

COUNTY OF SANTA BARBARA
GENERAL SERVICES

Santa Barbara County

Energy Efficiency and Renewable Energy Update

September 12, 2023





Presentation Summary

- Electricity Providers and Distribution
- Energy Performance
- Solar Infrastructure
- Funding and Maintenance
- Next Steps

ELECTRICITY PROVIDERS & DISTRIBUTION





County of Santa Barbara

In addition to self-generation, The County of Santa Barbara procures electricity from five sources: Southern California Edison, Pacific Gas and Electric, Santa Barbara Clean Power, Central Coast Community Energy, and Lompoc Electric. Electricity used by County facilities is generated from a variety of sources to include: Natural Gas, Hydroelectric, Nuclear, Wind, and Solar.



ELECTRICITY PROVIDERS

Renewable Energy Portfolio

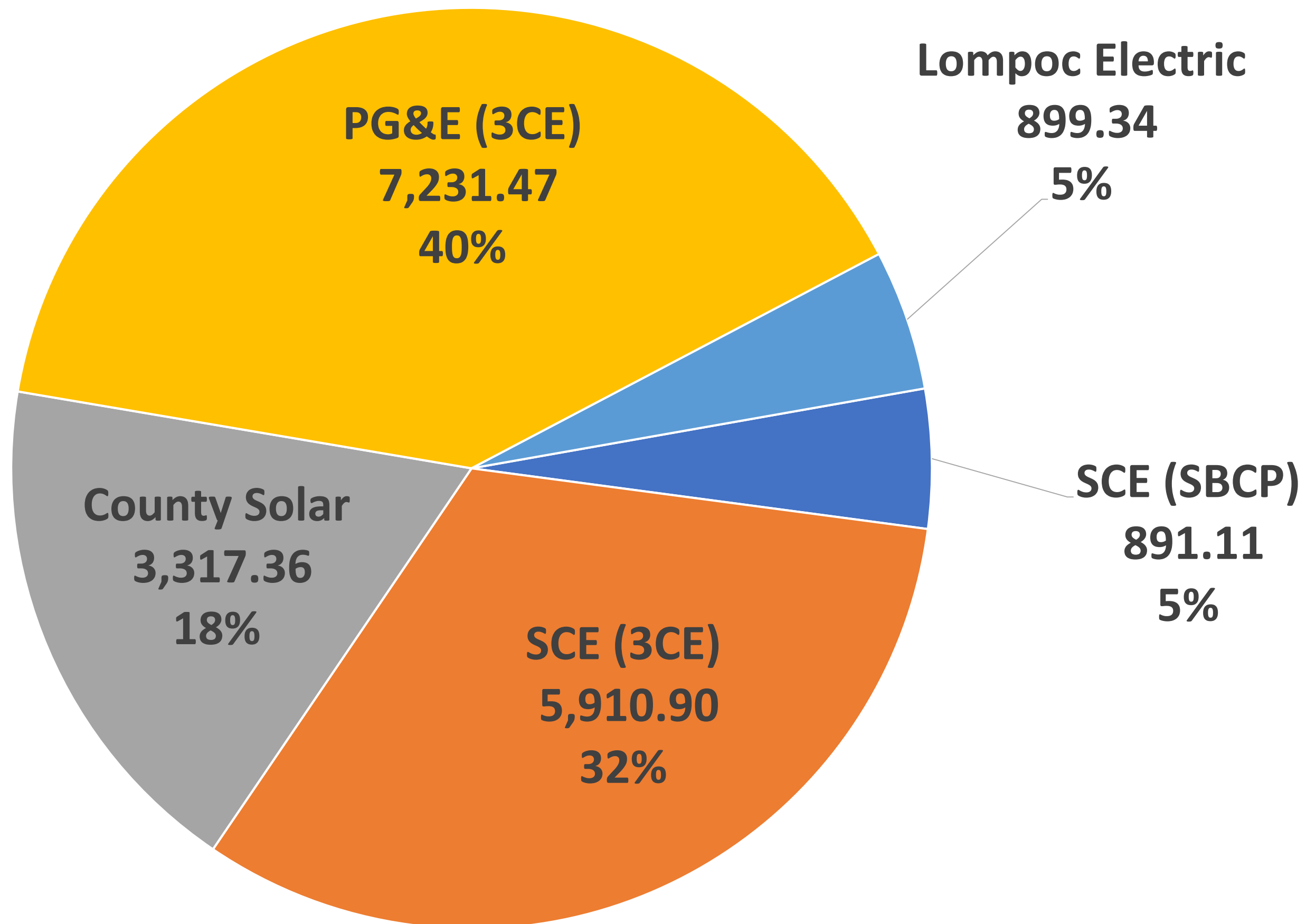
1. Central Coast Community Energy (SCE and PG&E)
 - 40% Renewable (currently selected)
 - 100% Renewable (optional)
2. SB Clean Power (SCE)
 - 100% Renewable
3. Lompoc Electric
 - 35% Renewable

In total, County of Santa Barbara's electricity portfolio is made up of 53% renewable energy. Lompoc currently does not have a community choice energy program available.



COUNTY ELECTRICITY PROFILE

2023 Electricity Breakdown (Mega-watt Hours):

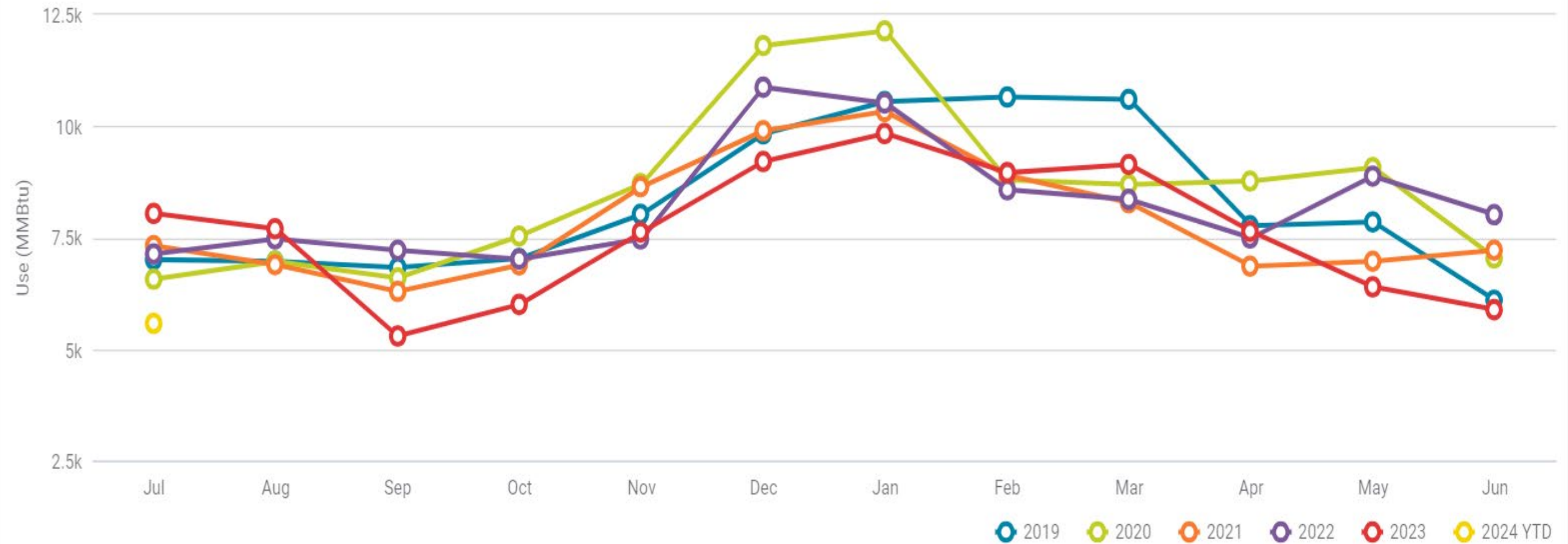


ENERGY PERFORMANCE



ENERGY MONITORING

County of Santa Barbara - Monthly Energy Use (Electricity + Natural Gas) ⓘ



Fiscal Years 2019-2024 (Calendarized Data) ⓘ

[Energy Dashboard | Santa Barbara County, CA - Official Website \(countyofsb.org\)](https://www.countyofsb.org/3975/Energy-Dashboard)

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ENERGY EFFICIENCY

- LED Lighting @ Betteravia Campus (complete)
- LED Lighting @ Foster Road Campus (in development)
- Annual Energy Efficiency Program (HVAC, Controls)
- Heat Pumps for Water Heating and Air Conditioning
- Building Energy Management Systems (BEMS)



ZERO NET ENERGY (ZNE) FACILITIES

ZNE Def: Facilities that produce 100% of the power consumed with on-site generation

- New Cuyama Fire Station (27)
 - 59 kW Solar Array
- Regional Fire Communications Center
 - 286 kW Solar Array, 373 kWh Battery
- Probation Headquarters
 - 260 kW Solar Array, 372 kWh Battery
- Next: Continue trend on new facilities and focus on existing buildings



SOLAR INFRASTRUCTURE



PAST, PRESENT, FUTURE

Existing Projects

- 7 Locations
- 3.13 Mega Watts*

Developing & Funded Projects

- 4 Locations
- 1.52 Mega Watts

Unfunded Potential Projects

- 10 Locations
- 4.53 Mega Watts

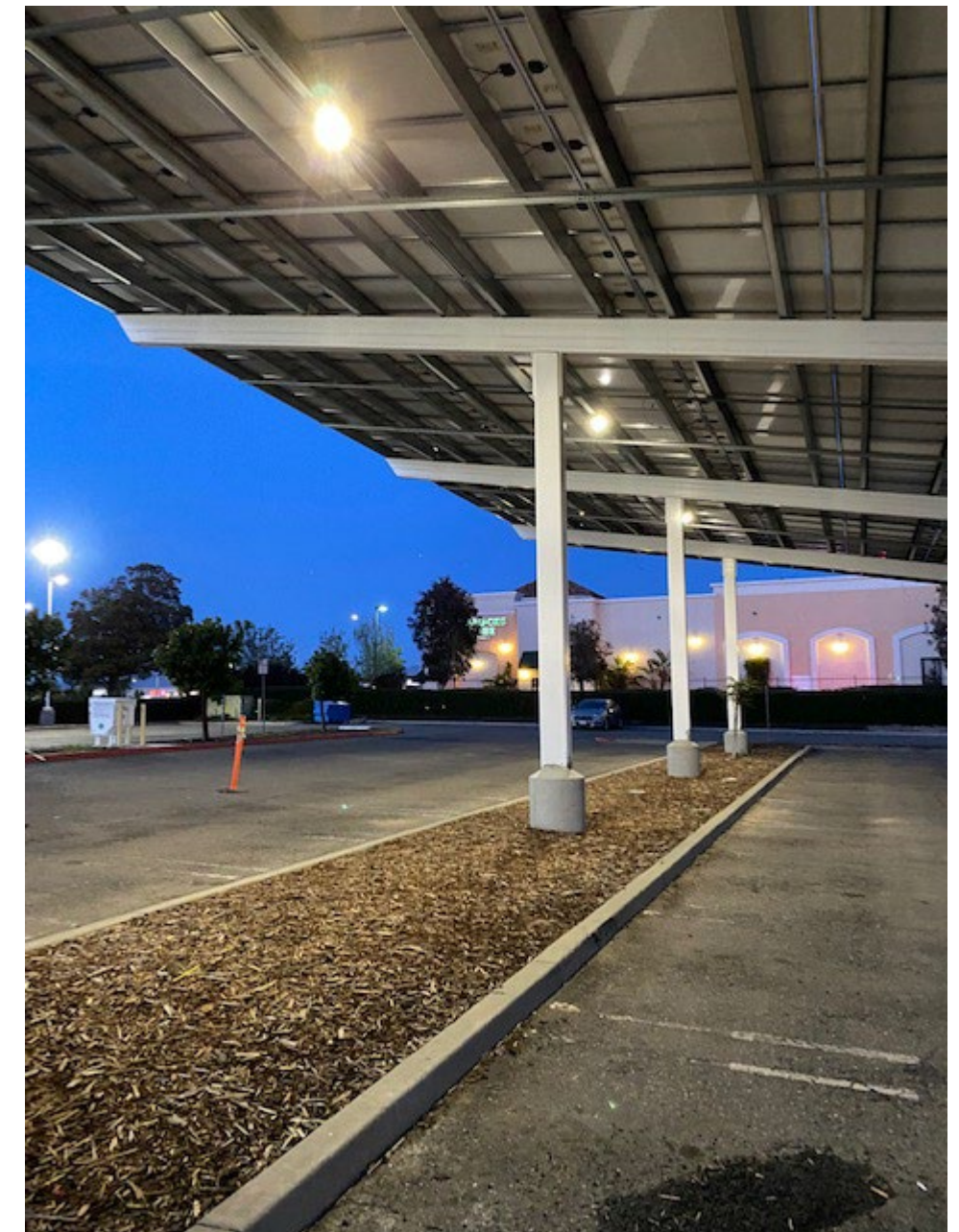
Potential Future Site Acquisition

- 6-8 Mega Watts



BETTERAVIA SOLAR MICROGRID

- Project designed to meet 100% of existing electrical load
- 950 kW Solar Array
 - 1,680 MWh estimated annual production
 - \$415,000 annual savings @ \$0.25 per kWh
 - 8.5 year simple payback
- 820 kWhr Battery Energy Storage System
- Construction and commissioning completion October 2023
- Interconnection agreement pending final review (PG&E)



POTENTIAL FUTURE SOLAR INFRASTRUCTURE

Project Description	Solar Array Size (MW)	Battery Size (MW)	Est. Total Cost (\$M)	NEM 2.0 Application
Foster Road Campus	0.66	1	\$4.9M	Yes
Calle Real Campus (expansion)	1.17	2	\$7.75M	Yes
Northern Branch Jail	0.96	1	\$7M	Yes
Cachuma Lake	0.42	0.5	\$3.75M	Yes
Downtown Campus	1	1	\$6.5M	Yes
Schwartz Building	0.05	0.15	\$0.48M	Yes
SB Animal Shelter	0.08	0.32	\$0.87M	No
Waller Park Grounds	0.07	0.2	\$0.87M	Yes
NC Swimming Pool & Library	0.06	0.26	\$0.7M	No
Burton Mesa Public Safety	0.06	0.25	\$0.7M	Yes
Total	4.53	5.97	\$31M	

Cost Assumptions:

\$3.85 / Watt installed ground-mounted system

\$4.75 / Watt installed carport system

\$1,500 / kW installed battery

\$250,000 additional unforeseen costs

FUNDING AND MAINTENANCE

FUNDING SOURCES

- County Funded
 - California Energy Commission 1% Loan
 - Self-Generation Incentive Program (SGIP)
 - General Fund
- Power Purchase Agreement
 - Third-party developer installs, owns, and operates system
 - Includes maintenance and performance guarantee
- Internal Service Fund
 - Ground and structure maintenance
 - Inverter replacements, rodent control, monitoring systems, etc.

NEXT STEPS

NEXT STEPS

- Develop strategy roadmap
- County will release an RFQ for qualified contractors
 - Due diligence on all forms of financing and ownership structures
 - Utilization of Investment Tax Credit via Inflation Reduction Act
- Possible future site acquisition with potential for 6 – 8 MW microgrid
- Build internal capacity (annual budget and staff) to be able to manage the program effectively



KEY CONSIDERATIONS

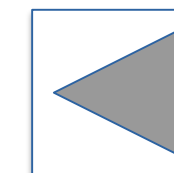
- Collaborations with Sustainability Division and other Departments
 - Energy Assurance Plan
 - Strategic Energy Plan
 - Climate Action Plan
- Selecting fiscally responsible funding mechanisms utilizing Net Present Value calculations for decision-making
- Additional funding to support energy efficiency projects
 - \$500,000 - \$1M annually
- Additional staff to support the Energy Division



THANK YOU



SOLAR INFRASTRUCTURE



Existing

<u>Site</u>	<u>MW</u>
Calle Real Campus	1
PW Foster Road	0.01
IV Parking Lot	0.02
EOC	0.04
Fire Station 27	0.05
Tajiguas Landfill*	1
Laguna Sanitation*	1
TOTAL	3.13

Developing & Funded

<u>Site</u>	<u>MW</u>
Fire Station 12	0.027
Betteravia	0.95
Regional Fire Comms Center	0.286
Probation HQ	0.26
TOTAL	1.52

Potential Future (NEM 2.0)

<u>Site</u>	<u>MW</u>
Foster Road	0.66
Calle Real Exp	1.17
N. Branch Jail	0.96
Lake Cachuma	1
Schwartz	0.4
Downtown SB	0.04
Waller Park	0.06
Burton Mesa	0.06
TOTAL	4.38

POWER PURCHASE AGREEMENTS

- Pros:
 - No capital expenditure
 - Guaranteed electricity production
 - Predictable future costs
 - No ongoing maintenance costs
 - Option for ownership or de-commissioning
- Cons
 - Forfeit some financial value
 - Not a county asset
 - Complicated contracts



LED LIGHTING @ FOSTER ROAD CAMPUS

- 12 Facilities
- Includes Lighting Control System
- \$1.34 M project cost
 - On-Bill Financing
 - Energy Efficiency Block Grant
- \$100,000 annual electricity savings (year 1)
- 11 year simple payback (excluding controls)
- \$375,000 Net Present Value



Cost Assumptions:

\$3.85 / Watt installed ground-mounted system

\$4.75 / Watt installed carport system

\$1,500 / kW installed battery

\$250,000 additional unforeseen costs

FUTURE SOLAR INFRASTRUCTURE

Project Description	Solar Array Size (MW)	Battery Size (MW)	Est. Solar Cost (\$M)	Est. Battery Cost (\$M)	Est. Total Cost (\$M)	Total Simple Payback (Yrs)	Solar Simple Payback (Yrs)	NEM 2.0 Application
Foster Road Campus - carports and/or ground-mount)	0.660	1.000	1.5M	1.5M	4.9M	14	9	Yes
Calle Real Campus (Expansion) - ground mount solar array	1.170	2.000	3M	3M	7.75M	18	11	Yes
Northern Branch Jail - ground-mount solar array	0.960	1.000	1.5M	1.5M	7M	13	11	Yes
Cachuma Lake - carports and/or ground-mount	0.420	0.500	0.75M	0.75M	3.75M	25	20	Yes
Downtown Campus - carports and/or rooftops	1.000	1.000	1.5M	1.5M	6.5M	18	14	Yes
Schwartz Building - solar carports	0.048	0.150	0.263M	0.225M	0.48M	28	15	Yes
SB Animal Shelter - rooftop and carport	0.079	0.315	0.4M	0.475M	0.87M	31	14	No
Waller Park Grounds - ground-mount solar array	0.066	0.200	0.56M	0.3M	0.87M	24	16	Yes
New Cuyama Swimming Pool and Library - solar carport	0.064	0.255	0.33M	0.38M	0.7M	20	9	No
Burton Mesa Public Safety - carport/rooftop system	0.063	0.250	0.32M	0.375M	0.7M	21	10	Yes
Totals/Averages	4.34	5.97	22.2M	9M	31M	21	13	