



Peninsula Advanced Energy Communities

Top Measures to Accelerate Local Clean Energy Programs: How to Push the Envelope on a Budget - City Examples

**Annual Statewide Energy
Efficiency Forum**

June 20-21, 2018

Diane Bailey, Menlo Spark





A Communitywide Plan for Climate Action



Engage the community



Educate businesses and residents



Identify and organize volunteers



Connect the city with experts, other cities,
& resources



Fundraise for projects and secure outside
funding



Conduct a technical assessment & monitor
progress



Run a handful of community projects



Peninsula Advanced Energy Communities (PAEC) Project

Peninsula Advanced Energy Community (PAEC) Project Partners



- CA Energy Commission funded collaboration to create a replicable model leveraging energy efficiency, local renewables, EV charging stations, and energy storage to provide more affordable, cleaner, and resilient power.
- Focused on Mid-Peninsula Cities

PAEC Project Components

- **Streamlining permits, codes, and ordinances** to ease implementation of clean energy measures
- **Financial and business models** to help make Advanced Energy Communities affordable and attractive investments.
- **Streamlining grid connections** working with PG&E and PCE to reduce the time, cost, and uncertainty associated with connecting local energy resources to the grid.
- **EV Charging Infrastructure Master Plan**
- **Atherton Civic Center: A Sustainable Model.**
- **Solar Siting Survey** to identify commercial-scale sites capable of solar installations > 100 kW.
- **Solar Emergency Microgrids** to provide renewables-driven power backup to a critical facility.



Climate Neutral for a Healthy, Prosperous Menlo Park



Making Clean Local Energy Accessible Now

Peninsula Advanced Energy Community (PAEC) Task 2.2: Best Practices Report



Prepared for
California Energy Commission
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June 2017



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Peninsula Advanced Energy Community (PAEC) Task 2.4: Gap Analysis



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City Clean Energy Measures

- Clean Energy Categories:
 - Renewables (RE),
 - Energy Efficiency (EE),
 - Zero Net Energy (ZNE)
 - Electric Vehicle Charging Infrastructure (EVCI)
- **General Survey** of Best Practices that have been successful in **U.S. Cities & Abroad.**



Helping solve urgent social problems.



April 30, 2014

Achieving Climate Neutrality in Menlo Park

A communitywide strategy for Menlo Park

Best Practices

- Measures include:
 - Policies
 - Ordinances
 - Initiatives
 - Reach codes, zoning, building & energy codes
 - permitting processes
 - Advanced energy technology programs
- **Summary of Local Policies:** in Atherton, East Palo Alto, Menlo Park, Redwood City, & San Mateo County (PAEC Corridor)
- **Gap Analysis:** Where are good areas for improvement on RE, EE, ZNE, and EVCI within the Region?



Best Practices

Renewable Energy (RE)	Energy Efficiency (EE)	Zero Net Energy (ZNE)	Electric Vehicle Charging Infrastructure (EVCI)	Additional Clean Energy Measures
<i>Model Municipal Ordinance Options</i>				
Solar Rooftops [RE1] (mandatory ordinances) could also include solar water heaters, cool roofs, or other alternatives, e.g., San Mateo Solar Carports [RE2] over parking, could be coupled with energy storage and/or EV charging, e.g., Palo Alto or Green Charge Zoning or Building Codes [RE3] requiring 100% Renewable Energy, e.g., Menlo Park, covering electricity & gas Solar or Zero Carbon Water Heaters [RE4] requiring new or replacement water heaters to be solar (e.g., Hawaii) or a non-fossil fuel alternative such as heat pumps	Reach Codes for New Construction [EE1] Palo Alto & Santa Monica (e.g., 15% efficiency improvement over title 24) Point of Sale [EE2] energy audits and disclosure, e.g., Berkeley and Austin ECBO: Existing Commercial Building Benchmarking Ordinance [EE3] , e.g., San Francisco Buildings report energy use + audit each year <i>or</i> retro-commissioning every 5 years Other Mandatory Requirements Higher efficiency equipment, etc.	Reach Codes [ZNE1] for CA ZNE, e.g., Santa Monica Financial Incentives [Fees2]: New Climate Impact Fee, fully refunded for ZNE, e.g., Watsonville	City Ordinance & Zoning [EVCI1]: Minimum parking spaces required with pre-wiring or EV Chargers for new homes, multi-family, commercial or parking, e.g., City of San Francisco	Fees [Fees1] for Fossil Fuel Use or Carbon, e.g., Palo Alto Natural Gas offset fees
<i>Additional Measures</i>				
Financing: Rebates, PACE, on-bill financing, etc. New technology – in-pipe hydro, Pressure Relieving Valve (PRV)/Turbine technology, e.g., Portland – Lucid project Permitting improvements	Audit programs – NYC Retrofit Accelerator, Green @ Home, Green House Calls, PG&E audits Incentives , e.g., Energy Upgrade CA Permitting , e.g., fees waived and/or expedited, e.g., Encinitas Building Electrification / Natural Gas Replacement, Boulder	District Approaches (e.g., 2030 Districts, Fort ZED, Cambridge) RFP & Lease Language Existing Building Retrofits Energiesprong , ZNE overhauls with modular components	City Charging Stations (for city fleets and public use) Incentives (preferred parking, free charging or low/no cost charging) Streamlined Permitting City EV “First” purchasing policy , Palo Alto	Innovations through CCEs (aggregated solar, EV deployment) Solar Emergency Microgrids Energy Storage

Renewable Energy

- **Solar Carports** covering surface parking (Palo Alto)
 - Could be **coupled with energy storage and/or EV Charging** (e.g. Green Charge)



- Using the RFP model & financed through a 3rd party



- **Financing:** on-bill financing “PAYS” system
 - For EE in addition to RE



Indicates No Cost or Saves Money



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Game Changer



Energy Efficiency

Existing Buildings:



- **Point of Sale** energy audits & disclosure (Austin or Berkeley)
- Ex-ist-ing Com-mer-cial Build-ing Bench-mark-ing Or-din-ance (**ECBO**) - Audit & re-port en-ergy use an-nu-ally **or** con-duct retro-com-mis-sion-ing (San Francisco)
- **Deep Energy Retrofits** for Multi-family (NYC, Florida, Chicago, Colorado, and Massachusetts)

→ *Equity improvement resulting in lower energy bills for renters.*



Energy Efficiency

Existing Buildings:

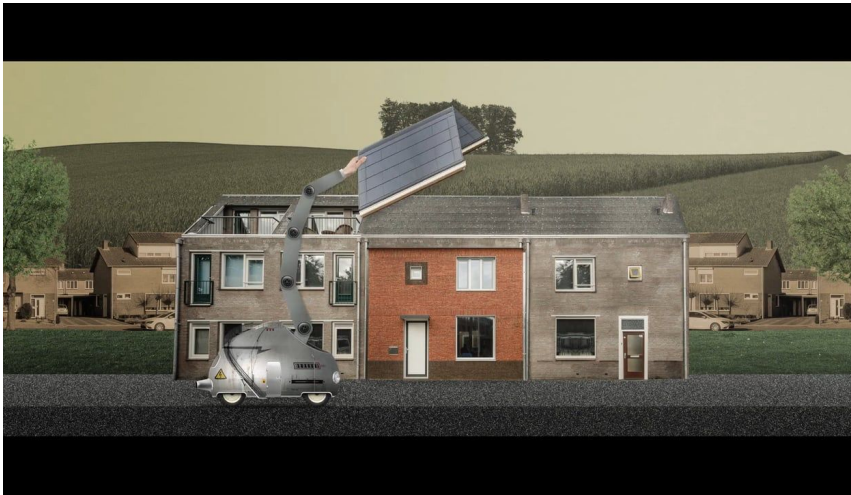
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Zero Net Energy

- 100% Renewable Energy for new buildings through zoning regulations (Menlo Park)
- Financial Incentives: Climate Impact Fee, fully refunded for ZNE (City of Watsonville)
- Existing Building Retrofits - Energiesprong, ZNE overhauls with modular lego-like components (the Netherlands, NYC)



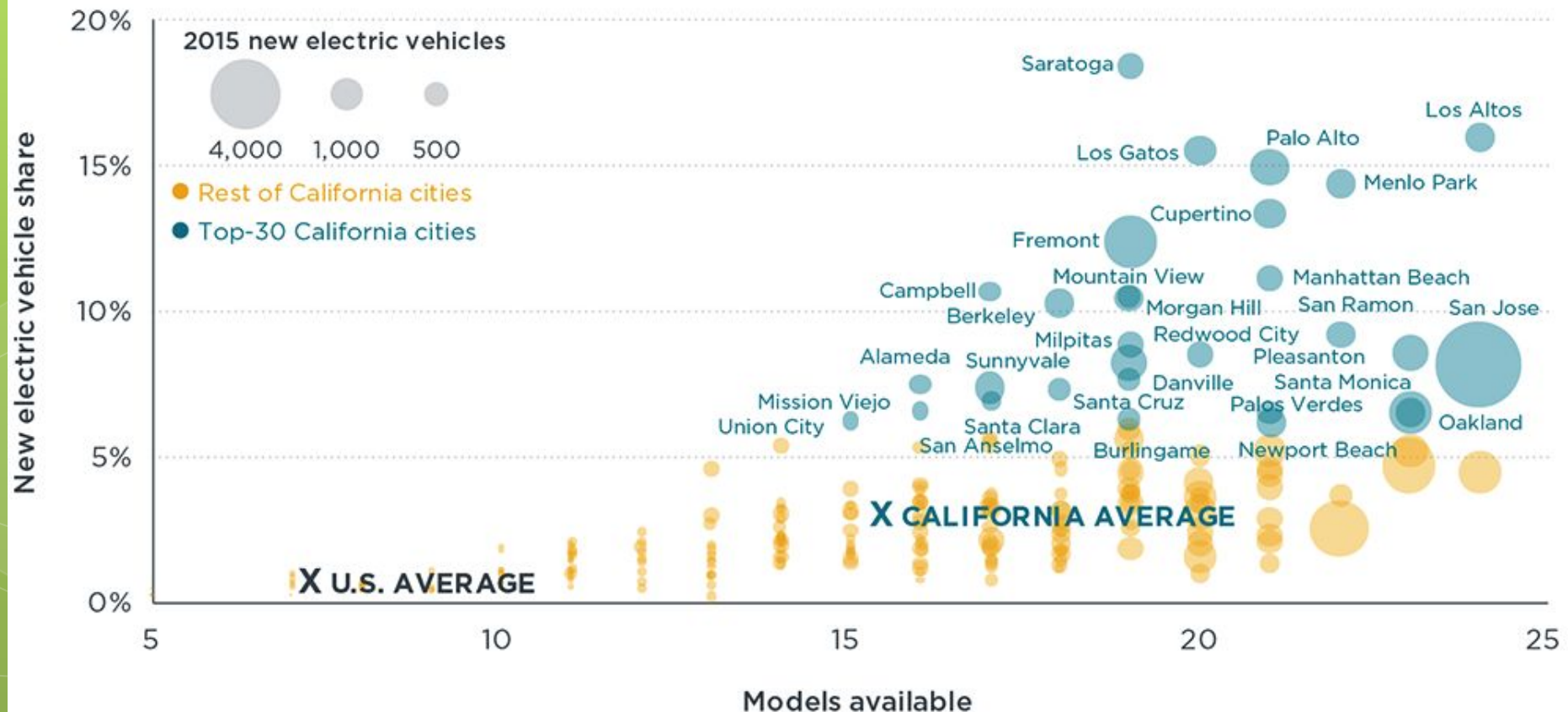
Zero Net Energy

3 Game Changers

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EV Deployment

**Highest EV Uptake:
Local Promotion Activities boost the EV market.**



Electric Vehicle Charging Infrastructure



- **City Ordinance & Zoning:** Minimum parking spaces required with pre-wiring or EV Chargers for **new** multi-family, commercial or parking → Many Cities have requirements surpassing CA



- **City Charging Stations**
 - **No Cost Infrastructure** – financing options, PG&E stations & Volkswagen Electrify America
- **Incentives**
 - Preferred Parking
 - Free Charging or free parking
- **Streamlined Permitting** (San Diego)



Boosting EVs – A Charrette in Search of Game Changers

In addition to increasing EV Charging Infrastructure, consensus from the June 2017 EV Charrette was to accelerate:

- **EV Awareness Campaigns**

- More appealing marketing and advertising campaigns
- A central 'digital toolkit' targeted to car buyers
- More opportunities for Test-drives & in-person info sessions

- **Increase Incentives for EV:**

- Higher EV rebates, especially for families
- Instant Rebates at the point of sale



beneficial state foundation



clean vehicle
assistance program

Additional Clean Energy Measures

Game Changer

- Solar Emergency Microgrids
- Energy Storage, e.g. RWC Green Charge Project
- Whole Home Electrification, Boulder, CO
- Innovations through CCEs
 - Aggregated solar
 - EV Deployment
- New Technology, Lucid In-pipe Hydro
- Fees: Adder for Natural Gas offsets,
Palo Alto → *Fee could also reduce use*



What Can California Cities do?

- **Summary of Local Policies in** San Mateo County (PAEC Corridor)



- Where are good areas for improvement on RE, EE, ZNE, and EVCI that can save money for cities & counties?

Key Findings

- Cities + Counties are more likely to adopt additional clean energy policies with technical and legal assistance developing the measures
- Much of the PAEC region is comprised of old buildings that would benefit greatly from deep energy retrofits.
- Limited staffing favors 3rd party approaches, consolidated efforts through energy agencies (like PCE) & leadership from the County.
- Many business & civic examples of advanced clean energy buildings & measures to draw from in SMC

San Mateo County



- **Top Measure:** Community Choice Energy: Peninsula Clean Energy, enables each city to access cost-competitive renewable power. can fund:
 - **Local Clean Energy Programs, such as**
 - **Deep Energy Retrofits**
 - **Whole Home Electrification**
 - **Accelerate EVs**
 - **PCE Saves customers \$17 Million/year**



Menlo Park



- **Top Measure:** Green zoning requirements
 - 100% renewable energy,
 - On-site renewable feasibility studies + RE install requirement of at least 30% of Max feasible; and
 - Building energy monitoring through EPA's Energy Star program
- **Decarbonizes New Development**
- **No cost to cities & can help developers save money**
 - All electric buildings avoid natural gas connections, saving ~\$5,000 or more
 - Power Purchase Agreements require no \$ up front.



Redwood City

- **Top Measure:** Third party installation of EV Charging & Energy Storage, by Engie, formerly “Green Charge”
 - Using a “shared savings” plan from avoided peak power charges, the City saves \$7,000 per year.
 - Larger projects save more; the point is not the savings but the key infrastructure that costs nothing.
 - 3rd party can handle construction & maintenance

Redwood City Continued



At the Marshall Street parking garage in downtown Redwood City, the GridSynergy energy storage system mitigates spikes in power demand due to heavy use of EV chargers and other electrical equipment.

Model Policies Analysis

- Analysis by DNV-GL for PAEC → 4 Model Ordinances

Electric vehicles and solar carports

- EV charger cost-share for existing multi-family buildings
- DC fast chargers with new retail
- Solar carports over new parking



Model Policies Analysis 2

Electrification

- Ordinance for Renewable Space and Water Heating
- ***Note: Need CEC approval for requirements... but cities can utilize existing approvals from other cities in similar climate zones.***





What is Next?

Thank You!

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PAEC:

<http://www.clean-coalition.org/paec>

Best Practices Report:

http://menlospark.org/wp-content/uploads/2017/08/PAEC-Task-2.2_Final-Best-Practices-Report-06_wb-27-June-17.pdf