Pico Rivera Innovative Municipal Energy

Local Development and Sustainability Business Plan

November 2020

prime
Pico Rivera Innovative Municipal Energy

CITY OF PICO RIVERA · CALIFORNIA ·

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City Council's Message

The City of Pico Rivera has long been at the forefront of creating new, sustainable approaches to modern living. It has been proactive in promoting power alternatives, resource conservation, and smart energy consumption by providing cost-competitive electric services to the community; incentivizing economic development; and gaining local control of the City's energy procurement needs.

The Local Development & Sustainability Business Plan (LDSBP) represents a steadfast commitment in the City of Pico Rivera's journey to deliver cleaner energy platforms that promote an environmentally sustainable future through the Pico Rivera Innovative Municipal Energy (PRIME) program, in operation since 2017. The LDSBP offers a strategic framework to facilitate PRIME's organizational and operational objectives of providing cleaner energy, offering affordable and competitive rates, and establishing local control to enable targeted local programming. The LDSBP also serves as an aspirational plan for the addition of an Office of Sustainability to further these objectives cross-departmentally throughout the City.

This Climate Action Plan (CAP) will serve as a comprehensive roadmap for PRIME to reduce Greenhouse Gas (GHG) emissions resulting from the power and transportation sectors. Pico Rivera has undertaken a dual planning process, using the CAP to inform the LDSBP; together, these will lay the foundation for local employment opportunities powered by the clean energy economy, investment in community projects with improved access to beneficial programs and lower rates, and improved local air quality and health benefits. This plan is particularly critical for our community, which has historically been disproportionately affected by GHG emissions, as the impacts of climate change continue. As a basis for our goals and targets in future reductions, the CAP provides PRIME with its initial benchmark, creating a competitive advantage for economic and public health benefits and funding. By designing clean energy initiatives for the City of Pico Rivera, we continue to align ourselves with statewide targets and sustainability goals.

Pico Rivera is determined to help design cleaner energy platforms for its customers. With several private sector partnerships and networks already in place, the City has strategically positioned itself to foster innovation and long-term sustainability. PRIME is committed to supporting the notion that helping our environment goes hand in hand with supporting our local economy, and the development of the LDSBP and CAP are pivotal to this belief.

Gustavo V. Camacho, Mayor
Raul Elias, Mayor Pro Tem
Gregory Salcido, Councilmember
Dr. Monica Sanchez, Councilmember
Brent A. Tercero, Councilmember

Executive Summary

The Local Development and Sustainability Business Plan (LDSBP) serves as an actionable framework for Pico Rivera Innovative Municipal Energy (PRIME) to meet its stated goals of:

1. Provision cost-competitive electric services to the residents and businesses of Pico Rivera;
2. Incentivize economic development within Pico Rivera; and
3. Gain local control of the City's energy procurement needs.

The LDSBP uses a Climate Action Plan (CAP)-approach to document a greenhouse gas (GHG) emission inventory, identify strategies to reduce GHG emissions, and surface potential areas of vulnerability and resiliency due to the impacts of climate change. This document primarily focuses on GHG emissions resulting from the power and transportation sectors.

An interchangeable relationship exists between PRIME's greenhouse gas goals and its local development strategy. This is due to the understanding that the actions identified for the power and transportation sectors likely support PRIME's established goals. PRIME chose to engage Kevala, Inc. (Kevala) to develop its LDSBP through the use of the company's Network Assessor Platform. Network Assessor is an integrated data analytics platform capable of ingesting real production and consumption data, and producing real-time analyses to inform decisions around the integration of distributed energy resources.

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1. Introduction

The Pico Rivera Innovative Municipal Energy's (PRIME) Local Development and Sustainability Business Plan (LDSBP) identifies programmatic and strategic opportunities that can bring local environmental, economic, and social benefits to the city of Pico Rivera.

By electing to establish Community Choice Aggregation (CCA), the city of Pico Rivera has elected to independently source their electricity and select power providers that best fit the energy needs of the community. As a CCA, PRIME is focused on delivering cleaner energy, exercising local control, and offering competitive rates to customers. In addition to these core tenants, PRIME has prioritized innovative, decentralized modern energy technologies as a foundation for its programmatic strategy.

PRIME's action plan is designed to align with its organizational goals, provide local economic benefits, and meet the obligations set by the Public Utilities Code, the California Public Utilities Commission (CPUC), and the California Energy Commission (CEC) to forward the State's clean energy goals. PRIME's organizational goals are to: **1) provide cleaner energy, 2) offer affordable and competitive rates, and 3) establish local control and run targeted customer programs.**

In order to support California's clean energy goals, PRIME is obligated to reach the following targets: 60% Renewable Portfolio Standards (RPS) by 2030, then 100% RPS by 2045 (SB 100); and 65% of those RPS obligations need to be met through long-term contracts beginning in 2021 (SB 350).

PRIME can offer strategic programs to its customers to meet these goals, in addition to the programs already offered by the local electric and gas providers, Southern California Edison (SCE) and Southern California Gas Company (SoCal Gas). These programmatic opportunities are identified in the LDSBP. Thus, the LDSBP can be thought of as a roadmap for PRIME to answer the following questions:

1. **How can actions taken by PRIME provide local economic benefits?**
2. **What are the opportunities to develop cost-competitive local clean energy resources?**
3. **What are the near term actions PRIME can adopt? What are the priority next-steps for the organization?**

Finally, PRIME's strategic direction is informed by its climate action goals, which are identified and prioritized by sector using a GHG-emissions inventory approach calculated with a Toolkit developed by the Gateway Council of Governments. The result is a suite of near-term and mid-term actions PRIME can take as it begins operations that meet both local development and climate action goals.

2. Climate Action: Overview

Overview of Climate Change Goals

In a pledge to mitigate the impacts of climate change, the State of California is committed to reducing its greenhouse gas emissions to 40% below 1990 levels by the year 2030. This statewide climate change strategy takes an economy-wide view towards GHG emissions, and includes the following pillars:

- a 50% reduction in the use of gas and diesel in vehicles
- meeting 50% of energy generation from renewable sources
- doubling energy efficiency goals for existing buildings and making heating fuels cleaner
- reducing short-lived climate pollutants
- managing state lands so they may act as a carbon sink

In addition to these statewide climate change strategies, many bills passed in recent years contribute to these climate goals through the codification of programs and policies. First, SB 350 (2015) established a 50% Renewables Portfolio Standard (RPS) by 2030, doubled energy efficiency goals, and put into place plans for the large-scale electrification of transportation deployment efforts. Next, SB 32 (2016) codified an updated GHG reductions target to 40% below 1990 levels by the year 2030, replacing the previous goal set by AB 32 (2006), also known as the Global Warming Solutions Act. The California Air Resources Board

(CARB) released a comprehensive report guiding policies and strategies to meet these goals, known as the CARB Proposed Scoping Plan (2017 update).

As a CCA, PRIME can advance California's GHG reduction goals within their territory through three primary actions:

1. **Procure clean, renewable energy, including bulk power generation that is both locally sourced and sited.**
2. **Practice efficient and/or reduced consumption of energy, particularly at hours where demand does not meet generation.**
3. **Reduce transportation sector emissions.**

Achieving these goals have the additional benefit of contributing to the City of Pico Rivera's sustainable development goals, including improved local air quality and advancing transit-oriented development goals as set forth in the General Plan.

Pico Rivera Demographics

The city of Pico Rivera, located in the Los Angeles Basin, has a population of 63,773 people. The city is home to 17,087 total households and of those households, 82.5% (14,094) are families. Owner-occupied households represent the majority at 68.9% (11,765), while 31.2% (5,322) are renter-occupied. Demographically, the city has a primarily Hispanic (89.4%) population, followed by non-Hispanic White (5.9%), Asian or Pacific Islander (3.0%), Black (0.7%), and American Indian or Alaska Native (0.4%)[1]. Pico Rivera is a multilingual community with 71.2% of people in Pico Rivera speaking a non-English language, of which, Spanish is most common.

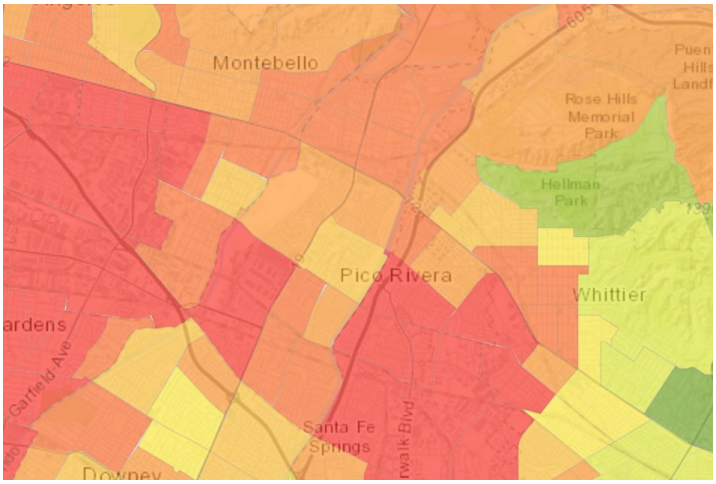
The economy of Pico Rivera supports 1,455 establishments, which employ a total of 28,815 people. Compared to other nearby cities, Pico Rivera has an outsized number of residents working in Material Moving, Transportation, Production, and Wholesale Trades. The Manufacturing industry employs the most employees in Pico Rivera (4,414), followed by Healthcare and Social Assistance (3,436) and Retail Trade (3,345).

[1] Pico Rivera - Census 2020. https://census.ca.gov/wp-content/uploads/sites/4/2019/06/Pico-Rivera.pdf

The median household income is $57,203, slightly lower than the average $57,951 of Los Angeles County. The same comparison can be seen for the poverty rate in Pico Rivera at 12.4%, versus that of Los Angeles County (16.3%). On average, households in Pico Rivera spend $1,739 annually on electricity, and $489 annually on natural gas[2,3].

Car ownership in Pico Rivera averages two cars per household, where the majority of commuters travel alone, with an average commute time of thirty minutes. A "super commute" of over ninety minutes is made by 3.2% of the total workforce, while 8.5% of commuters carpooled, and 3.7% of commuters took public transit[4].

Figure 1: Pico Rivera Territory as shown in CalEnviroScreen 3.0



A majority of the census tracts in Pico Rivera are designated as disadvantaged communities by California Environmental Protection Agency's CalEnviroScreen tool[5]. The designation implies that the residents of Pico Rivera suffer disproportionate impacts of environmental pollution, such as poor air quality. Many of these impacts are directly related to actions Pico Rivera can take related to climate change mitigation. For example, reducing criteria pollutants (e.g., $PM_{2.5}$ and other particulate matter), directly relates to improving the amount of emissions from vehicles by the adoption of fleet-based advanced transportation technologies.

GHG Inventory and Emissions

The purpose of conducting this GHG inventory is to catalog GHG emissions within PRIME territory by sector: residential, commercial, transportation, industrial, and electric. Identifying the largest sources of emissions better informs planning and strategy setting for PRIME actions aimed at reducing GHG emissions. Additionally, the results of the GHG

[2]"Demographic Analysis of the City of Pico Rivera." Lan, Eric. 2016. http://www.barrywaite.org/gis/projects/spring-2016/Lan.pdf
[3] City of Pico Rivera website. http://www.pico-rivera.org/depts/ced/ed/demographics.asp
[4] Data USA. https://datausa.io/profile/geo/pico-rivera-ca/b
[5] https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30

inventory can provide a foundation for the work needed to update the General Plan, further expand the CAP to comply with the California Environmental Quality Act (CEQA), and ultimately identify a pathway to meet Pico Rivera's climate goals.

As a Load Serving Entity (LSE), PRIME purchases electricity to meet the demand and aggregate load of customers in Pico Rivera. This purchasing authority gives the City control over their energy portfolio and the resulting GHG emissions through fuel switching or replacing oil and natural gas with electric sources. Transportation and building electrification will potentially increase future electric demand. These trends pose an exciting opportunity for the City to switch its consumption of natural gas and petroleum to clean, renewable energy. Additionally, it would expand the potential number of sectors that PRIME could impact.

The City's total GHG emissions for the year 2018 was 359,195 metric tons of CO2-equivalent (MTCO2e). *Table 1* shows the GHG emissions profile of Pico Rivera in 2018, disaggregated across various emissions sectors.

Table 1: City of Pico Rivera GHG Emissions Profile, by Sector (2018)[6]

Emissions Sector	Emissions (MTCO2e)	% of Total
On-road transportation	193,621	53.9%
Commercial/industrial electricity	43,073	12.0%
Residential natural gas	32,578	9.1%
Residential electricity	26,680	7.4%
Solid waste	19,070	5.3%
Commercial/industrial natural gas	15,841	4.4%
Short-lived climate pollutants	14,471	4.0%
Off-road equipment	7,301	2.0%
Water conveyance	3,588	1.0%
Wastewater treatment	2,963	0.8%
Large stationary sources (regulated by cap and trade)	0	0.0%
Small stationary sources	7	0.0%
Agriculture	0	0.0%

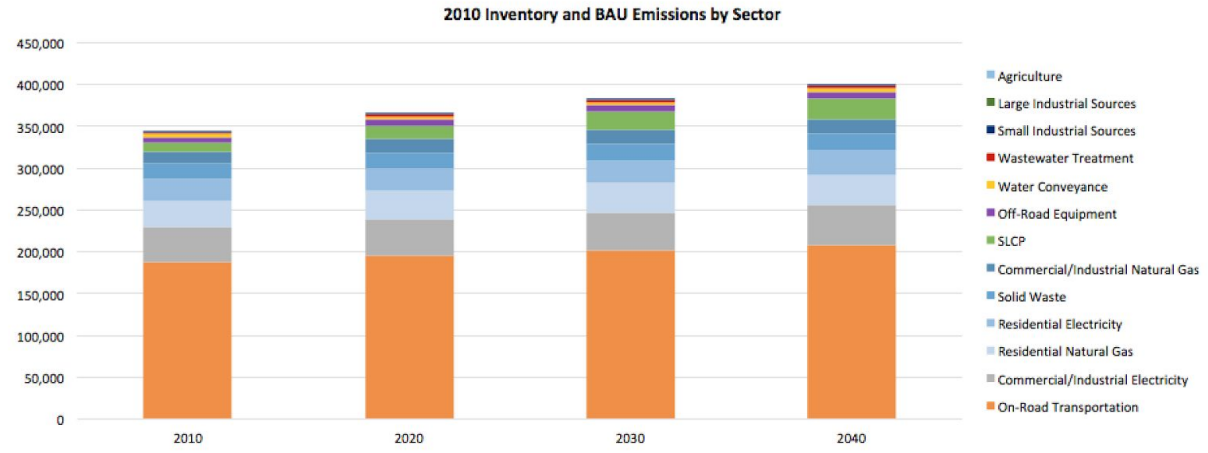
[6] From 2010 Gateway Climate Action Plan Framework Project, GHG Toolkit. http://www.gatewaycog.org/media/userfiles/subsite_9/files/cap_framework/Final%20GCCOG%20CAP%20Framework%20Dashboard%2001_11_19.pdf

Total emissions	**359,195**	**100%**

The largest contributor to GHG emissions, by far, is on-road transportation (53.9%), followed by commercial/industrial electricity use (12.0%), residential natural gas (9.1%), and residential electricity use (7.4%).

Figure 2 below identifies potential emissions in the next thirty years, if emissions follow a business-as-usual (BAU) scenario (that is, what emissions may look like if no further actions are taken to reduce emissions).

Figure 2: Potential GHG Emissions in Future Years (based on Business-as-Usual)



If no action is taken, Pico Rivera's total GHG emissions are expected to rise, primarily due to an increase in emissions from the electricity sector. However, Pico Rivera also benefits from state-level emissions reduction efforts, such as cap and trade, the low-carbon fuel standard, and energy efficiency standards. Table 2 highlights expected GHG emissions when considering state-level emissions reductions efforts.

Table 2: City of Pico Rivera Adjusted BAU Forecasts for GHG Emissions (No Large Stationary Sources)[7]

Emissions Sector	2010	2020	2030	2040
GHG Inventory and BAU Forecast	343,459	365,096	382,240	398,547
State Measure Emission Reductions	-	49,323	126,900	180,342
Adjusted BAU Forecast	**343,459**	**315,772**	**255,340**	**218,204**

As noted in the above Table, Pico Rivera will see its GHG emissions inventory fall when statewide emissions reductions efforts are factored in, even in a BAU scenario, to 36.5% of 2010 emissions by 2040. Pico Rivera can and should, however, aim to further decrease its projected emissions by engaging in GHG reduction strategies that are mutually beneficial to its local development and local climate resiliency goals.

GHG Reduction Strategies

Pico Rivera's GHG emissions inventory is a starting block to developing a roadmap for climate action, by providing an indicator of what sectors are the highest-emitting, and thus provide the most opportunity for emissions reductions. For Pico Rivera, the largest emitting sectors are On-Road Transportation (53.9%) and Electricity (19.4%).

Pico Rivera has utilized the Gateway Council of Government's GHG Toolkit [8] to identify and rank its planning prioritization measures. These actions are ranked based on Pico Rivera's focus on:

- improving air quality and public health;
- creating jobs and improving the local economy;
- providing benefits to disadvantaged communities; and
- increasing community resilience to climate change.

[7] From 2010 Gateway Climate Action Plan Framework Project, GHG Toolkit. http://www.gatewaycog.org/media/userfiles/subsite_9/files/cap_framework/Final%20GCCOG%20CAP%20Framework%20Dashboard%2001_11_19.pdf

[8] From 2010 Gateway Climate Action Plan Framework Project, GHG Toolkit. http://www.gatewaycog.org/media/userfiles/subsite_9/files/cap_framework/Final%20GCCOG%20CAP%20Framework%20Dashboard%2001_11_19.pdf

Measures falling within the scope of PRIME actions are noted in *Table 3* with a checkmark. This document then further identifies how PRIME may take action to reduce emissions from each of these categories.

Table 3: Ranked GHG Emissions Reductions Measures

Rank	Measure Name	Scope
1	Improve Efficiency of Existing Buildings	✓
2	Increase Local Clean Energy Generation	✓
3	Promote and Maximize CCE[9] and Utility Clean Energy Offerings	✓
4	Implement the Regional Transportation Plan/Sustainable Communities Strategy	✓
5	Expand Public Transit Options and "Last Mile" Connectivity (Supporting Measure)	
6	Grow Green Economy/Increase Green Jobs (Supporting Measure)	✓
7	Promote Smart Growth, TOD, and Complete Neighborhoods (Supporting Measure)	
8	Support Urban Tree-Planting, Park Access, and Green Infrastructure	
9	Promote Green Building	✓
10	Support Fuel-Efficient and Alternative Fuel Vehicles	✓
11	Engage and Partner with Large (Cap and Trade) Industrial Facilities to Reduce Emissions	
12	Support Local Agricultural and Food Production	
13	Support Transportation Demand Management (Supporting Measure)	✓
14	Improve Pedestrian and Bicycle Infrastructure (Supporting Measure)	
15	Expand Car Sharing, Bike Sharing, and Car Sharing (Supporting Measure)	
16	Improve Efficiency of Municipal Operations and Public Infrastructure	✓
17	Promote Conversion from Natural Gas to Clean Electricity	✓
18	Infrastructure to Improve Traffic Flow and Efficiency (Supporting Measure)	
19	Engage and Partner with Local Industries and Businesses to Reduce Emissions (Supporting Measure)	✓

[9] CCE = community choice energy

20	Organic Waste to Energy	
21	Solid Waste Diversion Programs	
22	Promote Water Conservation	
23	Promote Water Recycling and Greywater Use	

GHG Vulnerability and Resiliency

Currently, considerable climate change impacts are expected to continue, even if drastic reductions in emissions are made globally to meet 2050 emission goals. While Pico Rivera is committed to reducing emissions to avoid the most severe impacts of climate change, it is also important to consider future actions to increase climate impact resiliency in lieu of potential climate change events occurring locally in the LA Basin.

Expected impacts in the LA Basin region due to climate change, according to the Los Angeles Regional Collaborative (LARC), include hotter temperatures, more severe heat waves, more intense droughts and floods, less available drinking water, and rising sea levels. As Pico Rivera identifies priority actions to further its Climate Action Plan progress and implement the PRIME Local Development and Sustainability Business Plan, it should additionally consider how actions could further resiliency efforts and reduce Pico Rivera's vulnerability to climate impacts.

One such example is rising temperatures and an increased number of extreme-heat days. The most recent Climate Assessment predicts that interior regions of LA County will likely experience warming up to 10 degrees Fahrenheit (F) by the late 21st century. The intensity and frequency of extreme heat days will increase by 4-10° F, and from an average occurrence of 15 to an average of 60-90 days per year by the end of the century. These impacts are additionally predicted to disproportionately impact low-income residents and Black, Indigenous, and People of Color (BIPOC) communities. As PRIME considers implementing programs such as building efficiency and weatherization efforts, it will also need to consider how changing trends will impact demand for electric appliances (e.g., air conditioning systems) in the future.

The electricity sector and its existing aging infrastructure is also at risk from climate impacts. Temperature rise and more extreme heat waves could lead to an increase in heating, ventilation, and air conditioning (HVAC) demand and additional emissions, while extreme weather could increase the risk of power outages. This has several implications for Pico Rivera's climate resiliency and resulting PRIME-related actions. For example, building electrification or zero-net energy (ZNE) actions should not only consider how to improve thermal comfort while reducing load, but also how storage or microgrid solutions could be employed to potentially provide energy at times of peak demand or in the event of a power outage.

Conclusion

Without taking action or considering statewide emissions reductions efforts, Pico Rivera's GHG emissions are expected to rise, as compared to the BAU case. However, when statewide efforts are considered, Pico Rivera is projected to have 36.0% fewer emissions in 2040, compared to a 2010 baseline. Additional action taken by Pico Rivera to reduce emissions may lead to increased local climate resiliency. Further, Pico Rivera's GHG emissions reductions measures are well aligned with its goals to improve air quality and public health, create local jobs, provide benefits to disadvantaged communities, and increase climate resilience.

There is a significant opportunity for Pico Rivera to align its LDSBP to the goals set in its Climate Action Plan. The CAP identifies that Pico Rivera's highest-emitting sector is, by far, GHG emissions from transportation (53.9%), followed by commercial/industrial electricity use (12.0%), residential natural gas (9.1%), and residential electricity use (7.4%). As a CCA, PRIME can further the reduction of emissions from the transport sector by focusing on transportation electrification efforts, while transitioning its electricity generation source to cleaner energy. Electricity use within the commercial/industrial and residential sectors could be reduced through DER-specific strategies, such as energy efficiency, local distributed generation, and load shifting opportunities. Residential natural gas use can be reduced through building electrification efforts. These opportunities are further outlined in *Section 4.1: DER-Specific Strategies.*

3. What is Local Development, and What are the Benefits?

Local development can be thought of as a strategic framework to facilitate how PRIME chooses to meet its larger operational goals: **1) provide cleaner energy, 2) offer affordable and competitive rates, and 3) establish local control and administer targeted local programs.**

The LDSBP focuses on the following goals of local development:

1. **Increased local employment opportunities, powered by the clean energy economy:** Meeting GHG emissions goals can simultaneously grow the economy, create jobs, and lower energy bills, forming the tenets of what is considered the "clean energy economy". To date, the clean energy economy in the State of California has created 405,684 jobs and resulted in $45 billion of investments in solar and wind projects. Of these clean energy jobs, 81,542 (20.2%), are located in Los Angeles County - this is half as many jobs created by the Hollywood entertainment industry. This translates to $5.70 billion of clean energy investment, and produces enough power annually to fully supply 548,781 residential homes with 100% clean power.

   Jobs in the clean energy economy can take multiple forms, from rooftop installers of solar photovoltaics (PV), to energy efficiency consultants delivering building retrofits. These jobs are driven by the procurement and deployment of local energy resources. PRIME strives to develop programs with a focus on creating local jobs so that the City of Pico Rivera directly benefits from the clean energy economy.

2. **Investments in the local community by improving access to beneficial programs and competitive rates:** Utility bills can be a major cost of any household or business - on average, households in Pico Rivera spend $1,739 annually on electricity. Rising energy costs are more acutely felt in low-income households, where electricity bills make up a greater percentage of a household's monthly budget. The California Alternate Rates for Energy (CARE), Family Electric Rate Assistance (FERA), and Medical Baseline statewide programs service 40% of PRIME's customer base. Financial impacts are also experienced by local businesses, who may also be subject to a monthly demand charge.

   To reduce the monthly cost of energy to local homes and businesses, Pico Rivera's Local Development and Sustainability Business Plan focuses on both developing

competitive electricity rates and offering strategic programming to further reduce their customers' consumption of electricity.

3. **Improved local air quality and health benefits:** The impacts of climate change are global, but the results of GHG emissions reductions can be felt locally. Most notably, transport emissions are closely linked with particulate matter (PM) and other air quality pollutants; reduced local transport emissions (for example, switching from gasoline to electric) can be directly linked to an improvement in air quality-related health indicators.

4. Resources, Policies, & Strategies

This section outlines policies and strategies that could be developed and utilized by PRIME to achieve the goals set out in its CAP and LDSBP. This section first provides a brief description of strategies associated with specific distributed energy resources (DERs), then discusses overarching tools and applications for procurement and financing.

4.1 DER-Specific Strategies: Overview

DERs are commonly defined as local energy generation connected to the distribution system, and consist of the following technology types: energy efficiency (EE), demand response (DR), distributed generation (DG), battery storage, and electric vehicles (EVs).

Rather than large-scale central generation and bulk power purchasing of renewable energy, PRIME has chosen to evaluate opportunities to use DERs to meet their LDSBP goals. A focus on DERs installed at the local level can provide local economic benefits, offer more local control, and present a higher likelihood of local targeted programming.

General benefits of DERs include:

- **Local energy production and consumption:** DERs allow customers to generate energy closer to the site of consumption, rather than generated in bulk and delivered via long transmission lines to the distribution network. This also locates the benefits of renewable energy, such as reduced GHGs and air pollution, plus more competitive costs of electricity, closer to the consumer.
- **Increased connectivity, control, and provisioning of grid services:** Monitoring and managing the behavior of DERs through the installation of grid-connected intelligent controls is a growing trend. These allow the controller to more efficiently control when the appliance is in use to the benefit of the owner (e.g., smart thermostats), to the management of the distribution grid (e.g., demand response-driven storage), or both.
- **Improved local reliability and resiliency:** Many DER technologies, including building electrification, energy efficiency, battery storage, and microgrid technology improve local reliability and resiliency in the face of severe weather, blackouts, or climate-related impacts, by keeping the lights on in critical facilities and managing efficient energy use.

- **Reduced GHG emissions:** Developing local clean energy resources can be more effective at reducing emissions from the electricity sector, depending on the existing resource mix and the CCA's long-term procurement strategies.
- **Targeted local deployment:** Specific DERs can serve specific local needs of a community. CCAs are in a good position to best understand local issues and target DER-specific strategies to meet community needs.
- **Provision of local green jobs and workforce development:** If local hiring and workforce development are properly supported by PRIME, DERs can allow local communities to benefit from the growing clean energy economy, by bringing related jobs such as solar installation and energy efficiency retrofitting to local communities.

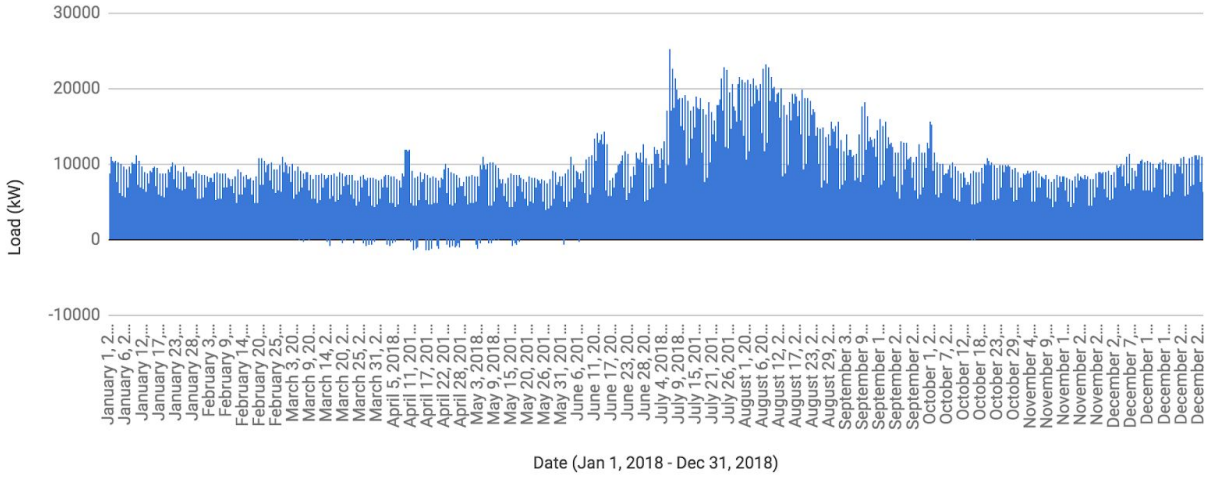
The key to understanding DER-specific strategies is identifying opportunities by a specific technology, location, and timing (e.g., hours when the DER is providing value to the system). Recommendations in this section are informed by the use of Kevala's Network Assessor Platform, which identifies load, generation, infrastructure constraints, and price or value of energy resources.

Load

Kevala collected advanced metering infrastructure (AMI) data from PRIME-enrolled customers, for the twelve month period from January 1, 2018, through December 31, 2018. This hourly data was analyzed at the address-specific level and aggregated up to the feeder-level to derive feeder-level load.

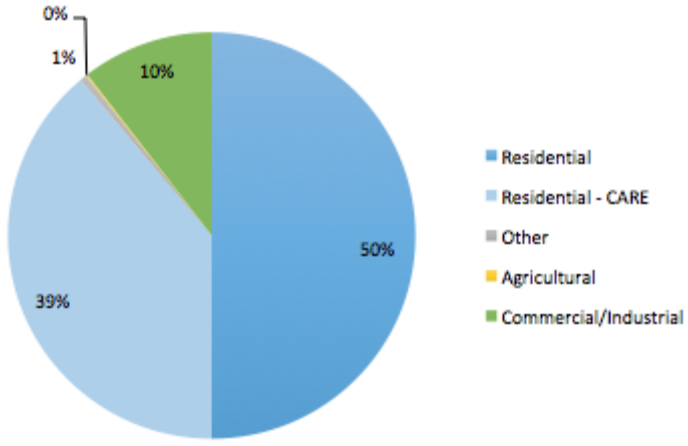
As seen in Figure 3, Pico Rivera's gross load across twenty-three circuits totaled 63,829 Megawatt-hours (MWh) in 2018, with a peak load of 25.47 Megawatts (MW) on July 7, 2018, at 7:00 PM. Energy demand is highest during the summertime (July - September), with average demand almost twice as high as demand in winter or spring.

Figure 3: Aggregated Load of PRIME-Enrolled Customer (Jan 1, 2018 - Dec 31, 2018)



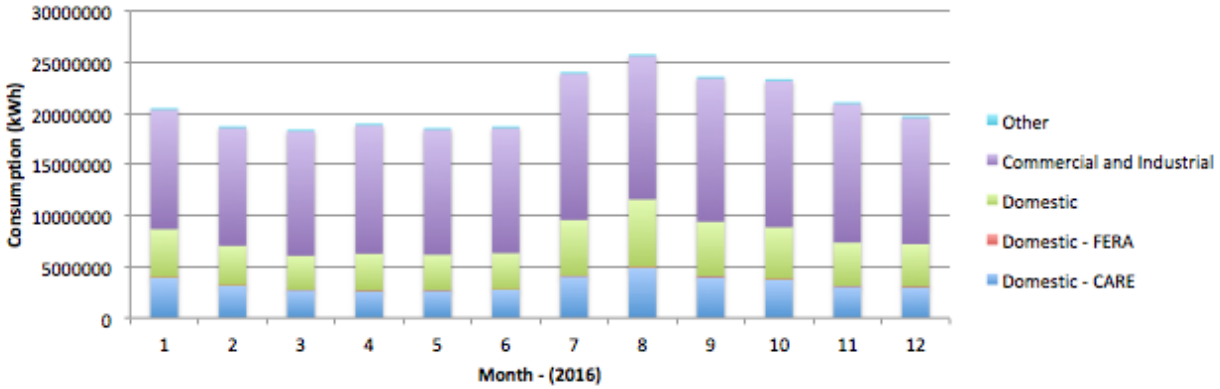
PRIME serves roughly 18,517 customer accounts. The majority of its accounts (89%) are residential customers; 10% are commercial/industrial customers, and 1% is agricultural/other. Of its total customers, 39% are residential customers enrolled in the California Alternate Rates for Energy (CARE), Family Electric Rate Assistance (FERA), or Medical Baseline program providing low-income and medically vulnerable customers a discount on their electric bill.

Figure 4: Breakdown of PRIME Customer Accounts



On a monthly consumption basis, commercial and Industrial (C&I) customers are the largest consumers of electricity in PRIME territory, comprising 54% - 67% of total energy consumption, depending on the month.

Figure 5: Breakdown of MW Consumption by Customer Accounts and by Month

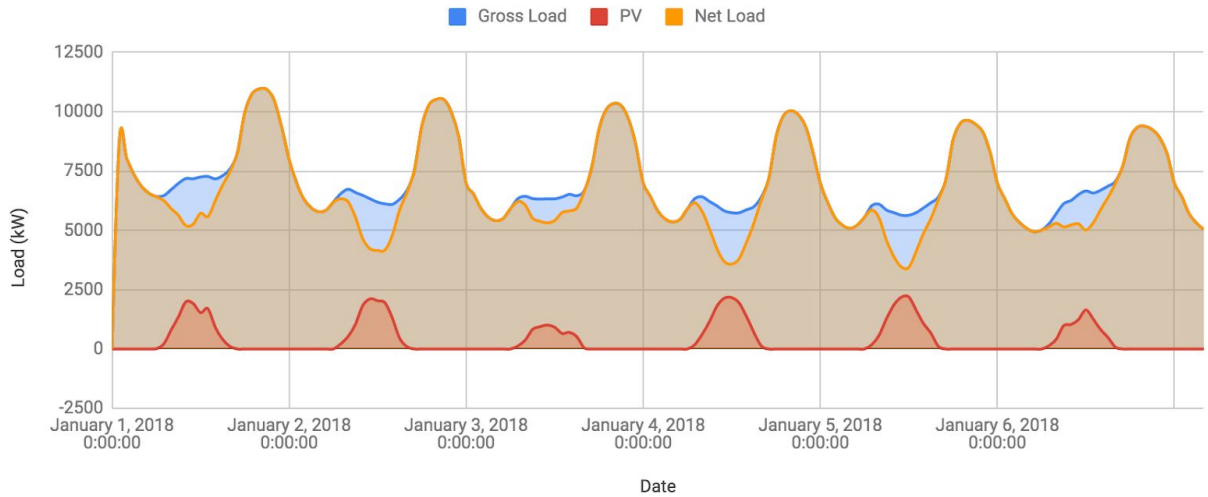


Generation

Kevala used utility-reported DG installation capacity and NREL's PV Watts[10] methodology to calculate estimated PV generation shapes at an hourly level, based on localized weather information.

Pico Rivera has a total of 18.62 MW of installed DG projects. When the impact of installed DG is factored in, the resulting net load indicates a much lower electricity demand during the middle of the day, when solar generation is at its highest. *Figure 6* shows this impact over one week in January:

Figure 6: Impact of Solar Generation on Feeder-Level Load



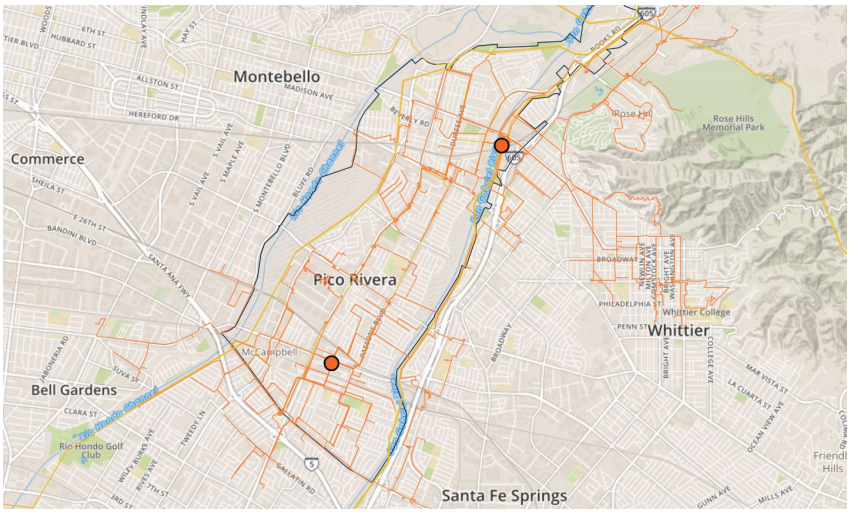
[10] National Renewable Energy Laboratory (NREL) PV Watts Calculator. https://pvwatts.nrel.gov/

While local generation reduces demand overall, local generation does not reduce the overall peak demand of the area, which continues to be a summer evening peak (*in 2018 the system likely experienced peak load on July 6, 19:00*), given that local generation is primarily solar-driven. There is still an opportunity to increase solar adoption in PRIME territory, though decision-makers should also consider opportunities to shift or decrease evening peak demand to realize beneficial system-wide impacts.

Infrastructure

Kevala's Network Assessor platform includes detailed information about the distribution infrastructure, including all of the feeders and substations in PRIME territory, displayed visually on a map. In addition to the location of physical infrastructure, Network Assessor also produces equipment ratings, capacity, existing distributed generation installed by circuit, and queued distributed generation values. Users of Network Assessor can search, filter, and sort by multiple criteria in order to analyze data and values specific to the area of interest.

Figure 7: Map of Distribution Infrastructure



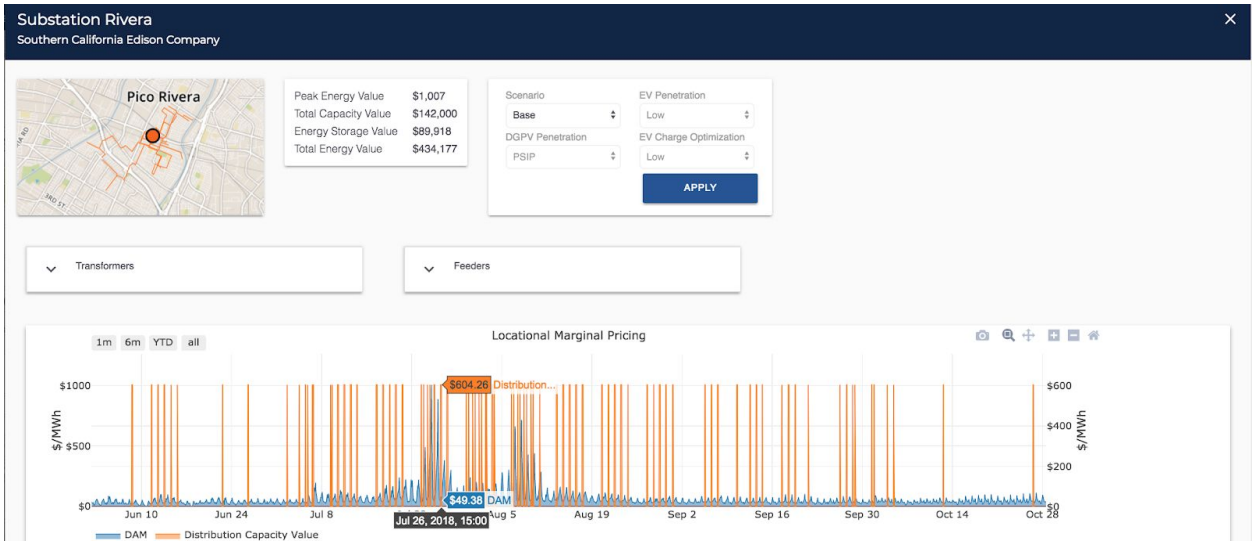
Price and Value

Pico Rivera's entire load is served by two substations, Narrows and Rivera, and all wholesale generation in Pico Rivera territory falls under two pricing nodes. The price and value of DERs implemented within PRIME territory can differ from one feeder to the next, meaning that targeting specific locations for resource deployment or load reduction is highly valuable. Importantly, the value for distribution capacity component is ascribed through programs, as currently there is no formalized market to capture this value.

Kevala's Network Assessor platform tracks wholesale energy prices via the day-ahead market on an hour-by-hour basis. This allows users of the platform to identify when supply and demand are not aligned, which indicates when local generation could best serve local demand.

Kevala has also developed a methodology to assign a monetary value to the cost of avoiding distribution infrastructure upgrades that would be necessary due to capacity constraints such as building a new substation or transformer upgrade to continue serving load. This avoided cost value is assigned to specific hours during the year based on peak loading on the feeders associated with that substation. These two monetary values - energy and distribution capacity - are shown in the Network Assessor user interface (see example below in *Figure 8)*.

Figure 8: Sample of Distribution Capacity Value Analysis



In conclusion, some DERs can be more valuable to PRIME at certain locations than other locations, and because of technology type, some DER solutions are better at capturing that value at specific times. Understanding the locational differences in value for DERs should be considered first as PRIME begins to develop or procure DERs from within its territory. Table 4 identifies how DERs connected at feeders leading to Narrows substation, for example, might be more valuable than DERs connected at feeders leading to Rivera substation.

Table 4: Substations and Prices in PRIME Territory

Substation	LMP Node	Distribution Capacity Event $/MW-hour
Narrows	MESACAL_6_N004	$1196.58
Rivera	LAGUBELL_6_N005	$599.16
Gallatin	LAGUBELL_6_N005	$904.76

Demand Response

While PRIME does not have a direct obligation under state law to provide demand response resources, utilizing demand response can be a powerful opportunity to shift energy usage from periods of highest demand and impact on distribution capacity, to periods of lower prices.

This strategy supports the following GHG planning prioritization measure(s):

✓ Promote and Maximize CCE and Utility Clean Energy Offerings

Overview

Demand response programs allow consumers to align their energy consumption with available supply, reducing their demand during peak periods. Demand response programs often use rate structures that incentivize consumers to change their behavior. These types of programs benefit the overall operation and reliability of the grid by better reducing peak demand to ensure load needs are met. In addition, CCAs can benefit from demand response by encouraging the consumption of low-cost energy rather than procuring energy at expensive peak periods. Finally, participating customers directly benefit from low-cost energy through reduced energy bills.

Demand response can be described by various "shapes" and "sizes", each characterized with different time period variations. These frameworks are described as the following[11]:

- **Shape:** active re-shaping of customer load profiles
- **Shift:** shifting consumption of energy to coincide with times of high renewables generation
- **Shed:** active load curtailment, reducing the impact on peak demand
- **Shimmy:** using customer loads to mitigate short-run ramps and disturbances

Various incentive structures for demand response exist, including time-varying rates (e.g., time of use pricing), rate structures targeting peak demand times (e.g., critical or variable peak pricing), rebates, and direct load control programs where LSE's have the ability to remotely switch consumer loads (e.g., air conditioning units).

The opportunity at a glance

Kevala's analysis shows there is an opportunity to align demand with low wholesale energy prices in the PRIME territory while also avoiding negative impacts on the distribution grid.

[11] https://drrc.lbl.gov/publications/2025-california-demand-response

The Network Assessor platform allows users to dynamically calculate an avoided distribution capacity value, which identifies the time period when aggregate demand on the distribution-side of the feeder or substation reaches peak demand. These values are needed to inform decisions such as utility energy procurement to meet excess demand, which may require costly upgrades to distribution infrastructure, or to incentivize programs to encourage demand-side reduction strategies, such as demand response.

Identifying hours of avoided distribution-capacity events, in parallel with high-cost energy prices, further identifies a dollar-value that can be attributed to avoiding consumption at a specific time of day. The resulting benefit provides insight on when demand response programs are most useful. A deeper level of granularity is achieved because this is aggregated up to the substation-level, rather than ascribing a uniform programmatic approach across PRIME's entire service territory.

Kevala's analysis of Pico Rivera's load characteristics indicates a large opportunity for demand response programs to better align supply with demand. All customer classes can participate in and contribute to demand response with C&I customers offering the largest opportunity to reduce and shift load. Historically, C&I customers are the most likely to respond to incentivized demand response programs. Approximately 1,800 customers in PRIME's territory are subject to demand charges, a likely indicator that customers would benefit from participating in demand response programs to reduce demand charges incurred on their bills.

Actions

While PRIME does not have a direct obligation under state law to provide demand response resources, utilizing demand response can be a powerful opportunity to shift energy usage from periods of highest demand to periods of lower prices. PRIME can consider promoting demand response through the following structures:

- Aggregate customer commitments to DR and bid into the wholesale market
- Contract with or promote third party Demand Response Providers (DRPs), tasked with providing incentives for customers to reduce consumption at peak periods and coordinate their participation in the CAISO market
- Offer DR incentives specifically focused on EV charging behavior
- Implement an innovative DR pilot with local organizations that takes into account available load, installed equipment, and hours of peak demand. This could take

many forms, such as offering peak-time rebates, incentivizing the adoption of smart thermometers, or pursuing new project installations from a portfolio of technologies.

Energy Efficiency

Considered first in the loading order, energy-efficiency is the "low-hanging fruit" when evaluating efficiency and conservation means.

Efficiency offers large opportunities to reduce consumption and lower bills, but the impacts of EE programs are often challenging to track. CCAs have an opportunity to administer energy efficiency programs; full consideration of the cost and benefits of doing so, including administrative costs, is necessary.

This strategy supports the following GHG planning prioritization measure(s):

- ✓ Promote and Maximize CCE and Utility Clean Energy Offerings
- ✓ Promote Green Buildings
- ✓ Improve Efficiency of Existing Buildings
- ✓ Grow Green Economy/ Increase Green Jobs
- ✓ Engage and Partner with Local Industries and Businesses to Reduce Emissions

Overview

California's policy focus on energy efficiency (EE) has been active since the 1970s with favorable results across the State. These include developing state-specific EE appliance standards and building standards. This section describes additional achievable EE actions PRIME could take in both the residential and commercial sectors.

Residential energy efficiency: Often, residential energy efficiency efforts focus on improving the efficiency of home appliances and weatherproofing homes to reduce HVAC costs. In Pico Rivera, 73% of residents live in single residence homes, indicating that most customers likely have some decision-making control over the efficiency of their homes. Access to funds and programs to facilitate EE efforts is an additional goal of EE programs, particularly for lower-income residences.

Commercial energy efficiency: Businesses benefit from financing and incentives to upgrade common commercial equipment, including HVAC, refrigeration, and water heaters. Depending on the rate structure, electricity bills can make up a large portion of business costs.

Under the California Department of Community Services & Development, the utility assistance and weatherization provider is currently the Long Beach Community Action Partnership for PRIME territory. PRIME customers seeking energy assistance that also meet eligible income requirements can apply for programs such as the Home Energy Assistance

Program (HEAP), which provides financial assistance to offset heating and cooling costs, weatherization efforts, and minor repairs for energy efficiency purposes.

The opportunity at a glance

It is recommended that PRIME conduct a territory-wide EE audit, including a count of existing program participants via SCE-provided EE programs. Kevala's Network Assessor platform can be used to map existing EE program implementations to the corresponding addresses and distribution feeders. This allows PRIME to: determine where programs have been deployed; visualize the kW and kWh impact on coincident peak demand and annual total load; and identify targeted areas of opportunity for additional EE programs.

Actions

PRIME can meaningfully play a part in EE through the following options:

- Participate in existing energy efficiency programs administered by SCE.
- Become an administrator of energy efficiency programs. Pico Rivera would in this case request CPUC approval to become the administrator of energy efficiency programs and receive state funds. This choice is both administrative and resource-intensive, and the cost/benefits should be carefully considered. To date, PRIME is considering, through CalChoice, whether this action is appropriate.
- Participate in energy efficiency programs administered by other CCAs.
- Develop equitable community engagement programs, such as an informational one-stop-shop that assists customers in finding the right EE programs or incentives such as rebates, or information on low-income weatherization programs.
- Seek additional funding opportunities for EE projects that involve effective collaboration between stakeholders, chamber of commerce, and community members.

Additional analysis would require a deeper understanding of the type and size of EE projects in PRIME territory, including those implemented in low-income and disadvantaged areas. Kevala's Network Assessor platform has the ability to ingest datasets that quantify existing EE programs by count, type, and size, further providing the ability for targeted incentives or future programs.

Building Electrification

California's leadership on zero-net energy (ZNE) homes and appliance standards set goals for reducing energy consumption within buildings. PRIME could support those goals by encouraging the electrification of space and water heaters through offering rebates for equipment and comprehensive community outreach on the benefits of building electrification.

This strategy supports the following GHG planning prioritization measure(s):

- ✓ Promote and Maximize CCE and Utility Clean Energy Offerings
- ✓ Promote Green Buildings
- ✓ Improve Efficiency of Existing Buildings
- ✓ Grow Green Economy/ Increase Green Jobs
- ✓ Engage and Partner with Local Industries and Businesses to Reduce Emissions

Overview

Building electrification primarily refers to the electrification of residential and C&I space and water heaters, which make up two-thirds of California's total GHG emissions from the building sector. Building electrification, therefore, presents an opportunity that garners separate consideration from other energy efficiency measures.

Realizing this opportunity requires a mix of State-level building codes/standards revisions for both new and existing buildings. Specially designed incentives, programs for appliances, and retrofits are also critical. Building electrification goals for new buildings may be more easily achieved due to existing efficiency standards implemented by the CEC. New buildings must follow California's 2019 Building Energy Efficiency Standards that require new homes to install solar PV, meet updated thermal envelope standards, adhere to residential and non-residential ventilation requirements, and observe non-residential lighting requirements[12]. By comparison, existing buildings may require more complicated and costly retrofits. The City of Pico Rivera adopts the California Building Codes, which adopt and exceed the stringency of the International Building Code.

12 https://www.energy.ca.gov/news/2018-05/energy-commission-adopts-standards-requiring-solar-systems-new-homes-first

The opportunity at a glance

A total of 13.5% of Pico Rivera's GHG emissions result from direct natural gas use , of which 9.1% come from the residential sector, and 4.4% from the commercial sector, in addition to emissions from natural gas-related to electricity generation. Natural gas is primarily used for space and water heating, cooking appliances, and some commercial on-site manufacturing processes. To quantify the total opportunity for building electrification, PRIME should conduct an initial inventory of natural gas appliances to determine what percentage of the total natural gas emissions are attributed to space heating, water heating, and cooking appliances.

As codes and standards for electric appliances are updated, PRIME should continue to promote their adoption, as well as leveraging existing incentives developed by the state. As building electrification efforts build, there is an opportunity to develop a strong workforce education and training program around their implementation.

Actions

PRIME can support building electrification efforts through the following efforts:

- Provide outreach and communication around SCE and state rebates and programmatic offerings
- Targeted building electrification efforts around specific buildings of interest, such as government buildings, schools, or hospitals
- Collaborate with City staff to mandate all-electric construction for new building construction
- Collaborate with local commercial businesses pursuing Green Business Plans or Leadership in Energy and Environmental Design (LEED) certifications

Solar

The rapidly declining costs of solar PV over recent years have increased the adoption of locally generated renewable energy, resulting in reduced greenhouse gas emissions, and lower customer energy bills. This section identifies three local actions related to solar adoption: 1) establishing a net energy metering (NEM) tariff for customer-installed solar panels;
2) development of community solar programs; and 3) providing financing options. PRIME can play a role in reducing the cost of procuring and financing local solar projects, while exploring additional options for local workforce development in the burgeoning solar industry.

This strategy supports the following GHG planning prioritization measure(s):

- ✓ Grow Green Economy/ Increase Green Jobs
- ✓ Engage and Partner with Local Industries and Businesses to Reduce Emissions
- ✓ Increase Local Clean Energy Generation

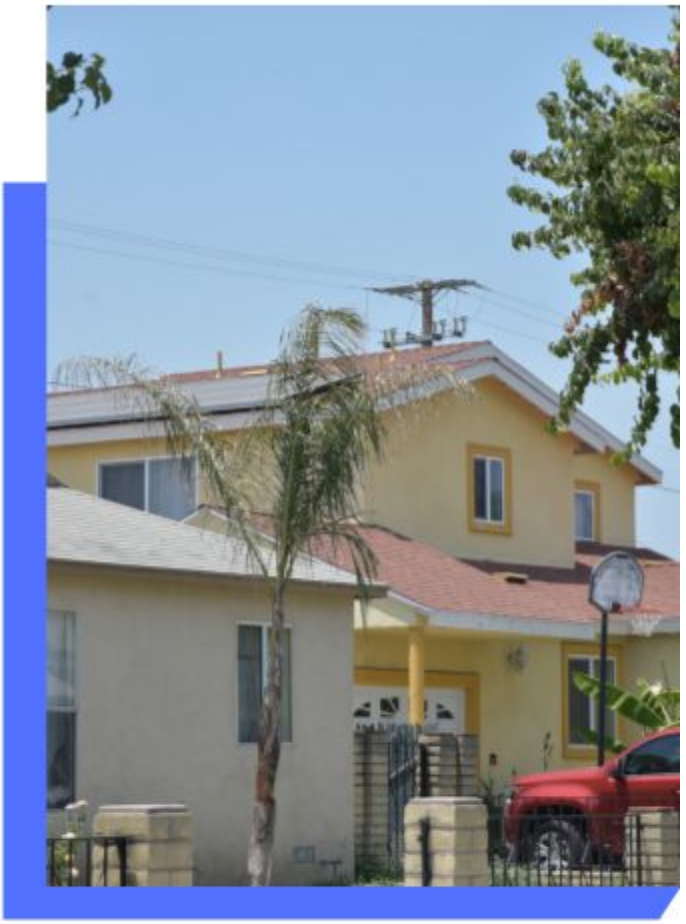
Overview

The rise in solar adoption over the last decade, both at the utility-scale and residential level has played a significant role in meeting LSE's RPS goals and state GHG emissions reduction goals. As solar adoption has increased, the number and feasibility of various procurement and financing models have changed. In the last decade alone, there has been a rise and fall of new third-party financed residential system installations, changes to the state's net energy metering (NEM) program requirements and compensation, and growth in community solar programs. Further, the number of clean energy jobs in California has risen in direct proportion to the growth of solar adoption. These jobs include solar sales, installation, manufacturing, and operations/maintenance. As a CCA, PRIME can both develop local solar generation to meet its procurement goals, while encouraging the development of residential-sited solar and promoting local workforce development opportunities.

The opportunity at a glance

PRIME has the opportunity to both procure distributed generation directly from within its territory to meet its procurement requirements, as well as promote solar adoption to its customers for self-consumption purposes. Regarding the latter, there are currently over 500 projects in PRIME territory interconnected to the distribution grid via NEM programs, which is equivalent to a 2.7% customer adoption rate.

The opportunity for solar could be characterized in many ways – from a capacity perspective, it is important to understand where solar has already been installed, and what remaining capacity exists on the distribution grid to install additional solar, without incurring cost to upgrade distribution infrastructure. One method to calculate the room for additional solar on the grid is called hosting capacity or advanced capacity analysis (ACA). At a high level, ACA determines the amount of DERs that can be integrated on a circuit without violating thermal, power quality, safety, protection, or operational limits; and avoid triggering time-consuming and costly infrastructure upgrades. ACA is a useful tool for utilities undergoing grid modernization and who are engaging in proactive distribution planning efforts to meet the increased adoption of DERs. The results of which provide a quantitative appraisal of current and future projected grid limitations for a given set of assumptions.



Kevala's own probabilistic hosting capacity methodology evaluates three indicative limits at the feeder level:

- **Negligible Interconnection Cost or Study (NICS):** This hosting capacity represents the likely amount of DER that can be interconnected onto the grid before a supplemental or detailed interconnection study is required. Likely costs after exceeding the NICS hosting capacity value range from $20,000 - $60,000, and include a detailed interconnection study and related upgrades.
- **Communications Infrastructure Required (COMS):** This hosting capacity represents the likely amount of DER that can be interconnected onto the grid with communications and special protection scheme upgrades to avoid circumstances including anti-islanding, direct transfer trip, etc. Likely costs under or close to the COMS hosting capacity value range from $100,000 - $400,000 depending on the required upgrade (e.g., new fiber cable, switching station, etc.) and characteristics of

both the project and circuit (e.g., distance from the substation, rural vs. urban feeder, etc.).

- **Thermal Limitation Violation (THERM):** This hosting capacity represents the likely amount of DER that can be interconnected onto the grid, only with significant upgrades to avoid triggering thermal violations. Projects close to this hosting capacity would require the utility to undergo distribution upgrades such as reconductoring, transformer upgrades, or substation upgrades. Likely costs under or close to the THERM hosting capacity value vary over a wide range of expected upgrades and types of circuits.

The likely distribution infrastructure upgrade costs is often the responsibility of the developer and significantly impacts project finance. An ACA can help developers understand where additional solar can be developed at least-impact and reasonably least-cost, by considering the poles and wires infrastructure, improving the likelihood of project implementation.

Kevala conducted ACA for feeders in Pico Rivera, using metered load and assumed PV generation based on installed project characteristics.

Table 5: Generation Hosting Capacity Results by Feeder

Feeder	Installed DG[13]	DG In Queue	NICS (MW)	COMS (MW)	THERM (MW)
Aston	0.78	0.00	1.75	2.89	10.48
Ballard	1.52	0.23	0.21	1.51	9.90
Bexley	0.13	0.12	0.04	0.30	2.13
Bronco	0.21	0.04	0.15	1.11	3.07
Cadillac	9.55	1.55	0.003	0.01	0.75
Coffee	0.06	0.00	0.02	0.20	1.46
Decosta	0.30	0.00	1.52	2.28	8.31
Deuce	0.41	0.00	0.05	0.33	2.29
Durfee	0.07	0.00	0.14	1.17	8.19
Maxine	0.15	0.00	0.24	0.34	2.35
Millergrove	0.33	0.56	0.23	1.18	8.25
Perkins	0.13	0.37	0.03	0.13	0.90
Sanka	0.09	0.00	0.05	0.26	1.68

[13] Installed DG and DG in Queue reflects SCE hosting capacity figures as of May 2019.

Serapis	0.09	0.00	0.71	1.01	4.41
Stoakes	0.03	0.12	0.42	1.15	7.76
Topeka	0.15	0.01	0.06	0.33	2.34
Torpedo	0.20	0.15	0.06	0.49	3.66
Unity	0.18	0.00	0.04	0.09	0.69
Vicki	1.57	0.23	0.04	0.26	1.89
Stamper	2.32	0.08	0.02	0.12	0.88

These results can help PRIME identify where customers can likely interconnect solar PV at certain MW levels without developers incurring significant interconnection costs. The results may also help PRIME determine where it should interconnect larger DG projects, such as community solar projects. For example, based on availability, connecting a 2 MW community solar project at Decosta feeder is likely preferable and easier to site than compared to Millergrove feeder.

As a next step, Kevala's Network Assessor platform can be used to conduct a solar siting survey based on parcel search and filter, and hosting capacity information. This solar siting survey can include:

- A summary of existing solar adoption in PRIME territory, by both project count and MW capacity
- Identification of likely candidates and parcels for solar adoption
- Identification of total opportunity for community solar adoption

Actions

PRIME can support cost-effective solar adoption efforts through the following actions:

- **Adoption of NEM tariffs:** Per PU Code Section 2827, CCAs are obligated to provide eligible customer-generators a standard contract or tariff providing for net energy metering. The PRIME Partner program offers NEM participants $0.06/kWh for excess production at the end of the true-up period. PRIME could consider additional NEM tariffs for solar + storage customers.
- **Community solar programs:** For residents who cannot install rooftop solar because they occupy multi-tenant buildings or rent space, community solar projects can be installed in public or jointly-owned spaces and shared among multiple subscribers. This model additionally expands the benefits of solar generation,

including lower electricity bills, to low-income families, who are less likely to afford a residential system and more likely to live in multi-unit buildings. PRIME can elect to support an existing utility community solar program or develop its own model.

- **Opportunities for solar workforce development:** the solar installation business has grown significantly over the last several years - between 2013 and 2018, solar jobs increased by 70%. Solar presents a strong opportunity to engage in local workforce development, including training and certification of installers.

Storage

Per CPUC D.13-10-040, CCAs are required to meet 1% of their coincident peak load with storage resources. It is expected that PRIME can exceed this 1% obligation through the opportunity to lower technology costs for battery storage to reduce aggregate peak load and impact on distribution circuit capacity.

This strategy supports the following GHG planning prioritization measure(s):

- ✓ Engage and Partner with Local Industries and Businesses to Reduce Emissions

Overview

Battery energy storage has become a commercially viable option and plays an important role in balancing demand and generation without adverse impacts on the grid. California State leadership has pursued the adoption of storage resources for several reasons. First, battery storage can be a useful tool to smooth out the load curve (known as the "duck curve" due to its shape) caused by excess midday solar generation, followed by a steep ramp-up of generating facilities during the early evening when solar goes offline and demand dramatically increases. Second, batteries can recharge when electricity prices are low and discharge during critical peak load periods, mitigating the impact of costly demand charges. This behavior, known as "energy arbitrage", allows storage resources to participate in the energy markets and generate revenue during opportune times.

Wholesale energy resources used to provide energy during peak periods typically emit higher GHGs, since more polluting "peaker" plants often run on fossil fuels, and operate only a few hours out of the year. Battery storage that charges from the grid can be a cleaner option, particularly if it is charging when renewables generation makes up a larger portion of the energy resource mix.

The opportunity at a glance

Storage resources can either be located behind-the-meter, which is typically customer-owned, or in front-of-the-meter, which can be customer, third party, or utility-owned. There are opportunities to deploy both behind-the-meter and front-of-the-meter solutions within PRIME territory.

Behind-the-meter: The availability and affordability of behind-the-meter solutions have led to increased adoption at the building level, particularly with rooftop solar customers. These systems can provide site-specific backup power and store daytime generation to be

used during peak load evening hours. As noted earlier, PRIME has roughly 1,800 customers subject to demand charges, which is a good indicator of the number of potential customers who would pursue storage solutions to reduce their kW demand charge (based on peak energy usage). Increased adoption can be incentivized with well designed, Time-Of-Use (TOU) rates that promote reducing energy consumption at peak.

Front-of-the-meter: Storage solutions are also being deployed as a dispatchable grid-scale solution, to balance out intermittent renewable energy. The price of grid-scale storage has also fallen to the point where they are cost-competitive with other dispatchable resources, including combined source natural gas[14]. As the cost of storage continues to decrease, PRIME should consider collaborative procurement opportunities to procure and install storage at targeted locations. Kevala's Network Assessor can be used to identify potential feeders that could benefit from storage, as well as facilitate the design of the right-sized storage system (MW x MWh), installed in front of the meter, that would meet local grid needs.

For example, Kevala assessed the potential size of a battery storage system that could reduce peak demand at El Rancho High School, the Sheriff's department, Pico Rivera City Hall, and the Parks and Recreation Department building. The analysis using the Network Assessor Platform is below in *Figure 9*[15].

[14] https://www.utilitydive.com/news/solar-storage-projects-to-drive-utility-scale-deployment-of-batteries-na/551724/

[15] *Note: for the purposes of this report, this example assessment is based on modeled load rather than customer AMI load, to avoid violating customer confidentiality issues regarding actual consumption data.*

Figure 9: Example of Battery Storage Analysis

This assessment should be conducted for potential targeted locations, using historic AMI hourly load, to properly assess the necessary storage size to reduce peak demand.

Actions

To meet its 1% obligation and reduce peak demand, PRIME can consider:

- Applying for grant opportunities to pilot evolving new storage use cases, such as demand response/load shift, or for grid and climate resiliency purposes.
- Engaging in collaborative procurement with local organizations, such as hospitals or schools, to reduce peak demand.
- Developing a PRIME Partner program adder for distributed generation solar + storage projects

Transportation Electrification

The growth in electric vehicles is only projected to increase, due to decreasing technology costs. Electrification of the transportation sector may increase electric demand within PRIME territory. It also poses an opportunity to more efficiently match local generation with consumption, provide benefits to the grid, and reduce the local environmental impacts of traditional internal-combustion engine vehicles, such as poor air quality.

This strategy supports the following GHG planning prioritization measure(s):

- ✓ Support Transportation Demand Management
- ✓ Support Fuel-Efficient and Alternative Fuel Vehicles

Overview

Investment in transportation electrification and promotion of clean vehicles presents a unique opportunity to address climate action goals by dramatically reducing criteria air quality pollutants. Cars and trucks produce 40.5% of emissions in the LA County Basin and 53.9% of emissions specifically in Pico Rivera. The electrification of transportation poses a once-in-a-lifetime opportunity to fuel switch vehicles from fossil fuels to clean energy, provided that electricity is generated from renewable sources. The trend towards electric vehicles will also increase electricity demand in the region - SCE estimates that transportation electrification will increase demand by 11 GWh by 2025 in its territory. The aggregated behavior of a much larger number of EV owners could lead to costly grid upgrades if not managed or co-optimized with other factors. An example would be adjusting for the increased load if all residential EV owners plugged in during the residential evening peak.

In considering transportation electrification, program design should consider the availability of charging stations in public areas, limitations of grid infrastructure, co-optimization of electric vehicle charging with local generation (e.g., daytime solar generation), and EV charging electricity rates.

The opportunity at a glance

Transport emissions make up a majority of GHG emissions in PRIME territory. Efficient fuel-switching of internal combustion engine (ICE) vehicles to EVs thus presents a great opportunity to dramatically reduce GHG emissions, as EVs charge using a clean portfolio of generation resources.

In Pico Rivera, the most common method of transportation is driving alone where 81.9% of commuters have an average travel time of 30 minutes, which is higher than the California or U.S. average. California's average commute time is 28 minutes, and on average 76.4% of the U.S. commutes via driving alone. "Super commuters" that take a 90 minute or longer trip to work, make up 3.2% of the Pico Rivera workforce. The rate of commute via public transit is lower in Pico Rivera (3.7%) than the U.S. average (5.1%)[16]. All told, Pico Rivera's greatest opportunities to reduce emissions from the transportation sector is through vehicle electrification, combined with increasing numbers of commuters taking public transportation. PRIME can work to further these goals through the development of EV-charging rates that promote time-varying charging for residential customers, and engage in specific grant opportunities or public-private partnerships with larger customers (e.g., school districts, government-owned vehicles, large commercial businesses) to electrify medium-duty and heavy-duty vehicle fleets.

Electrifying transportation is additionally poised to increase the overall electric load. The impacts of increased load depend on the type of vehicle (e.g., light duty vehicles (LDV), heavy duty vehicles (HDV), buses, etc.) and the location of where the electric vehicle is charging. PRIME should study where there is an opportunity to incentivize charging at times where it is mutually beneficial for the grid and levels out demand (e.g., co-optimized with daytime solar).

Kevala worked with the County of Los Angeles on its Electric Vehicle Transportation Electrification Blueprint Study, in partnership with the UCLA Luskin Centre. This study, finalized in July 2018, evaluated the potential likely adoption of electric vehicles and the impact of EV charging on the distribution grid. Specifically, in regards to workplace charging, Pico Rivera is expected to see an aggregate of 0.47 MW on the grid by 2025 due to workplace charging from 7:00 AM - 9:00 AM. This leads to a 442,904 kWh increase in annual load by 2025 that PRIME needs to serve. Because EVs have lower overall lifetime emissions than ICE vehicles, overall GHG emissions as a whole are likely to decrease[17].

[16] Data USA. http://www.datausa.io

[17] Exact GHG rates attributed to EVs are dependent on the LSE's generation portfolio.

Finally, many rebates currently exist for EV owners, including the California Clean Vehicle Rebate (up to $7,000), the SCE Clean Fuel Reward program (up to $1,000), the SCE Charge Ready Installation rebate (up to $1,500), and the federal Plug-In Electric Drive Vehicle Credit (up to $7,500). Additional web-based tools exist to assist customers in comparing the cost of owning an electric vehicle to the cost of an ICE vehicle. PRIME could provide significant value for its customers to drive clear communication around available rebates and programs, which drives down the cost of electric vehicle ownership.

Actions

Pico Rivera can choose to support the state's transportation electrification goals via actions such as:

- **Pursue Vehicle Grid Integration (VGI) pilots:** Pico Rivera should pursue grant and partnership opportunities to conduct a VGI pilot, which would allow the city to study opportunities for managed charging and co-optimization with renewable energy resources.
- **Promote public charging stations:** Pico Rivera can encourage the proliferation of electric vehicle charging stations by promoting the installation of chargers in public areas.
- **Offer special EV rates:** Pico Rivera already implements an EV charging, non-tiered electricity rate plan to promote time of use charging. The structure of this rate should be re-evaluated with the increased adoption of electric vehicles.
- **Conduct communication, outreach, and educational events:** Pico Rivera can promote the adoption of electric vehicles through outreach and awareness events, and facilitate public outreach for existing EV programs and offerings.
- **Develop City EV fleets:** Pico Rivera can consider transitioning existing, aging, and retiring fleet vehicles owned by the city to electric vehicles.

Kevala's Network Assessor platform can help identify opportune areas for EV charging, by modeling estimated EV load shapes based on charging patterns, and creating integration and adoption scenarios (e.g., low-high adoption, low-high workplace versus home charging).

4.2 Tools and Strategies for Procurement and Financing

This section of the report describes various tools and strategies that PRIME can choose to undertake that support the integration of local DER opportunities while reducing costs to PRIME and maintaining local benefits to PRIME customers. Specifically, this section analyzes the following:

- Integrated Data Platform
- Rate Design as an Incentive
- Integration with Long Term Planning
- Customer Financing
- Workforce Development
- Virtual Power Plants and Microgrids
- Collaborative Procurement

Integrated Data Platform

Overview

Until recently, it was difficult to gain insight into customer energy usage, by total use (kWh) and by the hour. Often, the lack of this granular data left decision-makers in the dark with regards to identifying targeted strategies. Further, the rise of DERs that are customer-sited and operated limit the visibility LSEs have into the balance of supply and demand on the grid at any time.

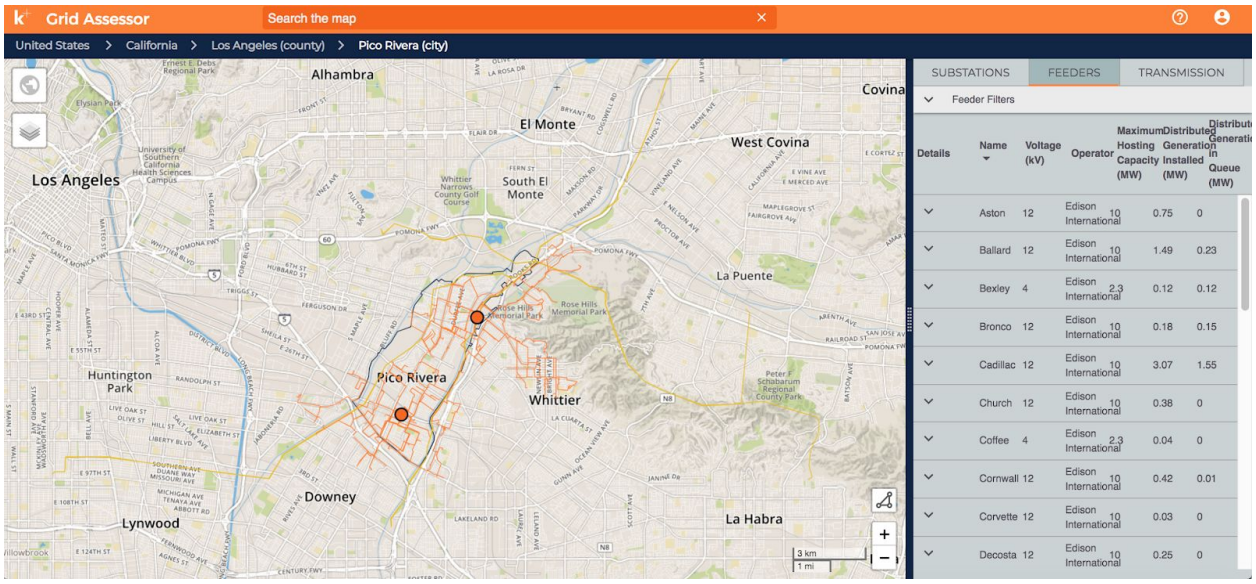
The power of cloud computing and integrated data platforms can allow PRIME to take a closer look at granular energy data and make informed decisions to support the goals of its LDSBP, to the benefit of its diverse customers. The integration of customer data, mapped onto the physical infrastructure of the electric grid and correlated with location-specific and time-variant energy prices, can provide insights to inform decision making.

Understanding and integrating large amounts of localized load and generation data will help PRIME better understand how to target its programmatic offerings to, areas with high opportunity (as defined by cost savings and GHG reduction opportunity) as well as areas that maximize co-benefits (e.g., pairing load with daytime solar generation) and overall, reduce the impact on the distribution grid.

The opportunity at a glance

PRIME used Kevala's Network Assessor Platform to develop the LDSBP. Kevala's Network Assessor is an advanced software platform which integrates load, bulk power, distributed generation resources, distribution infrastructure, system costs, and pricing, and provides intuitive access to easy to understand visual representations of advanced dynamic analysis. Figure 10 shows an example of the Network Assessor's user interface.

Figure 10: Screenshot of PRIME Territory in Network Assessor Platform



The key benefits of using an integrated data platform include:

- Up to date customer, pricing, and grid infrastructure data
- Dynamic analysis, including load modeling, advanced capacity analysis, and storage impact analysis
- Accessible, with optional public-facing features
- Insight into DER integration opportunities at the feeder level, bound by limitations of the physical distribution grid

Actions

Pico Rivera should utilize an integrated data platform that can integrate customer information with sufficient time and location data-specific granularity. This allows decision-makers to better understand and visualize their own customer's load, and identify targeted opportunities to drive further DER integration into its service territory.

At a minimum, an integrated data platform should meet the following minimum specifications:

- Process large volumes of address-specific customer energy consumption and DG production data from disparate sources and infill data gaps through machine learning where needed.
- Produce location-specific hourly load shapes that are associated with local distribution infrastructure.
- Ensure protection and secure handling of customer-confidential and sensitive critical infrastructure data through custom entitlements and anonymization capabilities.
- Provide a cloud-based user interface for displaying geospatial and time-series datasets and analytic results related to DER related impacts to the grid.

Rate Design as an Incentive

Overview

Rate design is a significant tool in the CCA toolbox that allows the entity to both recover costs and better align supply with demand. While CCA customers are not mandated to follow Time-Of-Use (TOU) rates as Investor-Owned Utility (IOU) customers are, PRIME has elected to adopt both residential and commercial TOU rates. TOU rates vary according to the time of day, season, and day type, where higher rates are charged during peak demand hours and lower rates during off-peak demand hours[18].

[18] https://www.cpuc.ca.gov/General.aspx?id=12194#:~:text=Time%2Dof%2Duse%20is%20a,peak%20(low)%20demand%20hours.

The opportunity at a glance

Rates provide a significant mechanism for driving efficiency into the electric grid, lowering overall costs to customers. TOU rates can signal when and how much energy to consume, and when to avoid high-cost electricity. They can also be used to lower distribution and system capacity costs. Traditionally, CCAs have followed the lead of IOU rate structures, but there are many reasons why rate design can provide a mechanism for delivering lower-cost electricity than a utility tariff can allow.

Actions

Pico Rivera should analyze address-specific customer load data to determine which customer classes might benefit from revised rate structures. This analysis should include an assessment of TOU rates that vary from SCE's current TOU, and consider how demand charges can be mitigated by investment in behind the meter storage. To inform this process Pico Rivera should consider the economic benefits of load shifting associated with TOU rates by assessing the aggregated load impacts of such changes based on the delivered cost of power using Locational Marginal Prices (LMP).

Integration with Long-Term Planning

Overview

Long-term procurement of renewable energy resources is required to meet both PRIME's greenhouse gas reduction goals and state clean energy and GHG reduction goals, established by SB 350. While the overarching goal of SB 350 is to achieve a 40% reduction in GHG emissions from 1990 levels by 2030, one near term goal is meeting 65% of RPS obligations via long-term contracts during the Fourth Compliance Period (2021-2024)[19]. In addition, PRIME is required to file an Integrated Resource Plan (IRP) every two years with proposals for incremental procurement, though PRIME can elect to set its procurement goals using its own GHG planning targets, rather than following the state's preferred resources portfolio, otherwise known as the System Reference Plan.

[19] https://www.cpuc.ca.gov/RPS_Procurement_Rules_50/

The opportunity at a glance

The IRP is a planning document that identifies an LSE's energy resource needs, resource mix, customer-side opportunities, opportunity constraints, and long-term procurement plans. This document should guide PRIME in how it procures competitively priced generation, meets statewide RPS standards, general demand, and larger resource adequacy requirements in a manner that meets its own development goals. However, it is noted that the LDSBP is, and should not be, a replacement for developing the IRP. Instead, PRIME should consider how DER-forward strategies, such as the ones promoted in the LDSBP, can reduce expected risks PRIME may expect based on their resource mix.

Actions

As PRIME continues to engage in long term planning and procurement, it should consider how its DER strategies can impact what types of resources it will need to procure. For example, adjusting TOU rates and promoting load-shifting DR and EE programs could reduce PRIME's resource adequacy requirements, while developing local, dispatchable generation assets could reduce overall procurement needs. The impact of these resources should be considered with significant temporal and locational granularity, and in aggregate rather than as individual programs and policies.

Customer Financing

Overview

Many options exist for the financing of Distributed Energy Resources, from on-bill repayment, or Property Assessed Clean Energy (PACE), to group purchasing of renewables, and other options. Collectively, these mechanisms both expand individuals' ability to procure DERs and lower the cost of those DERs, which frequently require higher costs of capital as a result of the credit facilities used to procure them. As PRIME continues to build its credit and capital reserves in the coming years, it should consider using various mechanisms to provide customers with reduced upfront costs of renewable energy.

The opportunity at a glance

Third-party financing options for customers have become popular ways to reduce upfront costs to customers. This report highlights on-bill repayment as a financing option.

On-bill repayment programs are mechanisms that allow customers to pay back loans for upgrades via their existing utility bill, while a third-party program provides the upfront capital for the project. Benefits to on-bill repayment are the streamlined billing processes, and improved access to energy consumption data. This can help project development and right-sizing, given that utilities have already established a relationship with customers.

Actions

In the near term, PRIME can focus on outreach and communication efforts to support third-party financing options for its customers. As PRIME continues to develop its credit rating, it can consider developing in-house customer financing options, including directly supporting on-bill financing programs, which could be tailored to better serve customers within its territory or targeted to specific customer classes. PRIME can develop a financing system whereby the monthly repayment is driven by calculated energy savings rather than on a flat-rate basis.

Workforce Development

Overview

Workforce development references a given geography's ability to enhance the skillsets of workers through education and training, as well as increase the demand for these services. The electricity sector's transition to renewables has seen a significant shift in energy jobs being "green jobs" and, as these renewable technologies get smaller like rooftop solar, these jobs are increasingly "local".

The opportunity at a glance

Pico Rivera has the ability to leverage energy services to support a robust workforce development effort by supporting local businesses that provide services related to energy efficiency, vehicle electrification, and distributed generation as well as collaboratively developing associated trades via job training programs and community colleges. By generating electricity within Pico Rivera the "green jobs" stay local, as do the benefits of increased service trades.

Actions

PRIME should consider evaluating workforce development through:

- Focus on strategies that promote local clean energy development, local economic development, and workforce development where possible. For example, the CCA could strive to use locally-based contractors.
- Focus on energy efficiency programs: By far and away the largest component of green jobs associated with the electricity sector is coming from energy efficiency efforts. Energy efficiency investments rely heavily on building and construction

trades. By focusing Pico Rivera's energy efficiency programs on job-heavy investments, the city can ensure dollars spent generating bill savings also create local economic benefits in the form of local jobs.

- Identify favorable sites for distributed generation: Distributed solar presents Pico Rivera with the ability to make electricity locally, on the parking lots, and roofs of homes and businesses. Not only does the installation of these resources produce jobs, but the servicing does as well.
- Consider partnering with local community colleges to develop job training programs.

Virtual Power Plants and Microgrids

Overview

Virtual Power Plants (VPP) can integrate high amounts of renewable energy by using communications and control software to flexibly ramp up/down specific aggregated DER resources, balancing the grid and integrating with existing wholesale energy resources. These decentralized systems, in a sense, function and generate power by reacting to the same market signals used by traditional generators, and provide additional services such as frequency response. A VPP control center is responsible for scheduling, controlling dispatch signals, and balancing generation produced by each asset.

The key to unlocking the potential for local DERs to act as a "virtual power plant", is the adoption of advanced distribution management systems and communication systems between devices. These types of investments are often made by utilities across a distribution planning area, under the umbrella of grid modernization efforts.

Microgrids are a set of interconnected loads and DERs within a clearly-defined electrical boundary that could act as a single controllable entity. This set area remains connected to the larger grid for both consumption and generation, but also retains the ability to disconnect or island from the larger grid.

Through creating a locally controlled system separate from the larger grid, microgrids can create many of the benefits of local control, including improved operational efficiency, increased reliability, and improved resiliency, particularly during events that impact the larger grid (e.g., outages). For this reason, they have been implemented commonly at hospitals and universities, where access to backup power is critical, but can be developed

for just about any territory or group of buildings. Overall, microgrids are the only strategy available to create total local control of generation, grid management, and consumption.

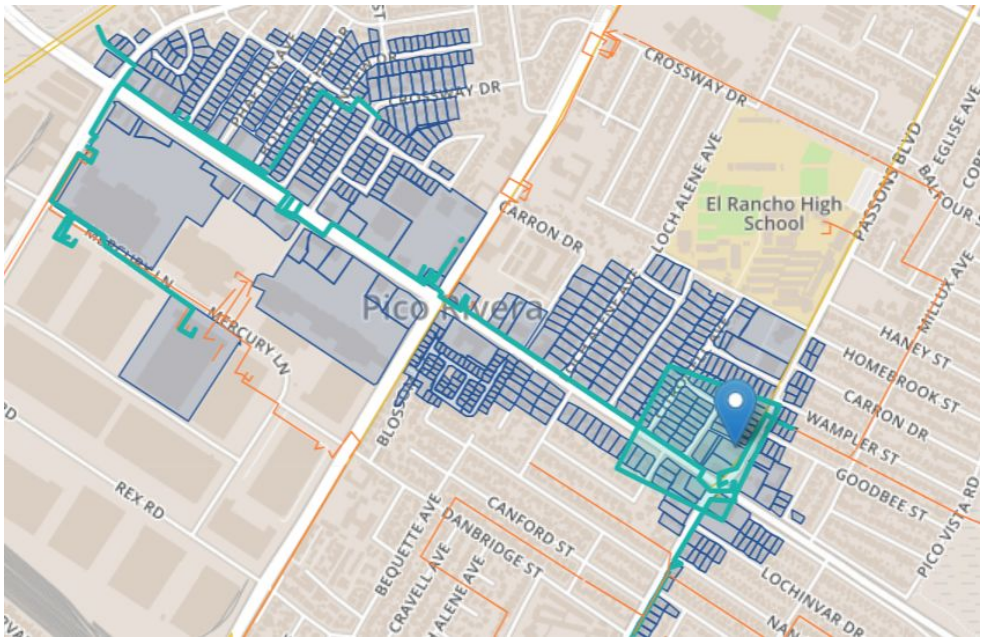
The opportunity at a glance

Considering a VPP strategy is not feasible until there is a significant amount of power generation located in PRIME territory.

Microgrids can be an important strategy in developing opportunities for climate and grid resilience at the local level. PRIME can engage local entities to determine levels of interest and potential participation. The Network Assessor Platform can be used to help evaluate targeted locations where a microgrid may be used to serve local demand, such as to supply a local school. The software platform allows users to click and draw their own custom demand area, visualize local demand and generation within that area, and identify the kW reduction and duration (hours) that a microgrid should be responsive to meet local energy demand.

For example, PRIME could evaluate the potential to develop a microgrid around City Hall and other municipal buildings. As shown in *Figure 11*, Network Assessor can be used to assess aggregated electric demand and evaluate different potential scenarios and resource mixes (e.g., the desire for self-sufficient supply for an 8-hour period using a combination of solar and storage technology).

Figure 11: Example of Microgrid Analysis in Network Assessor Platform



Actions

In addition to identifying potential target areas for microgrids, PRIME should consider applying for eligible grants and pilots alongside SCE and local entities to test advanced distribution management software and communication software.

Collaborative Procurement

Overview

Collaborative procurement of DERs can reduce some of the barriers of adoption (e.g., high transaction costs, patchwork development, complex RFPs, etc.) and aggregate demand to purchase renewable energy at a lower cost and at ideal sites. The powerful yet simple use of economies of scale allows several different customers to develop local projects at a lower administrative and upfront cost than it would have taken to develop independently. Further, collaborative procurement pilot programs offer up a unique opportunity to test alternative ownership structures or rates. Finally, collaborative procurement can be a useful tool to reach more challenging market segments that historically have not been the primary beneficiaries of renewable energy initiatives, such as low income, environmental justice, and disadvantaged communities.

The opportunity at a glance

As a CCA, PRIME can choose whether to participate in an existing collaborative procurement effort or act as the lead entity managing the request for proposal (RFP) process for interested parties who are PRIME customers.

Participating in existing collaborative procurement efforts: By reducing the technical barriers of procurement, this strategy would allow PRIME to minimize staff time dedicated to developing, evaluating, and selecting offers. This strategy is particularly beneficial for smaller jurisdictions, who can leverage additional buying power and economies of scale to reduce the cost of solar. PRIME can also choose to engage with other local municipal entities or CCAs. By collaborating with entities outside of its direct territory, the project itself may or may not be installed directly in PRIME territory.

Leading collaborative procurement: PRIME can act as the lead administrator in developing the RFP and selecting offers for customers in its region. This opportunity would require sufficient administrative and technical staff, time to administer the program, and manage the procurement process. Collaborative procurement can be targeted to specific

customer classes, including commercial buildings, residential neighborhoods, and non-profit or government entities (e.g., schools).

Collaborative procurement has successfully been used by municipalities to procure renewable energy. There are also opportunities now to use collaborative procurement to switch vehicle fleets to EVs, notably the Climate Mayors Electric Vehicle Purchasing Collaborative[20]. Depending on the age and size of the City of Pico Rivera's city-managed vehicles, this could be an additional opportunity for consideration.

Actions

In the near-term, PRIME should evaluate different approaches to collaborative procurement based on administrative feasibility and relationship to LDSBP goals. Additional evaluation should help PRIME determine whether it would prefer to lead on collaborative procurement or follow existing regional efforts. The following are just two examples of successful collaborative procurement models in California, illustrating these two options:

- SF Environment's Solar@Work program provided group purchasing options for solar, aimed at small and medium-sized commercial properties. It partnered with the World Resources Institute to lead the vendor selection and evaluation process. The program resulted in a pre-negotiated standard offer and PPA financing for interested customers at a price of 20% below the average cost of commercial systems. However, the program also required SF Environment to develop a stronger sense of the commercial solar market, existing vendors, and financing options.
- Joint Venture Silicon Valley, a public-private network, established the Silicon Valley Collaborative Renewable Energy Procurement (SV-REP) project to lead collaborative procurement with local municipal governments. In total, nine local governments participated and identified 70 installations across 40 different municipal facilities, totaling 14.40 MW of PV. Participants in the program realized significant savings across installation costs (12% reduction), administrative costs (75-90% reduction), and electricity costs (8% reduction)[21].

[20] https://driveevfleets.org/

[21] Best practices of the SV-REP project can be found at www.jointventure.org/purchasingpower

5. Future Analysis, Implementation, & Refinement

In the near term, Kevala recommends the following actions based on available opportunity and alignment with PRIME's three LDSBP goals: 1) provide cleaner energy, 2) offer affordable and competitive rates, and 3) establish local control and run targeted local programs.

- **Identify collaborative procurement opportunities and strategies that are feasible for PRIME and meet its procurement goals:** As a smaller CCA recently established and building credit worthiness, this strategy increases purchasing power by leveraging economies of scale. Engaging in collaborative procurement alongside other municipalities would allow PRIME to pursue some of its near-term goals while building up technical know-how and administrative staff.
- **Identify appropriate community solar strategies and partners:** Community solar-based ownership and financing models allow PRIME to explore innovative new methods to expand the benefits to broader communities, often reaching customers where barriers to entry are high. As community solar programs can take on many different shapes and forms, PRIME should first consider which customer class or classes they would like to target. It is recommended that PRIME start with one pilot community solar program with engaged project partners, and expand the use of community solar models in the coming years.
- **Expand workforce development and training goals to support local green jobs:** Almost all of the early actions proposed in the LDSBP present an opportunity to increase local clean energy jobs. Workforce development can also be a driver of the early actions chosen by PRIME; for example, PRIME could choose to focus on energy efficiency and building electrification investments rather than transportation electrification investments, because one may provide more immediate work opportunities. PRIME should both communicate workforce training opportunities with known organizations and partners to its customers. PRIME should also consider developing a workforce training program in the future, potentially in partnership with local schools or community organizations.
- **Identify integrated data platform needs and requirements for development:** PRIME can most cost-effectively achieve its clean energy procurement goals while promoting local control and local generation by gaining a comprehensive understanding of its resource mix and consumption at a locational and temporally

granular level. All of the proposed DER-focused early actions have the opportunity to create a more predictable load if deployed correctly or could challenge procurement requirements and exacerbate current trends (steep evening ramp, high capacity needs during summer months) if not properly designed or managed. PRIME should adopt an integrated data platform that allows them to visualize their customer data while exploring scenarios for beneficial DER deployment.

- **Develop solar siting survey:** The popularity of solar has led to a significant boom in local generation in recent years. While there is still capacity for additional solar development on the electric grid, increasing solar generation poses risks in exacerbating the evening "duck curve" ramp. Identifying the best opportunities for solar generation based on existing grid constraints allows PRIME to understand where they can continue to develop local solar generation without incurring higher costs, both for the project developer due to distribution grid upgrades, as well as to PRIME by increasing procurement requirements to meet peak load.
- **Develop solar + storage rate:** Battery storage system costs are reducing rapidly and are currently being deployed at scale for residential and commercial customers. PRIME should consider means to incentivize continued storage adoption through a beneficial solar +storage electricity rate.
- **Support communication and outreach around existing clean energy rebate programs for energy efficiency, solar, and weatherization:** The state of California and the U.S. Department of Energy have developed multiple programs and rebate opportunities, primarily around energy efficiency and weatherization. In addition, third-party financing options for efficiency measures or customer-sited renewable energy, often building upon approved state policies are not well known or understood. Altogether, understanding different financing options and qualification requirements can be complex and challenging. PRIME can serve as a vessel for communications and outreach to its own community, potentially in a more targeted manner.
- **Pursue grant and pilot opportunities with the state and other partners to explore advanced technology adoption:** The primary focus of these opportunities should be on transportation electrification, microgrids, and building electrification. This includes readiness studies and grant-based pilot opportunities.

These measures are identified below in Table 6 with consideration to their impact on LDSBP goals.

Table 6: Recommended Near-Term Measures

Measure	Cleaner Energy	Affordable/ Competitive Rates	Local Control and Local Programs
Identify **collaborative procurement** opportunities and strategies that are feasible for PRIME and meets its procurement goals	✓	✓	✓
Identify appropriate **community solar** strategies and partners	✓	✓	✓
Develop **workforce development** and training goals to support local green jobs, particularly around building electrification and solar installation opportunities			✓
Identify **integrated data platform** needs and requirements for development		✓	✓
Develop **solar siting survey**	✓		✓
Develop **solar + storage** rate	✓	✓	✓
Support **communication and outreach** around existing clean energy rebate programs for energy efficiency, solar, and weatherization	✓		✓
Pursue **grant and pilot opportunities** with the state and other partners to explore advanced technology adoption, particularly focused on building electrification and transportation electrification	✓	✓	✓

Additional analysis using an integrated data platform should be conducted to support additional near-term and long-term efforts, to ensure that actions meet the actual needs of the PRIME territory. This includes understanding the location, duration and magnitude of each need, and then identifying a corresponding DER and strategy to address that need. Finally, these analyses should be balanced with an understanding of PRIME's ability to

administer new programs, develop in-house expertise where needed, and manage cash flow.

Based on the current understanding of PRIME needs, Kevala recommends these actions in the medium-term:

- **Evaluate front-of-the-meter storage needs and opportunities to reduce peak demand:** PRIME should consider how storage can reduce peak demand, what size storage system is appropriate for its needs, and work to procure energy storage resources via a request for offer (RFO) process.
- **Develop a demand response pilot in coordination with grant partners or DER providers:** PRIME should develop a demand response pilot based on the percent of peak load reduction they would like to achieve. This could take the form of either managing customer load, or offering customers an incentive to reduce load at peak hours during the year.
- **Targeted building electrification efforts:** PRIME should use its advantageous relationship and understanding of the local community to target outreach on building electrification efforts, approaching customers it understands will be first-adopters.
- **Municipal fleet electrification:** PRIME should consider the useful life of existing municipal vehicles and use collaborative procurement efforts to switch municipal fleets to electric vehicles.

6. LDSBP Implementation Timeline and Conclusion

The Local Development Business Plan highlights frameworks of thinking and actions that could be taken that support PRIME's three goals of 1) providing cleaner energy, 2) offering affordable and competitive rates, and 3) establishing local control to run targeted local programs, viewed through the lens of growing strong, sustainable, local development.

PRIME has chosen to focus on DER-specific strategies due to the aligned benefits between DERs and local development. This report has focused primarily on what those DER-specific strategies are, and how they can be used to lower GHG emissions by meeting Pico Rivera's specific load requirements while producing local benefits. Achievable near-term, no-regrets strategies have been prioritized, and longer-term strategies that require additional analysis and planning are identified. These should be re-evaluated through an operational lens,

with consideration to administrative needs, customer engagement, and budget as PRIME begins its operations. Implementation requirements and corresponding budget should additionally be tracked annually via progress reports.

The frameworks and DER-specific actions identified in the LDSBP should guide PRIME to develop its programs in a way that meaningfully reduce customer energy bills, while bringing the benefits of clean energy, from improved air quality to increased job opportunities, directly to the territory it serves. As PRIME begins to implement the suggested programs, pilots, and strategies, lessons learned from these initial efforts can further inform future targeted efforts - what type of DER strategy will most successfully address the problem PRIME is trying to solve, and where DERs should be deployed to achieve the greatest benefits.

With its innovative, DER-forward focus, PRIME is truly leading by example as a local agent of change in its community. These strategies not only support the modern evolution of the distribution grid but also bring the realized benefits of clean energy directly to local communities - particularly those who have been impacted historically at a disproportionate rate, from GHG emissions and will likely be further affected as the effects of climate change continue. By strengthening local control, building local programs, and delivering clean energy benefits to the city of Pico Rivera, PRIME is not only providing economic benefits to the community through its targeted engagement but also setting its community up for success in future years.

Glossary of Terms

- **ACA:** advanced capacity analysis
- **AMI:** advanced metering infrastructure
- **BAU:** business-as-usual
- **CAISO:** California Independent Systems Operator
- **CAP:** Climate Action Plan
- **CARB:** California Air Resources Board
- **CCA:** community choice aggregators
- **CEC:** California Energy Commission
- **CPUC:** California Public Utilities Commission
- **C&I:** Commercial & Industrial
- **DER:** Distributed Energy Resource
- **DERM:** Distributed Energy Resource Management
- **DG:** distributed generation
- **DR:** demand response
- **DRPs:** demand response providers
- **EE:** energy efficiency
- **EV:** electric vehicles
- **GHG:** greenhouse gases
- **HDV:** heavy-duty vehicle
- **HVAC:** heating, ventilation, and air conditioning
- **ICE:** internal combustion engine
- **IOU:** Investor-Owned Utility
- **IRP:** Integrated Resources Plan
- **LDSBP:** Local Development and Sustainability Business Plan
- **LDV:** light-duty vehicle
- **LSE:** load-serving entities

- **LMP:** locational marginal price
- **PACE:** property-assessed clean energy
- **PM:** particulate matter
- **PV:** photovoltaic
- **PRIME:** Pico Rivera Innovative Municipal Energy
- **RA:** resource adequacy
- **RPS:** renewable portfolio standard
- **SB:** Senate Bill
- **SCE:** Southern California Edison
- **TOU:** time-of-use
- **VPP:** Virtual Power Plant
- **ZNE:** zero net energy

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