7/15/2020

SOLSMART
NATIONALLY DISTINGUISHED. **LOCALLY POWERED.**

Community Choice Aggregation & Solar Development

Agenda

- Introduction to SolSmart — Danny Falk, The Solar Foundation
- Overview of Community Choice Aggregation (CCA) — Megan Lynch & Ben Butterworth, Cadmus
- Case Study: Marin Clean Energy (CA) — Jenna Famular, Marin Clean Energy (CA)
- Case Study: Cambridge Community Electricity Program (MA) — Meghan Shaw, Cambridge Community Electricity Program (MA)
- Q&A

About SolSmart

Funding

- U.S. Department of Energy Solar Energy Technologies Office

Goal

- Help local governments make it faster, easier, and more affordable for residents and businesses to go solar

Participants

- U.S. municipalities, counties, and regional organizations

Designation

- SolSmart nationally recognizes local solar achievements by designating communities as SolSmart Gold, Silver, or Bronze

Technical Assistance

- Provided at no cost to help communities achieve designation

Program Design and Execution

Technical Assistance Program

The SOLAR FOUNDATION™ for a bright future

CADMUS

NLC NATIONAL LEAGUE OF CITIES CITIES STRONG TOGETHER

NREL NATIONAL RENEWABLE ENERGY LABORATORY

RAP®

BROOKS ENGINEERING

EPRI ELECTRIC POWER RESEARCH INSTITUTE

SEIA Solar Energy Industries Association®

NATIONAL ASSOCIATION of COUNTIES NACo

Designation Program Administrator

ICMA Leaders at the Core of Better Communities

National Civic League

The SOLAR FOUNDATION™ for a bright future

Home Innovation RESEARCH LABS™

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SolSmart Categories

The SolSmart scorecard is used to baseline a community's current solar processes and identify areas for technical assistance in the following 8 categories:

- Permitting
- Planning, Zoning, & Development
- Inspection
- Construction Codes
- Solar Rights
- Utility Engagement
- Community Engagement
- Market Development and Finance

Acknowledgment and Disclaimer

- *Acknowledgment:* This material is based upon work the supported by the Department of Energy and Office of Energy Efficiency and Renewable Energy (EERE), under Award Number DE-EE0007155.

- *Disclaimer:* This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Ben Butterworth
Senior Associate, Cadmus

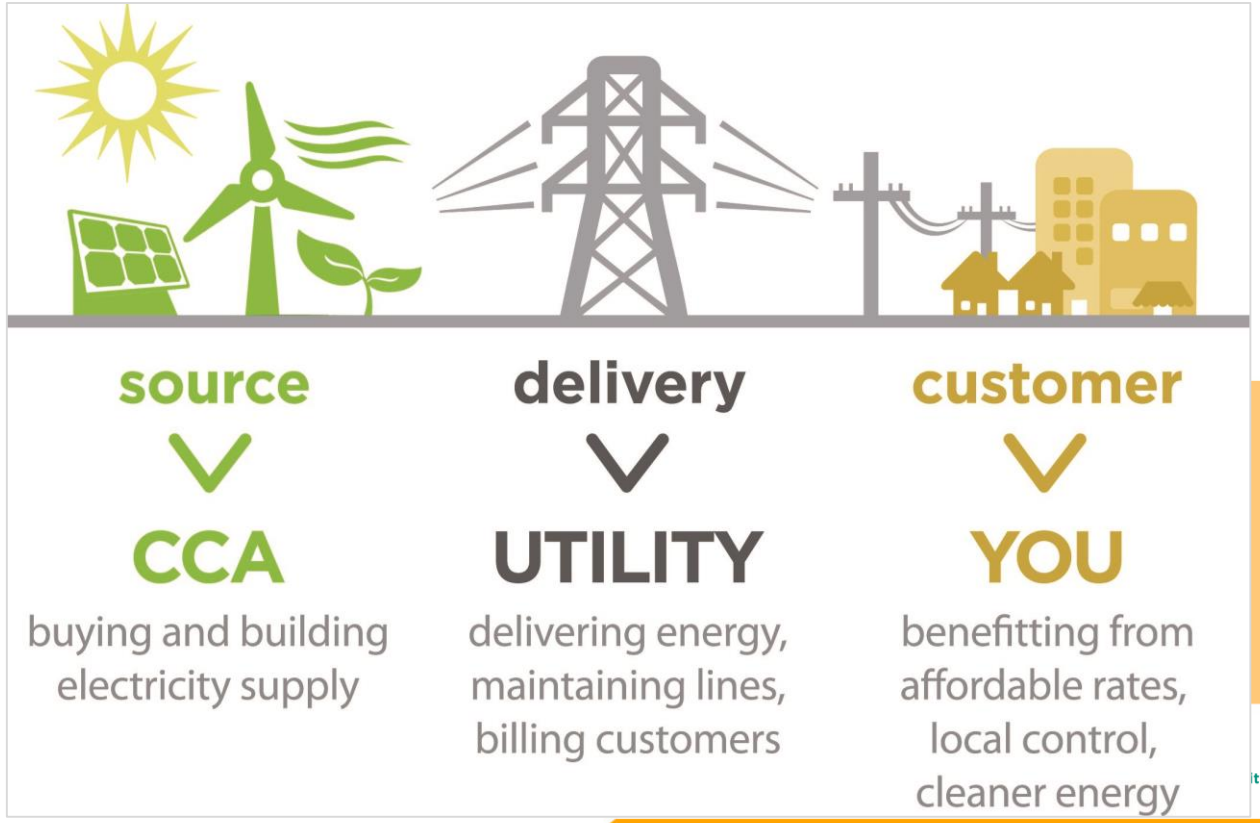
Megan Lynch
Analyst, Cadmus

What is Community Choice Aggregation?

- Community choice aggregation (CCA) enables a local government (or multiple local governments) to pool the community electricity load and **procure electricity on behalf of residents and businesses within the community.**

CCA is also commonly referred to as:

- Municipal aggregation
- Community Choice Energy
- Local energy aggregation



Source: LEAN Energy

What is Community Choice Aggregation | Benefits and Challenges

- Local governments interested in establishing a community choice aggregation may face the following benefits and challenges:

Key Benefits
Competitive and stable rates
Cleaner energy supply
Increased local control over energy supply
Economic benefits

Key Challenges
Utility rate uncertainty
“Additionality” concerns (depending on market context)
Negative public response
Potential administrative costs

Enabling CCAs | Overview

- As of 2020, CCAs have been authorized via state-level enabling legislation in nine states and are being investigated in an additional five states, as outlined below:

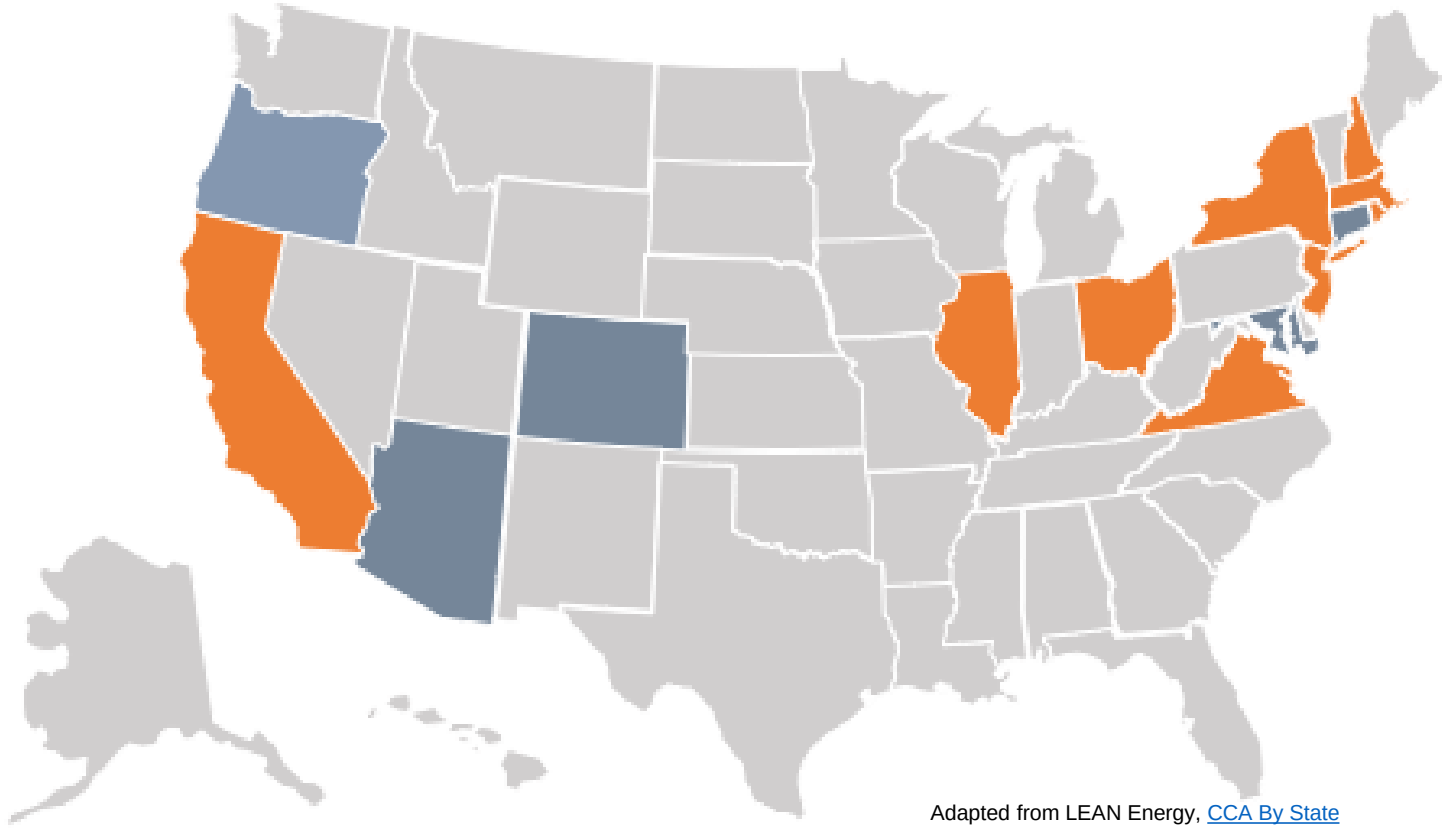
Authorized

- CA
- IL
- MA
- NH*
- NJ
- NY
- OH
- RI
- VA*

Actively Investigating

- AZ
- CO
- CT
- MD
- OR

*Not yet implemented

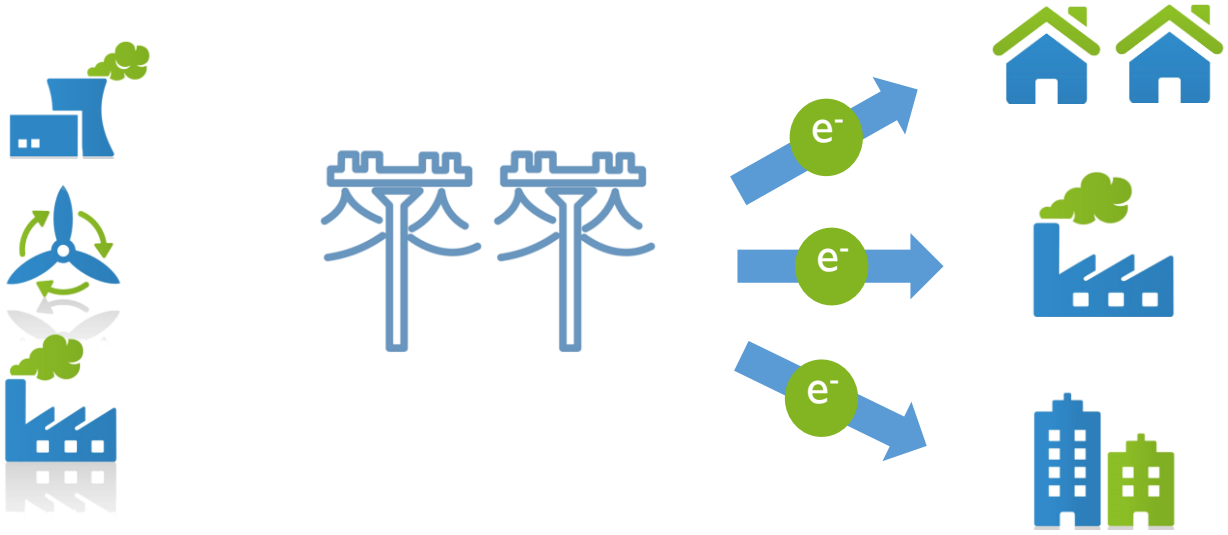


Adapted from LEAN Energy, CCA By State

Enabling CCAs | Electricity Market Context

- The structure and role of a CCA will largely depend on whether it is operating in a **regulated** or **deregulated** market context

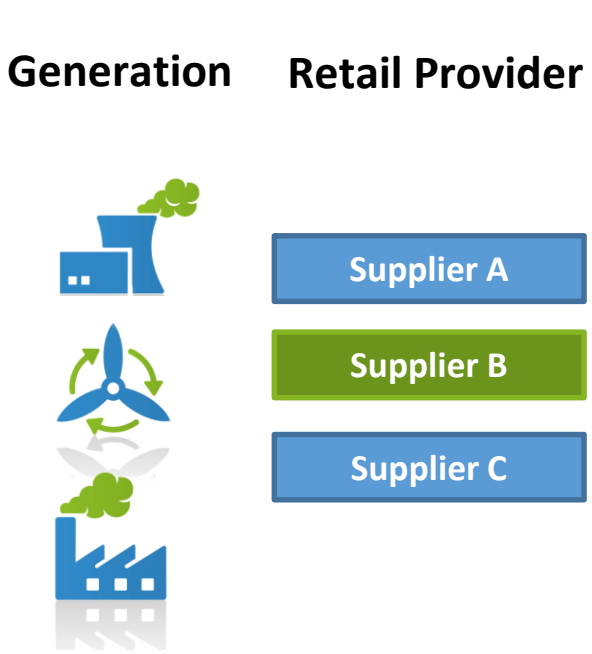
- Utilities in **regulated** markets maintain jurisdiction over all grid functions, including generation, transmission, and distribution
- In a fully regulated market, the utility is a customer's only option for purchasing electricity



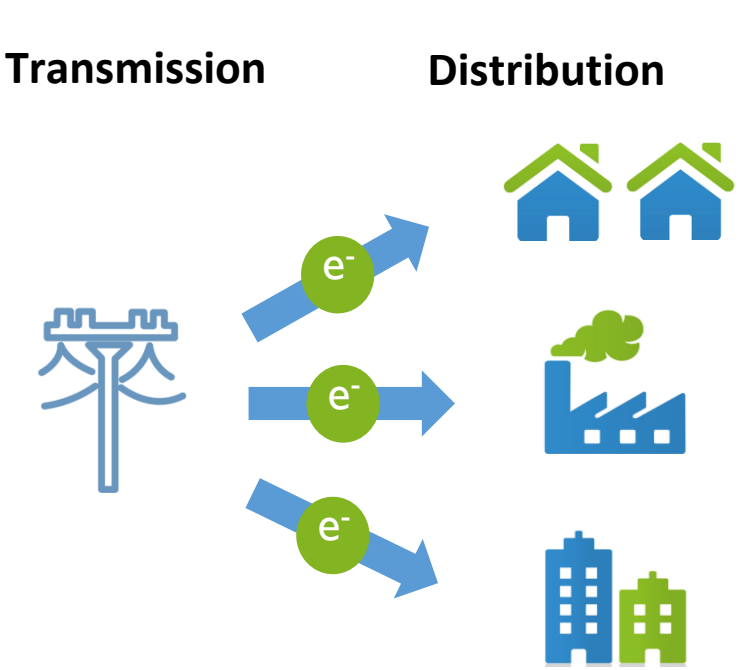
Enabling CCAs | Electricity Market Context

- The structure and role of a CCA will largely depend on whether it is operating in a **regulated** or **deregulated** market context

- In **deregulated** electricity markets, utilities are not permitted to own and operate power plants that generate electricity
- Retail customers are free to purchase electricity from a competitive supplier and the utility continues to provide transmission and distribution services



Competitive Market

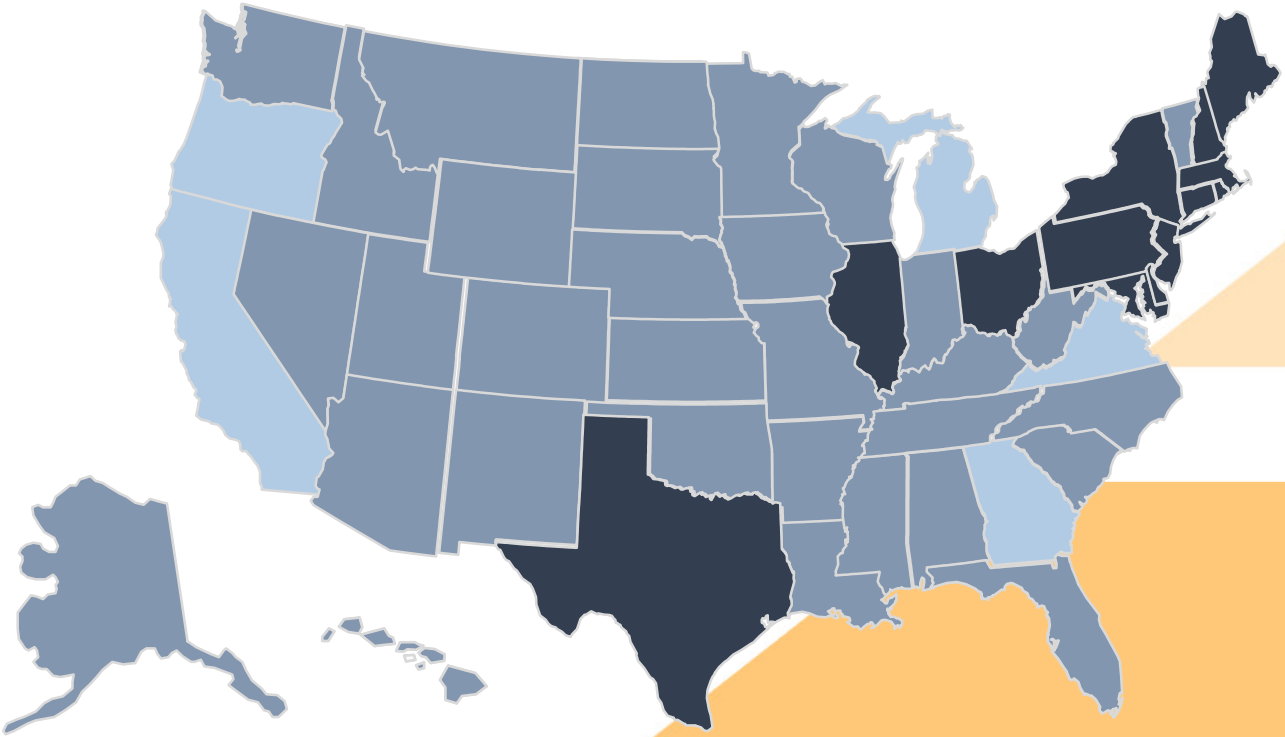


Regulated Monopoly

Enabling CCAs | Electricity Market Context

- **CCAs are more common in states with deregulated markets** since utilities have already divested ownership in generation activities, and their role as a transmission and distribution company is well established
- Currently, **almost all states with CCA enabling legislation have deregulated electricity markets**, with the exception of Virginia and California

Regulated and Deregulated States



Enabling CCAs | Electricity Market Context

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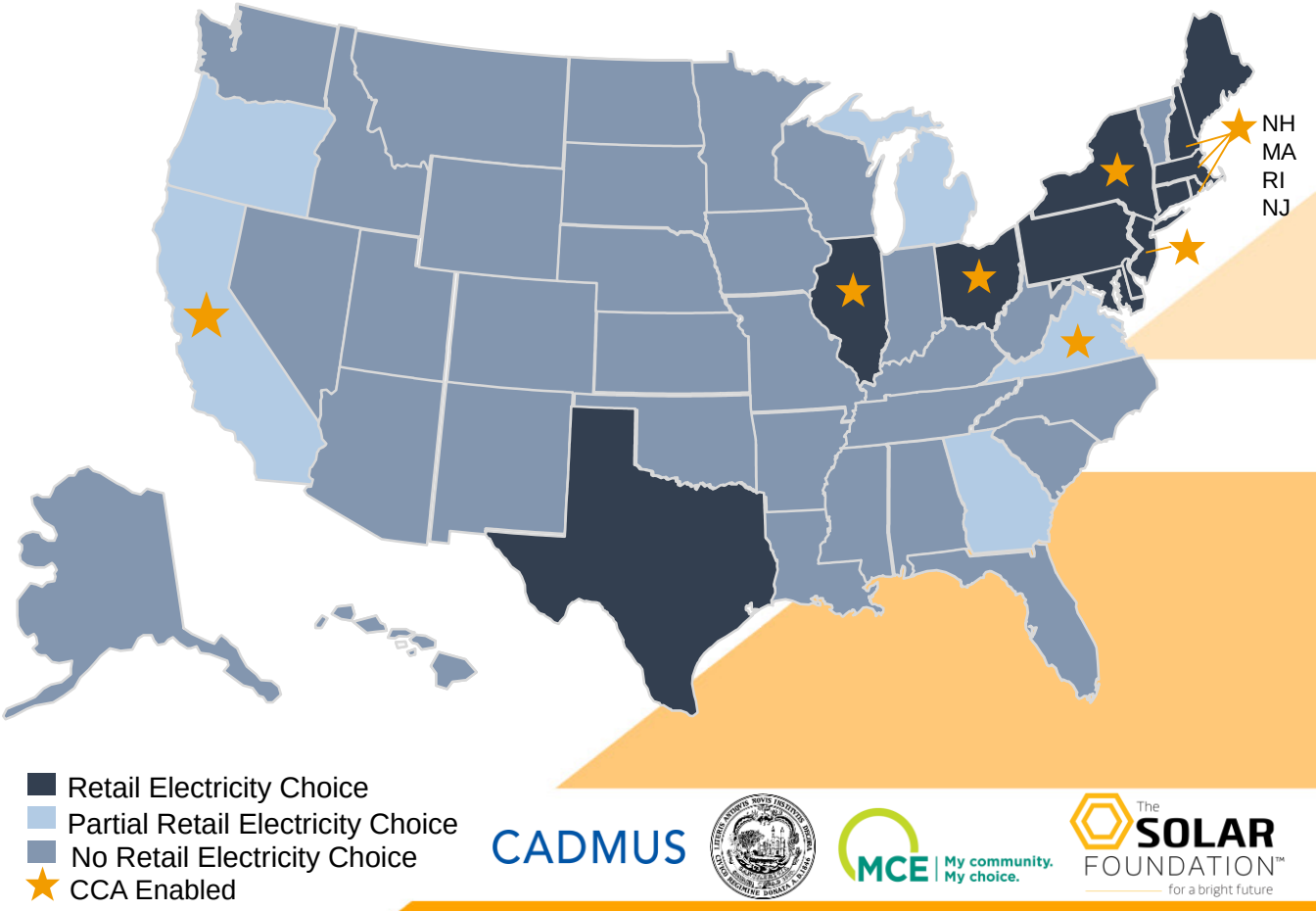
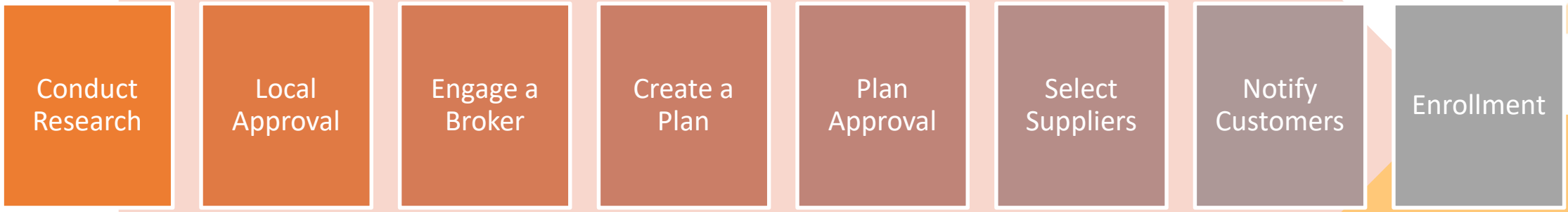


Establishing a CCA

- **Local governments are critical to implementing community choice aggregation programs** once enabling legislation is passed
- While the process may vary from state to state, generally a local jurisdiction will take some or all of the following steps:



Adapted from MAPC, Start a Community Choice Aggregation Program

CCA Program Models

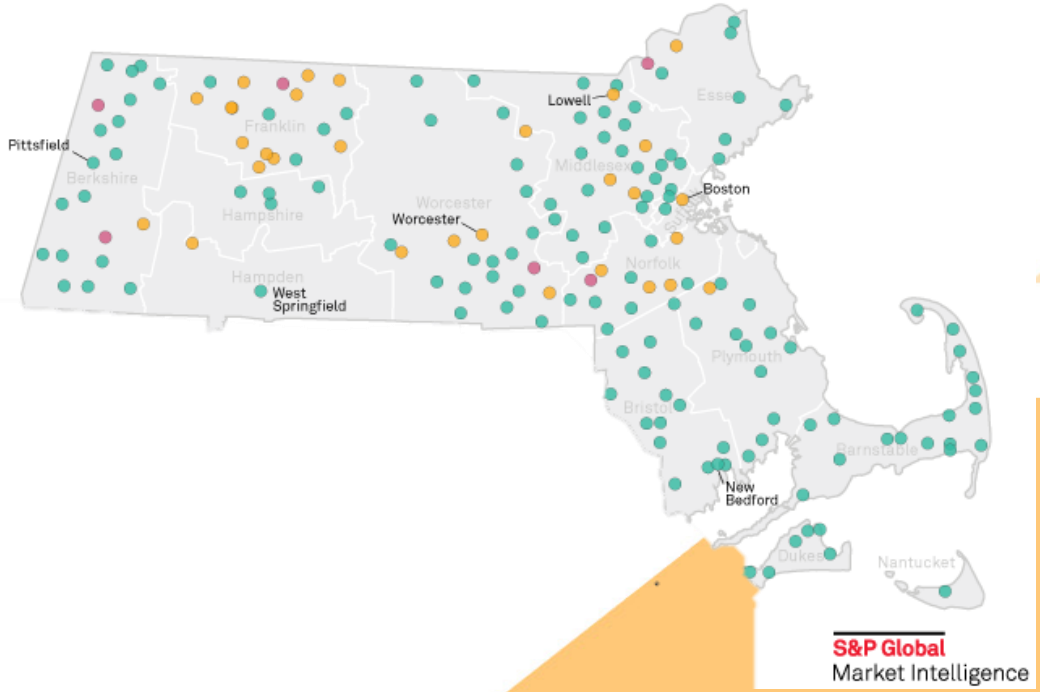
- CCA program models may vary in a number of ways. Some common points of differentiation include:

Geographic Territory	Enrollment Options
Product Offerings	RE Procurement Strategy

CCA Program Models | Geographic Territory

- The geographic territory of CCAs across the U.S. vary in size from a single municipality to multi-county territories

In California, MCE serves 34 communities in 4 Bay Area counties



In Massachusetts, there are over a 100 individual CCAs that serve single communities

CCA Program Models | Enrollment Options

- Participation in a CCA is always voluntary, but depending on state statue, enrollment may occur on an opt-in or opt-out basis

Opt-Out	Opt-In
• Customers are automatically enrolled and given the opportunity to opt-out	• Places the responsibility for enrollment on the customer • Often result in lower participation rates • Less common

CCA Program Models | Product Offerings

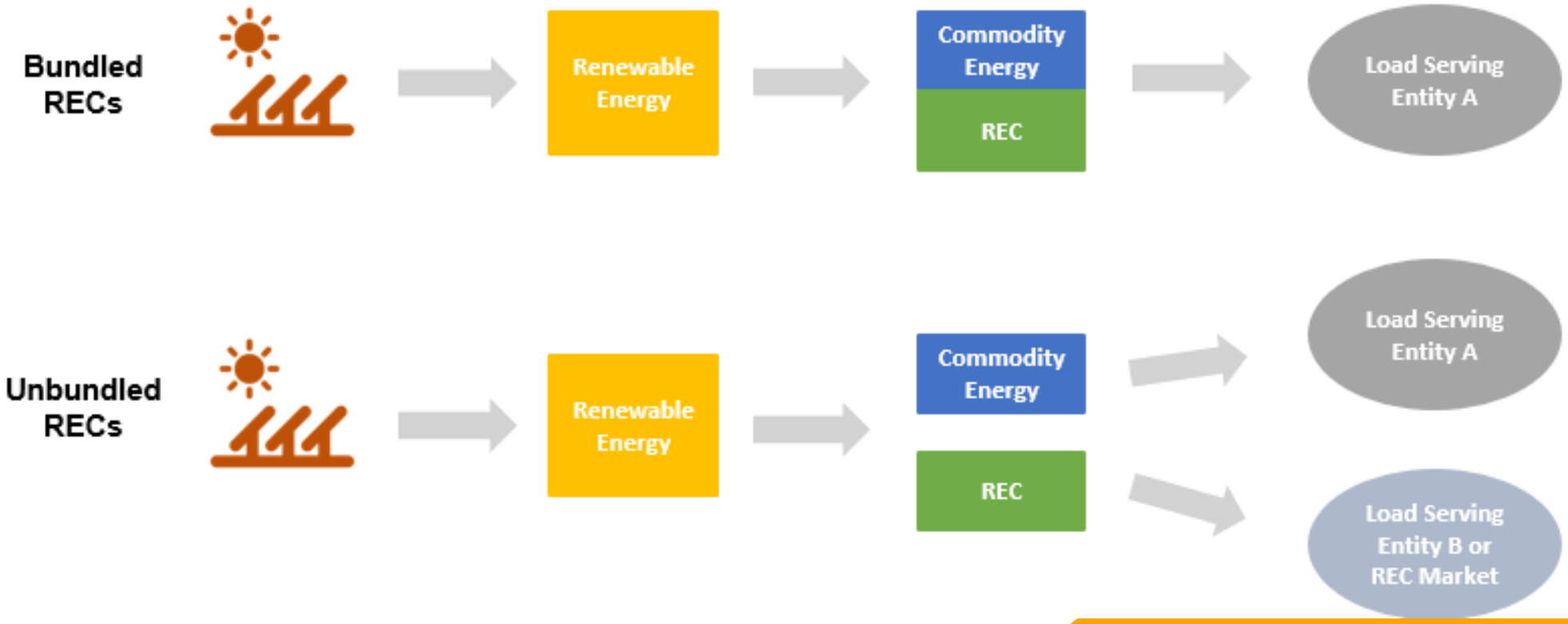
- CCA programs will often provide customers with several product offerings that range in renewable energy content and price
- In some cases the CCA product will be cleaner, and possibly cheaper than the local utility's offering
- For example, Somerville CCE offers a standard product with 10% more RE than the Massachusetts RPS at a lower cost than the local utility (Eversource)

SOMERVILLE CCE PROGRAM RATES AND COMPARISON WITH EVERSOURCE

PROGRAM	Somerville CCE Program			Eversource
PRODUCT	Somerville Local Green	Somerville 100% Local Green	Somerville Basic	Current Eversource Utility Basic Service (Supply Services Only)
% RENEWABLE ENERGY	Extra 10% MA Class I	Extra 100% MA Class I	No extra renewable energy	No extra renewable energy
RESIDENTIAL	0.105/kWh	$0.132/kWh	$0.102/kWh	$0.124/kWh
SMALL BUSINESS	$0.105/kWh	$0.132/kWh	$0.102/kWh	$0.119/kWh
LARGE BUSINESS	$0.105/kWh	$0.132/kWh	$0.102/kWh	$0.133/kWh NEMA
DURATION	January 2020 through November 2020			Residential and Small Businesses: January 2020 through June 2020 Large Businesses: January 2020-March 2020

CCA Program Models | RE Procurement Strategy

- Depending on market context and local priorities, CCAs may procure RE for their customers through bundled or unbundled renewable energy certificates (RECs)



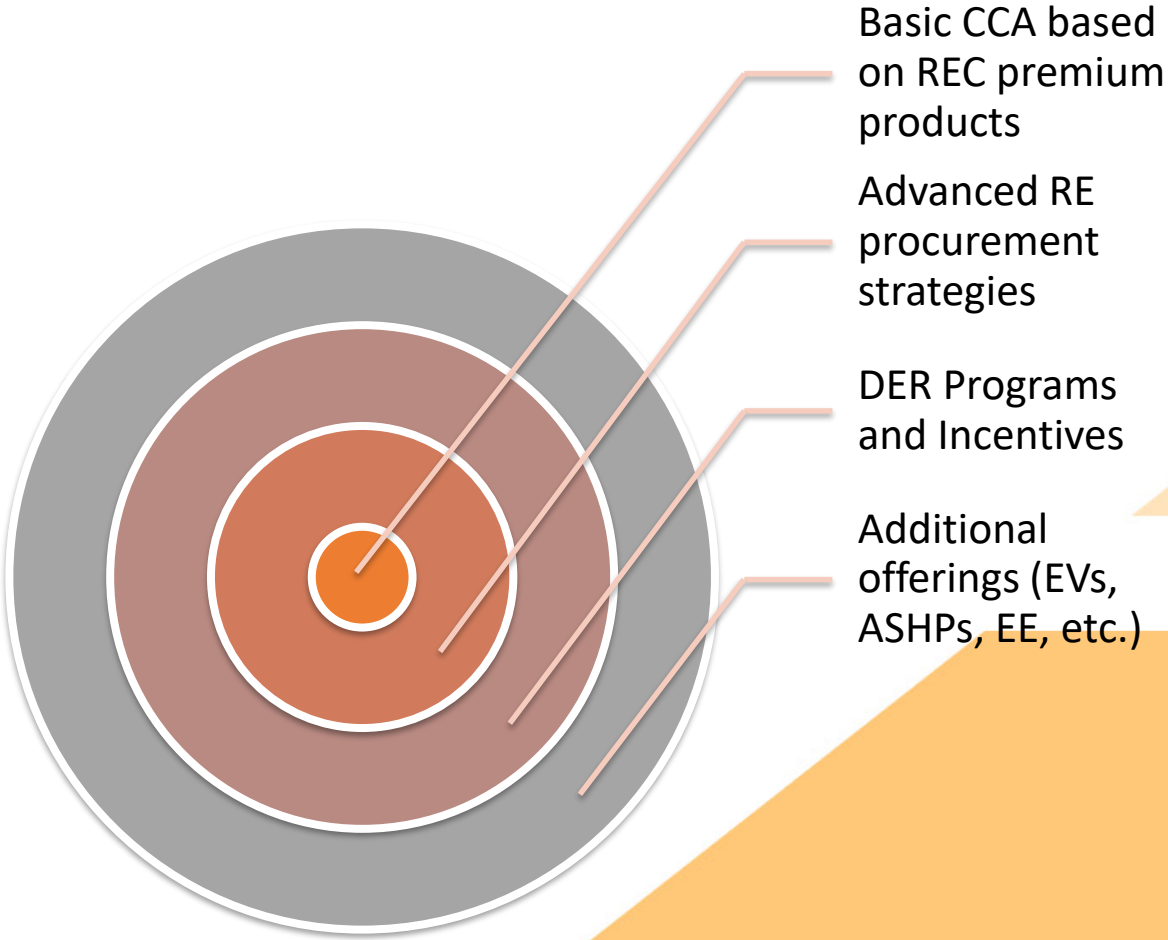
CCA Program Models | RE Procurement Strategy

- Depending on market context and local priorities, CCAs may procure RE for their customers through bundled or unbundled renewable energy certificates (RECs)

Unbundled RECs	• RECs that are sold, delivered, or purchased separately from physical electricity • Unbundled RECs can be sourced from across the U.S. and are relatively low-cost to procure • Often criticized for capitalizing on the presence of existing RE projects and not driving the development of new RE projects.
Bundled RECs	• RECs that are sold together with the physical electricity generated for a specific RE project. • Typically procured through PPAs or VPPAs. • Drive development of new RE projects • Identifying and contracting electricity that is bundled with RECs can be more administratively burdensome, and sometimes more expensive, for CCAs.

CCA Program Models | RE Procurement strategy

- Many CCAs outside of California follow a basic program model that relies on purchasing unbundled RECs to provide 100% RE products
- Over time and with additional resources, CCA programs can advance beyond this program model to better support local renewable energy development and other social goals



Jenna Famular

Communications Manager,
Marin Clean Energy

MCE – California's First Community Choice Agency

- **2002** – AB 117 Passed
- **2008** – MCE Formed
- **2010** – Service launched to ~8,000 accounts in Marin County
- **2013** – Expanded to first community outside of Marin
- **2020** – completed most recent enrollment, serving 480,000+ accounts
- **Service Options**
    - Light Green 60% renewable
    - Deep Green 100% renewable
    - Local Sol 100% renewable

MCE Impacts

Eliminated over **340K** metric tons of GHGs through 2018

MCE customers have saved over **$68M** since 2010

Committed over **$1.6B** to build new CA renewable projects

31 MW new renewable projects built in our service area

MCE's Feed-in Tariff Program

- Standardized, 20-year contracts
- Fixed price per MWh generated
    - Projects 0-1MW
    - 12 conditions, 2 MW in each condition
- Price per MWh steps down $5 as each condition is filled
- Requirements
    - In MCE service area
    - Prevailing wage labor as defined by California Labor Code
    - 50% local hire
    - Storage required on solar projects (new) – 40% of nameplate capacity
    - Rooftop or carport (urban infill) eligible for $5/MWh adder for first 5 years
    - Non-solar non-baseload that meets RPS also eligible for $7/MWh adder
    - Pollinator score above 70 on scorecard, submitted every three years

FIT Pricing

Condition	Peak Energy Prices (per MWh, 20-year term)	Baseload Energy Prices (per MWh, 20-year term)	Intermittent Energy Prices (per MWh, 20-year term)
1	$137.66	$116.49	$100.57
2	$120	$105	$95
3	$115	$100	$90
4	$110	$95	$90
5	$105	$95	$90
6	$95	$95	$90
7	$90		
8	$85		
9 (0.44 MW available)	$80		
10 (2 MW available)	$75		
11 (2 MW available)	$70		
12 (2 MW available)	$65		

FIT Plus

- Standardized, 20-year contracts
- Fixed price per MWh generated
    - Projects 1-5MW
    - 4 conditions, 2 MW in each condition
- Price per MWh steps down $5 as each condition is filled
- Requirements
    - In MCE service area
    - Prevailing wage labor as defined by California Labor Code
    - 50% local hire (Union Labor in Contra Costa County)
    - Storage required on solar projects (new) – 40% of nameplate capacity, compensated at $10/kW-mo for first ten years
    - Non-solar non-baseload that meets RPS also eligible for $7/MWh adder
    - Pollinator score above 70 on scorecard, submitted every three years

Condition	Energy Price (per MWh, 20-year term)
1	$80
2	$75
3	$70
4	$65 (2 MW available)

MCE's Operational Local Renewable Energy Projects

1.	San Rafael Airport	FIT	1 MW, rooftop solar
2.	Buck Institute	PPA	1 MW, carport solar
3.	Cost Plus Plaza	FIT	0.265 MW, rooftop solar
4.	Freeth Industrial Park	FIT	2 MW, ground mount solar
5.	Cooley Quarry (Local Sol)	FIT	1 MW, ground mount solar
6.	Redwood Landfill	PPA	3.6 MW, bioenergy plant
7.	MCE Solar One	PPA	10.5 MW, ground mount solar
8.	Oakley RV Boat Storage	FIT	1 MW, carport solar
9.	EO Products	FIT	0.06 MW, rooftop solar
10.	MCE Solar Charge	PPA	0.08 MW, carport solar
11.	CMSA	FIT	0.75 MW, bioenergy plant
12.	American Canyon Solar	FIT	3 MW, ground mount solar
13.	Silviera Ranch	FIT	3 MW, ground mount solar
14.	Sosccol Ferry	FIT	2 MW, ground mount solar

San Rafael Airport – 1MW Rooftop Solar

- San Rafael, 2012
- 20 jobs supported
- Workforce Partners: Marin City Community Development Corp & CLP Resources
- Project Partners: JHS Properties, Synapse Electric

Freethy Industrial Park – 2MW Ground Mount Solar

- Richmond, 2017
- 26 jobs supported
- Workforce Partners: RichmondBUILD
- Powering 600 homes and producing $550,000 annually

Cooley Quarry (Local Sol) – 1MW Ground Mount Solar

- Novato, 2017
- 17 jobs supported
- Partners: REP Energy and Danlin Solar
- 100% local solar service available for ~300 customers
- 11.5 acre brownfield site

MCE's Local Sol Program

- Project built through FIT program
- Offers customers the chance to directly support a local project
    - No equipment required to have 100% RE
- $137/MWh original project price
- Customers pay 14.2¢/kWh compared to 8.7¢ for Light Green and 9.7¢ for Deep Green
    - 13.7¢ for power
    - 0.5¢ for administrative costs
- Approximately 200 customers enrolled
    - Limited access for non-residential accounts
- Ability to expand program as necessary

Meghan Shaw

Outreach Director –
Cambridge Energy Alliance,
City of Cambridge,
Massachusetts

COMMUNITY CHOICE AGGREGATION

FOR CAMBRIDGE

Renewable Energy Goals and Criteria

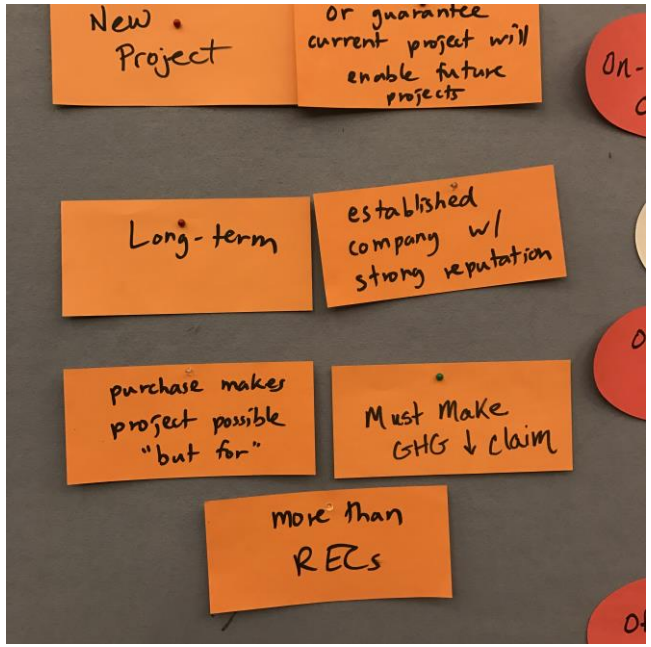
Guiding municipal investments in renewable energy projects
OR Why the City of Cambridge does not buy RECs

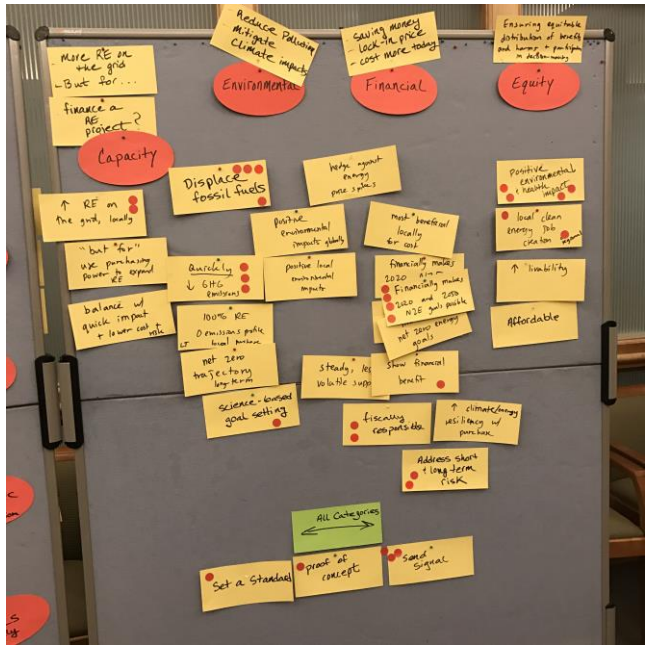
Cross – Department Matrix

- Hired a facilitator to explore renewable energy values, goals and priorities for the City
- Hosted 2 three-hour in-person workshops with multiple departments
- Formalized a decision-making matrix for renewable energy purchases that can be utilized by the City for a request for qualifications or request for proposals

Goals and Criteria Brainstorm

Facilitated in-person meetings allowed for brainstorming and buy-in across departments including City Manager, Law, Purchasing, Public Works, and Community Development.





4		Capacity		Environmental		Financial		Equity	
5		Positive effect a RE purchase has on the amount of renewable energy generation capacity overall, including the role the purchase has in the creation of additional new projects		Positive effect a RE purchase has on the environment, including the reduction of GHG emissions and air pollution		The purchase results in the city or residents saving money on electricy bills over the term of the agreement or other financial benefits for the city		Purchases leads to a more equitable distribution of benefits and harms and/or there is inclusive participation in the purchase decision-making by low-income and minority residents	
6	RE Purchasing Goals	Score	Criteria Description	Score	Criteria Description	Score	Criteria Description	Score	Criteria Description
7	Displaces fossil fuels	4	*If* RE Purchase can be proven to be replacing fossil fuel generation capacity (either existing or planned generation capacity).	4	*If* RE Purchase can be proven to be replacing demand for fossil fuel generation capacity (either existing or planned generation capacity).	3	*If* The cost of energy over the course of some time frame is consistently lower than the cost of fossil fuels, leading to growth in demand for non-fossil fuel energy sources.		
8	Financially makes 2020 and 2050 NZE goals possible	2	*If* Purchase of RE results in savings that are invested in additonal GHG reduction efforts in buildings			2	*If* savings are re-invested into additonal GHG saving measures for buildings	3	Meeting equity goals may allow for leveraging additonal funding sources.
9	Positively impacts environmental and human health	4	Additonal RE capacity leads to greater associated enviro. Benefits	5	self-evident	2	*If* savings re-invested into actions with envio and health benefits.	3	could lead to health benefits in neighborhoods where health impacts were worse.

Additionality/Impact: Additional renewable energy generating capacity is added to the grid

+

Long-Term Commitment: Make a long-term commitment to a renewable energy project

Given our goals and criteria guiding renewable energy investments, the City and our Community Electricity Aggregation does not buy RECs because they do not meet our Additionality/Impact and Long-Term Commitment criteria.

Therefore, get clear on your Aggregation goals before designing your aggregation.

Aggregation participant pays utility bill that includes a $0.002 adder on each kWh of electricity consumed

Supplier delivers $0.002 adder to City Revolving Fund. Revolving Fund specifically states funds will be used to build renewable energy project for the aggregation participants

Develops new solar projects with adder funds. Approximately $600,00/year= $1.2 million

City sells solar net metering credits and re-invests the revenue in the Revolving Fund paying for future new solar projects Approximately $100,000 /year x 20 years = $2 million

A new solar project that costs approximately $1.2 million ($1.2M) minus money set aside for maintenance, repair and decommissioning. Project produces RECs for 10 years and electricity for 20 years.

Result: New solar is added to the grid directly reducing GHG emissions, providing local jobs and providing local inspirational value.

Result: Aggregation participants have the solar project's RECs retired on their behalf. Aggregation participants can claim more environmentally friendly electricity supply via the RECs created via the solar project.

Cambridge Community Electricity Program

- **Greener power** – The program offers 100% Green Plus. 100% renewable via optional MA Class I REC purchase. PLUS an operational adder used to construct new local solar projects. This is the opt-up option for consumers who want to buy RECs, but the City does not automatically buy more RECs for our consumers.
- **Choice** – The program will give participants choice in the environmental characteristics and price of their electricity supply. The Basic Green provides no RECs, but does include an operational adder used to construct new local solar projects that reduce the GHG emissions of our Basic Green Customers.
- **Predictability** – The program provides a steady, year-round price without the seasonal volatility of Basic Service prices and has saved consumers over $11 million dollars when compared to Basic Service.
- **Transparency** - The competitive procurement process ensures a vetted, transparent alternative to Basic Service
- **Consumer Protection** – The program gives customers the assurance of a City vetted Electricity supply. Reducing consumer confusion from other competitive supply offers and predatory suppliers.

Conclusion

The Future of CCA

- While CCA has been enabled in nine states so far, a number of states are considering establishing CCA. A few examples are listed below:

Connecticut

MUNICIPAL AGGREGATION

In Connecticut, municipal aggregation rising as a clean energy priority

WRITTEN BY

Meg Dalton
January 29, 2019

PHOTO BY

Ron Gilbert / Flickr / Creative Commons

Source: Energy News Network

Michigan

ANN ARBOR, MI — Ann Arbor's plan to achieve carbon-neutrality by 2030 involves going out to the market and purchasing 100% renewable energy on behalf of all residents, businesses and other entities in the city.

That's known as community choice aggregation, a type of program permitted in other states, and city officials are hoping to convince state lawmakers to allow it in Michigan.

Source: MLive

Additional Resources

Community Choice Aggregation Issue Brief

SolSmart

https://solsmart.org/resources/solsmart-issue-brief-community-choice-aggregation/

Multiple Resources

LEAN Energy

https://leanenergyus.org/

Community Choice Aggregation: Challenges, Opportunities, and Impacts on Renewable Energy Markets

National Renewable Energy Laboratory (NREL)

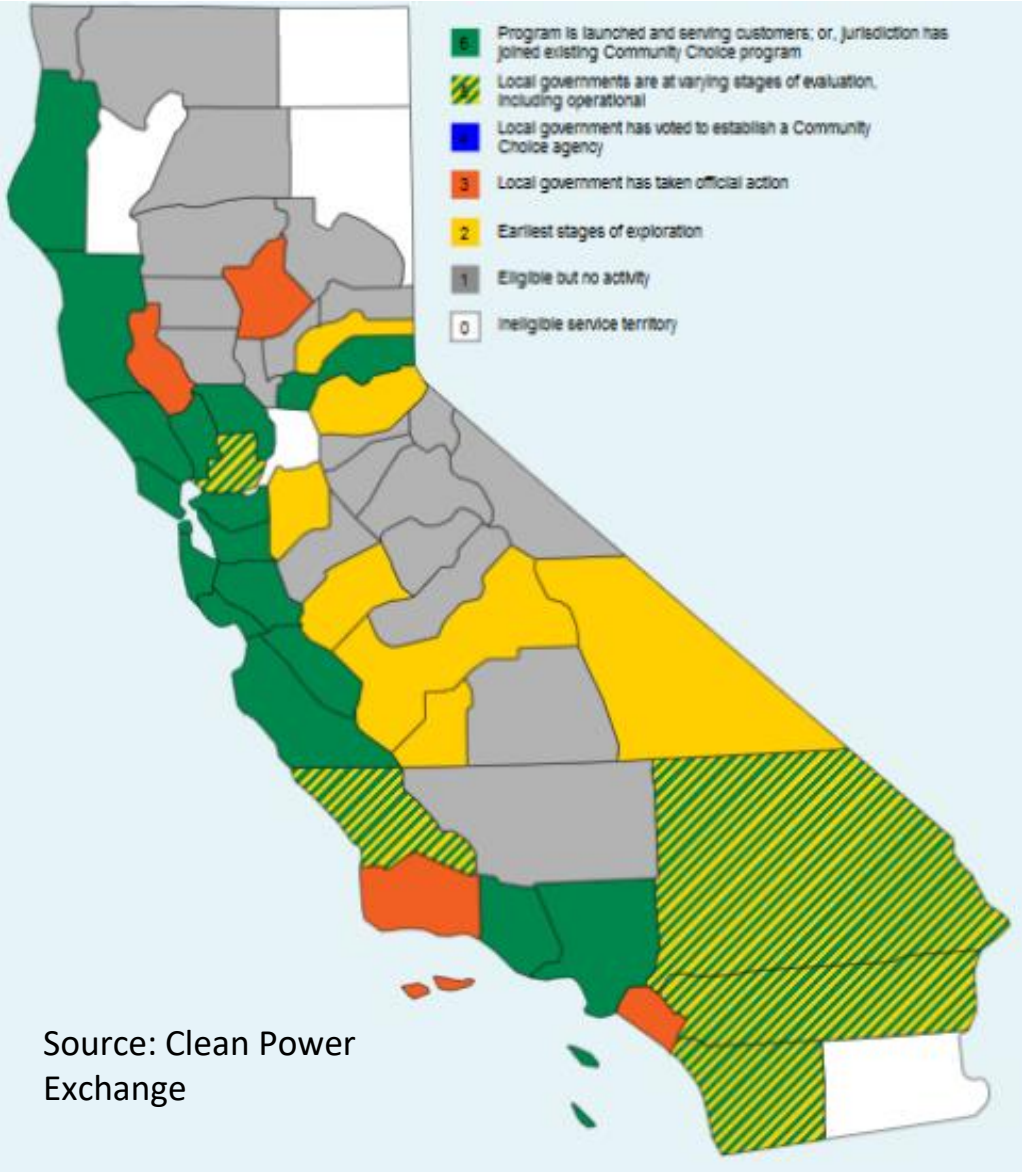
https://www.nrel.gov/docs/fy19osti/72195.pdf

CCA Toolkit

NYSERDA

https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities/Clean-Energy-Communities-Program-High-Impact-Action-Toolkits/Community-Choice-Aggregation

Other Examples of CCAs



Source: Clean Power Exchange

NOPEC
Northeast Ohio Public Energy Council

CADMUS MCE My community. My choice. The SOLAR FOUNDATION for a bright future

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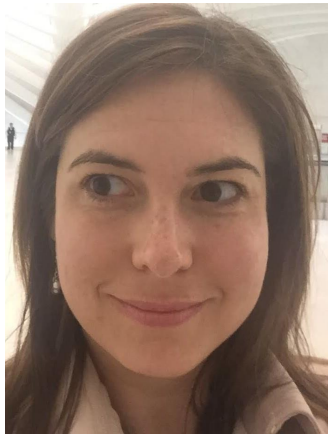
Q&A

Jenna Famular

Jfamular@mcecleanenergy.org



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Megan Lynch

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Upcoming Webinar

- August 6 (2-3 pm): How Local and Regional Governments Can Buy Renewable Energy and Support Market Development

Engaging Your Community with SolSmart

- No-cost technical assistance can help your community achieve solar energy goals, including CCAs
- Available to all municipalities, counties, and regional organizations

Contact us for more information at **info@solsmart.org.**