

**Peninsula Advanced Energy Community
(PAEC)**
**Task 3.2: Final Lending, Customer Compensation,
and Government Incentive Report**

*Strategies and Incentives Available to Advanced
Energy Communities
In and Around San Mateo County, California*

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November, 2017

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About the Authors

High Noon Advisors

High Noon Advisors is an advisory firm focused on the rapidly evolving Clean Tech space with a particular focus on the solar/renewable energy industry, storage, energy efficiency, finance, analytics, and renewable project development that benefits disadvantaged communities.

Services include corporate fundraising, tax equity placement, commercial and utility-scale solar and microgrid project deployment, project fund structuring, residential fund development, market entry analysis, go-to-market strategy, community energy deployment and government and non-profit initiative design.

Clean Coalition

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise.

The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources (DER)—such as local renewables, advanced inverters, demand response, and energy storage—and we establish market mechanisms that realize the full potential of integrating these solutions. The Clean Coalition also collaborates with utilities and municipalities to create near-term deployment opportunities that prove the technical and financial viability of local renewables and other DER.

Visit us online at www.clean-coalition.org

Legal Disclaimer

This document was prepared as a result of work sponsored by the California Energy Commission. It does not necessarily represent the views of the Energy Commission, its employees, or the State of California. Neither the Commission, the State of California, nor the Commission's employees, contractors, nor subcontractors makes any warranty, express or implied, or assumes any legal liability for the information in this document; nor does any party represent that the use of this information will not infringe upon privately owned rights. This document has not been approved or disapproved by the Commission, nor has the Commission passed upon the accuracy of the information in this document.

I. Introduction

The Clean Coalition's Peninsula Advanced Energy Community (PAEC), supported by numerous local governments and PG&E, will accelerate the planning, approval, and deployment of an Advanced Energy Community (AEC) within a diverse community in the southern portion of San Mateo County. The core PAEC region encompasses the cities of Atherton, East Palo Alto, Menlo Park, and Redwood City as well as surrounding unincorporated areas. The PAEC region -largely built-out yet also experiencing enormous commercial and residential growth pressure - is representative of similar regions throughout California, ensuring that the PAEC's success can be replicated statewide. The PAEC project will include the key components necessary to define an AEC: abundant solar electricity, energy storage, and other Distributed Energy Resources (DER,) low or zero net energy (ZNE) buildings, Solar Emergency Microgrids (SEM) for power management and islanding of critical loads during outages, and charging infrastructure to support the rapid growth in electric vehicles.

AEC projects can provide significant energy, environmental, economic, and security benefits, but significant barriers too often impede their planning and deployment. Finding viable sites, securing project financing, and connecting AEC projects to the grid all represent significant challenges. The PAEC project is designed to overcome these barriers and establish a replicable model that can be used by other communities across California and beyond. The results of the PAEC will inform future action by policymakers, municipalities and other governmental agencies, utility executives, and other relevant audiences.

II. Overview

It is challenging for local organizations and individuals to stay abreast of all of the different kinds of energy-related financial assistance and programs are available to them and their local community. It is increasingly important to understand what these programs offer as local initiatives to create Advanced Energy Communities (AECs) now aim to go beyond simply installing solar panels and look to take a more strategic approach to address multiple objectives such as local electricity resiliency, pollution and greenhouse gas reduction related to transportation, and local distributed energy resource optimization.

This report provides relevant information regarding 34 currently available government incentives and lending strategies/programs related to AECs in and around San Mateo County, California. The primary purpose is to provide information on the following topics:

- Government incentives (and disincentives) for renewable energy, energy storage, energy efficiency, electric vehicle charging infrastructure (EVCI), and deployment, and also how they relate to and support AECs, particularly ones under the following jurisdictions:

- Federal
- State of California
- San Mateo County, CA (within zip code 94002)
- Local lending enhancement strategies/programs and how they relate to and support AECs, particularly:
 - Loan collateral and repayment support risk reduction strategies such as the PACE program
 - Public capitalization and financing cost reduction strategies (i.e. green bonds)
 - Customer aggregation for reduced cost and simplified loan qualification

Table 1: Number of Incentives and Local Enhancement Lending Strategies/Programs Available by Type and Source

	A. Multi-focused*	B. Renewables	C. Efficiency	D. Electric Vehicles
Federal gov't	9	1	3	1
State gov't / Utility	4	3	6	1
Strategy & Other	4	1	0	1

*The “Multi-focused” Category includes all incentives that apply to more than just one of the other categories.

The following table summarizes the details that will follow for each program in the next section.

Table 2: Summary of Incentive Programs

Incentive	Provider	Applies to	Form	Technologies	Restrictions
#1 FHA Power Saver Loan Program	Fed FHA	Residential, Low Income Residential	Loan	Renewable generation, efficiency measures	Restricted lender list
#2 Qualified Energy Conservation Bonds (QECBs)	Fed	Local, state, tribal governments	Bond	Renewable generation	Tax credit at 70% of full rate set by Treasury
#3 Clean Renewable Energy Bonds (CREBs)	Fed	Local, state, tribal governments	Bond	Renewable generation	Tax credits are taxable income to bond holder

Incentive	Provider	Applies to	Form	Technologies	Restrictions
#4 Residential Renewable Energy Tax Credit	Fed IRS	Residential	Tax Credit	PV, solar thermal, fuel cells	Owner occupied, credit varies
#5 – DoE Loan Guarantee Program	Fed DoE	Commercial, Industrial, Local Government, Nonprofit, Schools, State Government, Agricultural, Institutional	Loan guarantee	High technology risks that "avoid, reduce or sequester air pollutants or anthropogenic emissions of greenhouse gases." Encourages early adopters	Does not support research
#6 Business Energy Investment Tax Credit (ITC)	Fed IRS	Commercial, Industrial, Investor-Owned Utility, Cooperative Utilities, Agricultural	Tax credit	Any renewable generation source	Generally 10-30% of expenditures with no limit given
#7 Industrial Assessment Center (IAC)	SFSU for Fed programs	Small- and medium-scale industrial & municipal facilities	Efficiency assessment at no cost	Efficiency	150 miles from campus
#8 Weatherization Assistance Program (WAP)	Fed administered through states	Tribal gov, Residence (low income)	Grant	Efficiency items	Limits on amount per single residence
#9 ENERGY STAR Guidelines for Energy Management	Fed EPA	Businesses	Assistance in finding programs	Efficiency	

Incentive	Provider	Applies to	Form	Technologies	Restrictions
#10 Renewable Market Adjusting Tariff (ReMAT)	State	Any	FIT	Renewable generation	Bioenergy program is separate
#11 School Facility Program - Modernization	State	School districts	Grants	Many	40% local contribution. Older buildings
#12 California IBank Green Bond	State	Water Resources Board	Bonds	Water infrastructure projects	
#13 SGIP Storage, Wind, CHP & Fuel Cell	State	Any	Incentives	Many. New emphasis on energy storage	Fixed sized steps limiting total pot size
#14 HERO (a residential PACE Program)	Other	Residential	Property tax assessment	Generation, heat, efficiency	Upper limits of loan amount
#15 California FIRST (a non-residential PACE program)	Other	Commercial, Industrial, Agricultural, Multifamily Residential	Property tax assessment	Generation, heat, efficiency	Current on all obligations
#16 Customer Purchasing Aggregation Strategy (ex. Solarize)	Other	Homeowners, businesses	Collective bargaining to reduce project costs	Any	Time spent to organize participants and negotiate
#17 On-Bill Financing Strategy (ex. PG&E)	PG&E	Business customers	On-bill financing, zero interest	Efficiency	No separate loan statement
#18 Modified Accelerated Cost-Recovery System (MACRS)	Fed IRS	Commercial, Industrial, Agricultural	Depreciation deduction. Bonus may apply	Efficiency and Generation	Eligibility requirements

Incentive	Provider	Applies to	Form	Technologies	Restrictions
#19 Property Tax Exclusion for Solar Energy Systems	State BoE, county	Residential	Property tax exclusion	Heating, generation	Pools and hot tubs excluded
#20 New Solar Homes Partnership	State CEC	Residential - new	Incentive payment	PV	New homes
#21 Solar Initiative - Single-Family Affordable Solar Housing (SASH) Program	State	Residential	Financial assistance	PV	Efficiency improvement must precede PV installation. CEC certified equipment.
#22 Net Metering	Other	All	Tariff	Generation	Must be on ToU rate
#23 Energy Conservation Subsidy Exclusion	Fed IRS	Personal and corporate	Impact on basis for depreciation	Efficiency, heat, generation	Basis reduced by other subsidies
#24 Energy-Efficient Mortgages	Fed – several, private lenders	Residential	Mortgage	Efficiency, heat, generation	\$8k max can be exceeded
#25 Fannie Mae Green Initiative- Loan Program	Fed Fannie Mae	Multifamily Residential	Mortgage rate reduction	Efficiency, envelope improvement, appliances	5 or more units
#26 Multi-Family Residential Energy Efficiency Rebates	PG&E	Multifamily Residential	Rebates	Appliances, pumps, motors, lighting	Energy Star ratings needed. Each is different
#27 Non-Residential Energy Efficiency Financing Program	PG&E	Non-residential	Loans, 0%	Efficiency and equipment	Business: \$5-100K Gov agencies: \$5-250k per meter

Incentive	Provider	Applies to	Form	Technologies	Restrictions
#28 Energy Efficiency Financing for Public Sector Projects	State CEC	Cities, counties, public care institutions, public hospitals, public schools and colleges, and special districts	Loans, low interest	Efficiency	Loan term less than useful life of equipment. Max \$3M. Savings should cover loan payment.
#29 Single Family Residential Energy Efficiency Rebate Program	PG&E	Residential	Incentives	Clothes Washers, Water Heaters, Motors, Pool Pumps	Energy Star ratings needed. Each is different
#30 Energy Upgrade California	State, but managed by local utilities	Residential	Matches homeowner to contractors, find all incentives	Efficiency	n/a
#31 PG&E - Multi-Family Residential Energy Efficiency Rebate Program	PG&E	Multifamily Residential	Rebate – 1 st for assessment then for upgrade performance	Clothes Washers, Refrigerators/ Freezers, Water Heaters, Lighting, Furnaces, Boilers, Motor VFDs, Pool Pumps, LED Lighting	Energy Star ratings needed. Each is different
#32 Electric Vehicle Tax Credit	Fed IRS	EV	Tax Credit up to \$7500	BEV and PHEV	Phases out to 50% of credit when manufacturer vehicles sold reaches 200k

Incentive	Provider	Applies to	Form	Technologies	Restrictions
#33 EV Rebates	State, PG&E	EV	Rebate and clean air decals. EV charging rates	BEV, PHEV, NEV and electric motorcycles	
#34 Strategy: Charging Station Infrastructure	NRG EVgo	EV charging at apartments and workplaces	Charging stations, management, loans. Possible rebates.	EV	\$500k max loan

A. Multi-Focused Incentives & Local Enhancement Lending Strategies/Programs

#1 Multi-Focus - Federal Gov't: FHA PowerSaver Loan Program

Item	Info
Web Site	www.benefits.gov/benefits/benefit-details/5877
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Photovoltaics, Wind (All), Geothermal Heat Pumps
Eligible Efficiency Technologies	Water Heaters, Furnaces, Air conditioners, Programmable Thermostats, Energy Mgmt. Systems/Building Controls, Caulking/Weather-stripping, Building Insulation, Windows, Doors, Comprehensive Measures/Whole Building
Applicable Sectors	Residential, Low Income Residential
Maximum Loan	PowerSaver Home Energy Upgrade -\$7,500; PowerSaver Second Mortgage \$25,000; PowerSaver Energy Rehab (203(k)); varies by location (up to \$217,500 to \$625,000)
Loan Term	Maximum of 20 years
Interest Rate	4.99% to 9.99%

Federal Housing Administration (FHA) through its PowerSaver loan program offers three financing options for homeowners to make energy efficiency and renewable energy upgrades in their residences. For all three PowerSaver products, borrowers must select from a list of approved PowerSaver lenders.

#2 Multi-Focus - Federal Gov't: Qualified Energy Conservation Bonds (QECBs)

Item	Info
Web Site	www.energy.gov/eere/slsc/qualified-energy-conservation-bonds
Eligible Renewable/Other Technologies	Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Municipal Solid Waste, Landfill Gas, Tidal, Wave, Ocean Thermal, Anaerobic Digestion
Eligible Efficiency Technologies	Yes; specific technologies not identified
Applicable Sectors	Local Government, State Government, Tribal Government

With tax credit bonds, generally the borrower who issues the bond pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the

traditional bond interest. The tax credit may be taken quarterly to offset the tax liability of the bondholder. The tax credit rate is set daily by the U.S. Treasury Department; however, energy conservation bondholders will receive only 70% of the full rate set by the Treasury Department under 26 USC § 54A. In contrast to CREBs, QECBs are not subject to a U.S. Department of Treasury application and approval process. Renewable energy facilities that are eligible for CREBs are also eligible for QECBs.

#3 Multi-Focus - Federal Gov't: Clean Renewable Energy Bonds (CREBs)

Item	Info
Web Site	www.irs.gov/tax-exempt-bonds/new-clean-renewable-energy-bonds-faqs
Eligible Renewable/Other Technologies	Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Municipal Solid Waste, Landfill Gas, Tidal, Wave, Ocean Thermal, Anaerobic Digestion
Applicable Sectors	Local Government, Schools, State Government, Tribal Government

Clean renewable energy bonds (CREBs) may be used by certain entities -- primarily in the public sector -- to finance renewable energy projects. The list of qualifying technologies is generally the same as that used for the federal renewable energy production tax credit (PTC). CREBs may be issued by electric cooperatives, government entities (states, cities, counties, territories, Indian tribal governments or any political subdivision thereof), and by certain lenders. The bondholder receives federal tax credits in lieu of a portion of the traditional bond interest, resulting in a lower effective interest rate for the borrower.* The issuer remains responsible for repaying the principal on the bond. Participation in the program is limited by the volume of bonds allocated by Congress for the program. The tax credit rate is set daily by the U.S. Treasury Department. CREBs differ from traditional tax-exempt bonds in that the tax credits issued through CREBs are treated as taxable income for the bondholder.

#4 Multi-Focus - Federal Gov't: Residential Renewable Energy Tax Credit

Item	Info
Web Site	www.energystar.gov/taxcredits
Expiration Date	12/31/21 for solar technologies; 12/31/16 for all other technologies
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Photovoltaics
Applicable Sectors	Residential
Incentive Amount	30%

A taxpayer may claim a credit of 30% of qualified expenditures for a system that serves a dwelling unit located in the United States that is owned and used as a residence by the taxpayer. Expenditures with respect to the equipment are treated as made when the installation is completed. If the federal tax credit exceeds tax liability, the excess amount

may be carried forward to the succeeding taxable year. The maximum allowable credit, equipment requirements and other details vary by technology, as outlined below.

Solar electric and solar thermal:

- 30% for systems placed in service by December 31, 2019
- 26% for systems placed in service after December 31, 2019 and before January 01, 2021
- 22% for systems placed in service after 12/31/2020 and before January 01, 2022
- There is no maximum credit for systems placed in service after 2008
- Systems must be placed in service on or after January 1, 2006, and on or before December 31, 2021
- The home served by the system does not have to be the taxpayer’s principal residence

Fuel cell property:

- For systems installed in 2017: Not eligible
- The maximum credit is \$500 per half kilowatt (kW)
- Systems must be placed in service on or after January 1, 2006, and on or before December 31, 2016

The fuel cell must have a nameplate capacity of at least 0.5 kW of electricity using an electrochemical process and an electricity-only generation efficiency greater than 30%. In case of joint occupancy, the maximum qualifying costs that can be taken into account by all occupants for figuring the credit is \$1,667 per 0.5 kW. This does not apply to married individuals filing a joint return. The credit that may be claimed by each individual is proportional to the costs he or she paid.

The home served by the system must be the taxpayer’s principal residence.

#5 Multi-Focus - Federal Gov’t: U.S. Department of Energy - Loan Guarantee Program

Item	Info
Web Site	www.energy.gov/lpo/loan-programs-office
Eligible Renewable/Other Technologies	Geothermal Electric, Solar Thermal Electric, Solar Thermal Process Heat, Solar Photovoltaics, Wind (All), Biomass, Hydroelectric, Fuel Cells using Non-Renewable Fuels, Landfill Gas, Tidal, Wave, Ocean Thermal, Daylighting, Fuel Cells using Renewable Fuels
Eligible Efficiency Technologies	Yes; specific technologies not identified
Applicable Sectors	Commercial, Industrial, Local Government, Nonprofit, Schools, State Government, Agricultural, Institutional

Under Section 1703, the Department of Energy (DOE) is authorized to issue loan guarantees for projects with high technology risks that "avoid, reduce or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued." Loan guarantees are intended to encourage early commercial use of new or significantly improved technologies in energy projects. The loan guarantee program generally does not support research and development projects. Loan guarantees are provided in response to open solicitations.

#6 Multi-Focus - Federal Gov't: Business Energy Investment Tax Credit (ITC)

Item	Info
Website	www.irs.gov
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Space Heat, Geothermal Electric, Solar Thermal Electric, Solar Thermal Process Heat, Solar Photovoltaics, Wind (All), Geothermal Heat Pumps, Municipal Solid Waste, Combined Heat & Power, Fuel Cells using Non-Renewable Fuels, Tidal, Wind (Small), Geothermal Direct-Use, Fuel Cells using Renewable Fuels, Microturbines
Applicable Sectors	Commercial, Industrial, Investor-Owned Utility, Cooperative Utilities, Agricultural
Incentive Amount	30% for solar, fuel cells, wind & 10% for geothermal, microturbines and CHP

Solar Technologies: Eligible solar energy property includes equipment that uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat. Hybrid solar lighting systems, which use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, are eligible. Passive solar systems and solar pool-heating systems are not eligible.

Fuel Cells: The credit is equal to 30% of expenditures, with no maximum credit. However, the credit for fuel cells is capped at \$1,500 per 0.5 kilowatt (kW) of capacity. Eligible property includes fuel cells with a minimum capacity of 0.5 kW that have an electricity-only generation efficiency of 30% or higher.

Small Wind Turbines: The credit is equal to 30% of expenditures, with no maximum credit for small wind turbines placed in service after December 31, 2008. Eligible small wind property includes wind turbines up to 100 kW in capacity. (In general, the maximum credit is \$4,000 for eligible property placed in service after October 3, 2008, and before January 1, 2009. The American Recovery and Reinvestment Act of 2009 removed the \$4,000 maximum credit limit for small wind turbines.) Small wind turbines must meet the

performance and quality standards set forth by either the American Wind Energy Association Small Wind Turbine Performance and Safety Standard 9.1-2009 (AWEA), or the International Electrotechnical Commission 61400-1, 61400-12, and 61400-11 (IEC)

Geothermal Systems: The credit is equal to 10% of expenditures, with no maximum credit limit stated. Eligible geothermal energy property includes geothermal heat pumps and equipment used to produce, distribute or use energy derived from a geothermal deposit. For electricity produced by geothermal power, equipment qualifies only up to, but not including, the electric transmission stage. For geothermal heat pumps, this credit applies to eligible property placed in service after October 3, 2008. Note that the credit for geothermal property, with the exception of geothermal heat pumps, has no stated expiration date.

Microturbines: The credit is equal to 10% of expenditures, with no maximum credit limit stated (explicitly). The credit for microturbines is capped at \$200 per kW of capacity. Eligible property includes microturbines up to two megawatts (MW) in capacity that have an electricity-only generation efficiency of 26% or higher.

Combined Heat and Power (CHP): The credit is equal to 10% of expenditures, with no maximum limit stated. Eligible CHP property generally includes systems up to 50 MW in capacity that exceed 60% energy efficiency, subject to certain limitations and reductions for large systems. See the note at the bottom of this page for more details. The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the credit may be reduced for less-efficient systems. This credit applies to eligible property placed in service after October 3, 2008.

#7 Multi-Focus - Federal Gov't: U.S. Department of Energy - Industrial Assessment Center (IAC): San Francisco State University

Item	Info
Web Site	www.sfsu.edu/~iac/index.html

The San Francisco State University Industrial Assessment Center (IAC) provides plant assessments at no cost to eligible small- and mid-sized manufacturers within about 150 miles of its campus.

#8 Multi-Focus - Federal Gov't: Weatherization Assistance Program (WAP)

Item	Info
Web Site	www.energy.gov/eere/wipo/weatherization-assistance-program
Eligible Efficiency Technologies	Furnaces, Heat pumps, Air conditioners, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Doors, Other EE, Insulation
Applicable Sectors	Tribal Government, Low Income Residential
Incentive Amount	Free; specific improvements will be determined on a case-by-case basis depending on the specific needs of the home

Interested low-income families will need to apply for assistance through their state weatherization agency. Each state establishes its own income requirements based on DOE guidelines. Weatherization as defined by the WAP includes a wide variety of energy efficiency measures that encompass the building envelope, its heating and cooling systems, its electrical system, and electricity consuming appliances. WAP serves low-income homes free of charge and limits the amount of money that can be spent on any single residence as determined by federal rules.

#9 Multi-Focus - Federal Gov't: U.S. Environmental Protection Agency - ENERGY STAR Guidelines for Energy Management

Item	Info
Web Site	www.energystar.gov/buildings/about-us/how-can-we-help-you/build-energy-program/guidelines
Eligible Efficiency Technologies	Lighting, Industrial Systems General, Industrial System / Process Specific, HVAC

The ENERGY STAR program is an initiative of the U.S. Environmental Protection Agency that seeks to increase implementation of energy-efficient equipment and techniques.

#10 Multi Focus – State Gov't: Renewable Market Adjusting Tariff (ReMAT)

Item	Info
Web Site	www.cpuc.ca.gov/feedintariff
Eligible Renewable/Other Technologies	Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Municipal Solid Waste, Landfill Gas, Tidal, Wave, Ocean Thermal, Hydroelectric (Small), Anaerobic Digestion, Fuel Cells using Renewable Fuels
Applicable Sectors	Commercial, Industrial, Local Government, Nonprofit, Residential, Schools, State Government, Federal Government, Agricultural, Institutional

Note: Program Period 17 for the Re-MAT program began in July 2016. The feed-in tariff program for bioenergy projects was established by SB 1122, and the California Public Utilities Commission (CPUC) approved rules for the new program in December 2014.

The California ReMAT allows eligible customer-generators to enter into 10-, 15- or 20-year standard contracts with their utilities to sell the electricity produced by small renewable energy systems (up to 3 megawatts (MW)). The CPUC has separated the technologies eligible to participate in the feed-in tariff into three project type categories: Baseload (bioenergy and geothermal), As-Available Peaking (solar), and As-Available Non-Peaking (wind and hydro). The ReMAT starting price is based on the weighted average of the three

investor-owned utilities highest executed contract resulting from the Renewable Auction Mechanism (RAM) auction held in November 2011. Based on the results of that auction the starting price was \$89.23 per megawatt-hour (MWh). As of July 2016, the current price for Baseload and As-Available Non-Peaking resources remains \$89.23 per MWh; the current price for As-Available Peaking resources is \$61.23 per MWh.

SB 1122 of 2012 requires the investor-owned utilities to operate a separate ReMAT program for a cumulative total of 250 MW of bioenergy projects, separate from the wider 750 MW program.

#11 Multi Focus - State Gov't: School Facility Program - Modernization Grants

Item	Info
Web Site	www.dgs.ca.gov/opsc/Programs/modernizationprogram.aspx

The School Facility Program (SFP) provides funding assistance to school districts for the modernization of school facilities. The assistance is in the form of grants approved by the State Allocation Board (SAB), and requires a 40 percent local contribution. A district is eligible for grants when students are housed in permanent buildings 25 years old or older and relocatable classrooms 20 years old or older and the buildings have not been previously modernized with State funds. The modernization grant can be used to fund a large variety of work at an eligible school site including but not limited to air conditioning, insulation, roof replacement, as well as the purchase of new furniture and equipment.

#12 Multi Focus - State Gov't: California IBank Green Bond

Item	Info
Web Site	www.ibank.ca.gov

The California Infrastructure and Economic Development Bank recently issued the largest green municipal bond ever offered in California. The \$450 million bond will assist the State Water Resources Control Board in providing low-cost financing for critical water projects throughout California through its Clean Water State Revolving Fund. The previous record issuance was a similar bond issued by the IBank in 2016 for \$410 million. With this recent issuance, the total California has topped \$2.5 billion in green muni bond issuances since they were first offered in 2014.

#13 Multi Focus - State Gov't: SGIP Storage, Wind, CHP & Fuel Cell

Item	Info
Web Site	www.cpuc.ca.gov/sgip/
Eligible Renewable/Other Technologies	Energy Storage, Wind (All), Combined Heat & Power, Fuel Cells using Non-Renewable Fuels, Wind (Small), Fuel Cells using Renewable Fuels
Applicable Sectors	Commercial, Industrial, Local Government, Nonprofit, Residential, Schools, State Government, Federal Government, Institutional
Incentive Amounts	Wind- \$1.02/W; Waste Heat to Power- \$1.02/W; Pressure Reduction Turbine- \$1.02/W; Internal Combustion Engine (CHP)- \$0.42/W; Microturbine (CHP)- \$0.42/W; Gas Turbine (CHP)- \$0.42/W; Advanced Energy Storage- \$1.31/W; Biogas- \$1.31/W; Fuel Cell (CHP or Electric Only)- \$1.49/W

The annual budget for years 2017 - 2019 to \$166 million. 85% of the additional funding will go to incentives for energy storage, with the remaining 15% going to renewable generation projects. Of the 85%, 10% will be for residential projects less than or equal to 10 kW, and 90% will be for projects greater than 10 kW. The decision also made some changes to the incentive structure for energy storage projects.

#14 Multi-Focus - Other: HERO (a residential PACE Program)

Item	Info
Web Site	www.wrcog.herofinancing.com/
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Photovoltaics, Wind (All), Geothermal Heat Pumps, Wind (Small)
Eligible Efficiency Technologies	Lighting, Furnaces, Boilers, Heat pumps, Air conditioners, Programmable Thermostats, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Windows, Roofs, Custom/Others pending approval, Other EE, LED Lighting
Terms	Eligible products can be financed for up to 25 years, depending on the useful life of the eligible product.
Minimum financing	\$5,000

Maximum financing	15% of the home's value. WRCOG Executive Committee approval is required for any project costs over \$200,000.
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Property Assessed Clean Energy (PACE) programs allow homeowners to finance energy improvements, and to repay the financing through special assessments on their property taxes. In most cases the property tax assessment will stay with the property if it is sold, though the buyer's lender may impose restrictions on the transfer. A wide variety of energy and water efficiency products permanently affixed to the property can qualify for this program.

#15 Multi-Focus - Other: California FIRST (a non-residential PACE program)

Item	Info
Web Site	www.californiafirst.org/overview
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Space Heat, Solar Photovoltaics, Wind (All), Geothermal Heat Pumps, Fuel Cells using Non-Renewable Fuels, Wind (Small), Fuel Cells using Renewable Fuels
Eligible Efficiency Technologies	Equipment Insulation, Water Heaters, Lighting, Lighting Controls/Sensors, Furnaces, Heat pumps, Air conditioners, Heat recovery, Programmable Thermostats, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Roofs, Other EE, Reflective Roofs, Tankless Water Heater
Applicable Sectors	Commercial, Industrial, Agricultural, Multifamily Residential
Terms	Minimum financing amount- \$50,000

The CaliforniaFIRST Program is a PACE financing program for non-residential properties. PACE programs allow property owners to finance the installation of energy and water improvements on their buildings and to pay the amount back through their property taxes. CaliforniaFIRST is available to commercial, industrial, agricultural, and multi-family (over 5 units) buildings in one of the 120 participating cities or the unincorporated parts of the 14 participating counties. Click here to see all the local governments that are participating.

Eligibility is generally determined by the property records and value, and the property must meet general underwriting criteria established by the California Statewide Communities Development Authority (CSCDA). The property must be current in payment for all obligations secured by the property, including mortgages, property taxes, and assessment and tax liens, for the past 3 years.

#16 Multi-Focus - Other: Customer Purchasing Aggregation Strategy (ex. Solarize)

The Solarize approach allows groups of homeowners or businesses to work together to collectively negotiate rates, competitively select an installer, and increase demand through a creative limited-time offer to join the campaign. Ultimately, as the number of residents who participate in the program increase, the cost of the installations will decrease. Additionally, residents benefit from increased political control and are able to make more informed decisions about selecting an installer. Installers also benefit from Solarize by saving on marketing and lead generation costs, therefore reducing the upfront costs of the installations for all involved. Solarize programs simplify solar processes, educate the public, reduce costs, alleviate stress, and promote a strong sense of community.

#17 Multi-Focus - Other: On-Bill Financing Strategy (ex. PG&E)

Item	Info
Web Site	www.pge.com/en/mybusiness/save/smbblog/article/the_abcs_of_obf_learning_how_pg_es_onbill_financing_works.page

On-Bill Financing (OBF) provides eligible PG&E business customers with zero-interest loans of \$5,000-\$100,000 to finance energy efficiency projects that receive PG&E rebates or incentives. Government agencies can obtain loans of up to \$250,000. OBF loan terms and monthly payment amounts are determined based on the projected energy savings from the retrofit project. Upon project completion and funding, customers repay the loan via installments on their monthly PG&E bill. Once the loan is repaid, all energy savings that result from the new energy efficient equipment you’ve installed will translate into lower energy costs – savings the customer can keep.

OBF is a zero-interest loan. Monthly payments are based on estimated energy savings, meaning projects should be cash flow neutral. Monthly payments are on the PG&E bill, so no separate statement and no property liens. Different kinds of products and equipment qualify for PG&E’s OBF program when paired with a PG&E rebate or incentive: Lighting; Heating, ventilation and air conditioning (HVAC); Boilers and water heating; Pipe insulation; Refrigeration; VFD Applications; Food service equipment.

B. Renewables Incentives & Local Enhancement Lending Strategies/Programs

#18 Renewables - Federal Gov’t: Modified Accelerated Cost-Recovery System (MACRS)

Item	Info
Website	www.irs.gov
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Space Heat, Geothermal Electric, Solar Thermal

	Electric, Solar Thermal Process Heat, Solar Photovoltaics, Wind (All), Biomass, Geothermal Heat Pumps, Municipal Solid Waste, Combined Heat & Power, Fuel Cells using Non-Renewable Fuels, Landfill Gas, Tidal, Wave, Ocean Thermal, Wind (Small), Geothermal Direct-Use, Anaerobic Digestion, Fuel Cells using Renewable Fuels, Microturbines
Applicable Sectors	Commercial, Industrial, Agricultural

Equipment placed in service before January 1, 2018 can qualify for 50% bonus depreciation. Equipment placed in service during 2018 can qualify for 40% bonus depreciation. And equipment placed in service during 2019 can qualify for 30% bonus depreciation.

Under the federal Modified Accelerated Cost-Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. The MACRS establishes a set of class lives for various types of property, ranging from three to 50 years, over which the property may be depreciated. A number of renewable energy technologies are classified as five-year property (26 USC § 168(e) (3) (B) (vi)) under the MACRS, which refers to 26 USC § 48(a)(3)(A), often known as the energy investment tax credit or ITC to define eligible property.

#19 Renewables - State Gov't: Property Tax Exclusion for Solar Energy Systems

Item	Info
Web Site	www.boe.ca.gov/proptaxes/gase.htm
Incentive Amount	100% of system value; 75% of system value exemption for dual-use equipment

Section 73 of the California Revenue and Taxation Code allows a property tax exclusion for certain types of solar energy systems installed between January 1, 1999, and December 31, 2024. These include solar space conditioning systems, solar water heating systems, active solar energy systems, solar process heating systems, photovoltaic (PV) systems, and solar thermal electric systems, and solar mechanical energy. Solar pool heating systems and solar hot-tub-heating systems are not eligible.

#20 Renewables - State Gov't: CEC - New Solar Homes Partnership

Item	Info
Web Site	www.gosolarcalifornia.ca.gov/about/ns hp.php
Maximum Incentive	Affordable housing - 75% of system cost

The New Solar Homes Partnership (NSHP) is administered by the California Energy Commission (CEC) and provides incentives for solar on new home construction. Incentives

are determined by the housing type and the expected performance of the system. To qualify for incentives, the residential dwelling unit must achieve certain energy efficiency levels.

#21 Renewables - State Gov't: California Solar Initiative - Single-Family Affordable Solar Housing (SASH) Program

Item	Info
Web Site	www.gridalternatives.org/sash
Applicable Sectors	Low Income Residential
Incentive Amount	\$3/W CEC-AC
Eligible System Size	Minimum system size- 1 kW CEC-AC Maximum system size- 5 kW CEC-AC
Equipment Requirements	Must use CEC-certified PV modules and inverters

Before a PV system is installed through the SASH program, all appropriate energy efficiency measures should be pursued. If an applicant's income status qualifies for the Low Income Energy Efficiency (LIEE) program, GRID Alternatives' staff will assist applicant in enrolling in the LIEE program. If a client does not qualify for the LIEE service, GRID Alternatives' staff will conduct a basic residential energy audit.

#22 Strategy & Other - State Gov't: Net Metering

Item	Info
Web Site	www.cpuc.ca.gov/General.aspx?id=3800
Eligible Renewable/Other Technologies	Geothermal Electric, Solar Thermal Electric, Solar Photovoltaics, Wind (All), Biomass, Municipal Solid Waste, Fuel Cells using Non-Renewable Fuels, Landfill Gas, Tidal, Wave, Ocean Thermal, Wind (Small), Hydroelectric (Small), Anaerobic Digestion, Fuel Cells using Renewable Fuels
Applicable Sectors	Commercial, Industrial, Local Government, Nonprofit, Residential, Schools, State Government, Federal Government, Agricultural, Institutional

In January 2016, the California Public Utilities Commission issued a decision on its net metering successor tariff. Customers on the new net metering successor tariff will have to pay an interconnection fee, estimated at \$75-\$150; pay all non-bypassable charges for all electricity consumed from the grid (~\$0.02-0.03/kWh); and go on a time-of-use rate. The net metering successor tariff will take effect for California's three large investor-owned utilities (IOU) on July 1, 2017, or when 5% of the sum of non-coincident customer peak demand is reached for the IOU, which translates to an installed net-metered capacity of 2,409 MW for PG&E, 2,240 MW for SCE, and 617 MW for SDG&E.

C. Efficiency Incentives & Local Enhancement Lending Strategies/Programs

#23 Efficiency - Federal Gov't: Energy Conservation Subsidy Exclusion (note: Personal & Corporate)

Item	Info
Web Site	www.irs.gov
Eligible Renewable/Other Technologies	Solar Water Heat, Solar Space Heat, Solar Photovoltaics
Eligible Efficiency Technologies	Yes; specific technologies not identified
Applicable Sectors	Residential, Multifamily Residential

According to Section 136 of the U.S. Code, most residential energy conservation subsidies provided (directly or indirectly) to customers by public utilities* are non-taxable, and there is a parallel regulation for corporate recipients as well. If a taxpayer claims federal tax credits or deductions for the energy conservation property, the investment basis for the purpose of claiming the deduction or tax credit must be reduced by the value of the energy conservation subsidy.

#24 Efficiency - Federal Gov't: Energy-Efficient Mortgages

Item	Info
Web Site	www.resnet.us/ratings/mortgages
Eligible Renewable/Other Technologies	Solar - Passive, Solar Water Heat, Solar Space Heat, Solar Photovoltaics, Daylighting
Eligible Efficiency Technologies	Yes; specific technologies not identified
Applicable Sectors	Residential
Maximum Loan	\$8,000, maximum loan limits can be exceeded by the energy improvements being financed.

Homeowners can take advantage of energy efficient mortgages (EEM) from the Federal Housing Authority, the Department of Veterans Affairs, Freddie Mac, and private lenders to either finance energy efficiency improvements to existing homes, including renewable energy technologies, or to increase their home buying power with the purchase of a new energy efficient home. This allows borrowers who might otherwise be denied loans to pursue energy efficiency, and it secures lenders against loan default.

#25 Efficiency - Federal Gov't: Fannie Mae Green Initiative- Loan Program

Item	Info
Web Site	www.fanniemae.com/multifamily/green-initiative

Eligible Efficiency Technologies	Clothes Washers, Dishwasher, Dehumidifiers, Water Heaters, Lighting, Furnaces, Boilers, Heat pumps, Air conditioners, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Windows, Roofs, Comprehensive Measures/Whole Building, Custom/Others pending approval, Insulation, Tankless Water Heater
Applicable Sectors	Multifamily Residential

The Fannie Mae Green Initiative provides owners of multifamily properties (rental or cooperative properties with 5 or more units) with valuable green financing solutions and tools to make smart energy- and water-saving property improvements. Its green financing programs include Green Rewards, Green Preservation Plus, and the Green Building Certification Pricing Break, all of which are eligible for a 10 basis points (0.1%) reduction in the all-in interest rate. Over the life of a 10-year \$10 million loan, that could result in a savings of \$95,000 or more in interest. All Fannie Mae green loans are securitized as Green Mortgage Backed Securities (Green MBS).

#26 Efficiency - State Gov't: PG&E (Gas) - Multi-Family Residential Energy Efficiency Rebates

Item	Info
Web Site	https://www.pge.com/en_US/residential/save-energy-money/savings-solutions-and-rebates/multifamily-rebates/multifamily-rebates.page
Eligible Efficiency Technologies	Clothes Washers, Water Heaters, Lighting, Furnaces, Boilers, Motors, Other EE, Pool Pumps, LED Lighting
Applicable Sectors	Multifamily Residential

This program has six incentives for the following appliances: clothes washers, water heaters, boilers, furnaces, LED lighting, and pool pumps.

#27 Efficiency - State Gov't: PG&E - Non-Residential Energy Efficiency Financing Program

Item	Info
Web Site	www.pge.com/en/mybusiness/save/rebates/onbill/index.page
Utilities	Pacific Gas & Electric Co
Eligible Efficiency Technologies	Custom/Others pending approval

Applicable Sectors	Commercial, Industrial, Local Government, Nonprofit, Schools, State Government, Federal Government, Institutional
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PG&E is providing 0% loans for energy efficiency projects pursued by their non-residential customers. Financing is available to fund many technologies, including lighting, HVAC, electric motors, LED street lights, refrigeration, food service equipment and water pumps. Projects may be eligible for financing if it qualifies for a rebate or incentive through a PG&E program. Loan terms and monthly payment amounts are determined based on the equipment's estimated monthly savings. Business customers may qualify for loans between \$5,000 and \$100,000, with loan periods of up to five years. Government agencies may qualify for loans between \$5,000 and \$250,000 per PG&E meter, with loan periods of up to 10 years.

#28 Efficiency - State Gov't: Energy Efficiency Financing for Public Sector Projects

Item	Info
Web Site	www.energy.ca.gov/efficiency/financing/index.html
Eligible Renewable/Other Technologies	Solar Photovoltaics, Combined Heat & Power, Wind (Small), Other Distributed Generation Technologies
Eligible Efficiency Technologies	Lighting, Lighting Controls/Sensors, Chillers, Furnaces, Boilers, Heat pumps, Air conditioners, Energy Mgmt. Systems/Building Controls, Building Insulation, Motors, Custom/Others pending approval, Other EE
Applicable Sectors	Local Government, Schools, Institutional

Cities, counties, public care institutions, public hospitals, public schools and colleges, and special districts in California can apply for low-interest loans from the California Energy Commission for energy efficiency projects in their buildings and facilities. Residential and commercial projects and non-profit institutions are not eligible for these funds. There is no minimum loan amount, but the maximum loan amount per application is \$3 million. The loan term cannot exceed the useful life of loan-funded equipment, and will be determined on a case-by-case basis based on the estimated annual energy cost savings from the projects. The exact loan term will be determined such that the energy savings will cover the loan payments.

#29 Efficiency - State Gov't: PG&E - Single Family Residential Energy Efficiency Rebate Program

Item	Info
Web Site	www.pge.com/myhome/saveenergymoney/rebateapplication
Eligible Efficiency Technologies	Clothes Washers, Water Heaters, Motors, Pool Pumps
Applicable Sectors	Residential

This program has four Incentives - they are for washers, water heaters, pool pumps and motors.

#30 Efficiency - State Gov't: Energy Upgrade California

Item	Info
Web Site	www.EnergyUpgradeCA.org/
Eligible Efficiency Technologies	Equipment Insulation, Furnaces, Air conditioners, Duct/Air sealing, Building Insulation, Windows, Custom/Others pending approval
Applicable Sectors	Residential, Multifamily Residential, Low Income Residential

The Energy Upgrade California program serves as a one-stop shop for California homeowners who want to improve the energy efficiency of their homes. The program connects homeowners with qualified contractors, and helps homeowners find all the available incentives from their local utilities and local governments. The program is available statewide and is managed locally by utilities and regional energy networks.

#31 Efficiency - State Gov't: PG&E - Multi-Family Residential Energy Efficiency Rebate Program

Item	Info
Web Site	www.multifamilyupgrade.com/
Eligible Efficiency Technologies	Clothes Washers, Refrigerators/Freezers, Water Heaters, Lighting, Furnaces, Boilers, Motor VFDs, Pool Pumps, LED Lighting
Applicable Sectors	Multifamily Residential

PG&E offers rebates for owners and managers of multi-family properties of five or more units. The program has two incentive components (1) an assessment incentive which is paid on a per-dwelling unit basis for assessment and verification, and (2) an upgrade incentive which is a performance-based incentives for the energy efficiency upgrades.

D. Electric Vehicle Incentives & Local Enhancement Lending Strategies/Programs

#32 Electric Vehicles – Federal Gov't: Electric Vehicle Tax Credit

Item	Info
Web Site	www.irs.gov

BEV and PHEV cars purchased in or after 2010 are eligible for a federal income tax credit of up to \$7,500. The credit varies based on the battery used to power the vehicle, and will

begin to phase out to 50% of the full credit amount once a manufacturer has reached 200,000 PHEVs and BEVs sold.

#33 Electric Vehicles - State Gov't: Rebates

Item	Info
Web Site	www.cleanvehiclerebate.org/eng

Clean Vehicle Rebate Project (CVRP) offers up to \$2,500 for the purchase or lease of BEVs, \$1,500 for the purchase or lease of PHEVs, and \$900 for electric motorcycles and NEVs. BEVs and PHEVs are eligible for Clean Air Vehicle Decals which allow access to HOV lanes for single occupants.

Also, PG&E is offering a \$500 clean fuel rebate for PG&E customers who own or lease a PEV. PG&E also offers two residential EV rates - one that combines the EV electricity costs with those of the residence, and one that keeps the EV electricity costs separate. The lowest rates are offered between 11pm and 7am.

#34 Electric Vehicles - Strategy: Charging Station Infrastructure

Item	Info
Web Site	www.evgo.com

For a limited time, NRG EVgo is offering eligible apartment buildings and workplaces up to 10 charge-ready parking spaces for free. NRG EVgo will also manage the charging stations and cover the electricity costs through each driver's usage fee. The EV Charging Station Financing Program offers loans up to \$500,000 for the design, development, purchase, and installation of EV charging stations at small business locations throughout California. The program may provide up to 100% coverage to lenders on certain loan defaults, and borrowers may be eligible to receive a rebate of 10-15% of the enrolled loan amount.

III. Conclusions

This comprehensive report captures available financial options that help identify successful strategies and incentives available to Advanced Energy Communities. The aforementioned report reviews and highlights programs, incentives, applicable technologies, restrictions and supporting material that are meant to be a resource when developing Advanced Energy Community financing strategies.

In conjunction with the report, it is also important to understand other variables such as technology cost trends, the risks associated with development, and construction and operational components of an Advanced Energy Community. Additionally, pending regulatory changes may also impact delivery mechanisms or pricing Advanced Energy Community components.

In summary, there are many opportunities for Advanced Energy Communities in and around San Mateo County to receive free or reduced technical assistance, assessments, grants, rebates, and low cost financing. Oftentimes, the know-how and funding from these



opportunities can positively affect the decision of whether or not to deploy renewables, electric vehicle charging, and other desirable components to an Advanced Energy Community.

Appendix A: Acronyms

AEC	Advanced Energy Community
AWEA	American Wind Energy Association
BEV	Battery-powered EV
BoE	Board of Equalization
CEC	California Energy Commission
CHP	Combined Heat and Power
CPUC	California Public Utilities Commission
CREB	Clean Renewable Energy Bond
CSCDA	California Statewide Communities Development Authority
CVRP	Clean Vehicle Rebate Project
DER	Distributed Energy Resource
DoE	Department of Energy
EE	Energy Efficiency
EEM	Energy Efficient Mortgages
EV	Electric Vehicle
EVCI	Electric Vehicle Charging Infrastructure
FHA	Federal Housing Administration
FIT	Feed-In Tariff
GRID	Short for GRIDAlternatives.org
HERO	A PACE program for financing energy upgrades
HOV	High Occupancy Vehicle
HVAC	Heating, Ventilation, Air Conditioning
IAC	Industrial Assessment Center
IEC	International Electrotechnical Commission
IOU	Investor-owned utility
IRS	Internal Revenue System
ITC	Investment Tax Credit
LED	Light Emitting Diode
LIEE	Low Income Energy Efficiency
MACRS	Modified Accelerated Cost-Recovery System
MBS	Mortgage Backed Securities
NEV	New Energy Vehicles
OBF	On-Bill Financing
PACE	Property Assessed Clean Energy
PAEC	Peninsula Advanced Energy Community
PG&E	Pacific Gas & Electric
PHEV	Plug-in Hybrid EV
PTC	Production Tax Credit
PV	Photo Voltaic (panels)
RAM	Renewable Auction Mechanism



ReMAT	Renewable Market Adjusting Tariff
SAB	State Allocation Board
SASH	Single-family Affordable Solar Housing
SFP	School Facilities Program
SGIP	Self-Generation Incentive Program
ToU	Time-of-Use
VFD	Variable Frequency Drives (also variable speed)
WAP	Weatherization Assistance Program