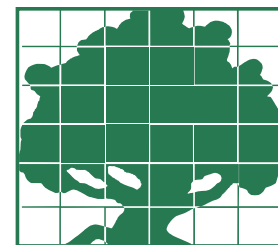


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Should Communities Get into the Power Marketing Business?

Kevin Novan

Traditionally, Californians have been unable to choose an electricity provider. Instead, each region has been served by a single, regulated utility. This model is changing. Local governments are now beginning to compete with regulated utilities to supply electricity. This article reviews the potential benefits and risks posed by this new form of retail choice.

California is divided into a patchwork of electric utility service areas. Within each service area, a single utility has traditionally been responsible for supplying electricity. This includes producing and purchasing electricity, maintaining the regional distribution grid, and metering and billing. While many of the local monopolies are Publicly Owned Utilities, the majority of California's electricity—approximately 75%—is procured and distributed by for-profit Investor Owned Utilities (IOUs) Pacific Gas & Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E).

Until recently, consumers were obligated to purchase electricity from the utility serving their region. Beginning in 2010, however, customers in Marin County were presented with an option. They could continue purchasing electricity from PG&E or they could switch and buy from an alternative source—their local government.

The program implemented in Marin is a Community Choice Aggregation (CCA) program. CCA programs enable city and county governments to purchase electricity on behalf of the households and businesses in their jurisdiction, effectively competing with IOUs to supply electricity.

Since the adoption of the Marin CCA, three more CCA programs have been implemented in California: in Sonoma, Lancaster, and San Francisco. Efforts are also underway to introduce CCA programs in over 20 different jurisdictions

throughout the state. Figure 1 (page 2) displays the development of CCA programs across the state. If all of these programs are adopted, over half of the state's population will soon have the option to purchase electricity from an IOU or their local government.

The recent surge in support for California CCA programs has been driven by three main motives. Consumers want some combination of (1) cheaper electricity, (2) cleaner electricity, and (3) more locally produced electricity. This article explores the potential for CCAs to deliver on each of these three goals.

IOU Retail Rates

To understand how CCA programs will affect retail electricity rates, it is important to first review how electricity prices are currently set. IOUs charge rates that are determined by the California Public Utility Commission (CPUC). The CPUC sets the rates to ensure that the IOUs recover their costs and earn a modest return on their investments. In particular, utilities earn a positive rate of return on expenditures made on utility-owned assets (e.g., power plants, distribution equipment). In contrast, the costs of generating and purchasing electricity are directly passed on to consumers with zero mark-up.

During 2015, PG&E's required revenue was \$13.7 billion, SCE's was \$12.2 billion, and SDG&E's was \$3.6 billion. Table 1 provides a breakdown of the major components of the IOUs' revenue requirements. The cost of generating electricity—which

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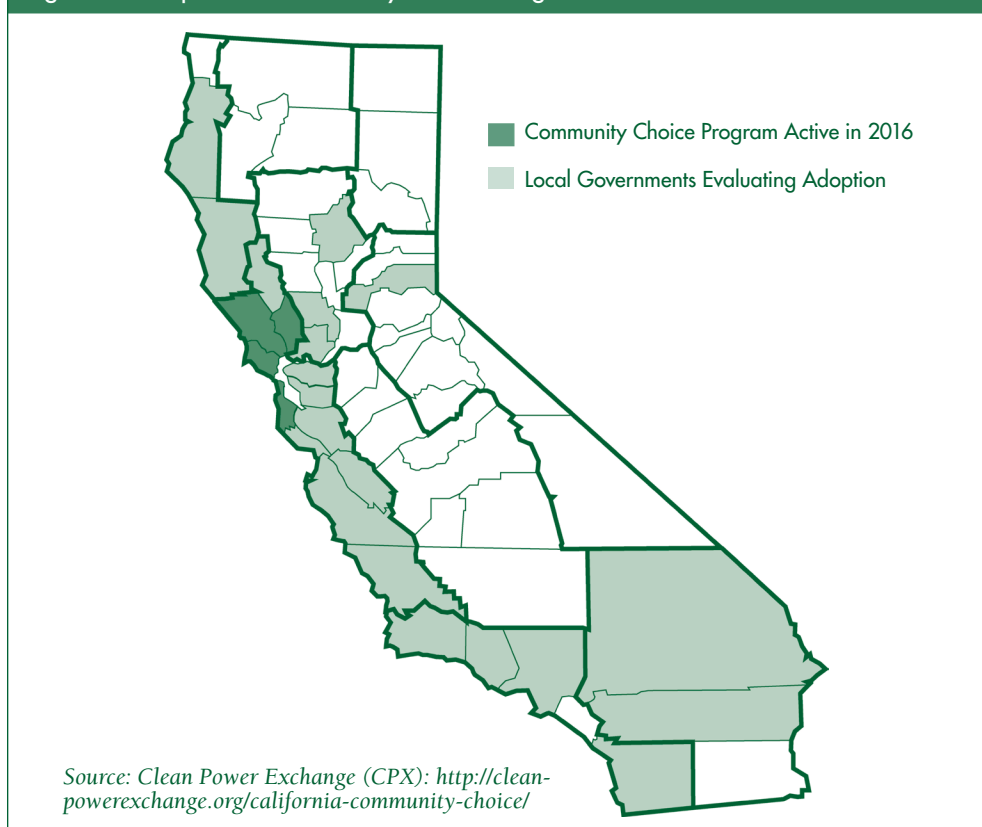
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Figure 1. Adoption of Community Choice Programs



includes both utility-produced electricity as well as purchased electricity—accounted for 48% of the IOUs’ required revenue. Transmission and distribution costs accounted for 44% of the required revenue. The remaining 8% covered a range of miscellaneous costs (e.g., energy efficiency programs, nuclear decommissioning).

To collect the required revenue, IOU customers pay two broad categories of charges: generation and non-generation charges. The generation charges exactly offset the utility’s cost of generating and purchasing electricity. Under the IOUs’ standard, residential rate structures, households pay a constant per kWh generation charge.

The non-generation charges cover the delivery expenses (transmission and distribution) and miscellaneous costs. The CPUC requires that the non-generation rates increase with consumption—a practice referred to as tiered pricing. Households are assigned a baseline level of consumption that

varies by climate zone, season, and rate class. Each kWh consumed up to the baseline level is charged at a low per kWh non-generation rate. Electricity consumed beyond the baseline level is charged at progressively higher rates.

CCA Electricity Prices

So what changes if a local government establishes a CCA program? To begin with, the CCA becomes the default electricity provider. Individual households and businesses within their jurisdiction purchase electricity from the CCA unless they opt-out and remain with their IOU.

Even if a customer switches to a CCA program, the IOU continues to deliver their electricity through its transmission and distribution network. The IOU is also still responsible for metering and billing. The only difference is that the CCA, as opposed to the IOU, will be responsible for purchasing or generating the electricity demanded by the CCA customers.

Households that switch to their local CCA program will still receive a single, consolidated bill delivered by their IOU. The IOU will still collect the same tiered non-generation charges set by the CPUC.

There will, however, be two important changes to CCA customers’ bills. First, the generation charge will be determined by the local government, not the CPUC. Second, CCA customers will see a new charge: the Power Charge Indifference Adjustment (PCIA). The PCIA is intended to cover the additional costs the IOUs incurred procuring electricity prior to CCA customers switching providers. The PCIA is intended to ensure that departing CCA customers do not impose a burden on the remaining IOU customers.

Table 2 compares the average monthly electricity bills a typical household would face with PG&E versus the Marin CCA program. The bills are calculated assuming the household consumes 463 kWh per month. If the household remains with PG&E, they would pay 9.7 cents per kWh in generation charges and an average of 10.7 cents per kWh in non-generation charges. Combined, this would result in an average monthly bill of \$94.27.

If the household joins the Marin CCA program, they will have the option to enroll in the standard plan (“Light Green”) or pay a premium and purchase a greater share of renewable electricity. Under the standard Light Green plan, the household would pay 8.2 cents per kWh in generation charges, which is 15% less than the generation rate charged by PG&E. The household would continue to pay the same non-generation charges to PG&E. They would also now pay an additional 2.4 cents per kWh to PG&E, which includes the PCIA. Combined, the household joining the CCA would see their average monthly bill increase slightly to \$98.44.

This rate comparison raises a couple of important questions. First, how is the CCA able to charge a lower generation rate? For one, the cost of generating electricity and, in particular, renewable electricity, has fallen in recent years. As a result, electricity contracts signed more recently have been for lower costs. This in fact highlights the rationale behind the PCIA. The IOU has already contracted for energy to serve customers at a higher average cost. If these customers depart for a CCA, then the IOU will have to sell these contracts off at a potential loss.

More generally, CCA advocates argue that CCA programs will offer lower generation rates because they do not have distorted incentives like the IOUs. Specifically, CCA proponents note that, because the profits earned by regulated IOUs are largely independent of the costs incurred producing and purchasing electricity, they will have weak incentives to minimize the cost of providing electricity.

In contrast, CCA proponents claim that the objective of the local governments overseeing CCA programs is to maximize the benefits of their constituents—in particular, by keeping prices as low as possible. While there is certainly some truth to these arguments, it remains to be seen whether local governments will make prudent decisions when it comes to contracting for electricity.

The rate comparison presented in Table 2 also highlights the importance of the PCIA. Without the PCIA, the Marin household consuming 463 kWh a month would save approximately \$7/month by joining the CCA program. There is a very active debate surrounding how these PCIA charges should be set and how they should adjust over time. How this debate plays out will play an important role in determining whether CCA programs will be able to compete with the IOUs on the basis of electricity prices alone.

Table 1. 2015 IOU Revenue Requirements in \$1,000's

	PG&E	SCE	SDG&E
Purchased Power	\$4,514,153	\$4,412,244	\$1,008,008
Utility-Owned Generation	\$2,185,558	\$1,513,067	\$399,351
Distribution	\$4,399,854	\$4,350,777	\$1,138,103
Transmission	\$1,610,878	\$910,155	\$423,318
Demand Side Management/ Public Programs	\$646,788	\$545,126	\$162,987
Bonds and Fees	\$673,170	\$485,956	\$131,756
Total 2015 Revenue Requirement	\$13,730,664	\$12,198,048	\$3,578,637

Source: California Public Utility Commission (CPUC) utility cost report, www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Reports_and_White_Papers/AB67_Leg_Report_3-28.pdf.

Cleaner Energy

While customers clearly prefer cheaper electricity, perhaps the strongest factor driving the spread of CCA programs is the desire for cleaner electricity. In fact, of the four operational CCA programs in California, three of them have the word “clean” directly in the title: Marin Clean Energy, Sonoma Clean Power, and CleanPowerSF.

California’s Renewable Portfolio Standard has mandated that the IOUs procure 33% of their electricity from renewable energy sources by 2020. The CCA programs are looking to accelerate renewable adoption. For example, the Marin Clean Energy CCA program offers customers three different plans (displayed in Table 2). Customers choosing the standard “Light Green” plan will have 52% of their total electricity consumption purchased from non-hydro, renewable

energy sources. Alternatively, customers could elect to pay a premium and join the “Deep Green” plan, which ensures that 100% of their consumption is purchased from renewable sources.

There are a couple of ways CCA programs can purchase renewable electricity. One option is to directly sign contracts to purchase output from renewable producers. Alternatively, the CCA could buy unbundled Renewable Energy Certificates (RECs). Each REC guarantees that a MWh of renewable electricity has been produced. By purchasing a REC, the CCA can claim the environmental attributes of that MWh of renewable output without paying for the energy itself. Regardless, as customers continue to join CCA programs with higher renewable shares, there will be an increase in the overall share of production coming from clean, renewable sources.

Table 2. PG&E vs. MCE 2016 Rate Comparison

	PG&E	Marin Clean Energy CCA		
	Standard Rate (E-1)	Light Green	Deep Green	Local Sol
Renewable Share	30%	52%	100%	100% (local)
Generation (\$/kWh)	\$0.097	\$0.082	\$0.092	\$0.142
PG&E Delivery (\$/kWh)	\$0.107	\$0.107	\$0.107	\$0.107
PCIA/FF (\$/kWh)	-	\$0.024	\$0.024	\$0.024
Avg. Monthly Bill (463 kWh/month)	\$94.27	\$98.44	\$103.07	\$126.22

Source: Marin Clean Energy Rate Comparison, <https://www.mcecleanenergy.org/rates/>



While customers clearly prefer cheaper electricity, perhaps the strongest factor driving the spread of CCA programs is the desire for cleaner electricity.

It is important to note, however, that the IOUs also now offer customers the option to purchase more renewable electricity. For example, PG&E's Solar Choice program provides customers with the option to purchase 50%, or even 100%, solar energy. While these IOU-offered programs may simply be a response to the threat of competition from CCA programs, this nonetheless highlights that CCAs are not the only option for customers to go green.

Local Renewables?

CCAs, however, are not just emphasizing any renewable electricity. Instead, there is clear push for local renewable energy. For example, the Marin Clean Energy CCA program offers the "Local Solar" plan, which offsets customers consumption with 100% locally produced solar production. Similarly, the CleanPowerSF program offers San Francisco residents a "SuperGreen" rate plan which will "localize energy" by investing in new renewable energy facilities in the San Francisco region.

Pushing for more locally produced renewable energy is, in many ways, directly at odds with the first two motives for adopting CCA programs—providing cheaper and cleaner electricity. To understand why this is, it is important to note that generating

a MWh of renewable electricity in, say, San Francisco, is effectively the same as producing a MWh of renewable electricity in, say, the Central Valley of California. Outside of periods with heavy congestion on the grid, renewable electricity produced locally will essentially be a perfect substitute for renewable electricity produced elsewhere in the regional grid.

Therefore, if CCA programs have the dual objectives of providing cheap and clean electricity, then every effort should be made to procure the cheapest renewable electricity possible. Unless the CCA program is located in a region that has cheap land and excellent renewable potential—neither of which would describe San Francisco or Marin for example—then a bias towards purchasing locally produced renewable energy will likely lead to more expensive renewable output.

It is also important to note that there is nothing inherently greener about locally produced electricity. In fact, there are reasons to believe just the opposite—locally produced electricity may be less green. For one, the regions within California with the highest renewable potential (i.e., best solar and wind resources) are not located near the population centers along the coast. Therefore, to produce local

renewable electricity, a greater amount of renewable capacity will need to be installed. Given that there are real environmental costs involved in the construction of solar panels and wind turbines, it may in fact be greener to locate the renewable capacity in locations with more wind or solar potential.

Moreover, each MWh of renewable electricity is not equally green. California, as a whole, has a relatively clean mix of electricity generation—the state is heavily dependent on efficient natural gas generators. As a result, locally produced renewable electricity will likely be offsetting production from relatively clean generation—and therefore reducing low amounts of pollution. In contrast, if CCA programs were to buy unbundled RECs from renewable producers in regions with more coal-fired generators, then the renewable energy supported by the CCA customers would potentially be offsetting much more pollution.

Conclusion

CCA programs are rapidly gaining momentum in California. While these programs have the potential to provide cheaper, cleaner electricity to their customers, they are not without their risks. What will happen if CCA prices rise, or utility prices fall, and customers switch back to IOUs? Who will bear the burden as the local governments are forced to sell off their contracts at a loss? As communities throughout California move forward with CCA programs, it will be important for the local governments and the residents to consider these issues carefully.

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