Community Choice Energy (CCE)

A Local Electricity Service Model that Accelerates Renewable Deployment , Offers Consumer Choice, and Strengthens Local Economies

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Asilomar, California

April 14, 2016

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Outline

- California CCE conceptual framework and status (1-5)
- The gap CCE fills (6)
- CCE nuts and bolts (7-11)
- CCE role in decentralization and decarbonization (12-21)
- Co-evolution of CCE with energy systems (22,23)
- CCE capacity building and policy support (24-26)

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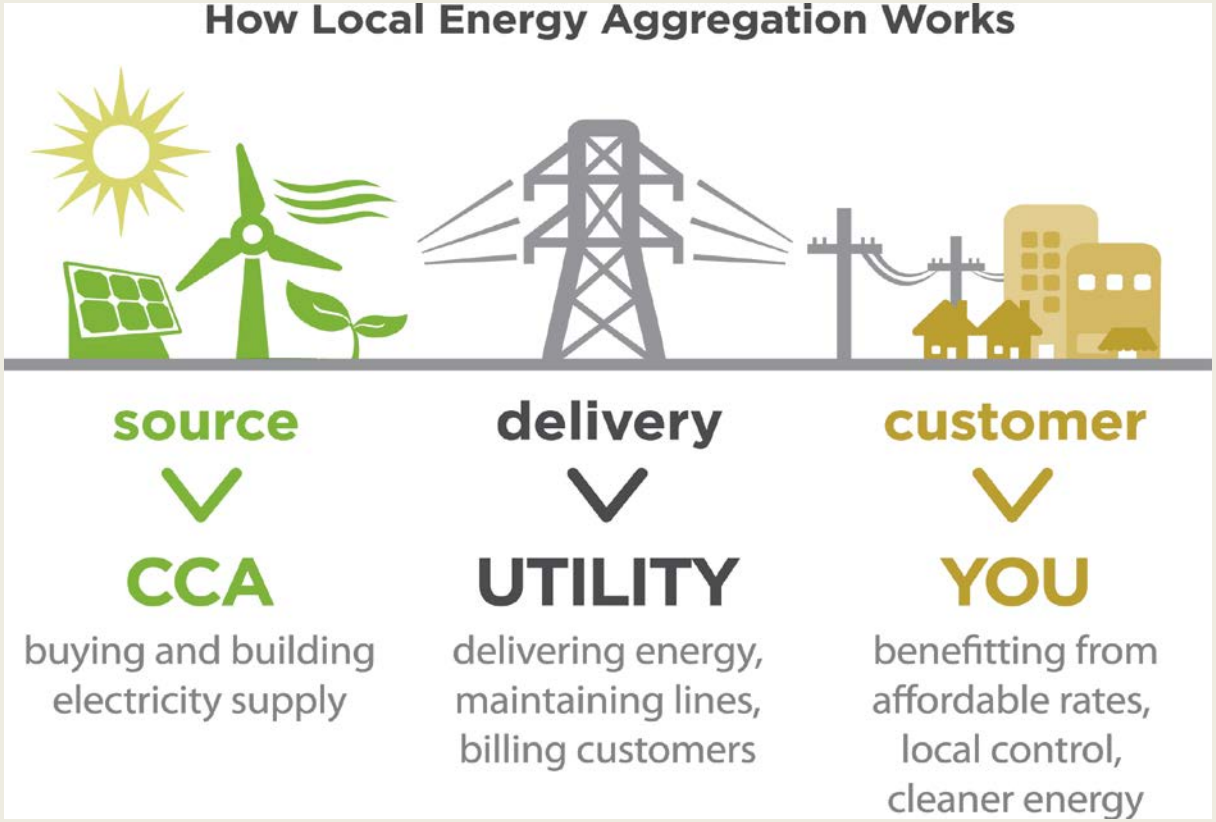
How Does CCE Work Today?

CCE leverages the market power of group purchasing and local control. It creates a service collaboration between counties/cities and investor-owned utilities.



Credit: Local Energy Aggregation Network

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CCE is a “Movement” in California

- CCE (aka Community Choice Aggregation (CCA)) is about climate change and the importance of both scale and speed in meeting the climate challenge.
- CCE is also a framework for solar power integration and maximization.
- Current solar power prices help create a “why not?” rationale for CCE.
- CCE brings a rising generation of political leaders up the energy and climate action learning curve.
- CCE deserves a timely, appropriate and constructive share of energy policy attention.

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CCE Approaching a Tipping Point

Date service began/will begin	Program	Population of area served/to be served
2010	Marin Clean Energy (MCE)	261,000
2014	Sonoma Clean Power	488,000
2013 - 2015	MCE adds Richmond, Benicia, El Cerrito, San Pablo, Napa Co. (unincorporated)	220,000
2015	Lancaster Choice Energy	161,000
2016	CleanPowerSF	852,000
2016	Peninsula Clean Energy	759,000
2016	Silicon Valley Clean Energy	600,000
2017?	San Jose	1,016,000
2017?	MCE adds interested entities from Napa and Contra Costa Counties	428,000
2017?	Alameda County and cities	1,535,000
TBD	LA County & cities	5,800,000
TBD	Monterey, Santa Cruz, San Benito Counties	750,000
TBD	Santa Barbara, San Luis Obispo, Ventura Counties	1,500,000
TBD	San Diego County and cities	3,263,000
Total population of communities with/launching/exploring CCA		17,633,000
California population (38,800,000) - 25% served by MUDs		29,100,000
Total percent eligible population to potentially be served by CCA by 2020		60%

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Source: http://climateprotection.tumblr.com/post/140813163917/community-choice-energy-a-california

Local CCE Attributes/Outcomes

- Revenue-supported and fully recoverable start-up costs
- Local rate setting, targeting:
  - Lower, stable electricity rates
  - Rate options of interest to **local** customers
  - Funding of programs (EE/DR, EV charging) designed for local effectiveness and economic benefits
  - Financial reserves supporting long term local investment
- Responsive to **local** environmental and economic goals
  - Faster, deeper GHG emissions reductions
    - Electricity supply portfolio
    - Integrated local energy planning/action to back out carbon
  - Consumers have more meaningful choices and ability to influence change
  - Some electricity service revenues "stay home", esp. as "local build-out" proceeds.

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CCE Authorizing Legislation

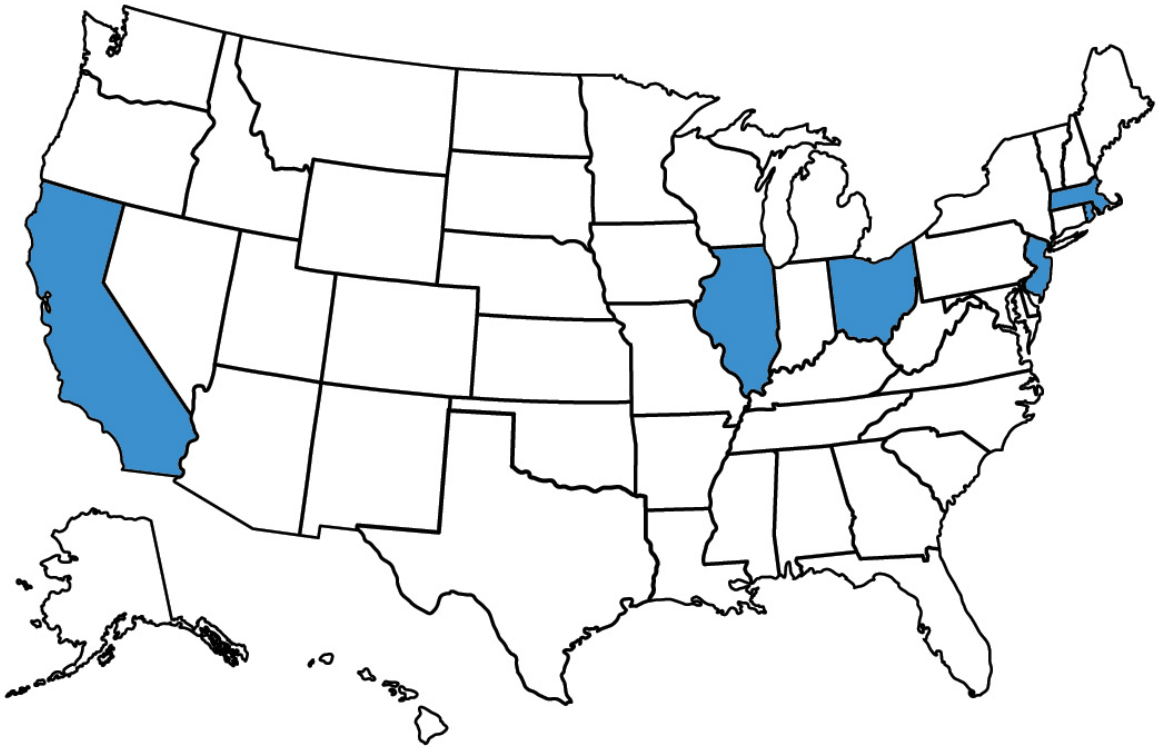
Authorized by CA Assembly Bill 117 in 2002

CCA allows communities to pool their electricity demand in order to purchase cleaner power and enable development of cleaner sources on behalf of local residents, businesses, and public facilities.

CCAs in 7 States

- California
- Illinois
- Massachusetts
- New Jersey
- Ohio
- Rhode Island
- New York

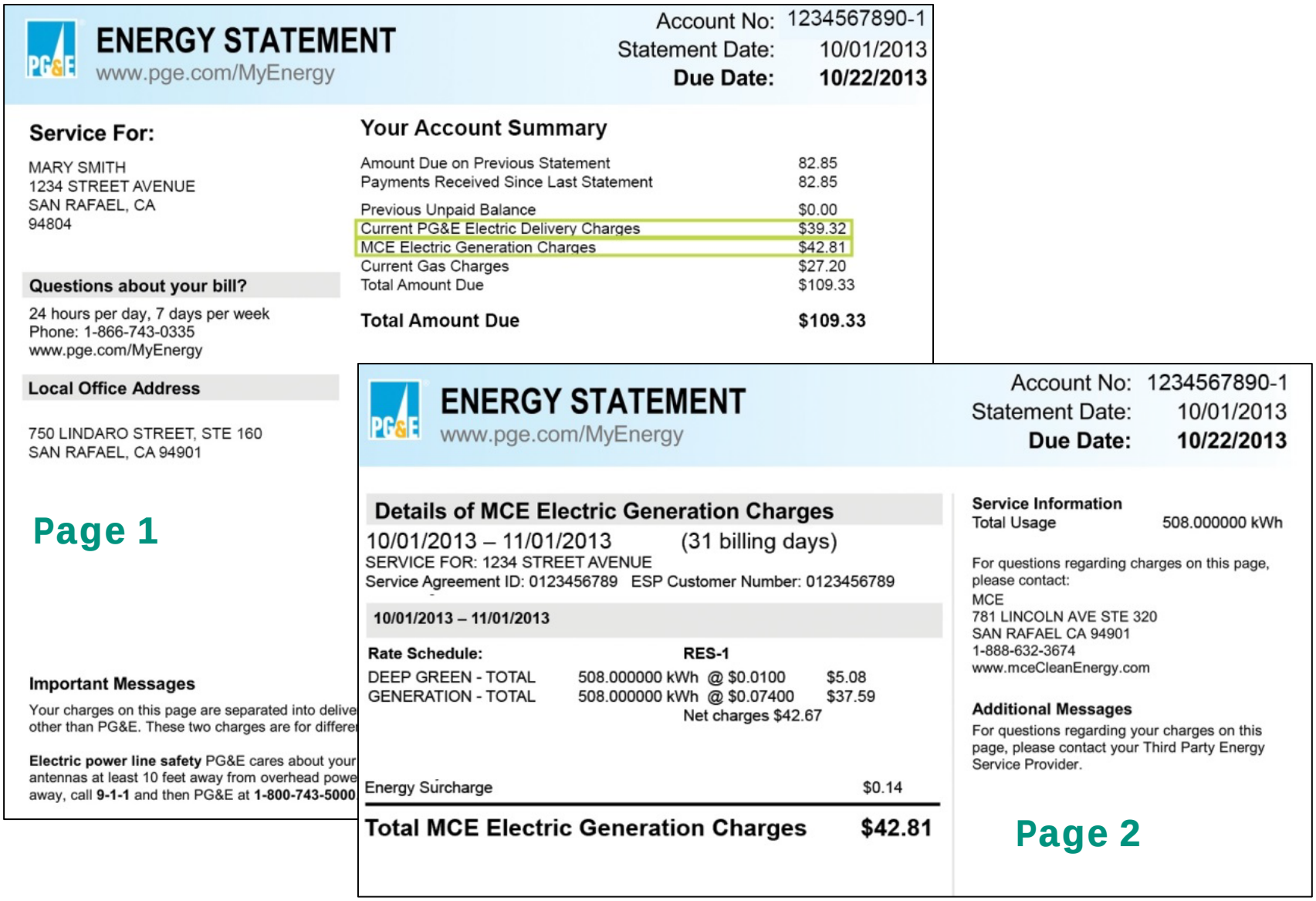
Under Consideration:
Utah, Delaware, Minnesota



Basic CCE Program Framework

- Local governments participate by passing an ordinance and determining which administrative model to operate under.
- Utility continues to provide consolidated billing, their standard customer service, line maintenance, etc.
- CCE electric generation charges appear as a new section of customer bill; all other charges are the same.
- CCA becomes assumes generation services responsibility; Customers receive *minimum* 4 opt-out notices over 120 days and *can return to IOU service any time*.
- CPUC certifies CCA Implementation Plan; monitors utility/CCA relationship and other regulatory requirements.

Sample Energy Bill – Marin Clean Energy



ENERGY STATEMENT
www.pge.com/MyEnergy

Account No: 1234567890-1
Statement Date: 10/01/2013
Due Date: 10/22/2013

Service For:

MARY SMITH
1234 STREET AVENUE
SAN RAFAEL, CA
94804

Questions about your bill?

24 hours per day, 7 days per week
Phone: 1-866-743-0335
www.pge.com/MyEnergy

Local Office Address

750 LINDARO STREET, STE 160
SAN RAFAEL, CA 94901

Your Account Summary

Amount Due on Previous Statement	82.85
Payments Received Since Last Statement	82.85
Previous Unpaid Balance	$0.00
Current PG&E Electric Delivery Charges	$39.32
MCE Electric Generation Charges	$42.81
Current Gas Charges	$27.20
Total Amount Due	$109.33
Total Amount Due	**$109.33**

Important Messages

Your charges on this page are separated into delive
other than PG&E. These two charges are for differe

Electric power line safety PG&E cares about your
antennas at least 10 feet away from overhead powe
away, call **9-1-1** and then PG&E at **1-800-743-5000**

Page 1

ENERGY STATEMENT
www.pge.com/MyEnergy

Account No: 1234567890-1
Statement Date: 10/01/2013
Due Date: 10/22/2013

Details of MCE Electric Generation Charges

10/01/2013 – 11/01/2013 (31 billing days)
SERVICE FOR: 1234 STREET AVENUE
Service Agreement ID: 0123456789 ESP Customer Number: 0123456789

10/01/2013 – 11/01/2013

Rate Schedule:	**RES-1**	
DEEP GREEN - TOTAL	508.000000 kWh @ $0.0100	$5.08
GENERATION - TOTAL	508.000000 kWh @ $0.07400	$37.59
	Net charges $42.67	
Energy Surcharge		$0.14
Total MCE Electric Generation Charges		**$42.81**

Service Information
Total Usage 508.000000 kWh

For questions regarding charges on this page, please contact:
MCE
781 LINCOLN AVE STE 320
SAN RAFAEL CA 94901
1-888-632-3674
www.mceCleanEnergy.com

Additional Messages
For questions regarding your charges on this page, please contact your Third Party Energy Service Provider.

Page 2

2015 MCE Residential Cost Comparison

508 kWh E-1/Res-1	PG&E 22%	MCE Light Green 50%	MCE Deep Green 100%	MCE Local Solar 100%
Delivery	$44.37	$44.37	$44.37	$44.37
Generation	$49.50	$40.13	$45.21	$72.14
PG&E Fees	-	$6.27	$6.27	$6.27
Total Cost	**$93.87**	**$90.77**	**$95.85**	**$122.78**

- Delivery rates stay the same
- Generation rates vary by service option
- PG&E adds exit fees on CCA customer bills
- Even with exit fees, total cost for Light Green is less than IOU, i.e. PG&E

2015 Commercial Cost Comparison

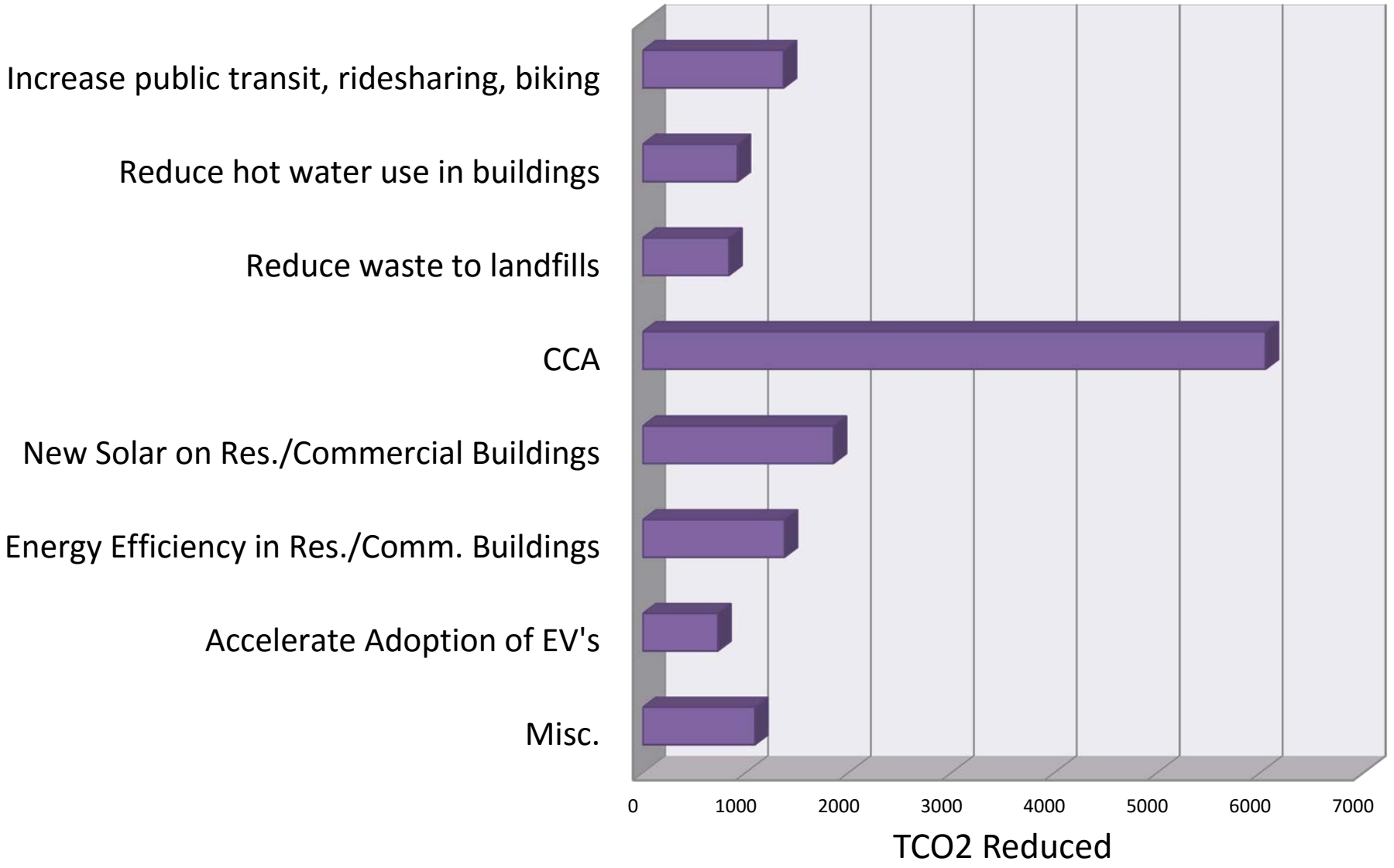
Sonoma Clean Power

Example Commercial Electric Charges Based on a business using 1,500 kWh per month on the COM-1 (A-1) rate	PG&E*	CleanStart	EverGreen
	28%† Renewable Energy	33% Renewable Energy	100% Renewable Energy
Electric Generation (all customers)	$153.42	$114.24	$166.74
PG&E Electric Delivery* (all customers)	$165.75	$165.75	$165.75
Additional PG&E Fees (SCP customers only)	$0.00	$16.50	$16.50
	Average Total Cost **$319.17**	Average Total Cost **$296.49**	Average Total Cost **$348.99**

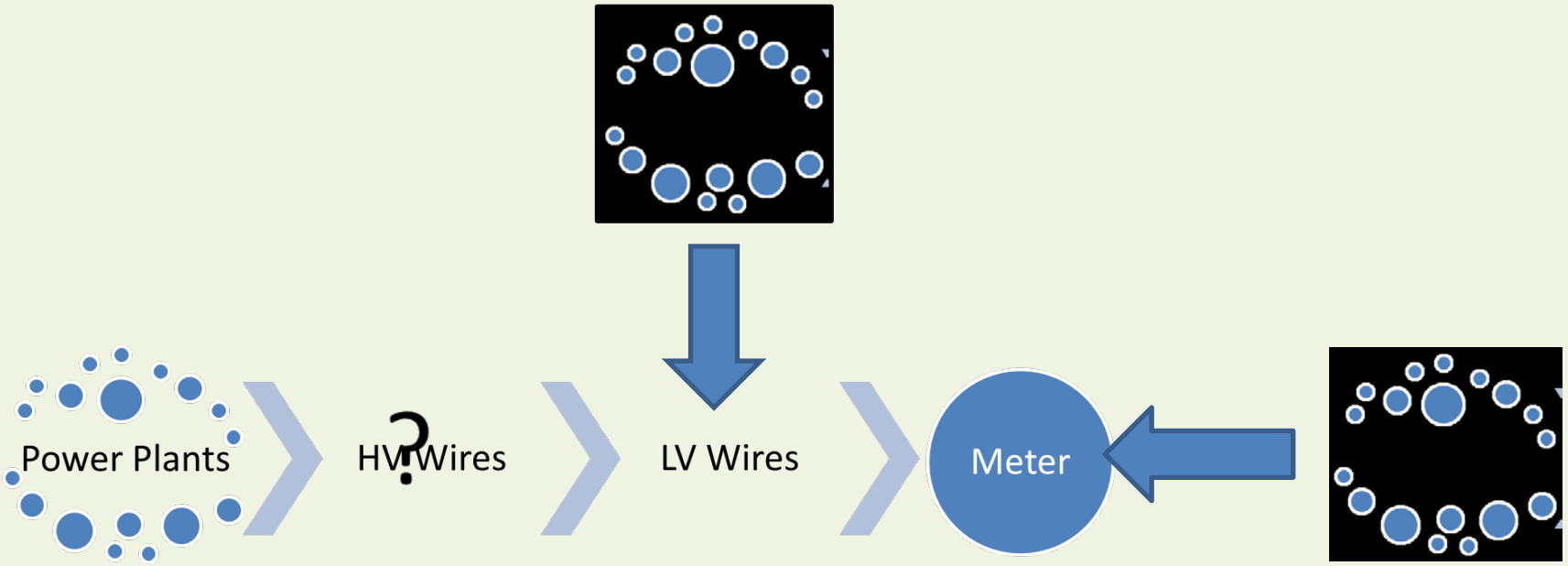
*PG&E fees are calculated by Sonoma Clean Power using rate data provided by PG&E effective on January 1, 2015.
†Based on 2014 forecasted data, as reported by PG&E. The Power Content comparison, linked at left, contains 2013 actual data for PG&E.

CCA Supercharges Climate Action Plans

Excerpt from Town of San Anselmo's CAP (2010)



Integrative CCE Core Business Vision



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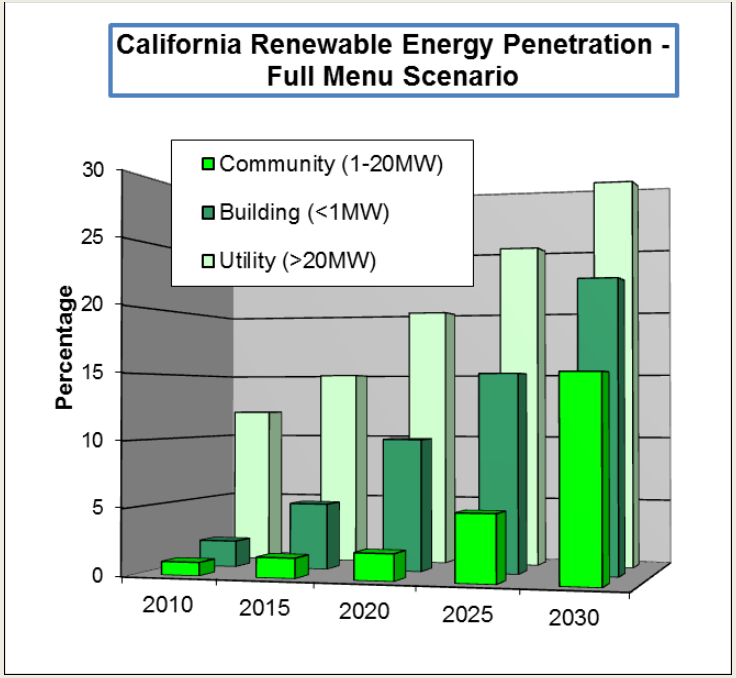
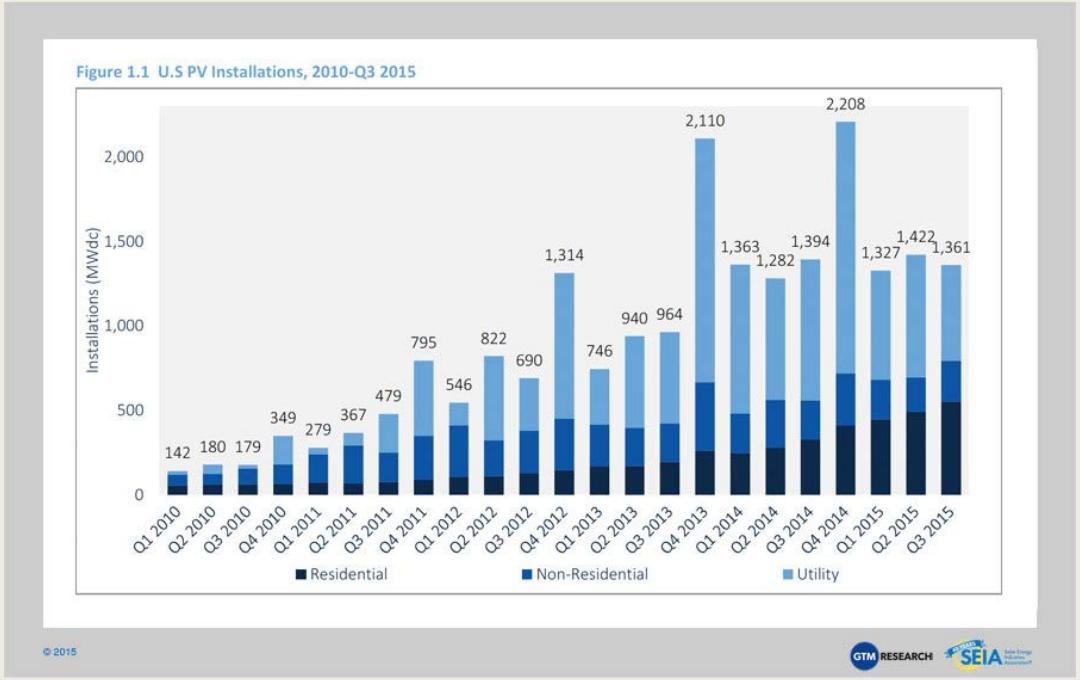
Decentralize to Decarbonize

Meanwhile, the “full menu” vision is manifesting in the solar PV market.



Source: http://www.iresn.org/resources/Integrated%20RE%20Deployment%20-%20Summary%20Rev%20%20060910%20Clean.pdf



Source: https://www.seia.org/research-resources/solar-market-insight-2015-q3

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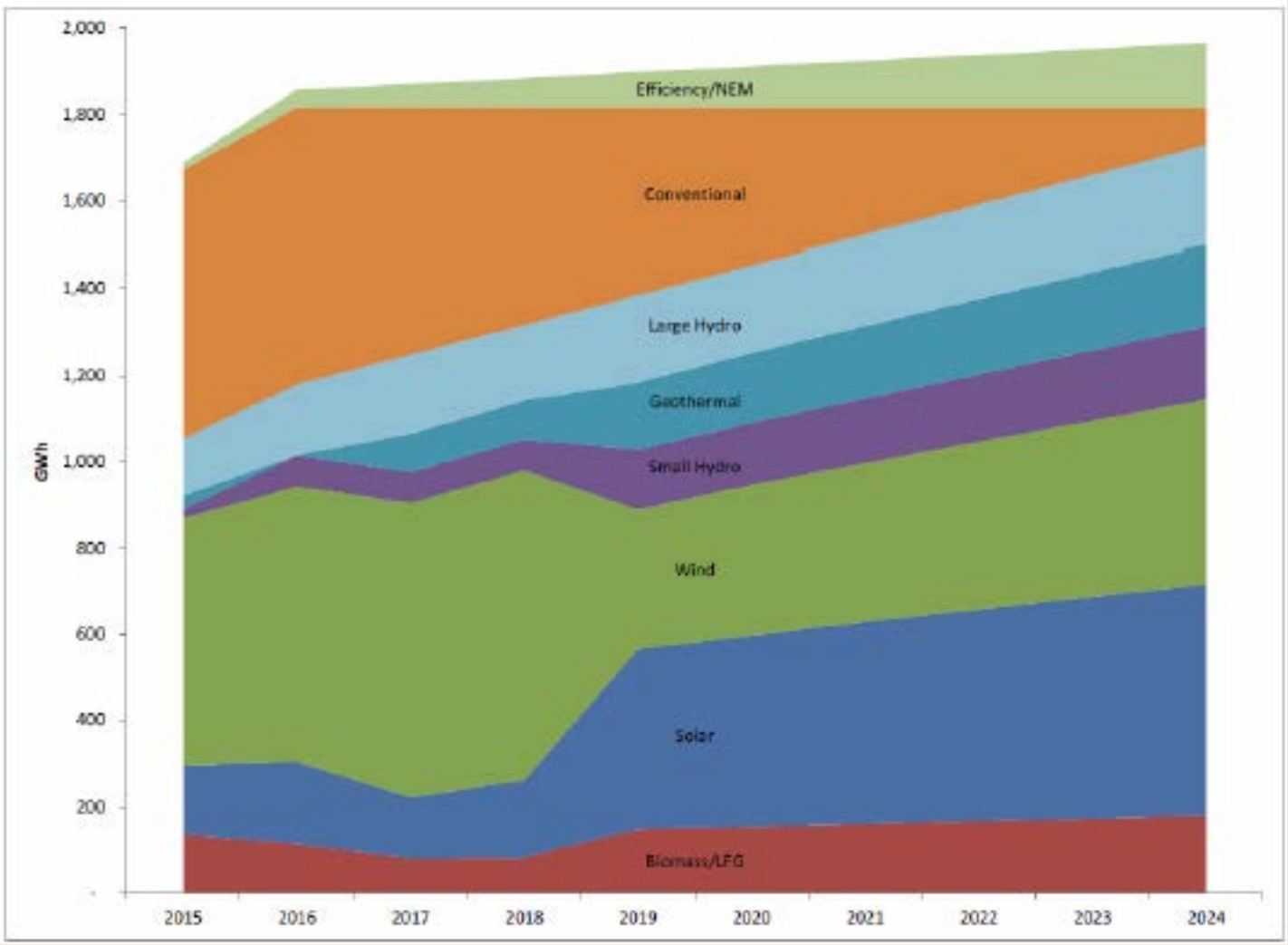
Marin Clean Energy 100% RE Plan



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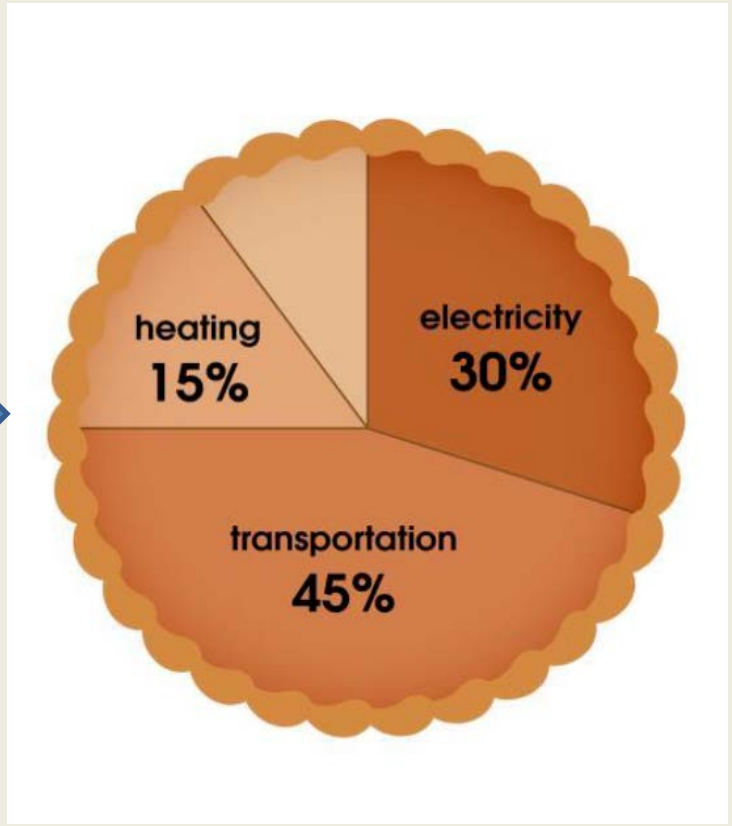
http://documents.cityofdavis.org/Media/Default/Documents/PDF/CityCouncil/Community-Choice-Energy-Advisory-Committee/Documents/City-of-Davis-and-Yolo-County-Technical-Study-Final-Draft.pdf

Integrative Local Climate Action Vision

CCE15

CCE25



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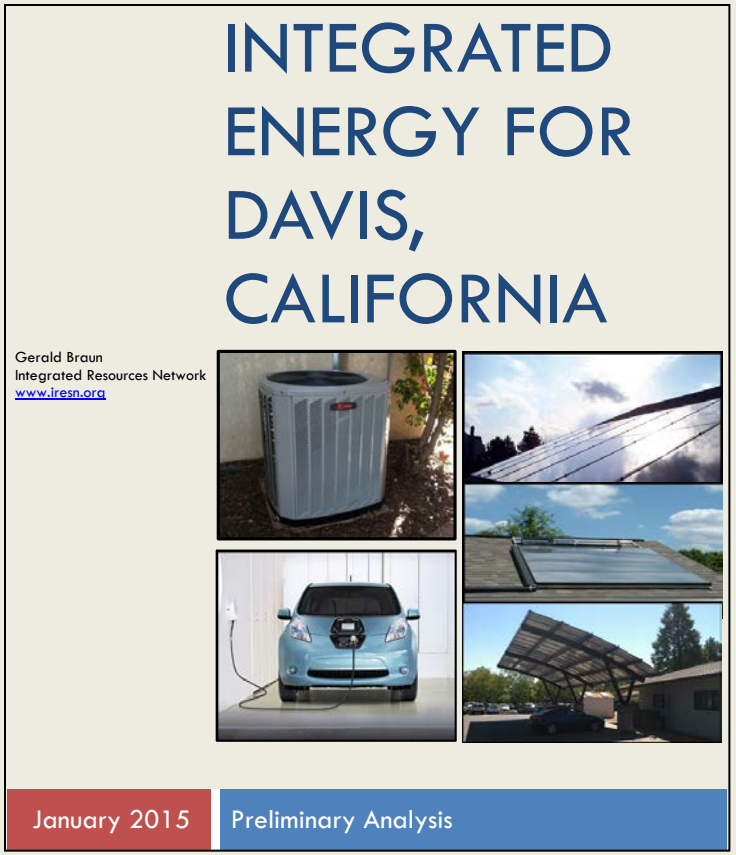
CCE Enables Local Integration

Local Integrated Energy Analysis/Planning

Trends
Integrated Model
Local Power Scenarios
Supply/Demand
Balancing
Scenario Comparisons



Subsidiarity is an organizing principle that says matters ought to be handled by the smallest, lowest or least centralized competent authority.

http://www.energy.ca.gov/2016publications/CEC-500-2016-015/CEC-500-2016-015-AP-D.pdf

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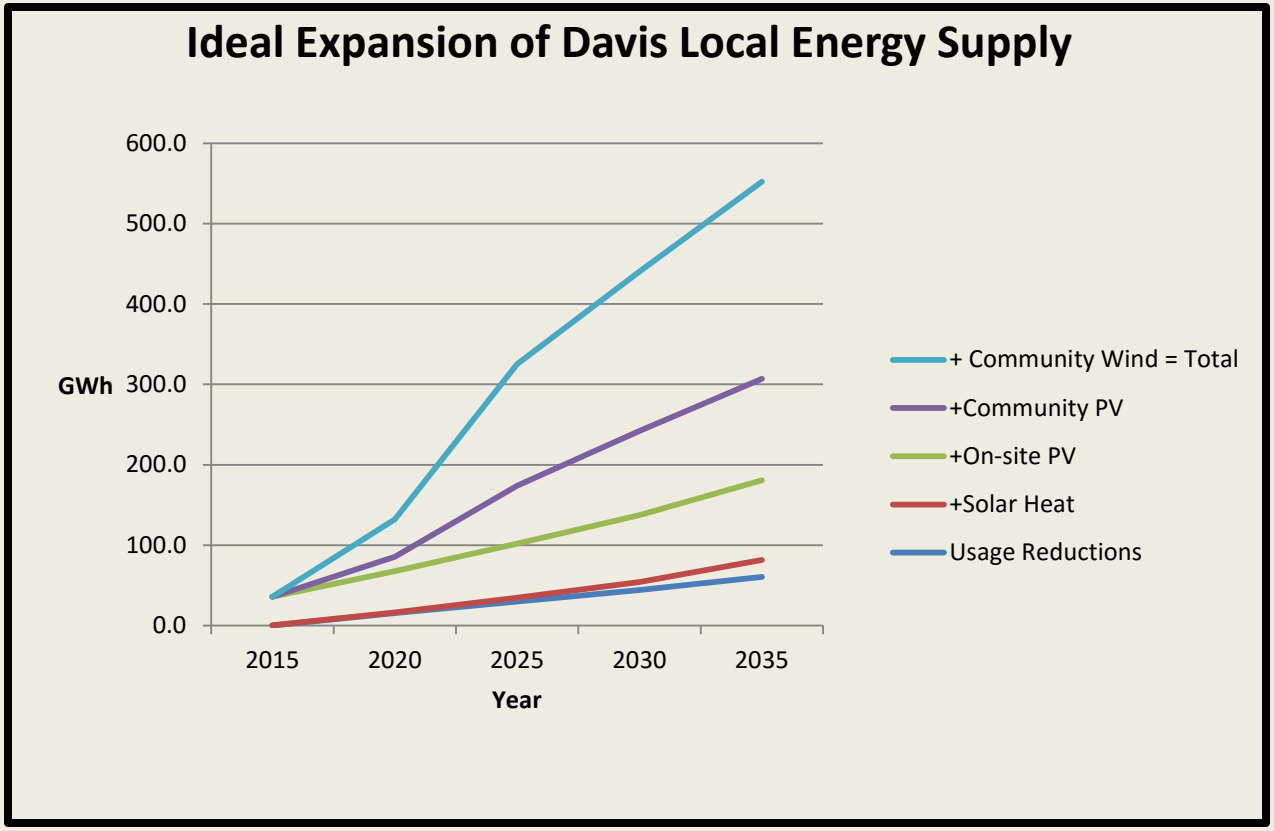
Accelerated Local Climate Action



Each California community has unique goals/priorities, energy usage and prosumer trends, plus local siting/resource opportunities.

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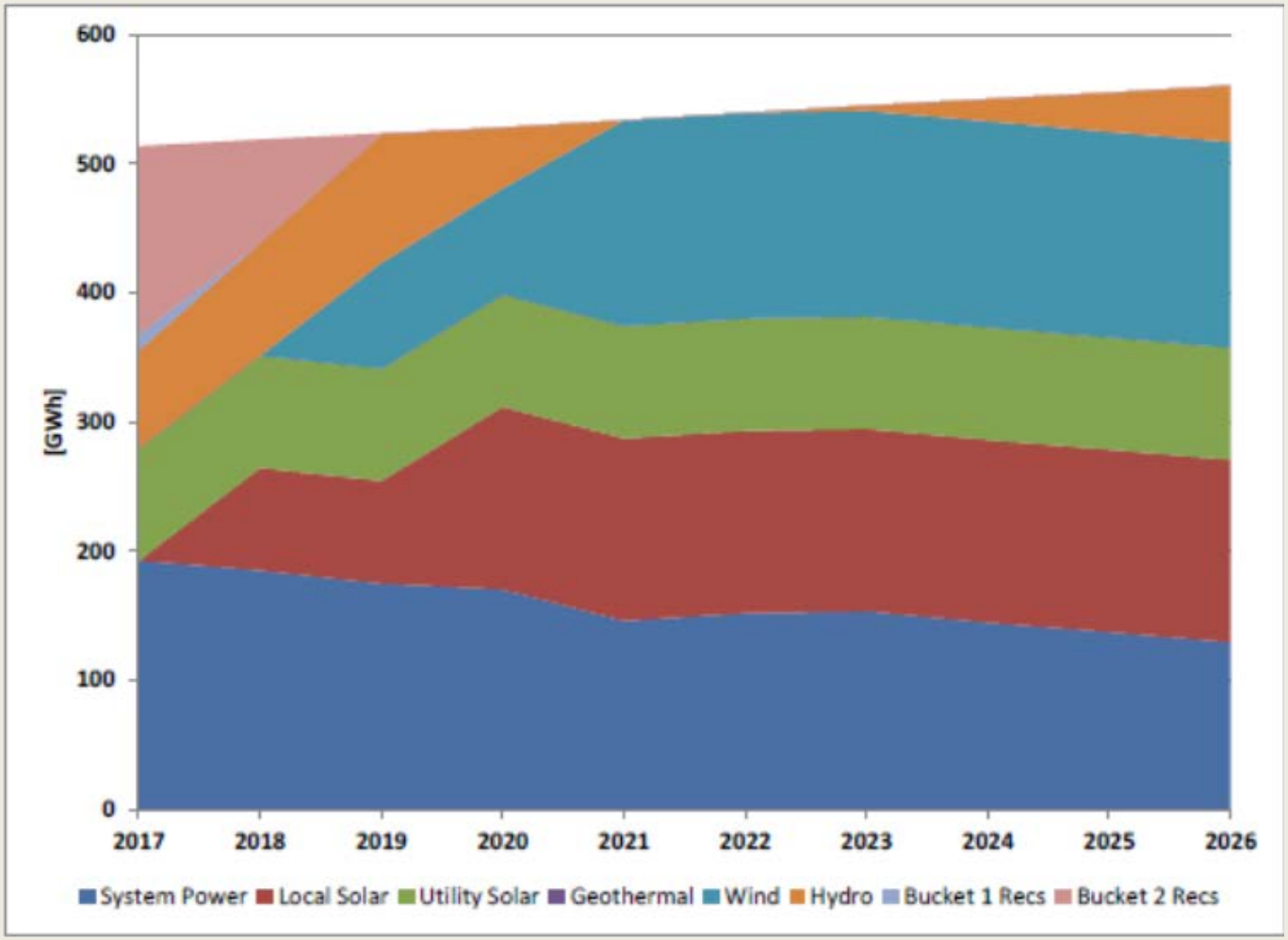
Davis/Yolo 75% RE Scenario



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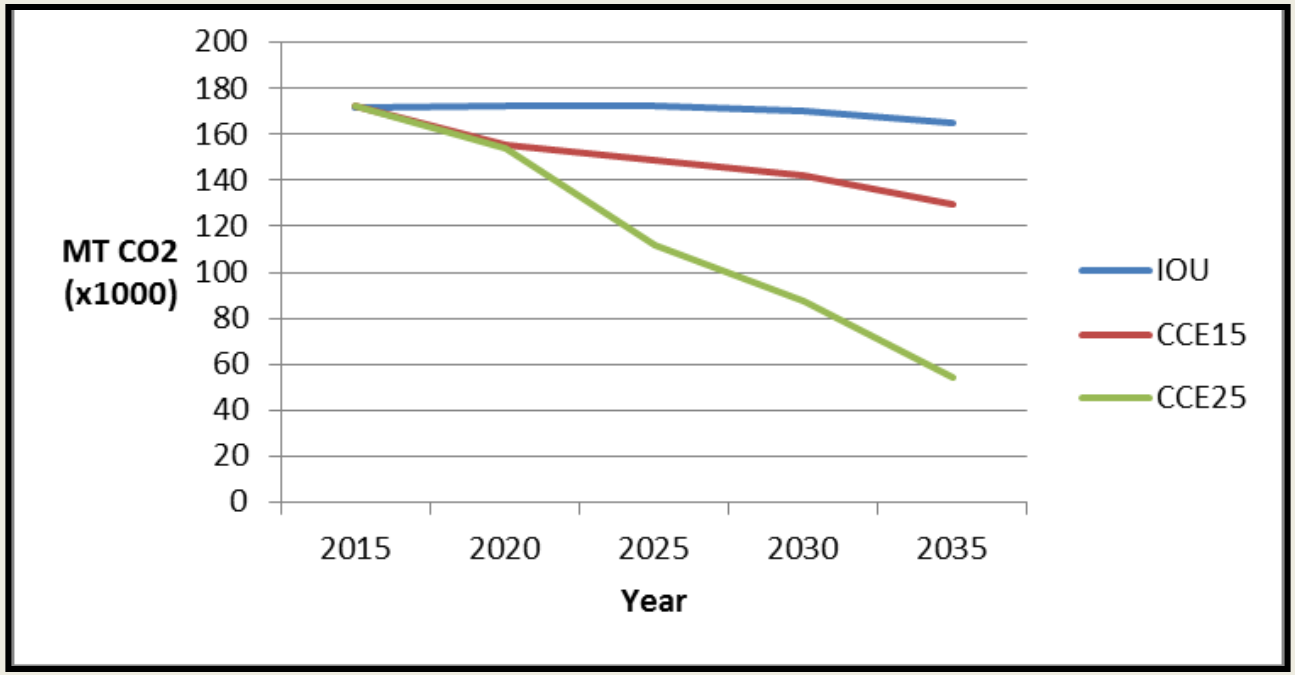
http://documents.cityofdavis.org/Media/Default/Documents/PDF/CityCouncil/Community-Choice-Energy-Advisory-Committee/Documents/City-of-Davis-and-Yolo-County-Technical-Study-Final-Draft.pdf

Local Carbon Footprint Reduction



CCE programs are constrained by a 20th century electricity service business and regulatory model that may evolve. The current CCE model (CCE15) has considerable carbon footprint reduction potential, but a more highly evolved model (CCE25) could enable near complete elimination of the local footprint within two decades.

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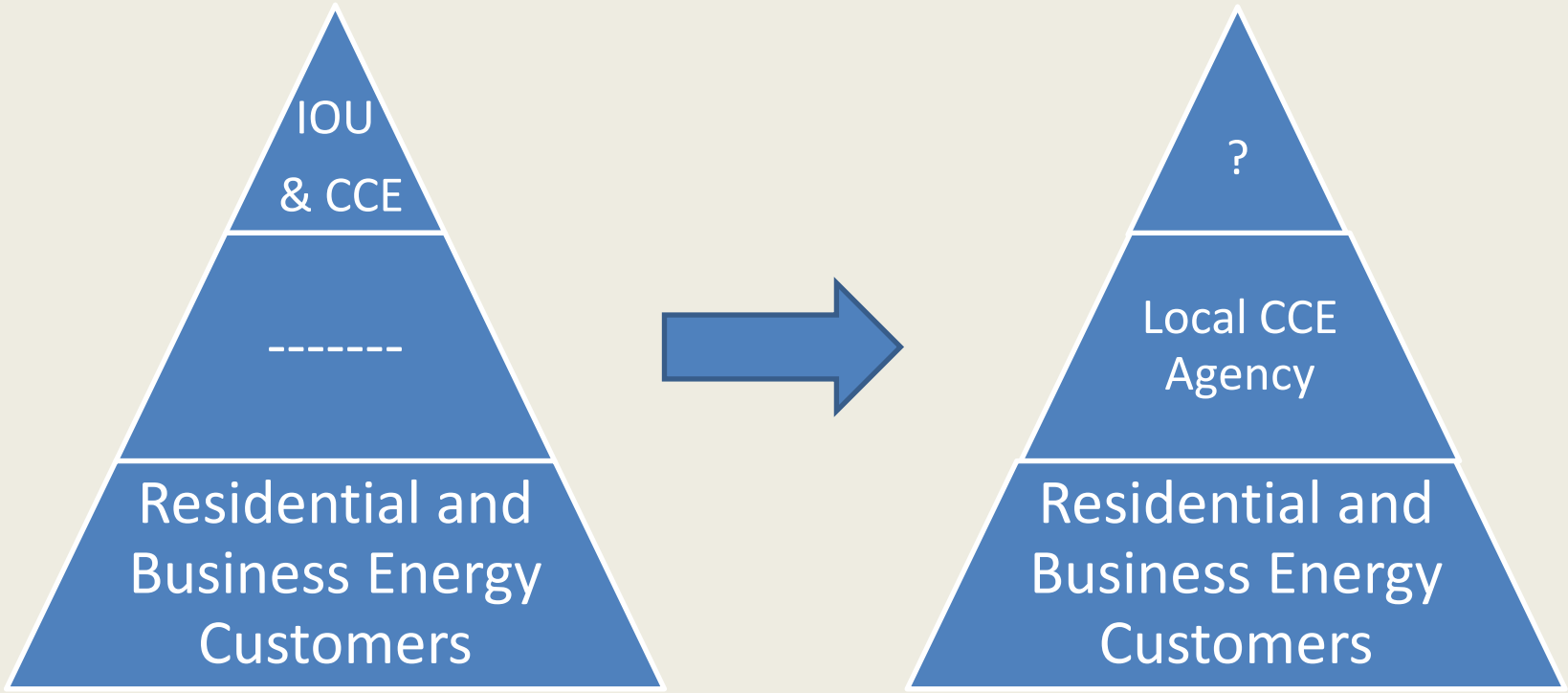
Aspirational CCE Role as Local Climate Action Integrator



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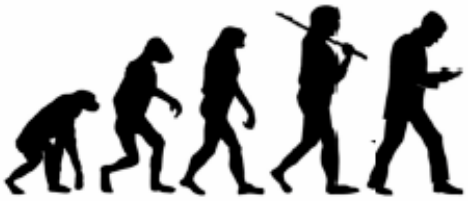
How might the electricity industry evolve?



DER

Distribution Grid

Transmission Grid

Bulk Generation

Investor Owned Utility

IOU

Transmission Operator (CAISO)

Customer Integrator

Distribution Operator (IDSO)

Transmission Operator (ITSO)

1990 Today Future?

DER, "distributed energy resources" means distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies.

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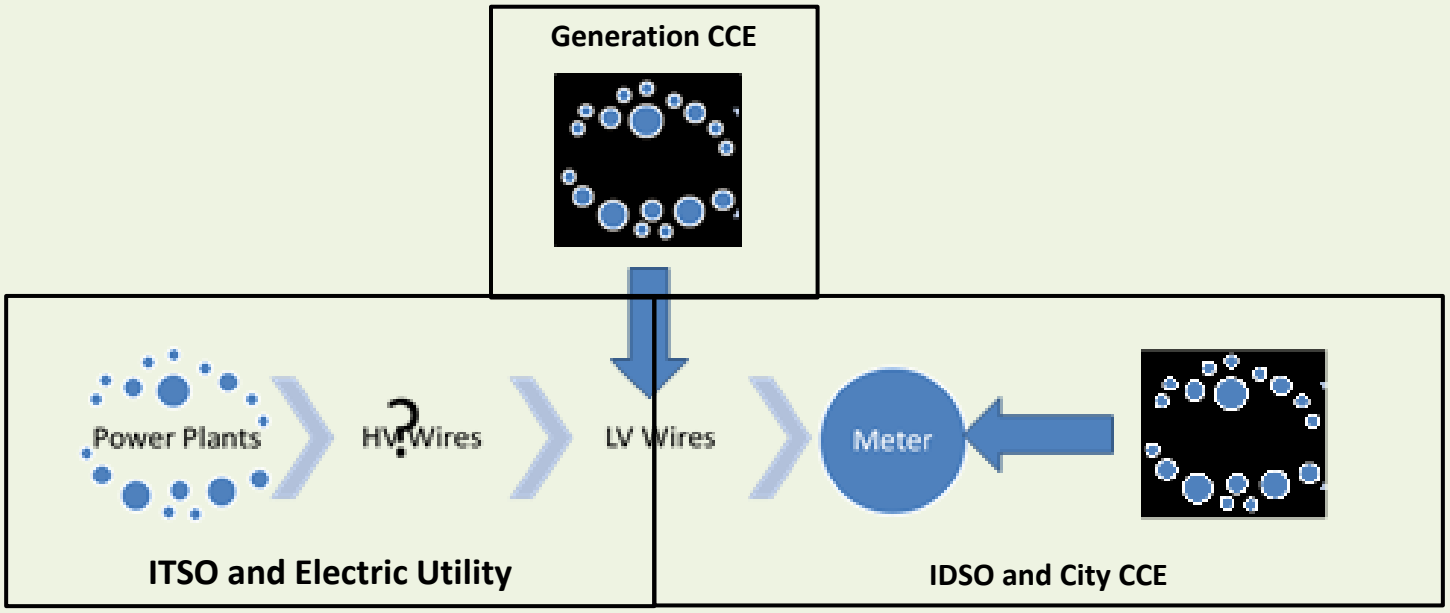
Credit: Mark Ferron, CAISO

CCE25 Decentralization Scenario



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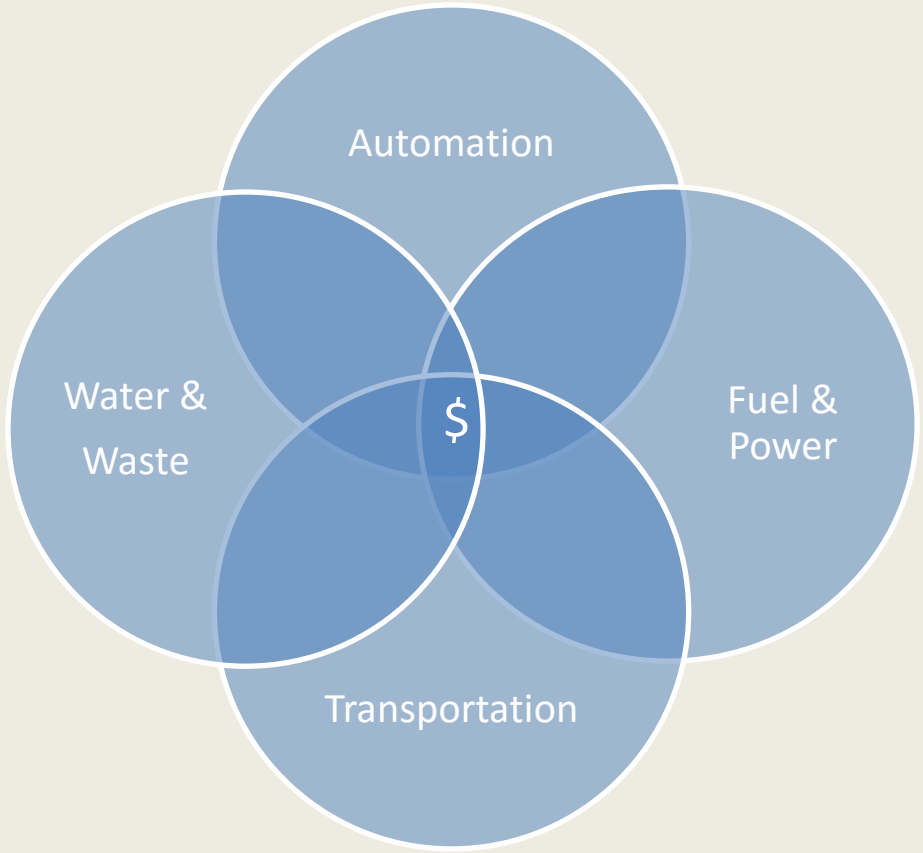
City/CCE/Utility Integration Opportunity



There are significant benefits to local economies resulting from better and more comprehensive integration of local government services.

Cities have:

- Rapidly maturing GIS databases that enable effective design and targeting of energy efficiency and net zero retrofit programs.
- Interest in resilient infrastructure, e.g. mitigating climate change impacts of associated city services such as wastewater treatment, storm water, emergency management, public health, roads, flood-risk reduction, and waste management.

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Policies Toward CCE

- IOUs: “Death by a thousand cuts”
  - Exit fees
  - Transmission access charges applied to community and on-site solar
  - AB 2145 (change CCE opt out to opt in)
  - Utility surrogates undermining formation efforts
- State and National: “Benign neglect” - CCE not yet recognized as an effective instrument of state/national climate action policy.

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Summary

- Climate action speed and scale:
  - Wind and solar industry growth and maturation meets the **scale** challenge.
  - Much better and continuously improving local integration will be necessary to meet the **speed** challenge.
- CCEs is can be effective agents for solar power integration and maximization, and more.
- Still a lot of work to make it so, including collaborative energy conversations/initiatives between energy “distribution” utilities and communities.
- Opportunities for low cost/high leverage state and Federal investments in integrative local energy analysis and local energy management capacity building.
- Indirect benefits to energy legislative and regulatory innovation.
- Need for policy attention. Let’s (Solar Circle) tackle the policy gaps, plus bring CA’s CCE model to the attention of other states and countries.

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