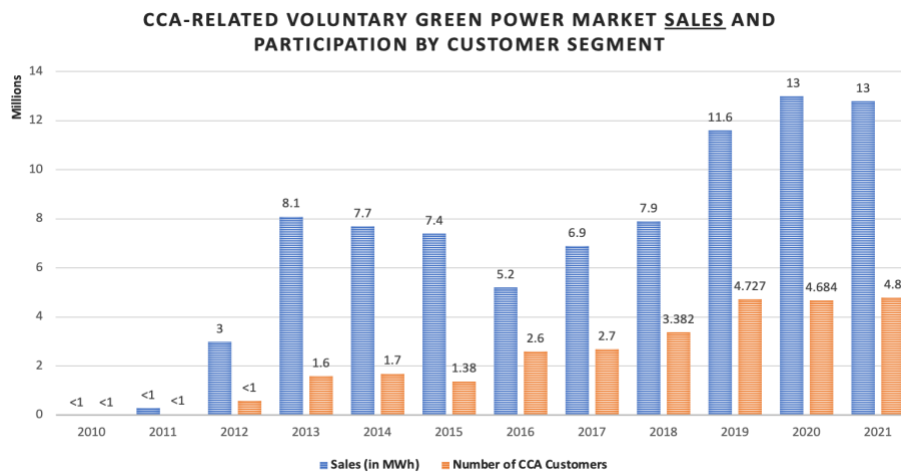


Figure 29. Green power sales and customers by mechanism in 2021 (Heeter, et al., 2021).



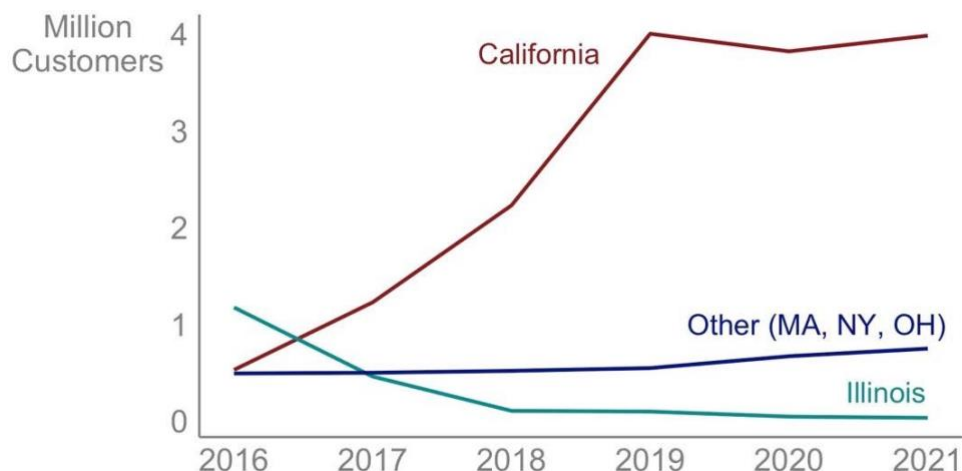
As shown in Figure 30, CCA-related voluntary green power market sales and participation have significantly evolved since 2010.

Figure 30. CCA-related voluntary green power market sales and participation by customer segment (Heeter, et al., 2021).



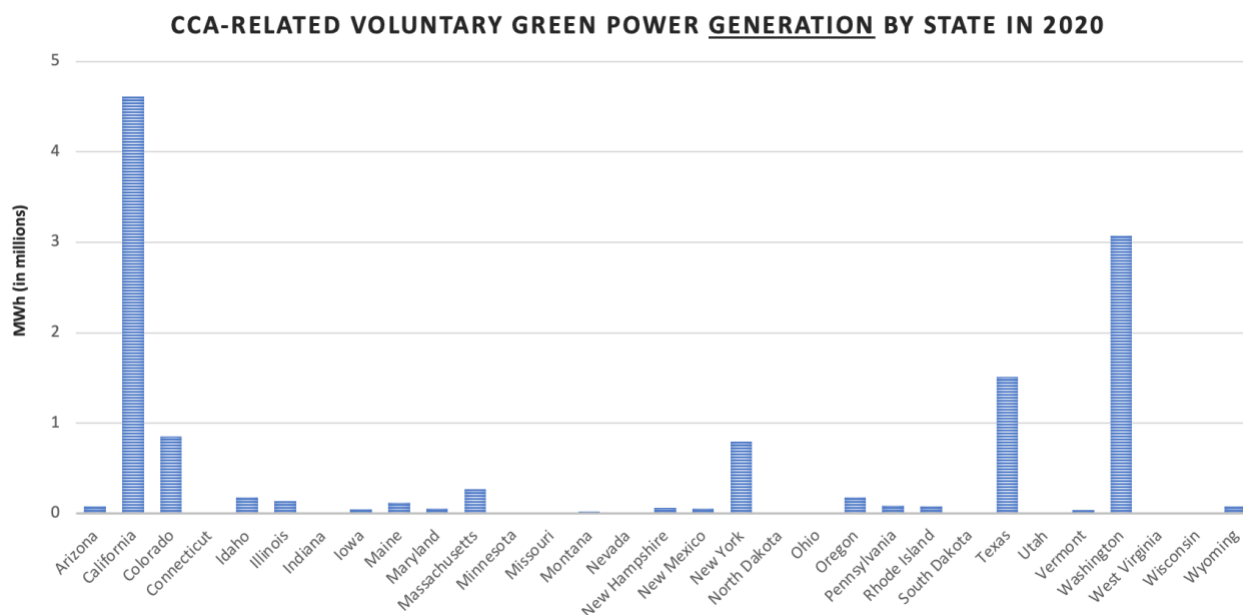
NREL’s comparative analysis between states showcases the role of California in leading the CCA-related voluntary green power sales, followed by Massachusetts, New York, Ohio, and Illinois (Heeter, 2022).

Figure 31. Development of CCA-related voluntary green power sales (Heeter, 2022).



Additionally, CCA customers have consumed 12.5 million MWh of electricity generated from 31 U.S. states in 2020, which represented 7% of all US voluntary green power generated that year<sup>37</sup>. The states of California, Washington, Texas, New York, and Colorado led this section of the market.

Figure 32. CCA-related voluntary green power generation by state in 2020 (Heeter, et al., 2021).<sup>38</sup>



- CCA enhances climate-oriented innovations that are scalable.

Because CCAs work in close partnership with the communities they serve and are committed to reinvesting their reserves to benefit their customers, CCAs are an effective tool to enhance scale-up innovations for energy resilience and efficiency. Beyond local procurement, communities can directly reinvest in local electrification and grid resilience

<sup>37</sup> This remains an outside portion of purchases since much of the nation's consumption is by commercial, industrial and "MUSH" accounts (Municipalities, Universities, Schools & Hospitals) and these entities purchase the bulk of the nation's voluntary RECs.

<sup>38</sup> Estimates are based on green power generated in each state, regardless of where the RECs are retired.

initiatives. Some CCA programs may only focus on electricity supply, however a growing number of CCAs across the country are re-investing in their communities through customer incentives and supporting local clean energy projects. There is a large variety of community and customer incentive projects that can be developed at scale through a CCA, such as:

- Community Distributed Generation (e.g., Community Solar, wind, and storage)

CCA has the capacity to help the Department of Energy's target of 20 new GWs of Community Solar and Storage in place by 2025 (DOE, 2021). Local purchases can and will feed local economies.

When combined with Community Distributed Generation (e.g., community solar, wind, storage), CCA programs ensure the participation of a large number of customers which, in exchange, may receive additional savings. For example, the town of Southampton, New York has contracted to build a 4.7 MW solar farm on a closed municipally owned landfill. With applied CCA authority, the municipality will provide solar bill credits to more than 1,000 Low- and Moderate-Income households. Without CCA, the plant would need to conduct door-to-door and phone outreach in order to find customers, which would result in a different pool of customers.

Additionally, the CCA programs in Brockport and Lima, New York collectively partnered with six local community solar farms, generating a combined 28,000 MWh annually. This pilot project, launched in 2021, enrolled almost all low-income residents, and operates effectively and efficiently to this day, delivering residents close to 10% reductions on their utility bills for the next twenty years.

In California, CCAs will have a 2023 opportunity to submit their intentions related to incorporating Community Solar credits into their CCA service plans. It is not yet clear how the community will approach this opportunity.

Other forms of local or regional solar investments may be enhanced by CCA. In 2018, Cape Light Compact in Massachusetts signed a PPA with Farmington Solar, Maine to purchase roughly 5 MW of bundled RECs from the 77 MW solar facility. The ability to purchase or direct specific bi-lateral deals allows Cape Light Compact to spark energy-sheds that will prospectively provide regional reliability and visibility on the source of their customer's power.

- Energy storage

The CCA structure allows for the development of both small and large energy storage projects. Small energy storage examples include Joule Community Power and the city of Rochester's partnership with a local rescue organization "The Open Door Mission" to develop a combined energy storage and solar facility to serve the surrounding community and create local employment opportunities. This will be in part fueled through Community Distributed Generation tariffs. The partnership was selected by the Department of Energy to receive technical assistance from Pacific Northwest National Laboratory as part of the Energy Storage for Social Equity initiative. On the other side of the country, East Bay

Community Energy in California partnered with Sunrun to offer “home solar + battery storage” systems to their CCA homeowners at pre-negotiated pricing. Also in California, CCA 3CE has approved a 25-year PPA with Hydrostor for the construction of an energy storage facility that will generate 500 MW of energy storage and provide 200 MW of that capacity to CCA customers. This project is set to be “the largest Compressed Air Energy Storage Project in the world” (3CE, 2023).

### - Demand Response

Overall, many CCA communities have already implemented demand response programs through their CCA. Demand response programs allow energy customers to “reduce electricity usage when demand on the network is highest” as a way to balance electricity supply and demand. Such programs “help avoid overload, reduce emissions, and avoid expensive equipment upgrades” (NYSERDA, 2023). In California, most, if not all CCAs have implemented or taken advantage of a demand response program. In New York, Westchester Power has launched a quite innovative behaviorally based demand-response program, and Joule contracts have confirmed residents’ ability to consume less at peak grid hours and reap the rewards through reduced prices in future years.

### - Eco civic prizes

Several CCA communities use resources from their electric aggregation program to fund local sustainability projects through prizes or grant contributions. For example, NOPEC communities in Ohio have awarded over \$40 million in community energy-efficiency grants through their CCA program. The electricity supplier MC<sup>2</sup> provides the City of Evanston, Illinois with a \$500,000 annual Civic Grant for a total of \$1.25 million over their 30-month CCA contract, to go towards purchasing renewable energy for CCA customers and implementing the City’s Climate Action and Resilience Plan. Plans for grassroots community grant and award programs are as diverse as the CCA communities themselves.

### - Building decarbonization

A growing number of CCA programs include incentives to electrify pre-existing and/or new residential and commercial buildings. From clean heating and cooling retrofits to the use of smart usage rewards online apps, there are many options to assist with home and building electrification through CCA. For instance, Silicon Valley Clean Energy, a CCA in California, offers its customers up to \$8,000 (or \$14,000 for low-income qualified customers) for the replacement of residential gas furnaces and water heaters with electric heat pump technology. Additionally, New York CCA administrator Sustainable Westchester partnered with “EnergySmart HOMES” and “GridRewards” to help residents save on their energy consumption. Sustainable Westchester was also selected by the New York State Research and Development Authority (“NYSERDA”) to serve as a liaison between property developers/owners and heating and cooling experts, to develop “a proposed Westchester County multi-family new construction of 50,000+ new housing units, air source heat pumps and geothermal solutions” (Sustainable Westchester, 2023). This electrification, once implemented fully, would have an economic impact of more than \$10 billion dollars (Sustainable Westchester, 2023).

### – Vehicle electrification

CCA programs are incentivizing and accelerating the development of electric vehicle infrastructure for both commercial and residential customers in their territories. The CCA Marin Clean Energy in California educates customers on EV charging models, sponsors public charging infrastructure, and offers rebates and incentives for electric vehicle purchases. The CCA program contributed to the installation of over 1,500 EV charging ports in their service territory thus far. Another example is “3CE”’s vehicle electrification program. Through their rebates, the California CCA has led to the purchase or lease of 684 electric vehicles, and 713 electric bikes.

This is only the tip of the iceberg when compared to a CCA’s potential in this arena. Electric vehicles (“EVs”) with bidirectional capabilities<sup>39</sup> are gaining popularity, where the vehicle’s battery can feed electricity back into the grid during high energy usage periods, avoiding costly peak demand electricity prices and blackouts during emergencies. Given CCAs’ close relationships with the communities they serve, they are well positioned to provide ancillary services for this type of program, particularly as communities and schools electrify their vehicle fleets. California has already introduced legislation that would require all EVs sold in the state after January 1, 2027, to have bidirectional charging capabilities.

CCA is an enabling tool for developing clean energy policies, innovations and markets that deploy energy resilience. From building electrification to high penetration of solar PV and PEV-ready planning that influence utility distribution system investments, CCA can provide small and large communities with grid resiliency, readiness, and decarbonization.

#### 4.3.2 Addressing U.S. Government’s economic goals

On August 16, 2022, the U.S. Government signed the Inflation Reduction Act which aims to “lower energy costs for families and small businesses, accelerate private investment in clean energy solutions (...), strengthen supply chains (...), and create good-paying jobs and new economic opportunities for workers” (The White House, 2022). As shown in this study, CCA is an excellent tool to catalyze the U.S. clean energy economy and advance cost-saving clean energy projects for all communities.

- **CCA ensures energy price stability.**

As exemplified in Figure 5, Section 4.1, CCA programs provide consistent rate stability compared to default utilities, protecting their customers from unexpected spikes in their electricity bill. In times of inflation and volatility in the energy market, CCAs are particularly attractive, avoiding energy price “sticker shock” as default utilities enter new procurement cycles.

As opposed to default utility rates that are variable and can change several times a year, many CCA programs feature rates that remain stable. In other words, CCA customers do

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<sup>39</sup> Bidirectional vehicles can receive and send energy from/to other devices. They provide backup power to buildings, for example.

not experience monthly or quarterly price fluctuations as they would with their default utility.

- **Communities can save money with CCA.**

According to a study by the Institute for Local Self-Reliance, there are at least three factors<sup>40</sup> that lead to electricity cost savings with a CCA: bulk purchase of electricity, aggregation of multiple communities, and lower cost of capital, (Farrell, 2020).

While savings cannot be guaranteed, CCA programs have provided on average 2-25% savings nationwide for its customers, compared to the default utility's rates. As shown in Figure 8, Section 4.1, average CCA standard rates have historically proven lower than the average default utility standard rates.

In Massachusetts, CCA customers typically save 10% on their electricity bills and 80% of CCA programs in Massachusetts offer lower electricity prices than the default utility standard rates (Vicarelli et al., 2023). Up until 2023, participants in Berkshire County's CCA program were paying less than half the current price of the default utility and claimed to have beaten the default utility's pricing every six months since 2018, not only saving its customers millions of dollars, but providing a greener energy portfolio (Martinez, 2023).

As noted earlier, CCA communities in Ohio have also saved hundreds of millions of dollars since the early 2000s (Thomas et al, 2019). The city of Cincinnati, Ohio's CCA program, for example, saved its residents \$2.7 million in 2020. NOPEC's 220 member communities have saved over \$300 million since 2001, and SOPEC's 20 member communities are expected to save \$13 million in the second half of 2023 alone.

In California, several CCAs, such as Marin Clean Energy, Silicon Valley Clean Energy and Peninsula Clean Energy, have each saved their customers up to \$100 million since the start of their programs, representing a 3-5% savings versus the default utility's electric generation service costs. 3-5% may appear modest, but it is far more impressive when coupled with the fact that utility rates have proven to be much more volatile than have CCA rates.

In the wake of Covid, the war in Ukraine, and other external factors, for example, New York utility prices doubled and tripled in 2022. In contrast, CCA customers in New York were protected by prices that were a third of what utilities were charging to residents. In regard to cost savings, in 2022, New York CCA customers saved between \$100 to \$180 per household on their electricity bill.

- **CCA is cost-effective.**

Depending on a CCA's structure, communities can launch a CCA program with little to no funding resources from the community. CCAs that partner with third-party consultants or program administrators pay for their services through a small portion of the electricity supply contract. Communities that launch a CCA through a Joint Powers Authority ("JPA")

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<sup>40</sup> The fourth factor that leads to CCA savings, according to a study by the Institute for Local Self-Reliance, is "lower executive salaries" (Farrell, 2020). This element was not investigated in this report.

may contribute start-up funds from their own reserves and/or apply for public financing. These loans tend to have lower interest rates than investor-owned utilities' loans. The California Energy Commission in fact "estimates that the cost of capital for a CCA is almost a third of that for an investor-owned utility, 5.5% compared to 12.9%. This means that first-year costs at new generating plants are 40% lower than if owned by investor-owned utilities" (Farrell, 2020).

- **CCA creates long-term job opportunities.**

In addition to the staff required for the management of a CCA program (which can range from 3 to 80, depending on the state and CCA structure), "several CCA communities have added another local dimension to their energy services: jobs and economic development" (Farrell, 2020).

This is not anecdotal, it is based on one key feature of CCA programs: when contracting for power and/or for community solar<sup>41</sup>, a CCA may issue an RFP which can specifically require any particular employment requirement in the construction or operation of the selected project(s).

In California particularly, CCAs are supporting the construction of new regional renewable energy projects that directly enhance local union labor through joint solicitations and resolutions. CCA communities have been prioritizing projects that enhance local procurement and high labor standards and wages. For example, in 2019, Marin Clean Energy supported 341 jobs as part of the construction of a 10.5 MW solar project in its service territory. Peninsula Clean Energy recently contributed to the employment of 800 union jobs through their 200 MW solar project in Merced County (CalCCA, 2019). Overall, long-term PPAs in California equate to over \$14 billion committed by CCAs to new-build clean energy resources and support for 24,000 construction jobs" (CalCCA, 2022).

### 4.3.3 Addressing U.S. Government's social goals

As part of the United Nations' Sustainable Development Goals adopted in 2015, U.S. National Statistics indicate that "affordable and clean energy" is a top priority. As a result, the U.S. Government has committed to work towards the creation of an environment that "ensures access to affordable, reliable, sustainable and modern energy for all" by 2030 (U.S. OMB, OSTP, GSA, 2020). CCA programs contribute to achieving such goals, especially around equity and local empowerment.

- **CCA is a tool to empower low-income and disadvantaged communities.**

CCA is a local energy tool that allows communities to directly contribute to reaching environmental justice and Justice 40 goals.

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<sup>41</sup> This could be applied to any type of Community Distributed Generation source.

Through its high level of community engagement and empowerment, CCA has delivered on, and retains substantially greater potential in contributing to the U.S. Justice40 goals, which seek to support true environmental justice (“EJ”) movements. As drafted by delegates to the First National People of Color Environmental Leadership Summit held in October 1991 in Washington DC, the 17 principles of Environmental Justice have served as a foundation to the grassroots environmental justice movement (EJN, 1996). Pioneering scholar and activist Dr. Robert Bullard partially defined EJ as initiatives that “address power imbalances, lack of political enfranchisement, and redirect resources so that we can create healthy, livable and sustainable types of models” (Schweizer, 1999).

In 2021, the U.S. Government set the rules for the Justice40 initiative in Section 223 of Executive Order 14008. The program aims “to deliver at least 40 percent of the overall benefits from certain federal investments to disadvantaged communities” (DOE, 2022). More specifically, the U.S. Department of Energy’s Office of Economic Impact and Diversity identified eight policy priorities (DOE, 2022):

- Decrease energy burden in disadvantaged communities (“DACs”).
- Decrease environmental exposure and burdens for DACs.
- Decrease parity in clean energy technology (e.g., solar, storage) access and adoption in DACs.
- Increase access to low-cost capital in DACs.
- Increase clean energy enterprise creation and contracting in DACs.
- Increase clean energy jobs, job pipeline, and job training for individuals from DACs.
- Increase energy resiliency in DACs.
- Increase energy democracy in DACs.

Most of these priorities, if not all, can be effectively addressed by CCA programs. “Through organizational design, meaningful outreach and engagement, and community investment, CCAs can prioritize community needs and promote equity in disadvantaged and low-income communities of color, as well as tribal and rural communities” (Lao & Gunther, 2020). By design, many CCAs have community advisory boards to ensure the program meets the unique needs of their service area. These advisors provide a powerful voice when it’s time for a CCA to make decisions on its choice for electricity services, clean energy resource investments, and local energy projects.

CCAs tend toward a deep dedication to empowering low-income and disadvantaged customers. First, customers who are eligible for financial assistance through their default utility continue to receive those benefits as a participant in the CCA program. This is made possible in most CCA-enabled states. For instance, of the 10 CCAs in California that participated in LEAN Energy US’ survey, approximately 20% of their customers qualified and/or participated as low-income customers under the California Alternate Rates for Energy Program (“CARE”) or Family Electric Rate Assistance Program (“FERA”). Customers in disadvantaged communities who are unable to install solar on their roofs can also receive additional bill discounts as part of the Disadvantaged Communities Green Tariff (“DAC-GT”). Most CCAs in California provide additional benefits to low-income customers above and beyond the utility and/or state financial assistance programs. In California, East Bay Clean Energy (“EBCE”), for example, developed the “Health-e Home” program, which provides



\$1M in project financing and \$400,000 in incentives for Low- and Moderate-Income customers (23% of the EBCE's customers live in lower income territories).

Second, and most directly, CCAs are able to establish new programs that prioritize their low-income and disadvantaged groups. From energy efficiency initiatives to transportation and local renewable energy projects, there is a variety of options that CCA communities can<sup>42</sup> develop to enable low-income and disadvantaged groups to become active participants in the renewable energy market.

For example, Cape Light Compact in Massachusetts operates a low-income revolving grant program for installing solar on low-income homes in partnership with Habitat for Humanity; they also received a grant to run a low-income e-bike program.

As further exemplar, CCAs in California have developed energy efficiency programs (e.g., health and safety upgrades paired with energy efficiency and electrification upgrades in low-income households), transportation initiatives (e.g., income-qualified EV rebates for low-income drivers, soon to be transitioned to a money up-front program), local renewable energy projects (e.g., community solar programs offering 100% renewable energy and 20% bill discount for low-income customers in disadvantaged communities), and equity programs (e.g., workforce development program for mostly low-income groups looking to pursue green energy careers) that aim to empower low-income and disadvantaged communities in the clean energy transition.

CCA is a particularly effective tool to ensure that benefits from Community Distributed Generation programs such as energy storage and community solar facilities directly reach low-income and disadvantaged consumers. Through CCA, local governments have the authority to move their residents onto clean energy solutions, all at one time, without the costs or time delays of an opt-in approach (i.e., one-by-one; non-automatic enrollment). Since communities can designate who receives Community Distributed Generation credits by default, low-income and disadvantaged residents can reliably benefit from cost savings, either exclusively or with priority. This tool can therefore be used to achieve Justice40 and environmental justice objectives, verifiably and efficiently. In contrast to utility initiatives that rely on one database, such as the utilities' log of Low-Income Home Energy Affordability Program beneficiaries, CCA programs can efficiently reach these residents and more: residents in specific disadvantaged communities by geography, food stamp recipients, etc.<sup>43</sup> As the most participatory mechanism of green power purchase in the United States, the integration of Community Distributed Generation into CCA programs offers not just cost savings at further scale to low-income groups, but also empowers local residents from disadvantaged communities to own, work, operate and build resources, providing resiliency infrastructure, education, and job creation. By these means and as exemplified in Section 4.3.1, CCA can further create powerfully resilient Environmental Justice Communities.

- **CCA creates local choice and empowerment.**

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<sup>42</sup> Based upon state regulations.

<sup>43</sup> For example, Westchester Power delineated how they would verifiably reach each of these communities and more, in their 2021 Implementation Plan update, submitted to the Public Service Commission. The plan has not yet been approved.

CCA programs provide local control of energy decisions to communities. Any community that wants to create a CCA program can start the process, as long as it is enabled in their state. In that sense, CCA programs are created by the community, for the community.

In non-CCA communities, most electricity supply customers are automatically enrolled in their default utility's electricity program and are subject to sometimes extreme price fluctuations. In deregulated states, electricity customers can shop around for an alternative energy supplier on their own, but only a small portion do so.<sup>44</sup> Some "third party suppliers" tend to offer an attractive introductory rate, only to raise prices when customers' original prices expire. Consumers may not act promptly or at all to exit these agreements, which funnels additional profits for suppliers. In CCA programs, participating communities choose who and where to receive electricity based on their own pricing and climate goals. The moment one fixed-price contract ends, consumers are moved into another fixed-price contract that is reflective of the then-current market, or they are returned to the utility with its own regulated consumer protections in place.

As argued by Farrell, "CCA simplifies the more widely available tool of a utility takeover by allowing communities to make energy supply decisions without buying the poles and wires of the existing electric utility" (2020). Communities are able to take an active role in procuring energy for their residents and small businesses, without undertaking heavy infrastructure changes. Without the power of choice that CCA programs provide, communities would not be able to offer rate stability, higher consumer protection, and local sustainable development opportunities.

- **CCA is accessible to everyone.**

Given the opt-out structure of CCA programs, meaning that all eligible residents and small businesses are automatically enrolled, a high percentage of a community participates in its CCA program. As mentioned in Section 2.1, with CCA, the community –through the help of trusted experts– goes through the process of finding alternative suppliers, negotiating a rate, and choosing the source of their electricity supply, all on behalf of their residents and small businesses. Hence, anyone regardless of their income or understanding of the energy market can participate in the CCA program of their community, without any effort. Such consumers are also offered an energy-market education, as outlined in the next topic.

- **CCA has a high level of community engagement.**

Outreach and education efforts to support a CCA program's launch and continued activity is a priority for them to evolve efficiently. CCAs spend a significant amount of time and resources engaging with the community prior to the start of a CCA program, during its implementation, and consistently once launched. In fact, many CCA communities and/or third-party program administrators have staff dedicated to community outreach and engagement.

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<sup>44</sup> For example, as of July 2022, 70% of residential accounts that had contracted with an alternative electricity supplier in Ohio were part of a CCA program (PUCO, 2022).

Educating communities on CCA is a necessary first step to implementation that requires a high level of commitment and marketing resources. CCA groups often complete several marketing campaigns to inform future and/or current customers about their services, including town hall meetings, local advertising, and direct mail. In some states, it is required that future participants in a CCA program receive no less than three mailers regarding the upcoming switch in energy provider, and information on how to opt-out of the program. In New York, CCA program administrators spent approximately 117,335 hours educating approximately 150 communities on CCA between June 2015 and June 2021.

CCAs are also responsible for providing robust customer service to their customers. CCA programs always include a customer operations department that is managed by either the community itself, the Joint Powers Agency (if applicable), a third-party administrator, or the alternative energy supplier.

Community engagement for CCA also takes place in the participation and/or organization of public events such as community festivals, online and in-person workshops, sustainability prizes, local club meetings, chamber of commerce events, city council meetings, networking events, cross-organizational initiatives, etc. In 2022, the Californian CCA Marin Clean Energy attended over 200 community events, including more than 80 speaking opportunities.

Educating consumers and municipalities is not only quantifiably measured in hours spent speaking to residents. CCAs are educating local government leaders and utilities with respect to opportunities available to them. Numerous CCA groups have identified federal funds available to states and utilities. For example, the utility Long Island Power Authority (“LIPA”) learned details of the U.S. Department of Energy’s Grid Resilience and Innovation Partnership (“GRIP”) program from a local CCA in Southampton, NY, eight days before the preliminary proposal was due. LIPA was subsequently “encouraged” by the DOE to apply for \$250 million of grid upgrade grant funding. The utility may or may not ultimately succeed in its application. Nonetheless, this CCA positioned the utility to succeed.

- **CCA can offer higher consumer protection benefits than alternative suppliers and some utilities.**

As shown in Figure 27, Section 4.3, survey participants from California, Illinois, Massachusetts, and New York point to experience that CCA programs can provide consumer protection benefits such as transparency, price protection, fixed-price expiration protection, and fraud protection, as opposed to alternative suppliers and sometimes default utilities. This phenomenon can be explained by the fact that CCA programs are highly regulated community-based programs that have a primary objective to benefit the community, hence their customers.

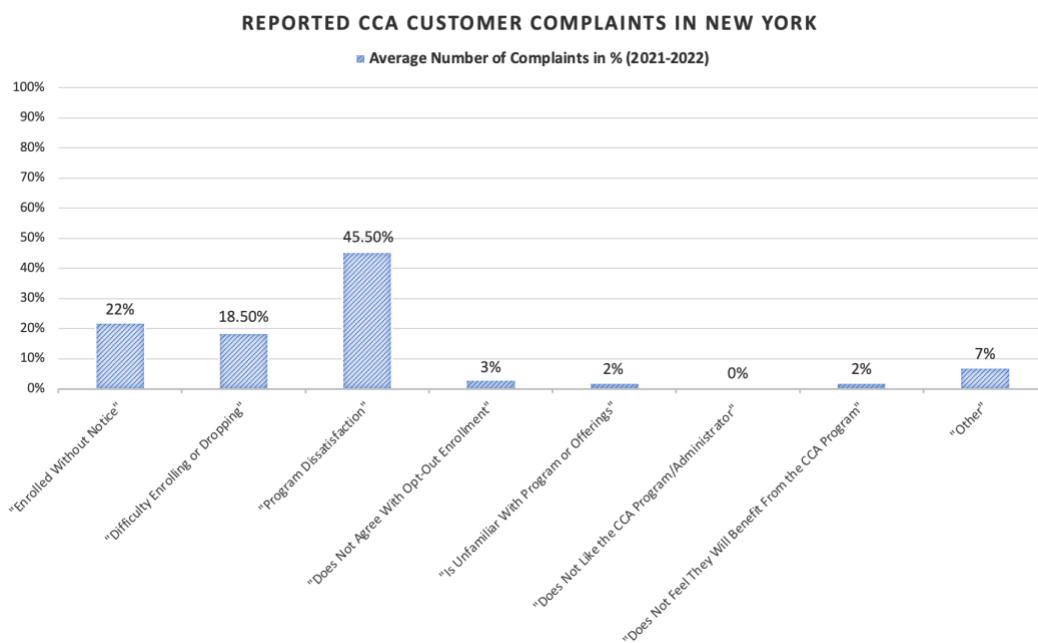
When unscrupulous electricity suppliers exit a CCA program as some did in New York in 2022, the CCAs and state agency sought to hold suppliers accountable, often through legal challenges launched to protect residents. No individual consumer is similarly protected, even by state agencies tasked with that protection. The “supplier exit” phenomenon occurred in New York and Ohio in 2022. In the wake of the pandemic, as market prices

spiked and purchased market positions became more valuable, suppliers sometimes purged their customers, CCA or free market. This enabled them to either sell their “electricity supply hedges” quite profitably or escape contractual risks that they had failed to hedge for. This once in a generation market upheaval sparked new consumer protections in CCA contracts, which will protect consumers from these historically rare occurrences.

- CCA provides a high level of customer satisfaction and participation.

Since CCA programs are community-based initiatives, the level of customer satisfaction tends to be high. A program developed by the community, for the community, has a higher chance of success; program managers are already part of the community the CCA serves. An efficient CCA model is generally based on the community’s needs. In New York, for example, less than 1% of CCA customer accounts are dissatisfied with their program<sup>45</sup>. New York CCAs are required to annually report the number and type of complaints that they receive from customers. Based on reports from 2021 and 2022, the number of reported complaints has decreased by 23% in a year. Moreover, the total number of reported complaints remain significantly low compared to the total number of CCA customer accounts. In 2021, 171 individuals complained about the CCA program, in 2022, there were 132 complaints. This represents less than 1% of the total active CCA customer accounts in New York.

Figure 33. Reported CCA customer complaints in New York.



The “opt-out” (i.e., automatic enrollment) structure of CCAs has allowed communities to benefit from a high participation rate. On average, 85-95% of eligible customers participate in a CCA program (O’Shaughnessy et al., 2019), with individual participation rates as low as 70% and as high as 96%. The average participation rate in California in 2022 was at 92%,

<sup>45</sup> See filings related to NYDPS-DMM 14-01211/14-M-0224.

and 85% in New York. In other words, the high level of community outreach and education that constitutes CCA programs has, in part, contributed to low opt-out rates. Approximately 5-15% of CCA customers end up leaving the program (O'Shaughnessy et al., 2019). Such customers may either switch back to their default utility, go to an alternative supplier on their own, or simply close their accounts.

## 4.4 Challenges to Tackle and Best Practice Guidelines

The CCA market has proven to be an effective tool to address the U.S. Government's environmental, economic, and social targets in the energy sector. In order to strengthen the growth potential of CCA communities, it is essential to tackle the challenges that CCA stakeholders face. This section analyzes the main barriers related to the implementation and growth of CCA programs and provides best practices guidelines for state and federal agencies to further develop the CCA market and meet their own energy, climate, and social goals.

### 4.4.1 Challenges for CCAs

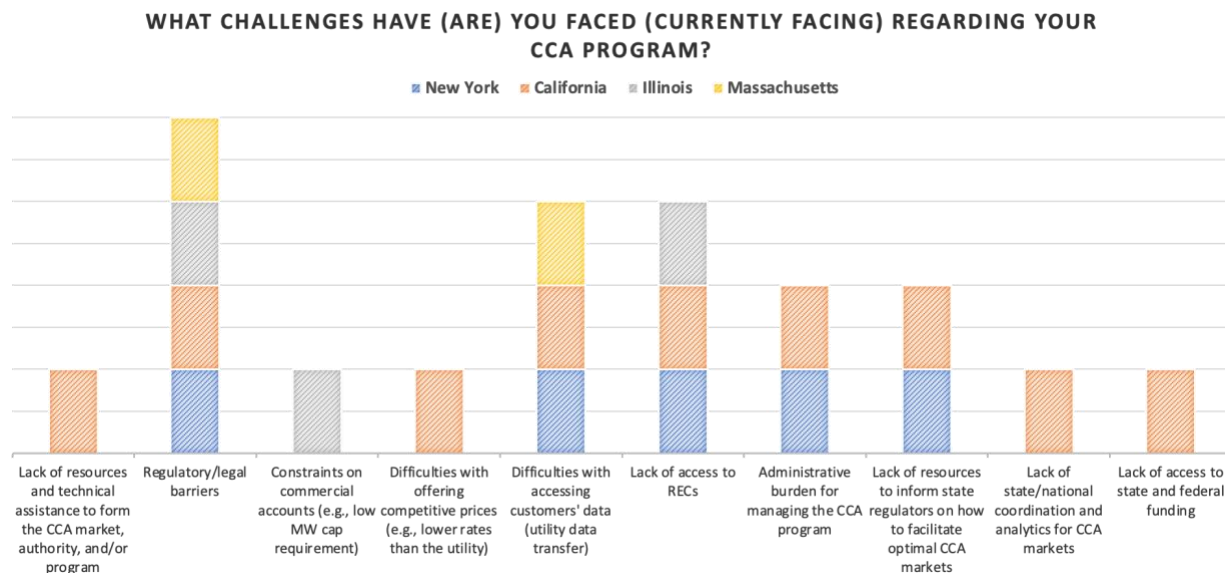
CCA stakeholder groups may face different challenges depending upon the competitive landscape and regulatory statutes in place in their state. That said, most CCAs encounter similar issues that prevent them from receiving benefits and support from state and federal agencies that equitably reflect the benefits CCAs offer to these agencies and regions.

A study conducted by O'Shaughnessy et al. in 2019 identified four main challenges that CCAs face: "the need to maintain cost savings relative to utility basic service; tradeoffs between local autonomy and regional cooperation; finding ways to increase procurement of local renewable energy; and addressing issues associated with customer turnover." This section primarily focuses on challenges such as regulatory framework failures, delays and inaccuracy in utility data transfers, inaccessibility of RECs, and a lack of state and federal support. LEAN Energy US believes that these failures are based on a lack of knowledge rather than on any mal intent by any market participant.

Many of the above factors prevent CCAs from sparking the development of new resilience and reliability-oriented resources such as renewable power and storage plants. Regulators and/or statutes also frequently limit the ability for CCA programs to benefit Low- and Moderate-Income residents, and even institutionalize practices that systematically disadvantage CCA customers.

Figure 34 shows LEAN Energy US's 2023 survey results highlighting the main challenges CCAs face in four states.

Figure 34. Answers to survey question "What challenges have (are) you faced (currently facing) regarding your CCA program?"



- **Regulatory challenges**

Based on online surveys, focus groups, and interviews with various stakeholders, CCA groups from all CCA-enabled states identify regulatory and legal barriers as their primary challenge in implementing and expanding their programs.

- **Regulatory delays and inadequate interventions**

CCA communities have experienced significant challenges in the development of their programs due to regulatory delays. Regulatory issues that slow the launch of new CCA programs and create barriers for communities that wish to expand existing programs are most likely caused by regulators' lack of sufficient knowledge of a CCA's basic structure, its historical performance, and its potential for energy savings, stability, and acceleration of climate action goals.

In Massachusetts, communities wishing to launch CCA programs have complained about the lack of pace from the DPU to review and approve CCA applications. In some cases, communities have been waiting for approval of their implementation plan for over two years. Moreover, many operating CCAs have experienced delays when requesting a modification of their existing implementation plan. This issue has become a counter incentive to enhance CCA programs for the sake of innovation and left several communities out of the recent dramatic cost savings CCA customers have enjoyed as default utility rates soared last winter. Some groups argue that the agency oversteps its bounds, regulating in ways that are not authorized by the legislation. As a matter of fact, legislation has been filed in Massachusetts to reform the CCA statute so that regulators will be required to treat CCA programs and applications with clearer objective processes (e.g., time limits for program review) that will allow the industry to contract more predictably.

On the other hand, regulators often intervene to directly address CCA failures or lacks, or even third parties' misbehavior. The misunderstandings around CCA communities' needs and potential, however, feed interventions that can generate exactly the opposite of

intended outcomes or that freeze the industry's potential, at critical moments of opportunity for the industry and for the affected state.

In New York, for example, the villages of Brockport and Lima were the first communities in the country to adopt opt-out community solar in February 2021. The automatic enrollment of customers was made possible by the CCA status of such communities. The program was able to offer guaranteed lower total power costs right away without having to spend money on efforts to persuade residents to sign up. The concept became so popular that many other CCA communities in the state requested to adopt the opt-out community solar model. Unfortunately, the Public Service Commission ("PSC") put a stop to the program in late 2021 by stating that it wanted to weigh alternative options. Due in part to numerous and sophisticated municipalities' formal requests to serve their disadvantaged communities,<sup>46</sup> the Commission promised to decide within months whether to consent to a reinstatement of this CCA authority. As of June 2023, the PSC has kept the policy on pause and CCA communities are unable to bring their ambitious and practical plans to fruition.

#### – Ineffective and unfair regulatory requirements

Several survey participants mentioned the lack of adequate requirements that regulators set to oversee CCA programs. Inadequate regulatory frameworks have led to the –hopefully temporary– destruction of CCA markets, as experienced by New Jersey CCA groups. As mentioned in Section 4.2.5, New Jersey communities are unable to compete with the Price to Compare ("PTC") rates. CCA rates must<sup>47</sup> be lower than the PTC rate, unless the CCA's energy mix contains a percentage of class I and class II renewable energy that exceeds the New Jersey renewable portfolio standards requirements. While this requirement may be intended as protective of customers, New Jersey regulators have unfortunately established a PTC formula<sup>48</sup> that disrupts the CCA market. As noted above, 2023 CCA standard rates must be lower than the PTC rate, which is an average of the utility's standard rates of 2021, 2022, and 2023. CCAs that do not choose ambitious renewable targets, cannot compete with this PTC rate because the 2021 utility rates were much lower at the time and yet they are still considered in the current PTC formula. The current PTC rate is artificially low as the 2021 rates are dragging the numbers down.

CCA consultants and advocacy groups have been working for many years to change this PTC formula or to eliminate it altogether as it is not reflective of the current market. In response, many New Jersey communities are waiting for the hedges to roll off in the next few years for competitors to join the market again and start a CCA program. As a result of this regulatory misstep, only one community has an active CCA program in New Jersey, whereas at least 131 communities have authorized CCA locally and 4 million electricity customers are eligible for CCA according to the New Jersey Board of Public Utilities.

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<sup>46</sup> Joule's 2021 submission for Southampton, Sustainable Westchester's 2021 submission to serve all of its low-income residents, Ampion's 2021 submission, DRS' 2021 submission.

<sup>47</sup> As per N.J.A.C 14:4-6.9 of the New Jersey Administrative Code.

<sup>48</sup> The PTC equals the average standard rate from the past three energy auctions –there is one energy auction per year.

Akin to New Jersey, New York's CCA industry is facing stark regulatory restrictions, particularly in recent months. The state requires CCAs to purchase at least 50% of NYGATS-registered renewable energy supply in order to be allowed to set a price higher than the PTC. Otherwise, CCAs must set a fixed price that is lower than the utility's average electricity supply price over the last twelve months (a.k.a. NY's PTC formula). Survey participants argue that this restriction forces also them to purchase a specific type of REC which prevents them from developing renewable energy in other ways, such as through PPAs with local renewable power plants.

Additionally, CCAs in New York are unable to appropriately serve low-income customers through their electricity supply program. CCAs are required to guarantee<sup>49</sup> savings to low-income consumers in order to be able to serve them through CCA. This means that New York low-income consumers may not benefit from their community's CCA program, which offers a fixed, stable pricing and shelters them from unpredictable utility prices. In fact, they are not even permitted to join such a program even if they wanted to opt into it.

### – Unequal treatment between CCAs and utilities

CCAs from various states commented in LEAN Energy US' survey about the unequal treatment they receive compared to default utilities. As mentioned by a survey participant, "the grid in California is rapidly transitioning from gas/fossil-fuel based to clean/renewable energy sources. New mandates are being issued by the State of California on a continual basis, with respect to new grid needs for clean baseload resources, energy storage and reliability. Meeting or exceeding these requirements is a continuous challenge." This is mainly due to the fact that CCAs in California are designated as load-serving entities and are therefore subject to similar rules as utilities. Survey participants argue that the regulatory structure in California is substantially designed to protect default utilities rather than all load-serving entities. CCAs have significantly lower staff and funding resources than their local utilities yet are required to perform at a higher level than default utilities in order to meet certain requirements. For example, the California Public Utilities Commission ("CPUC") adopted a Resource Adequacy ("RA") program<sup>50</sup> whose rules state that all load-serving entities (e.g., investor-owned utilities, CCAs, municipally owned utilities, alternative energy suppliers, etc.) are required to purchase a certain amount of RA every year, regardless of their resources and capacities. While this rule is already challenging for non-investor-owned utilities such as CCAs –as they have a much smaller capital– the recent RA shortage makes it almost impossible for CCA groups to meet their RA requirement. Prices are rising in concert with the fact that some default utilities are RA sellers in addition to being RA buyers. They set the price for RA themselves. This has been particularly challenging for load-serving entities with smaller resources.

While the Price to Compare ("PTC") can be a valuable data-point, published PTCs are often simple numerical averages that do not always reflect charges, fees, and high consumption periods that are associated with the CCA or default utility rates. In other words, customers are often misled and cannot accurately compare their options for electricity supply. Just as

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<sup>49</sup> CCAs cannot guarantee savings, even though the average national CCA rates have been lower than the default utilities'.

<sup>50</sup> See glossary.



CCAs are generally required to post their fixed-rate contracts into the future, utilities should be required to post quantities, prices, and contract start/end dates for any hedges they purchase in the market. Such legislation was introduced into New York's legislature in 2022, but it was not passed. With this type of requirement in place, CCAs would be able to better forecast appropriate times to procure energy on behalf of their customers.

As opposed to investor-owned utilities that redistribute profit to their shareholders, CCAs redistribute profit directly back into the communities they serve. However, in some states such as Massachusetts, regulators require CCAs to return all the profits back to the ratepayers. In other states such as New Hampshire and California, CCAs are allowed to use profits to reinvest locally and develop additional programs for their customers. The former legal structure makes it difficult for CCAs to develop innovative projects as there is no direct reinvestment funding mechanism in place.

– [Inaccessibility to advanced net metering](#)

Beyond pricing, many CCA representatives in our survey and focus groups mentioned challenges in developing add-on programs as part of their CCA. Regulators make it difficult for CCA communities to innovate and offer additional options to their existing CCA program, like advanced net metering.

In Massachusetts, for example, CCAs are limited on the products they can offer because they do not have access to smart meters (i.e., they are unable to offer EV time-of-use products). Additionally, despite the possibility to develop community solar energy projects through CCA (on an opt-in basis, though), the Massachusetts Department of Public Utilities ("DPU") has not yet approved low-income households to benefit from community solar programs.

The state of Ohio, which has not yet established community solar, also lacks a virtual net-metering policy that would allow CCAs to develop community solar programs.

Best practice guideline to address regulatory challenges:

State officials would be served to better understand how CCA may be effectively deployed as a key mechanism for achieving energy and climate goals. Regulatory challenges reflect this uneven understanding, which drives regulatory inconsistency that may not be reflective of risks that regulators seek to address. Federal and state agencies that choose to regulate CCA programs and communities that deploy them, must proactively educate themselves on the CCA market in order to create regulations that are consistent with CCA communities' needs and potential. Such agencies need to, can, and should make their regulatory process easier, more transparent, and more equitable (in comparison to default utilities) for CCA groups.

While state oversight is often necessary for CCA markets to evolve in an efficient and protective way, the regulatory framework must be expansive instead of restrictive. Regulators can no longer micro-manage CCA programs to the detriment of customers. State and federal agencies must stay engaged directly with CCA stakeholder groups in order to

follow the pace of development of the market and avoid impossible, counter-productive, or improperly onerous requirements that CCAs are forced to follow, such as many of those outlined above.

Finally, creating a transparent, equitable, and innovation-driven regulatory framework for the CCA market will enable state and federal agencies to better achieve their environmental, social, and economic objectives. CCAs have already enriched and scaled the renewable energy market as well as U.S.-based innovations. This study makes clear that what CCAs have already achieved merely scratches the surface of what CCAs can achieve.

- **Inability to access to electricity customers' data**

Based on a survey with CCA representatives from California, Illinois, Massachusetts, and New York (see Figure 34), many CCA groups struggle with utility data transfer. Default utilities understandably tend to protect consumers' information, however in the case of highly regulated programs such as CCA, utilities' protectionism creates additional challenges for CCA communities. Gathering customer data from utilities, in a clean, timely, and accurate way, is difficult. While privacy protection is key, accurate data and billing systems are key as well. CCA engagement has consistently improved these systems and processes. CCA groups argue that the information that utilities provide is often outdated, incomplete, and sorted inaccurately. CCA administrators have spent countless hours advising utilities on how to overcome or correct errors that have been resolved in other territories.

One prevalent issue is that, with the development of innovative programs (e.g., community solar, battery and storage, etc.) through CCA, and with the update of utility billing systems, utilities may under-bill a consumer for months, then deliver a staggering bill to compensate, leading some consumers toward a largely inaccurate assumption<sup>51</sup> that the CCA has driven these errors.

In New Hampshire, the CCA Joint Powers Agency Community Power Coalition of New Hampshire ("CPCNH") claims that utilities are unlawfully preventing them from advanced rate structures related to batteries installation, rooftop solar, other renewable generation, and electric vehicle chargers. By refusing to share metering information and preventing access to their consolidated billing system, the utilities are essentially monopolizing net metering and time-of-use rate structures.

Best practice guideline to address the inaccessibility to electricity customer's data:

While there is a fine line between necessary data for public and proprietary data, local communities need direct, timely, and accurate access to default utilities' customers data at an early stage of their project in order to adequately develop their CCA program. The industry would benefit from a program equivalent to the Green Button, but with custom features for CCAs. The Department of Energy's Green Button program currently requires utilities to share meter interval data with electricity customers. This program should be

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<sup>51</sup> CCA programs do inadvertently contribute to such billing errors as they scale the competitive electricity market to the extent that it has never been scaled before and effectuate innovative programs at a volume previously unthinkable (e.g., New York's market quadrupled its Community Distributed Generation development pipeline in the one-year that the program was enabled on an opt-out basis).

revised to require participating utilities to provide available interval data for customers participating in CCA programs.

- **Lack of access to Renewable Energy Certificates (“RECs”)**

RECs are market-based instruments that represent the property rights to the environmental, social, and other non-power attributes of renewable electricity generation (U.S. EPA, 2023). Many CCAs purchase RECs through a range of credible supply options (e.g., wind, solar, hydro, etc.) to demonstrate consumption of renewable electricity locally or outside their state depending on local regulations.

Though the purchase of RECs is beneficial, all RECs are not created equal. Some must be local to the state, or even to a specific area within a state. Most RECs require that the power plants that sell them are newer than some set number of years old.

In general, many CCA communities are challenged by the lack of access to RECs. As demand continues to grow, supply becomes short (which is also raising prices).

In New York, for example, the price of RECs has skyrocketed and communities buying renewable energy from outside the state are not able to call their energy “green” or “renewable energy.” This, coupled with the growth of CCA supply procurement of these RECs, drove a deeply powerful price hike, sustained over seven years.<sup>52</sup> Nonetheless, New York CCAs are paying these inflated prices. At least one CCA’s RFP was delayed and almost canceled because adequate RECs were not available at any price. Since new renewable construction is still more vision than reality, limited supply must be spread ever more thinly.

These restrictions extend beyond individual states to the federal government. For example, the U.S. EPA’s Green Power Partners program requires RECs purchase to gain certification for reducing the emissions and air pollution associated with communities’ electricity use. Yet, as noted above, CCA’s most profound challenges lie with developing new renewable power, rather than with supporting existing renewable power resources. This means that a community achieving a high level of green power procurement by contracting with developers to build new renewable power plants would not qualify as Green Power Partner.

Best practice guideline to address the lack of access to RECs:

The evolution of the REC market is beneficial to the development of renewable energy. In the long term, CCAs should be encouraged and allowed by regulators to spark the development of new renewable generation in other ways (e.g., developing local power plants, etc.) that would prevent them from being dependent on current REC restrictions. In some cases, this would mean *reducing* requirements on CCAs to purchase legacy power-plant RECs. LEAN Energy US does not recommend moving away from RECs, but instead encourages the CCA community –with the help of regulators– to diversify its position from REC buyers to sellers.

- **Lack of state and federal resources and support to apply for funding**

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<sup>52</sup> 2016 CCAs were offered (and bought) RECs for less than \$2/MWh. Even with new requirements to purchase in-state, 2018 CCAs spent less than \$3/MWh for NYGATs-registered RECs. This same product is now bid into CCA RFPs at prices above \$20/MWh.

Outdated conceptions of CCA, such as its lack of evolution observable in certain markets, and limited resources for replicating best-practices in emerging markets, pose challenges to the model's ability to achieve desired energy and climate outcomes.

State and Federal agencies should assist CCAs to secure adequate support and resources for replicating CCA best practices across emerging markets to rapidly scale up community-led clean energy transitions, beyond simply supply procurement on behalf of residents.

Many CCA groups are correctly concerned about their eligibility for state and federal funding. Some CCA programs run as a JPA or political sub-entity while others exist under a for-profit or non-profit (inc. 501(c)3) organization. While federal agencies are actively creating funding opportunities for the development of clean energy, there is no clarity of definitive access to opportunities for CCAs. For example, the Department of Energy's 2023 Grid Resilience and Innovation Partnerships ("GRIP") program was an excellent opportunity for CCA stakeholder groups to partner and diversify the scope of expertise in enhancing the resiliency, reliability, and flexibility of the grid infrastructure. However, the program's eligibility requirement was significantly unclear for CCAs, as opposed to investor-owned or public utilities.

This program and others would have needed clarification on the possible eligibility for all CCA communities and stakeholder groups to participate in the application process. Various CCA advocacy groups such as LEAN Energy US have submitted comments and reached out to the DOE to verify the eligibility component for CCAs, with limited success.

In order to shift from startup to robust organizations with higher capacity and resources for clean energy innovation projects, CCA communities are in need of direct support from state and federal agencies.

### Best practice guideline to address the lack of state and federal resources:

State and federal agencies are invited to consider CCA as a powerful procurement structure/tool when funding opportunities arise. More specifically, funding opportunities should list CCAs as legitimate institutions and eligible applicants in appropriate funding opportunities.

Several federal agency representatives recognize that many funding opportunities issued cannot and will not support "business-model innovations," and CCA is considered a business model innovation, rather than a fundamental right of communities. This could be addressed by recognizing CCA as a fundamental community right that deserves real support to realize its stunning potential.

Moreover, state and federal agencies are encouraged to take into account the potential of CCAs –as opposed to prioritizing investor-owned utilities– in implementing new programs and developing partnerships. It seems easier to deploy programs through utilities because there are fewer of them than there are CCA communities, however, utilities balance complex stakeholders internally and externally, which slows their level of success. Regulators push one way and shareholders push another. Local activists are suspicious of utility initiatives, given utilities' historical pace and change performance. These same local interests are often inspired by diverse free-market participation in the clean energy

revolution and want the freedom to pursue different paths beyond a monopoly or oligopoly utility generated plan.

Federal agencies have dedicated multi-billion-dollar funding opportunities for utilities in the Inflation Reduction Act and in the Bipartisan Infrastructure Law. CCAs have no such dedicated stream of dollars despite their demonstrated potential to perform as well or more reliably and cost-effectively than utilities. There is a demand for funding opportunities from CCAs, as well as there is a demand from state and federal agencies to identify communities in need of funding. Both groups would mutually benefit by state and federal agencies recognizing CCAs as eligible recipients and providing more and dedicated funding to them.

Dedicated funding streams could also encourage partnerships between CCAs and utilities. utilities and others who submit for competitive state or federal funding, could be awarded for partnering with a CCA. Such a partnership demonstrates a local connection that is often difficult to document with credibility. CCAs are customarily familiar with grassroots organizing and local agency. This is a fundamental strength of CCAs and it can be applied to achieve many of utility and policy-maker goals: electrified facilities, higher load factors, reduced peak consumption, distributed reliability resources, less energy intensive consumption, more and more local renewable generation, community revitalization and reduced bill non-payments.

State and federal agencies require further education on the concepts of CCA and how creation and scaling of CCA markets across the nation is a powerful tool for achieving state and federal environmental, economic, and social objectives. CCAs are looking for funding in any form, such as point bonuses in grant applications, dedicated grant dollars, tax credit eligibility and rule-clarity, low-interest financing in order to leverage the development of innovative programs such as microgrids, offshore wind, community-solar, EV charging infrastructure, building decarbonization, transportation electrification, and energy storage. CCA merits state and federal attention, support, and investment.

- **Difficulties to enable CCA in new states**

Several states such as Colorado, Arizona, New Mexico, Michigan, and Pennsylvania are actively investigating ways to enable CCA legislation. Advocacy groups and communities in these emergent CCA markets<sup>53</sup> can unfortunately face push backs from large players. Default utilities intentionally or unintentionally distribute misinformation and scare tactics that dissuade regulators, who have limited knowledge on CCA, from supporting CCA legislation.

Best practice guideline to address the difficulties to enable CCA in new states:

In order to allow for equal access to CCA programs across the country, any community that wants to start a CCA program should be able to do so. There is a need to implement CCA enabling legislation (and semi or full competitive electricity supply markets) in all U.S. states.

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<sup>53</sup> U.S. state that has not yet enabled Community Choice Aggregation law.

- **Additional challenges**

CCA groups face additional challenges such as a lack of resources to inform state regulators on how to facilitate optimal CCA markets, constraints on commercial accounts (e.g., low MW cap requirement), lack of state and national coordination for CCA markets, difficulties conveying technical information to consumers, and lack of resources and technical assistance to form a CCA market, entity and/or program.

Lastly, and as mentioned by the U.S. Environmental Protection Agency, CCA programs frequently face challenges such as administrative costs, confusion for consumers on the opt-in vs opt-out structure, potential for push-back from utilities, strict navigation of the regulatory system, and dependence on state legislation (2022).

LEAN Energy US believes that a more collaborative approach from CCAs operating within the same state would serve to alleviate some of these additional challenges. Pooling resources and working together to educate state regulators on barriers and challenges, creating a best practice guide for emerging programs and customer education, and building toolsets to address utility push-back represent a few of the numerous cooperative initiatives that LEAN would support and recommend.

#### 4.4.2 Moving forward

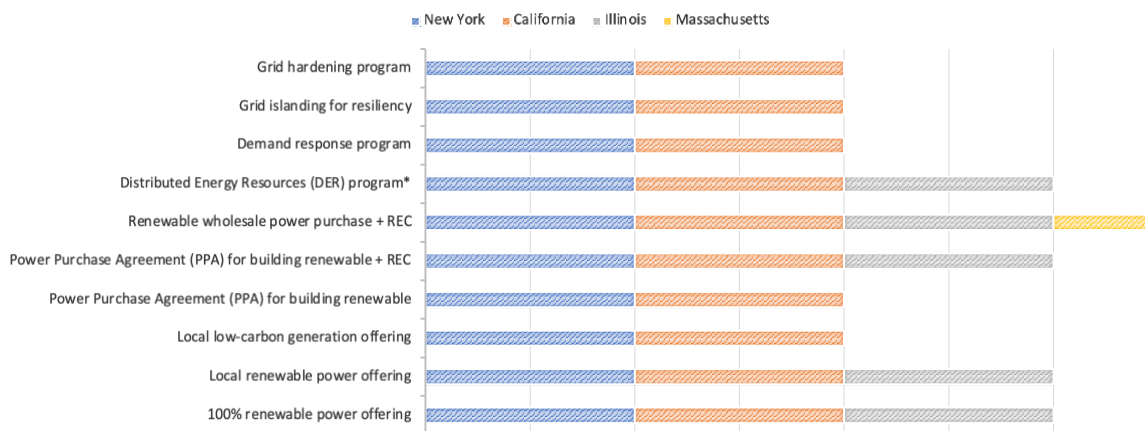
CCA survey participants from California, Illinois, Massachusetts, and New York argue that overcoming the above-mentioned barriers would allow CCA communities to launch or enhance the following goals:

- invest more locally,
- reduce costs and unnecessary process frictions for customers,
- offer lower rates for carbon-free and 100% renewable energy power,
- reduce emissions factor of power provided,
- increase customer decarbonization programs,
- allow for more efficient and effective procurement strategies, where regulation currently precludes them,
- enhance the billing experience for consumers,
- utilize staff more efficiently,
- expand CCA program around local development and job placement projects,
- offer added value and guaranteed savings to customers,
- offer community solar and community storage subscriptions,
- provide electrification incentives for buildings and transportation projects,
- expand the range of programs for low-income residents.

While the industry will partially or fully solve some of these issues on its own, others will require regulators, legislators, and governmental agencies to weigh in with support.

In the future, survey participants would like to see the following projects implemented through CCA:

Figure 35. Answers to survey question “What would you like to see happen with your CCA program in the future?”



\*May include electric vehicle charging station, battery storage, community solar, microturbines, wind turbines, biomass generators, tri-generation units, etc.)

Some communities have also mentioned specific CCA-driven programs such as “community solar,” “decarbonization of transportation and buildings,” “electric vehicle and transit bulk discounts,” “charging infrastructure,” “home electrification incentives, training, financing, events,” “marketing for consumer awareness on demand response,” “public policy support to jurisdictions adopting reach codes,” and “low-income home retrofits and DIY retrofit kits.”

Survey respondents actively intend to develop the following incentive programs, local projects, and innovative rate designs through their CCA:

- develop new and local renewable resources across all participating communities,
- deploy microgrids, offshore wind, community-solar, EV charging stations, and energy storage programs,
- develop initiatives that enhances diversity, equity, and inclusion,
- ensure low-income and disadvantaged customers have access to guaranteed electricity bill discounts,
- develop customer energy efficiency incentives,
- offer financial support to member communities and local non-profits to deploy projects focused on electrification and resiliency at existing facilities,
- implement reach code ordinances that require further electrification above/beyond the state building code,
- support the development of energy generation projects locally and across each CCA state,
- expand virtual power plants and microgrids projects.

The above initiatives encompass the standard CCA electricity supply program. According to focus group participants, the main factors that lead to the success of CCA are 1) automatic enrollment (i.e., opt-out structure), 2) ability to offer competitive rates, and 3) high renewable energy content in the electricity supply. Additional factors include: being part of, and trusted by, the community it serves, adapting to local context and needs, choosing when to start a procurement contract, and accessing/gaining expertise in the energy market.

## 5 Conclusion

While the entire nation is committed to enabling competitive solutions that reduce carbon and prepare the electric grid for these changes, the path forward is challenging. State and local governments could gain from wise and strategic national support for key projects and initiatives to support the achievement of energy resilience, carbon, and other sustainability goals. This proven model, Community Choice Aggregation, provides local governments access to a powerful set of tools for accelerating competitive renewable power addition and carbon reduction. Unfortunately, resources to improve, innovate, and apply best practices in emerging markets are limited and, unnecessary or unwise restrictions abound.

CCA is a set of evolving mechanisms that have the capacity to act as foundation for state and federal agencies to reach their energy, climate, and environmental justice targets. CCA programs have proven to directly increase the amount of renewable energy on the grid, lower GHG emissions, develop the U.S. renewable energy market, and enhance climate-oriented innovations to scale.

In addition, CCA ensures energy price stability, can provide savings for communities, delivers its outcomes verifiably and cost-effectively, and creates long-term job opportunities.

From a social standpoint, CCA creates local choice and empowerment, is accessible to everyone, has a high level of community engagement and participation, offers higher consumer protection benefits than alternative suppliers and some utilities, ensures a high level of customer satisfaction, and offers a fundamental tool to empower low-income and disadvantaged communities.

Yet, CCA stakeholder groups face diverse challenges from regulatory framework interventions (with occasional failures to intervene when necessary), delays and inaccuracy in utility data transfers, inaccessibility of RECs, to a lack of state and federal financial support.

CCA is an excellent policy tool that has been underutilized. This model can spark the achievement of federal and state goals beyond those confined to the energy industry. It can also enhance transportation and modernize facilities; all based on a community's identified needs.

Several new states aim to join the national CCA movement, and existing CCA markets can become much more robust. Best practice diffusion and tangible funding can enable new states to enter effectively and allow established CCA states to achieve the full potential of their programs.

CCAs can and will grow, despite these barriers. However, they would evolve much faster and provide a broader and deeper environmental, social, and economic impact, if they were freed-up and fertilized to do so.



## Glossary

**Alternative energy supplier:** a competitive entity that is authorized and responsible for providing electricity (and/or gas) for program consumers within a CCA program.

**Community Choice Aggregation (“CCA”):** (a.k.a. Community Choice Electricity, Community Choice Energy, CCE, Community Energy Aggregation, CEA, Local Choice Energy, LCE, Government Energy Aggregation, GEA). Energy supply model that allows local governments to determine default energy offerings (e.g., renewable electricity) within their service territory, in order to purchase and/or develop power on behalf of their residents and local businesses.

**CCA Community:** one or more local governments that have authorized CCA locally.

**CCA Customers or Consumers:** customers enrolled in a CCA program that currently participate in the program.

**Community Distributed Generation (“CDG”):** type of Distributed Energy Resource that expands access to renewable energy. Community Distributed Generation assets involve community solar, wind power, hydro power, and standalone or co-located storage. CDG enables renewable ownership by customers unable to install on-site solar panels or other clean energy technologies.

**Community Solar:** program that allows consumers to subscribe to or own a portion of a shared solar energy system. In exchange, participants may receive a share of the electricity and/or revenue that it generates.

**Default Utility:** (a.k.a. “investor-owned utility”). A private, monopoly supplier of electricity and/or natural gas that generates and distributes power to customers. In the establishment of a CCA program, investor-owned utilities oversee electricity transmission, distribution, and billing to customers.

**Demand Response:** technology that lowers demand for the available supply of electricity in response to shortages.

**Deregulated Energy Market:** semi-deregulated or fully deregulated electricity markets allow for competition in a market overseen by a regional transmission organization (“RTO”) or an independent system operator (“ISO”). In other words, alternative suppliers, transmission, and generation companies can fulfill the default utility’s role of providing electricity for the population.

**Distributed Energy Resources (“DER”):** local electricity units that generate, store and/or deliver power to the grid.

**Energy Storage:** technologies that store energy to perform future delivery operations.

**Greenhouse gas (“GHG”):** gas that causes the atmosphere to trap heat radiating from the earth. The most common GHG is Carbon Dioxide, though Methane and others have this effect as well.

**Implementation Plan:** an operations plan that CCAs must present to their utility state agency for review and approval prior to starting a program.

**Joint Powers Authority (“JPA” or “Joint Powers Agency”):** legal entity that is a separate government organization created by two or more public agencies (e.g., local government, county, etc.) to operate collectively.

**kWh, MWh, or GWh:** unit of electrical energy that is produced or consumed. kWh stands for kilowatt hour, MWh stands for megawatt hour, and GWh stands for gigawatt hour.

**Local CCA Authorization:** a resolution adopted by a local government in compliance with state regulations and authorizing the local government to join or create a CCA program.

**MW:** MW stands for megawatt.

**Microgrid:** a local, small-scale power grid that operates independently within a relatively small central utility system.

**Net Metering:** a state-mandated program for specific utility customers behind-the-meter renewable generating facilities, which can receive bill credit and payment for power that is not used on site and delivered to the grid.

**Power Purchase Agreement (“PPA”):** long-term electricity supply contract between a supplier and consumer. The agreement includes conditions on the amount of electricity supplied, the supply rates, accounting costs, and penalties for non-compliance, for example.

**Resource Adequacy (“RA”):** state-wide requirement that load-serving entities purchase a specific amount of electricity resources to guarantee the grid's continuous, secure, and safe operation.

**Renewable Energy Standard (“RES”):** (a.k.a. Renewable Portfolio Standard, RPS, Clean Energy Standard, CES). A state's standard policy that requires electric utilities and alternative suppliers (including CCAs) to provide a specified minimum percentage of qualified renewable electricity in their annual energy portfolio.

**Renewable Energy Certificate(s) (“REC” or “RECs”):** Certificate created to prove that 1 MWh of electricity was generated and delivered to the grid by an eligible renewable energy resource. In other words, RECs are market-based instruments that represent the property rights to the environmental, social, and other non-power attributes of renewable electricity generation (U.S. EPA, 2023). A REC can be sold together with the underlying energy or “unbundled,” and sold separately. Many CCAs purchase RECs through a range of credible supply options (e.g., wind, solar, hydro, etc.) to demonstrate consumption of renewable electricity locally or outside their state depending on local regulations.

**Smart Grid:** electricity supply network that uses digital communications and management systems to detect or react to any changes done to the system requirements.

**Utility Assistance Program:** default utility programs that provide additional benefits to eligible low-income households.

**Unbundled RECs:** renewable energy certificates that verify a purchase of a MWh unit of renewable power and the source of that power. A REC is “unbundled” when it can be sold to different buyers.

## References

- [3CE \(Central Coast Community Energy\), 2023. 3CE To Purchase 200 Mw Of Long Duration Energy Storage From Hydrostor.](#)
- [American Coalition of Competitive Energy Suppliers \(ACCES\), 2023. State-by-State Information.](#)
- [Back Bay Neighborhood Association, 2023. Community Choice Electricity.](#)
- [Brasier, R., Pescatori, A., Stuermer, M., 2023. How Natural Gas Market Integration Can Help Increase Energy Security.](#)
- [CalCCA, 2022. California CCAs Exceed 11 Gigawatts in New-Build Clean Energy PPAs.](#)
- [CalCCA, 2019. CCAs and Union Labor: Building a Clean Energy Future for California.](#)
- [Cape Light Compact, 2023. Green Aggregation.](#)
- [Clean Choice Energy, 2018. 83% of Illinois Residents Want the Freedom to Choose Clean Energy.](#)
- [Coho, 2023. Regulated & Deregulated Energy Markets.](#)
- [Environmental Justice Network \(EJN\), 1996. Principles of Environmental Justice. Proceedings to the First National People of Color Environmental Leadership Summit, October 24-27, 1991, Washington, DC.](#)
- [Farrell, J., 2020. Community Choice Energy: An alternative to electric monopolies enables communities to center people and planet. Institute for Local Self-Reliance.](#)
- [Gattaciecceca, J., Trumbull, K., DeShazo, J.R., 2018. The Growth in Community Choice Aggregation. Luskin Center for Innovation, University of California Los Angeles, Los Angeles, CA.](#)
- [Green Energy Consumers Alliance, 2023. Municipal Aggregation Comes To Rhode Island! Greener Power At Lower Cost.](#)
- [Heeter, J. 2022. Status and Trends in the Voluntary Market \(2021 data\). National Renewable Energy Laboratory \(NREL\), Golden, CO.](#)
- [Heeter, J., O'Shaughnessy, E., Burd, R. 2021. Status and Trends in the Voluntary Market \(2020 data\). National Renewable Energy Laboratory \(NREL\), Golden, CO.](#)
- [Lao, F., & Gunther, S., 2020. CCAs and Equity: Prioritizing Community Needs Through Governance, Access, Engagement and Investments. Center For Sustainable Energy.](#)
- [LEAN Energy U.S., 2015. Community Choice Energy: Glossary of Terms. Peninsula Clean Energy.](#)
- [Martinez, M., January 2023. Community Choice Power Programs: electricity rates soar, many Berkshires customers have a cheaper option. Here's how that works. The Berkshire Eagle, MA.](#)
- [New Jersey Board of Public Utilities, 2023. Electric Switching Data.](#)
- [NYSERDA \(New York State Energy Research and Development Authority\), 2023. Demand Response Programs.](#)
- [O'Shaughnessy, E., Heeter, J., Gattaciecceca, J., Sauer, J., Trumbull, K., Chen, E., 2019. Empowered communities: The rise of community choice aggregation in the United States. Energy Policy 132, 1110-1119.](#)
- [Public Utilities Commission Ohio \(PUCO\), 2022. Ohio customer choice activity.](#)
- [Sustainable Westchester, 2023. Solutions for Clean and Efficient 21st Century Buildings.](#)

## LEAN ENERGY US | 2023 REPORT

[Schweizer, E., 1999. Environmental Justice: An Interview with Robert Bullard. Earth First! Journal, Eugene, OR.](#)

[Thomas, A. R., Bowen, W. M., Henning, M., Hill, E. W., Kanter, A., 2019. Update on Electricity Customer Choice In Ohio: Competition Continues to Outperform Traditional Monopoly Regulation. All Maxine Goodman Levin School of Urban Affairs Publications.](#)

[United Nations, April 2021. The United States of America: Nationally Determined Contribution. United Nations Framework Convention on Climate Change.](#)

[U.S. Bureau of Labor Statistics, 2022. Consumer Price Index August 2022.](#)

[U.S. Census Bureau, 2021. Quick Facts.](#)

[U.S. Department of Energy, 2022. Justice40 Initiative.](#)

[U.S. Department of Energy, 2021. National Community Solar Partnership Targets.](#)

[U.S. Environmental Protection Agency, 2023. Renewable Energy Certificates \(RECs\).](#)

[U.S. Environmental Protection Agency, 2023. Greenhouse Gas Equivalencies Calculator.](#)

[U.S. Environmental Protection Agency, 2022. Community Choice Aggregation.](#)

[U.S. Environmental Protection Agency, 2021. Green Power Communities List.](#)

[U.S. Office of Management and Budget, U.S. Office of Science and Technology Policy, General Services Administration, 2020. U.N. Sustainable Development Goals.](#)

[Vicarelli, M., Dawani, A., Laus, E., Warawdekar, N., 2023. Community Choice Electricity Programs: a Survey of Massachusetts Municipalities. School of Public Policy, University of Massachusetts Amherst, MA.](#)

[White House, December 2022. Inflation Reduction Act Guidebook.](#)

[White House, April 2021. President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies.](#)