



Peninsula Advanced Energy Communities



Top Measures for Cities & Counties to Accelerate Clean Local Energy and Decarbonize

Local Government
Commission Webinar
March 7, 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



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



Prepared for
California Energy Commission
1516 Ninth St., MS-51
Sacramento, CA 95814

Prepared by
Diane Bailey, Menlo Spark
405 14th Street, Suite 164
Oakland, CA 94612

June 2017



Climate Neutral for a Healthy, Prosperous Menlo Park



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



Prepared for
California Energy Commission
1516 Ninth St., MS-51
Sacramento, CA 95814

Prepared by
Diane Bailey and Clayton Birkes, Menlo Spark
405 14th Street, Suite 164
Oakland, CA 94612

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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
Model Municipal Ordinance Options				
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
Additional Measures				
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



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Energy Efficiency

Existing Buildings:

- **Point of Sale** energy audits & disclosure (Austin or Berkeley)
- Existing Commercial Building Benchmarking Ordinance (**ECBO**) - Audit & report energy use annually **or** conduct retro-commissioning (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:

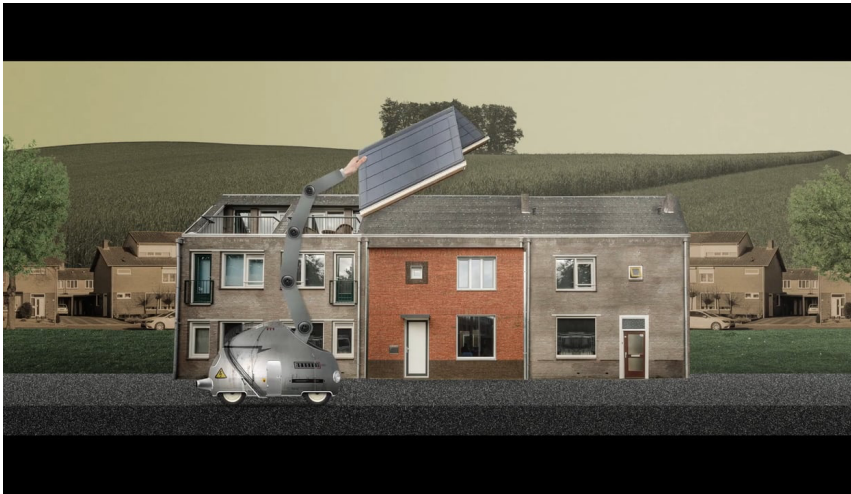
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Zero Net Energy

- **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

- **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)

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
- **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 and in-person info sessions

- **Increase Incentives for EV:**

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



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?

- o **Summary of Local Policies:** in Atherton, East Palo Alto, Menlo Park, Redwood City, & San Mateo County (PAEC Corridor)



- o Where are good areas for improvement on RE, EE, ZNE, and EVCI within the Region?

Key Findings

- Cities + SMC 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:** Created PCE, which enables each city to access cost-competitive renewable power.
- ◉ **Top Recommended Action:** Leadership through early adoption of PAEC measures & support for cities to follow.



Atherton

- **Top Measure:** ZNE and Fossil Fuel Free Civic Center Rebuild – a Model AEC
- **Top Recommended Action:** EE retrofits & electrification of existing homes through voluntary assistance programs + mandatory upgrades at the point of sale or renovations
- **EPA, MP, RWC**, and unincorporated **SMC** would similarly benefit from these.



East Palo Alto

- **Top Measure:** ZNE project at the Romic Property – a model for public-private partnerships



- **Top Recommended Action:** EE retrofits & electrification of existing homes

Menlo Park

- ◉ **Top Measure:** Green zoning requirements for
 - ◉ 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
- ◉ **Top Recommended Action:**
 - ◉ EE retrofits & electrification of existing homes, and
 - ◉ Third party installation of EV Charging & Energy Storage

Redwood City

- ◉ **Top Measure:** Third party installation of EV Charging & Energy Storage
- ◉ **Top Recommended Action:**
 - ◉ EE retrofits & electrification of existing homes
 - ◉ MP-style green zoning for 100% RE



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.***





What is Next?

Resources

Thank You!

Diane Bailey
Executive Director
MENLO SPARK

diane@menlospark.org
650-281-7073

www.menlospark.org
Facebook/Menlo Spark 2025
Twitter/Menlo Spark 2025

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

