

Community Choice Aggregation In California: An Overview

City of La Mesa
City Council Meeting
September 27, 2016



About EPIC

Research Center

- University of San Diego
- Launched in 2005

Mission

- Conduct Research and Analysis
- Educate Decision Makers and Students

Funding

- Endowment
- Grants and Contracts

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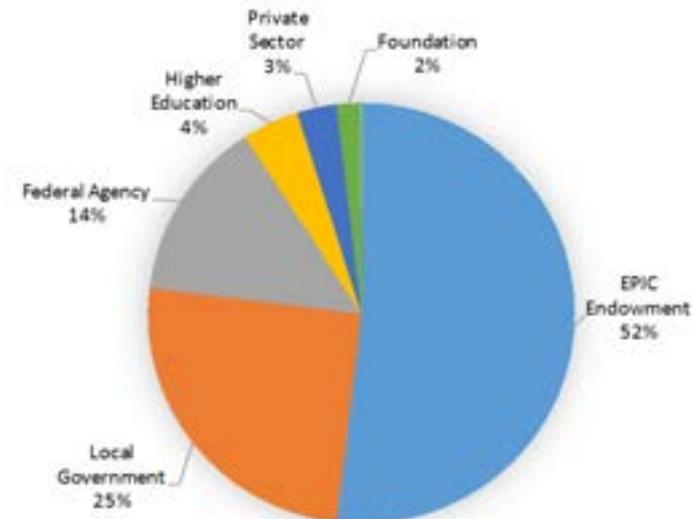
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EPIC Revenue by Category for FY 15-16



The Work We Do

Climate Planning

- GHG Analysis for SANDAG's San Diego Forward Plan
- GHG Analysis for City of San Diego Climate Action Plan
- Support for Cities of Carlsbad, Chula Vista, Del Mar, El Cajon, Encinitas, Lemon Grove, La Mesa, and Oceanside

Renewable Energy

- AB 2188 Model Ordinance and Implementation Guide
- Solar and Energy Storage Report
- Community Solar Report

Other

- Regional Energy Innovation Cluster Project with Cleantech San Diego
- U.S. EPA Clean Power Plan Research for CA Energy Commission
- Energy Policy Workshop for Saudi Aramco

What is Community Choice Aggregation?

Comparison of Electric Supply Structures

	Investor-Owned Utility (IOU)
SUPPLY	IOU Generates and Purchases Electricity
DELIVERY	IOU Maintains Transmission and Distribution Grid
BILLING	IOU Provides Billing and Customer Service
RATE SETTING	CPUC Sets Rates
CUSTOMERS AFFECTED	All

Comparison of Electric Supply Structures

	Investor-Owned Utility (IOU)	Direct Access
SUPPLY	IOU Generates and Purchases Electricity	Customer Purchases Directly from Energy Service Provider
DELIVERY	IOU Maintains Transmission and Distribution Grid	IOU Maintains Transmission and Distribution Grid
BILLING	IOU Provides Billing and Customer Service	IOU Provides Billing and Customer Service
RATE SETTING	CPUC Sets Rates	CPUC Sets Rates
CUSTOMERS AFFECTED	All	Opt-In

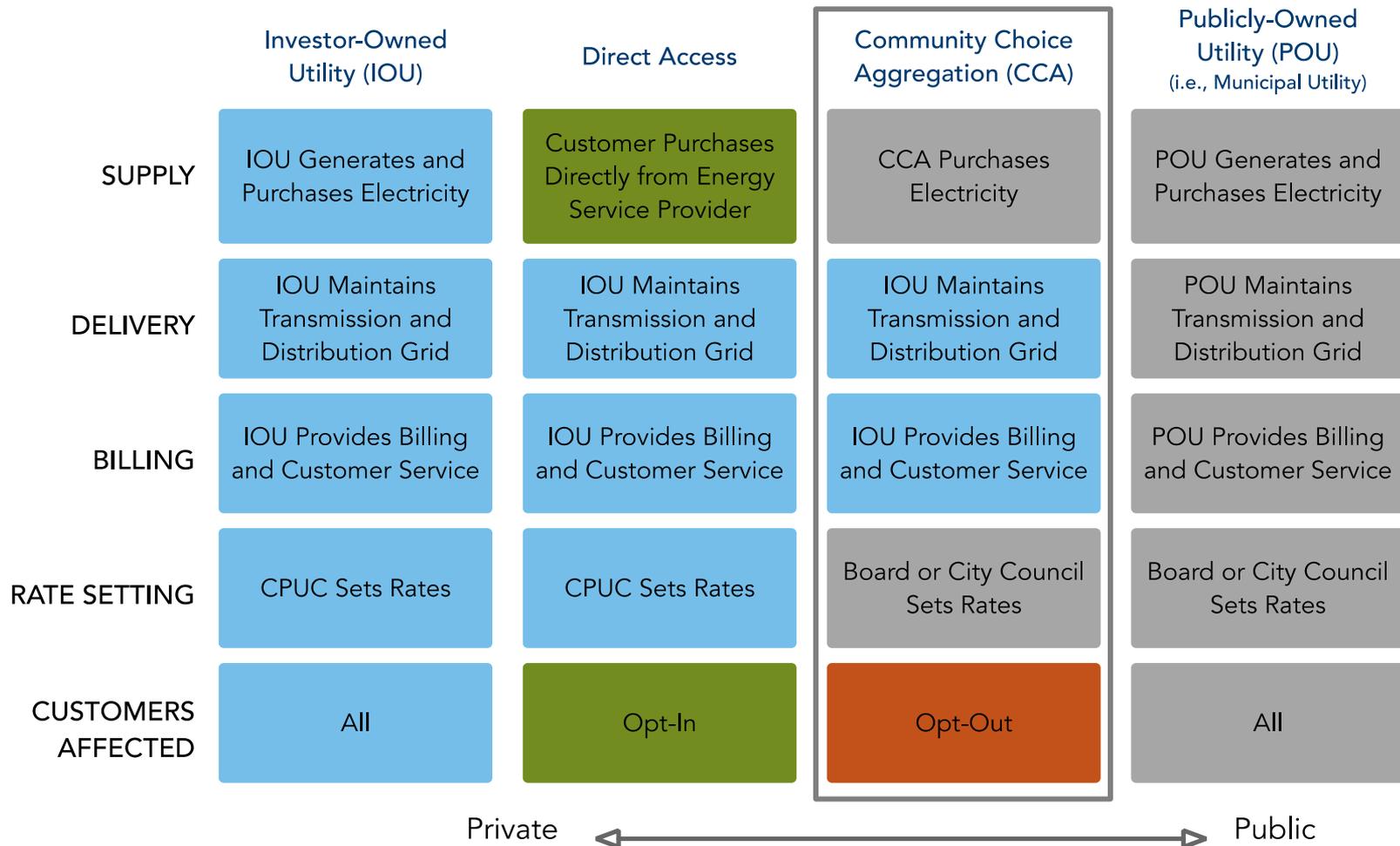
Comparison of Electric Supply Structures

	Investor-Owned Utility (IOU)	Direct Access	Publicly-Owned Utility (POU) (i.e., Municipal Utility)
SUPPLY	IOU Generates and Purchases Electricity	Customer Purchases Directly from Energy Service Provider	POU Generates and Purchases Electricity
DELIVERY	IOU Maintains Transmission and Distribution Grid	IOU Maintains Transmission and Distribution Grid	POU Maintains Transmission and Distribution Grid
BILLING	IOU Provides Billing and Customer Service	IOU Provides Billing and Customer Service	POU Provides Billing and Customer Service
RATE SETTING	CPUC Sets Rates	CPUC Sets Rates	Board or City Council Sets Rates
CUSTOMERS AFFECTED	All	Opt-In	All

Comparison of Electric Supply Structures

	Investor-Owned Utility (IOU)	Direct Access	Community Choice Aggregation (CCA)	Publicly-Owned Utility (POU) (i.e., Municipal Utility)
SUPPLY	IOU Generates and Purchases Electricity	Customer Purchases Directly from Energy Service Provider	CCA Purchases Electricity	POU Generates and Purchases Electricity
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CUSTOMERS AFFECTED	All	Opt-In	Opt-Out	All

Comparison of Electric Supply Structures



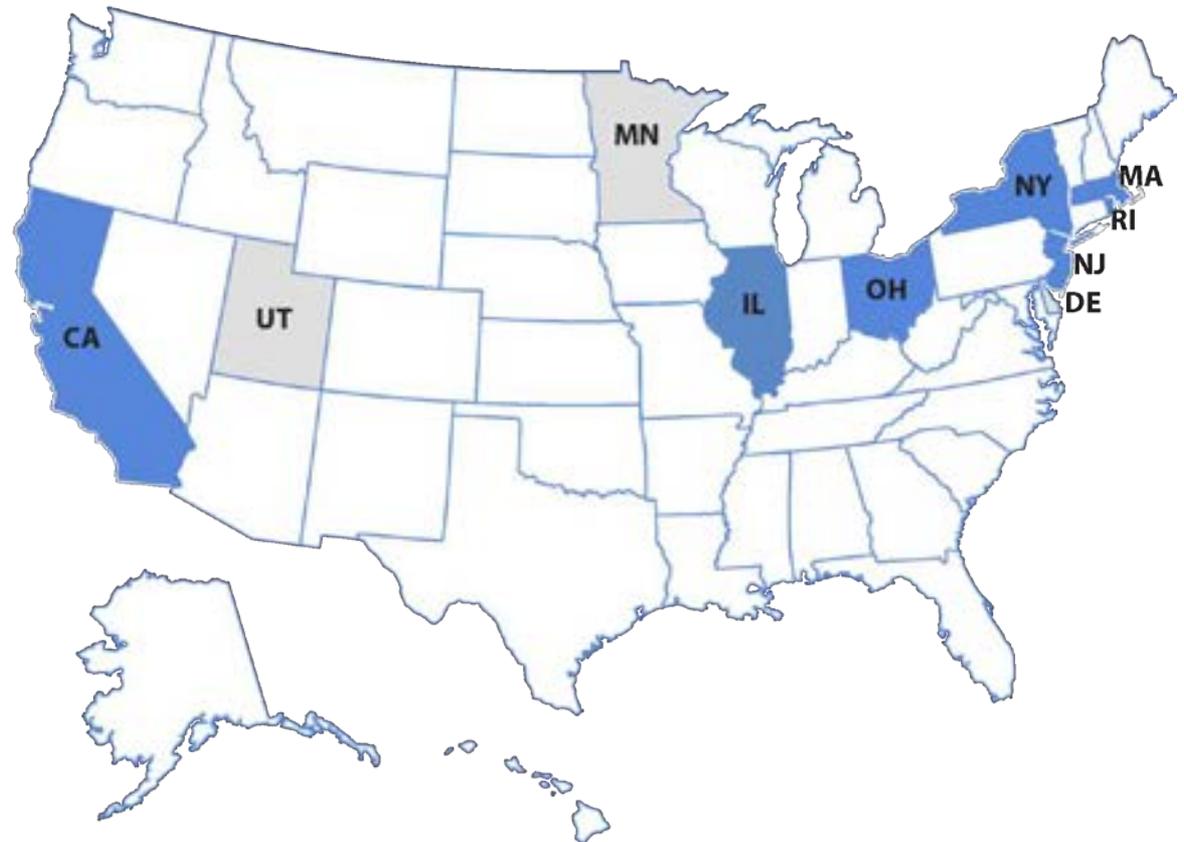
Community Choice Aggregation in the US

Legal in 7 States:

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

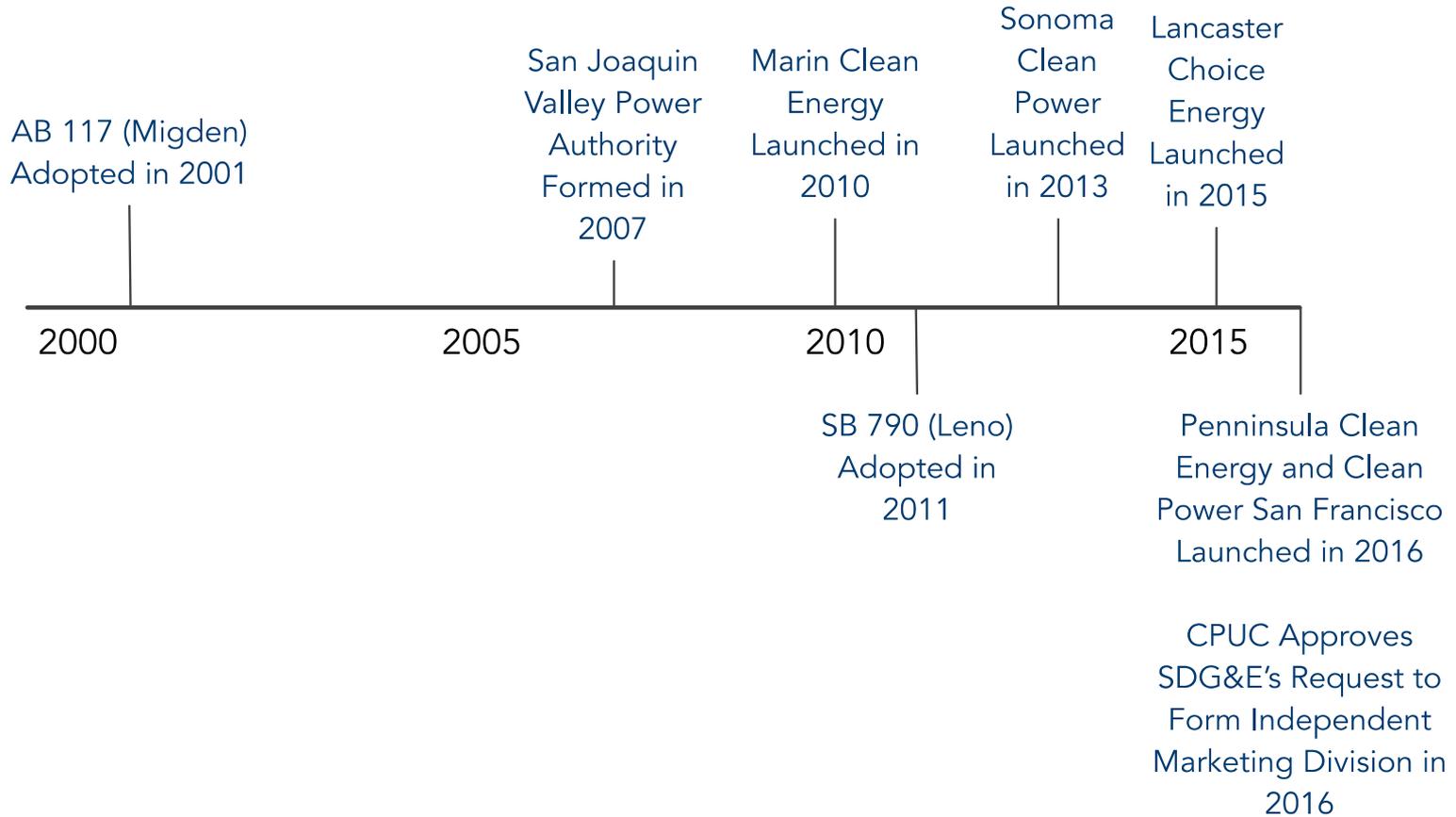
Under Consideration in:

- Utah
- Delaware
- Minnesota

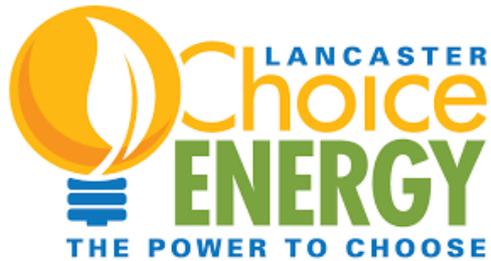


Source: Lean Energy U.S.

Key Developments in California



Community Choice Aggregation in CA



Community Choice Aggregation Structures

Joint Power Authority

- Form new or join existing JPA
- Governed by Board of Directors
- Marin Clean Energy
- Sonoma Clean Power

Enterprise

- Operates as an internal department
- Governed by City Council
- Lancaster Choice Energy

Third Party Operation

- Hire third party to provide turnkey service

Community Choice Aggregation in CA

Opt Out Program

- All accounts are automatically enrolled
- Can opt-out
- Can opt back in
- Rules for opting out and back in

Regulatory Role of the CPUC

CPUC Role

- Permits CCA to Enroll New Customers
- CCA Must
 - Register with CPUC
 - Submit implementation plan
- Requires
 - Universal access
 - Reliability
 - Equitable treatment of all customer classes
- Conducts Dispute Resolution between CCA and IOU
- Sets the Power Charge Indifference Adjustment (PCIA)

Regulatory Role of the CPUC

Power Charge Indifference Adjustment (PCIA)

- Charge paid by customers that receive electricity from supplier other than IOU
 - Direct Access
 - Community Choice Aggregation
- Purpose
 - Ensure that costs that the IOU incurred in the past to serve customers now taking service from DA or CCA do not unfairly affect remaining utility customers.
 - Intended to keep bundled customers financial “indifferent” to the departure of DA or CCA customers.

CCA Subject to Certain State Regulations

Renewable Portfolio Standard

- CCA must procure a certain percentage of renewable energy
 - 33% by 2020
 - 50% by 2030

Resource Adequacy

- CCA must procure enough energy to serve customers and provide a contingency reserve of 15%

Typically Stated Benefits of Pursuing a CCA

Cost

Clean Energy

Choice

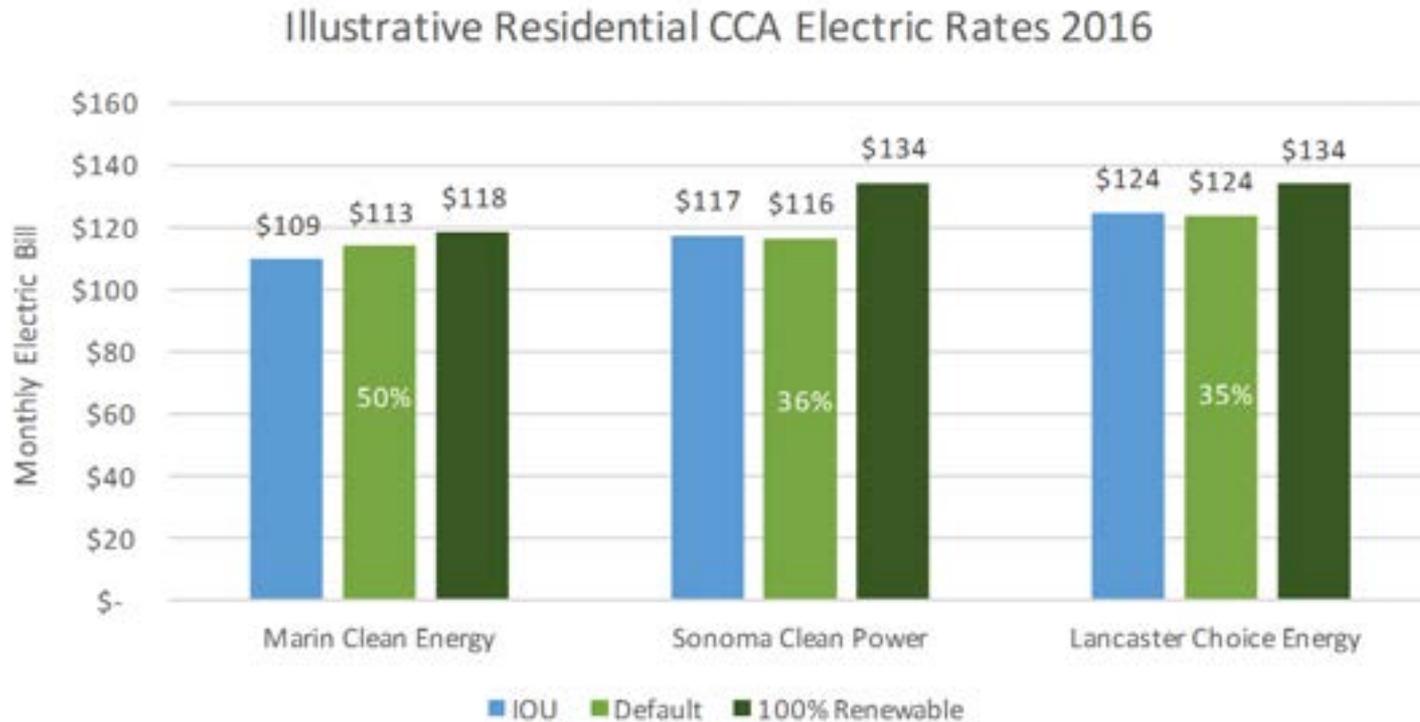


Cost

CCAs Set Electric Rates

- Internal analysis by staff and/or consultants
- Approved by board or city council
- Subject to applicable CPUC regulations
- Factors in CCA electric rates
 - Level of PCIA
 - Amount of electricity procured
 - Term of contract
 - Type of resource
 - Level of market purchases

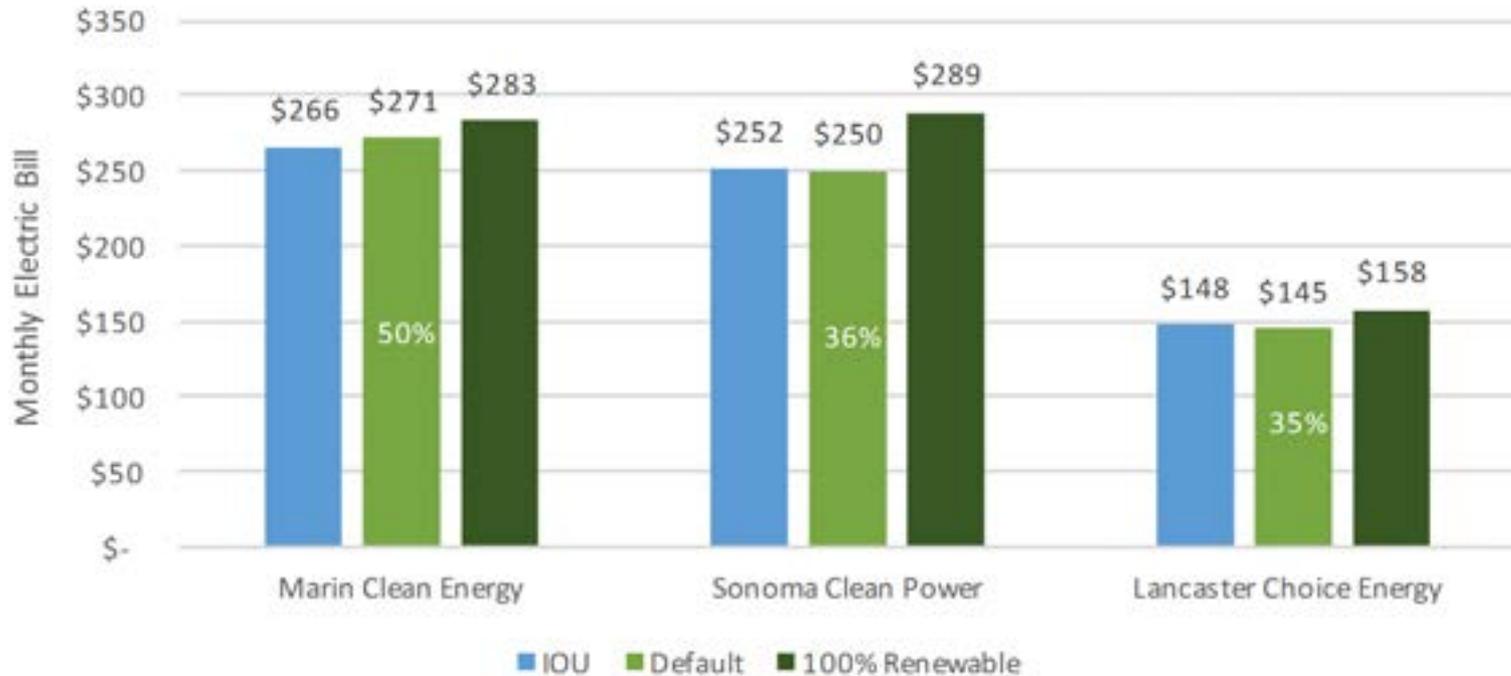
CCA Electric Rates in CA - Residential



PG&E E-1/Res-1 and SCE D rates shown.

CCA Electric Rates in CA - Commercial

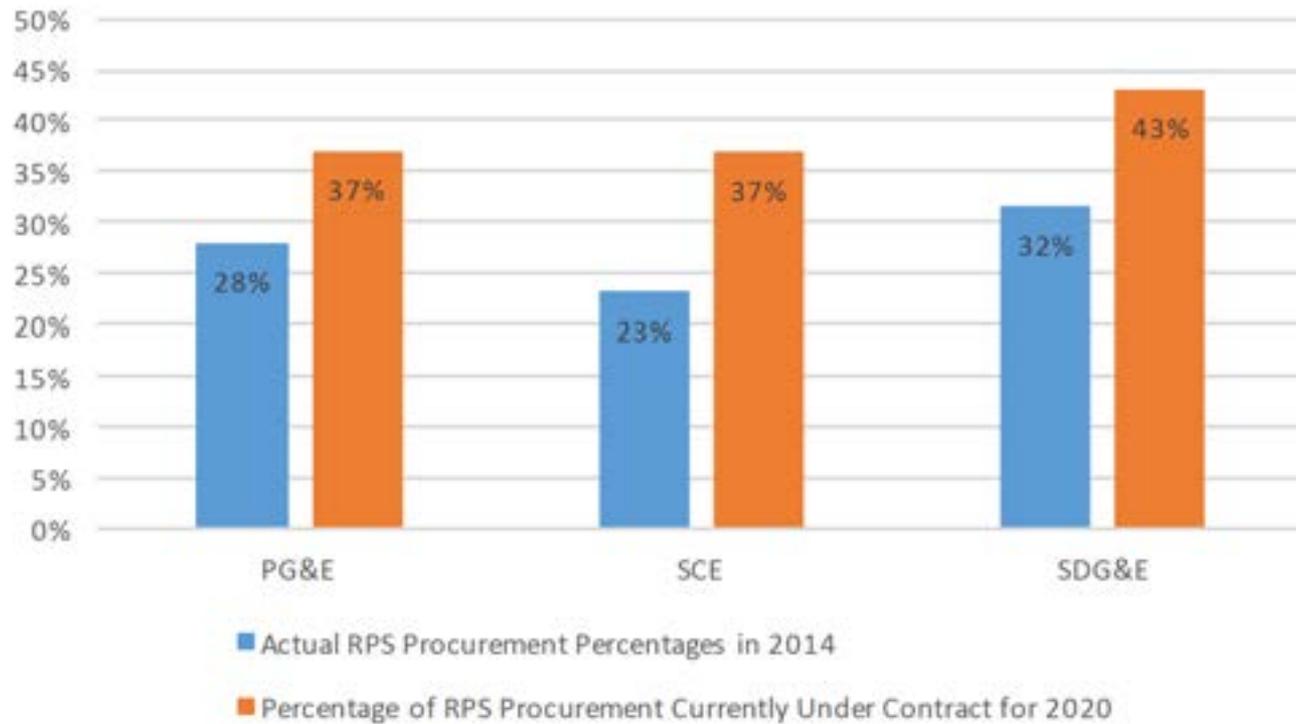
Illustrative Commercial CCA Electric Rates 2016



PG&E A-1X/Com-1TOU and SCE TOU-GS1A rates shown.

CCA Electric Rates in CA - Residential

IOU Renewable Portfolio Standard Compliance



Source: California Public Utilities Commission

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Clean Energy

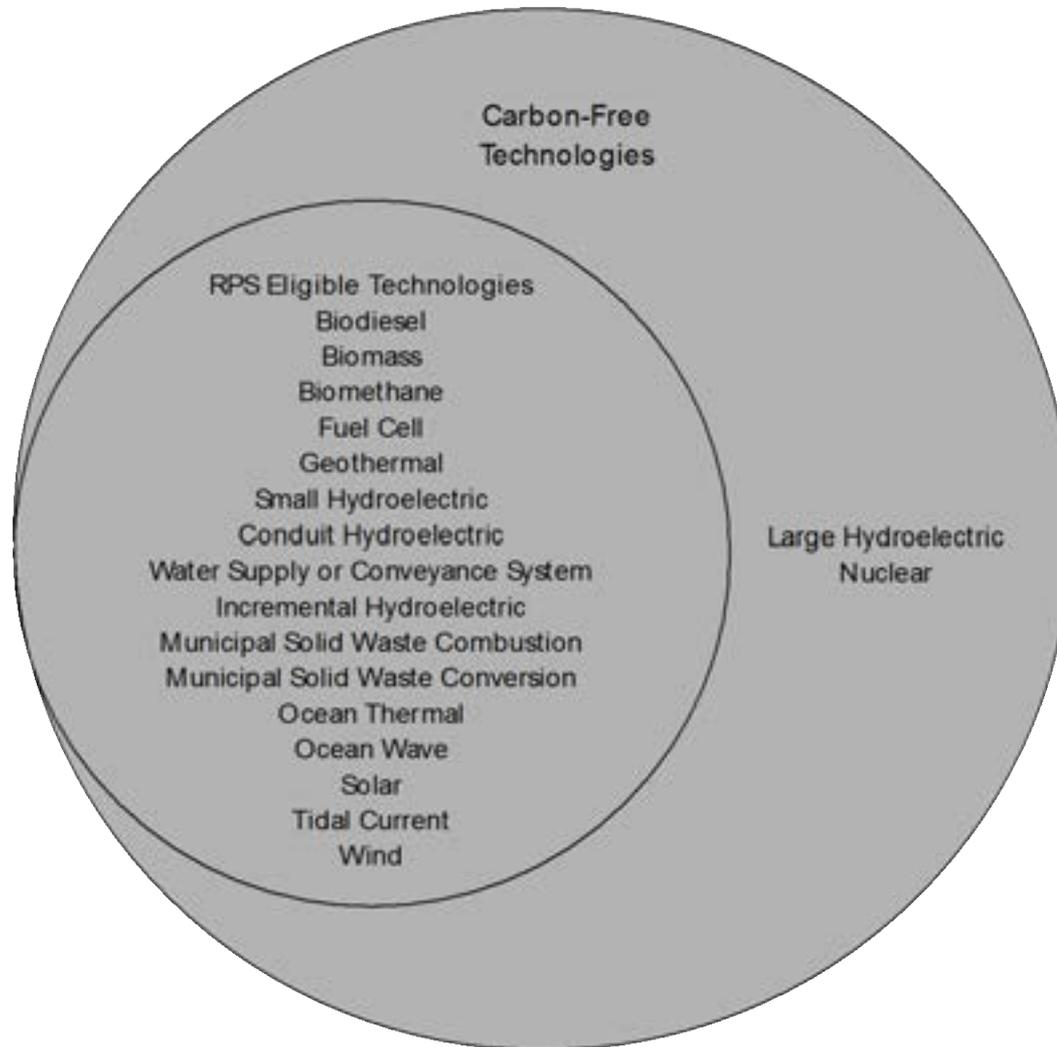
Clean Energy

Renewable Portfolio Standard

- Requires percentage of renewable energy
 - 33% by 2020
 - 50% by 2030
- Covers
 - Investor-owned utilities (IOUs)
 - Electric service providers (Direct Access)
 - Community choice aggregators (CCA)
- Generally large-scale resources

Clean Energy

Renewable vs. Carbon Free



Clean Energy

Renewable Energy Credits (RECs)

- Electricity includes two products
 - Electrons
 - Renewable attributes
 - Lower emissions
- Analogy is that milk includes both milk and cream
- RECs can be used to comply with the RPS
 - CPUC encourage instate RECs
 - Limited use of out of state RECs

Clean Energy

Electric Power Generation Mix*

Specific Purchases	Percent of Total Retail Sales (kWh)			
	PG&E	PG&E Solar Choice	MCE Light Green	MCE Deep Green
Renewable	30%	100%	52%	100%
• Biomass & Biowaste	4%	0%	5%	0%
• Geothermal	5%	0%	2%	0%
• Eligible Hydroelectric	1%	0%	4%	0%
• Solar Electric	11%	100%	5%	25%
• Wind	8%	0%	36%	75%
Coal	0%	0%	0%	0%
Large Hydroelectric	6%	0%	12%	0%
Natural Gas	25%	0%	12%	0%
Nuclear	23%	0%	0%	0%
Other	0%	0%	0%	0%
Unspecified Sources of Power	17%	0%	25%	0%
TOTAL	100%	100%	100%	100%

*As reported to the California Energy Commission's Power Source Disclosure Program. PG&E data is subject to an independent audit and verification that will not be completed until October 1, 2016. The figures above may not sum up to 100 percent due to rounding.

Clean Energy

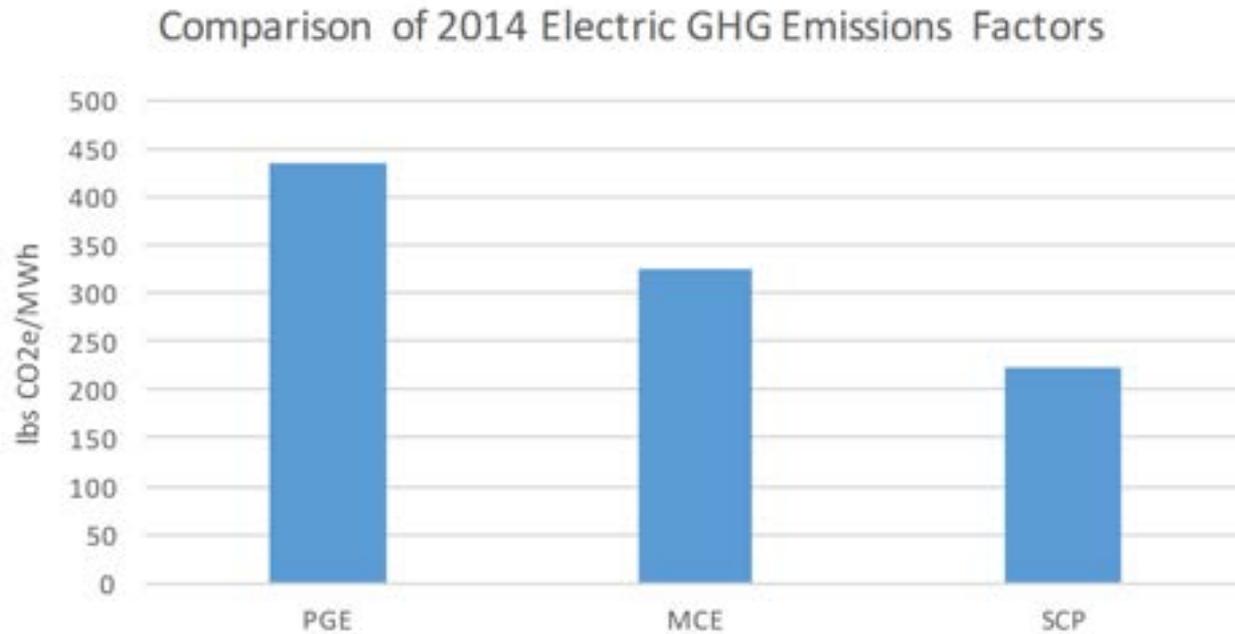
Electric Power Generation Mix*

2015 Specific Purchases	Percent of Total Retail Sales (kWh)			
	PG&E	PG&E Solar Choice	MCE Light Green	MCE Deep Green
Renewable	30%	100%	52%	100%
• Biomass & Biowaste	4%	0%	5%	0%
• Geothermal	5%	0%	2%	0%
• Eligible Hydroelectric	1%	0%	4%	0%
• Solar Electric	11%	100%	5%	25%
• Wind	8%	0%	36%	75%
Coal	0%	0%	0%	0%
Large Hydroelectric	6%	0%	12%	0%
Natural Gas	25%	0%	12%	0%
Nuclear	23%	0%	0%	0%
Other	0%	0%	0%	0%
Unspecified Sources of Power	17%	0%	25%	0%
TOTAL	100%	100%	100%	100%

~2% of customers

*As reported to the California Energy Commission's Power Source Disclosure Program. PG&E data is subject to an independent audit and verification that will not be completed until October 1, 2016. The figures above may not sum up to 100 percent due to rounding.

Clean Energy



Sources: Sonoma Clean Power 2014-15 Annual Report; PG&E Currents 9/16/16; Marin County Understanding MCE's GHG Emission Factors – Calendar Year 2014.

Feed-in Tariff



ProFIT Program

Sonoma Clean Power > ProFIT Program

What is ProFIT?

Sonoma Clean Power lets you ProFIT by selling renewable power. ProFIT is what is known as a Feed-in Tariff, a renewable energy purchasing program which sets the rules and price for Sonoma Clean Power to purchase electricity from small-scale wholesale renewable electricity projects within SCP's service territory.

Summary

Eligibility

Program Timing

Availability (Queue)

Milestones

ProFIT directly promotes the development of small-scale renewable generation installations within the Sonoma Clean Power service territory by creating a standard-offer transaction with a flat/fixed price of \$95/megawatt-hour (MWh). Contracts will be 10 years for baseload generating facilities or 20 years for other generating facilities. Projects that meet the bonus eligibility criteria may qualify for up to \$130/MWh for the initial 5 or 10 years of the contract term.

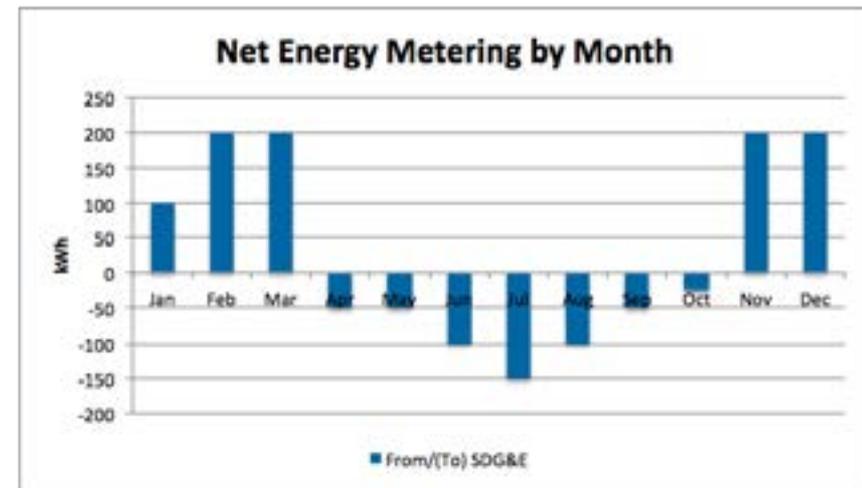
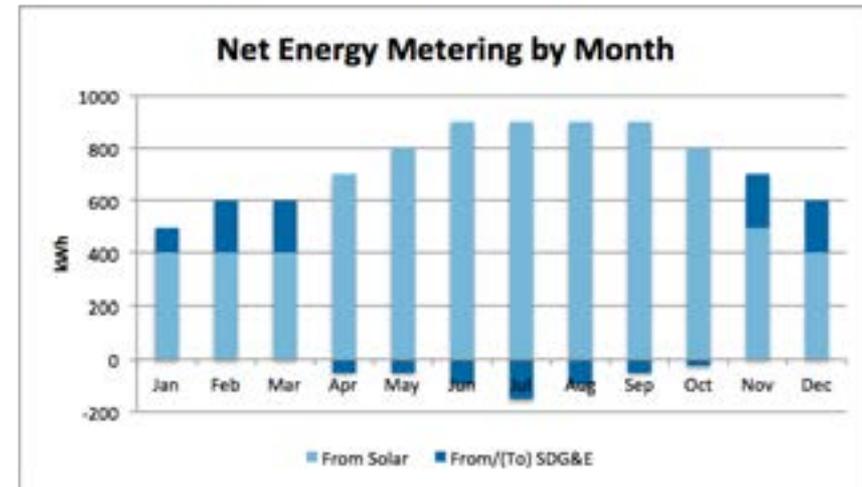
Get Started

- [Application](#)
- [Tariff](#)
- [Contract](#)
- [Program Summary](#)
- [Contact Us](#)

Distributed Renewable Energy

Net Energy Metering (NEM)

- Retail credit for excess generation on monthly basis
- Up to 100% of consumption
 - Beyond 100% is Net Surplus Compensation at avoided cost NOT retail
- NEM is not a rate but a billing and accounting arrangement that interacts with underlying rate
- CCA could customize a NEM program



Distributed Renewable Energy

Marin Clean Energy provides a
\$0.01 premium for NEM

E1, EM, ES, ESR, ET, Basic Residential

E1 is the most widely used rate for residential solar customers. All electric usage is charged and credited at the above generation rates, regardless of the time of day, week, or season. However, it does not provide some of the added value, which can be offered by the E6 and EV rates.

		MCE Light Green	PG&E
All Electric Usage	Charge	\$0.072/kWh	\$0.09684/kWh
	Credit	\$0.082/kWh	\$0.09684/kWh

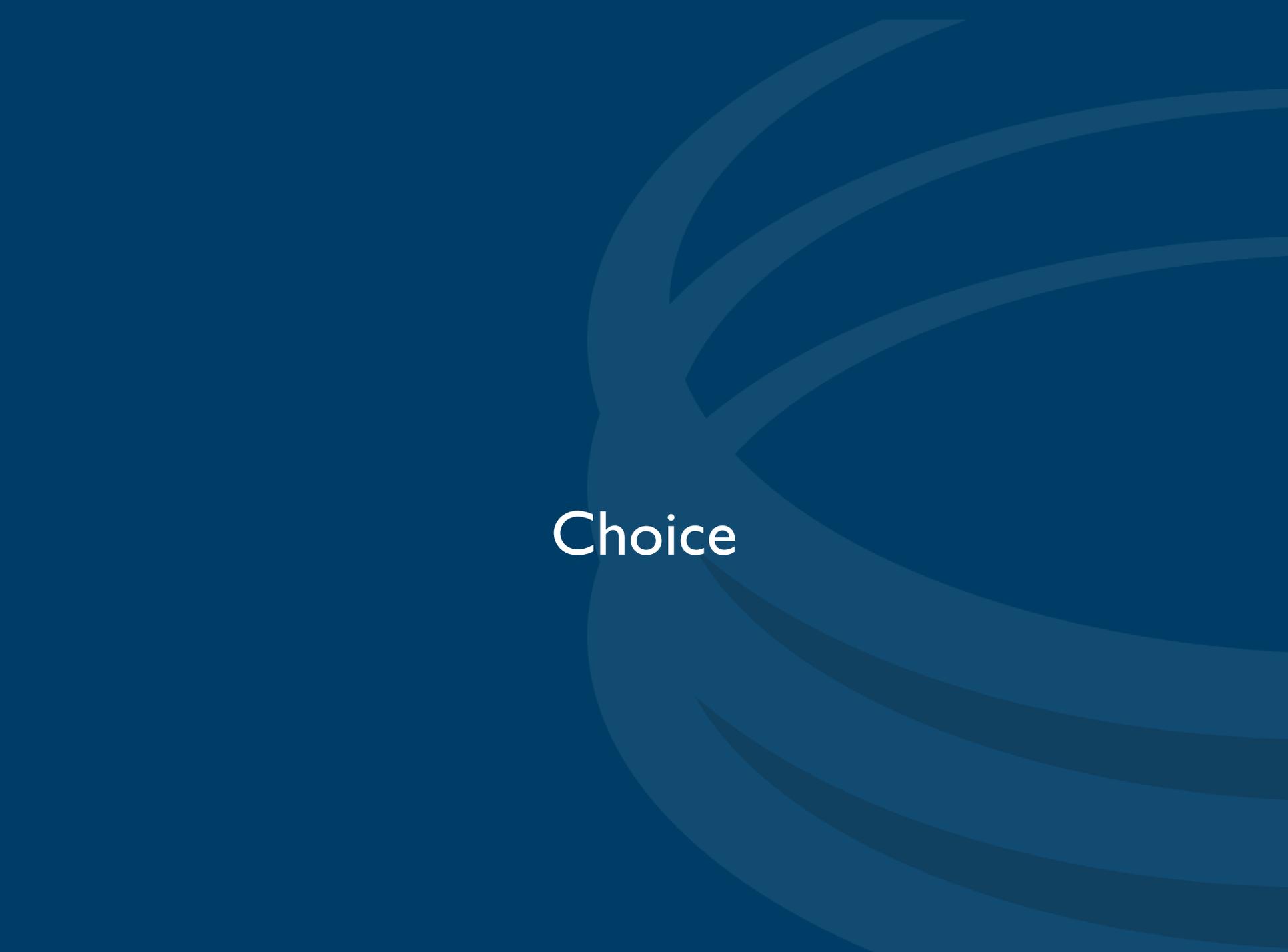
Climate Planning

Cities Developing Climate Action Plans (CAP)

- Greenhouse Gas (GHG) targets
- Policies and actions to achieve targets
- Can be mitigation for General Plans

Difficult to Achieve 2035 GHG Targets

- Some cities have set 100% renewable energy targets
 - City of San Diego – adopted CAP in Dec 2015
- CCA seen as one way to achieve these targets



Choice

Electricity Supply Options

IOUs are Regulated Monopolies

- Exclusive franchise in exchange for regulated return
- Some argue that a natural monopoly no longer exists for supply
 - Alternative supply options exist

Restructuring of Electricity Markets in CA

- AB 1890 restructured electricity market in CA
- Attempt to encourage competition for electric supply
- Direct access allowed customers use suppliers other than IOU
- Suspended during energy crisis
- ~15% of SDG&E load still supplied by direct access
- No additional direct access at this point

Electricity Supply Options

Renewable Energy Options

- SDG&E Connected to the Sun
 - EcoChoice
 - Green rate
 - Share the Sun
 - Community solar
- Rooftop Solar
 - Purchase system
 - Power purchase agreement (PPA) or Lease

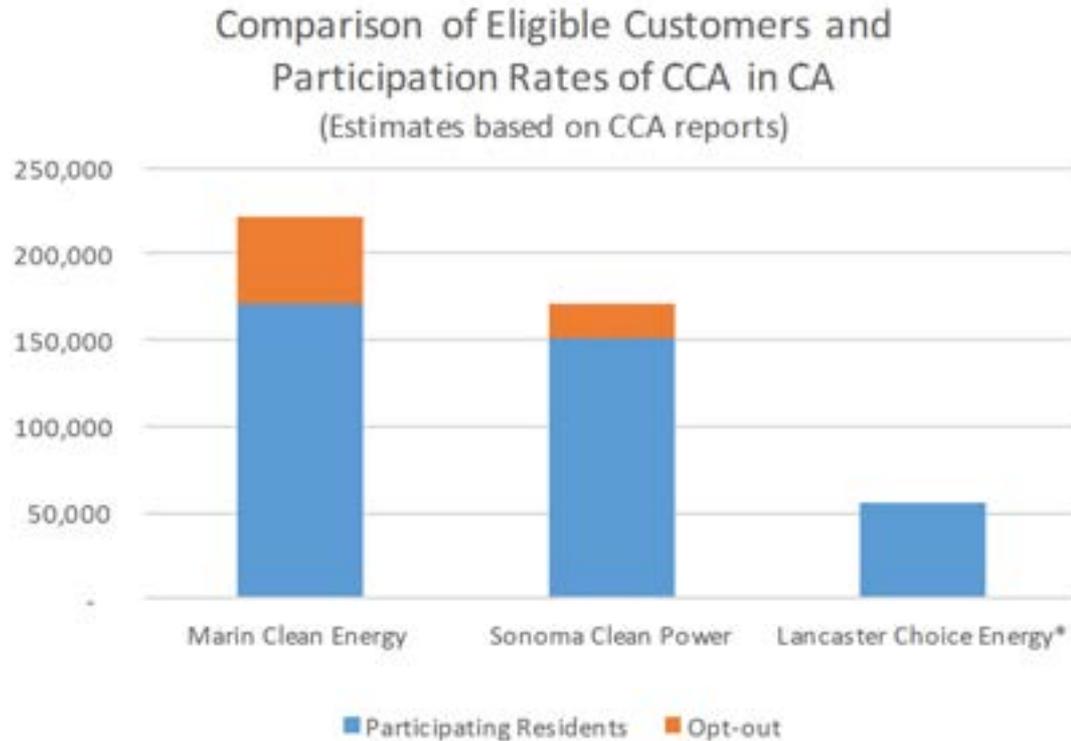
CCA Program Comparison

CCA Programs in California

	Marin Clean Energy	Sonoma Clean Power	Lancaster Choice Energy
			oice: 36% Smart Choice: 100%

Source: Marin Clean Energy – Integrated Resource Plan: 2015 Update (October 2015); Sonoma Clean Power 2014-15 Annual Report; Lancaster Community Choice Aggregation – Community Choice Aggregation Revised Implementation Plan (February 2015).
 Note: Published values shown here. Updated, unpublished values may vary from those shown here.

CCA Programs in California



*No published opt out rate.Total eligible customers shown.

Source: Marin Clean Energy – Integrated Resource Plan: 2015 Update (October 2015); Sonoma Clean Power 2014-15 Annual Report; Lancaster Community Choice Aggregation – Community Choice Aggregation Revised Implementation Plan (February 2015).

Note: Published values shown here. Updated, unpublished values may vary from those shown here.

CCA Development Process



Typical Steps to Form a CCA

Conduct Technical Feasibility Analysis

- Assess costs and benefits of CCA for you community
- Model electricity demand
- Assess scenarios
 - Established by city (e.g., renewable energy, cost, etc.)
- Assess risks
- Estimate start up costs

Adopt an Ordinance *(required)*

- Ordinance proclaims decision to become a CCA
- MOU may be required to join existing CCA

Typical Steps to Form a CCA

Submit an Implementation Plan to the CPUC *(required)*

- Described earlier in this presentation

Enter into Contract with IOU *(required)*

- For electricity delivery and billing services
- Provision of customer data and payments to CCA

The background is a solid dark blue color. On the right side, there are several overlapping, curved, light blue lines that sweep across the frame, creating a sense of motion or depth. The word "Risks" is centered in the middle of the image.

Risks

Potential Risks

Start Up Costs

- Technical study, legal fees, staff time, etc.
- Can be recouped from CCA revenues

New Line of Business

- Energy procurement not typically done by cities
- May need experts in electricity procurement and regulatory compliance and dedicated customer service staff

Potential for Higher Rates

- If CCA rates rise above IOU rates, customers may opt out
- Market volatility
- Regulatory changes

Potential Risks

Renewable Energy Availability

- Renewable development could lag CCA and other demand
- High demand could increase prices
- IOU renewable demand would shift to CCA

Over-procurement of Electricity

- Procuring electricity greater than demand could increase costs

Regulatory and Legislative Risk

- New legislation and ensuing regulation could affect CCA
 - e.g., SB 350 and AB 1110
- May require active participation in legislative and regulatory processes

Potential Risks

IOU Opposition

- Code of conduct restricts IOU advocacy on CCA
- SDG&E recently authorized by the CPUC to form a shareholder-funded CCA marketing arm

Significant Publicly Available Analysis

- There are many publicly available analyses that assess CCA risk

Risks of Joining an Existing CCA Program

Description of Risk	Magnitude or Importance of Risk
Procurement Risks	
Volume Risk: Uncertainty in load can cause under- or over-procurement	Medium
Future Price Risk: MCE cannot procure power for incremental customers at competitive costs	Medium
Expansion of CCA: Can current contract accommodate all new customers?	low
Contract Renewal: MCE cannot procure power at competitive prices at end of current agreement	High
Regulatory and Policy Risks	
Adverse CPUC Decisions: Exit Fees and bonding costs may be higher than expected	Medium
MCE's lack of low-income ratepayer policy	Low
Benicia's interests may not always align with that of other JPA members	Medium
Customer Cost Risks	
PG&E Exit Fees: Who bears risk of changes in exit fees?	High
Uncertainty in Departing Load Fees: How much must customers pay to exit CCA after opt-out period ends?	Low
MCE Pricing Commitment: Will MCE meet or beat PG&E's rates?	High
MCE Pricing Commitment: Will MCE guarantee CARE customers won't pay more with MCE than they would have with PG&E?	High
City-Specific Risks	
Supplier Guarantees: City must provide guarantees to power suppliers	Low
New Generation Guarantees: City must provide support to obtain financing for new generation	Low
Financial liability if MCE fails	Low

Source: MRW & Associates, LLC.
 Risk Assessment of Participation
 in the Marin Clean Energy
 Community Choice Aggregation
 Program - On Behalf of the City of
 Benicia (Oct 2014)

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