



OFFICE OF  
SUSTAINABILITY  

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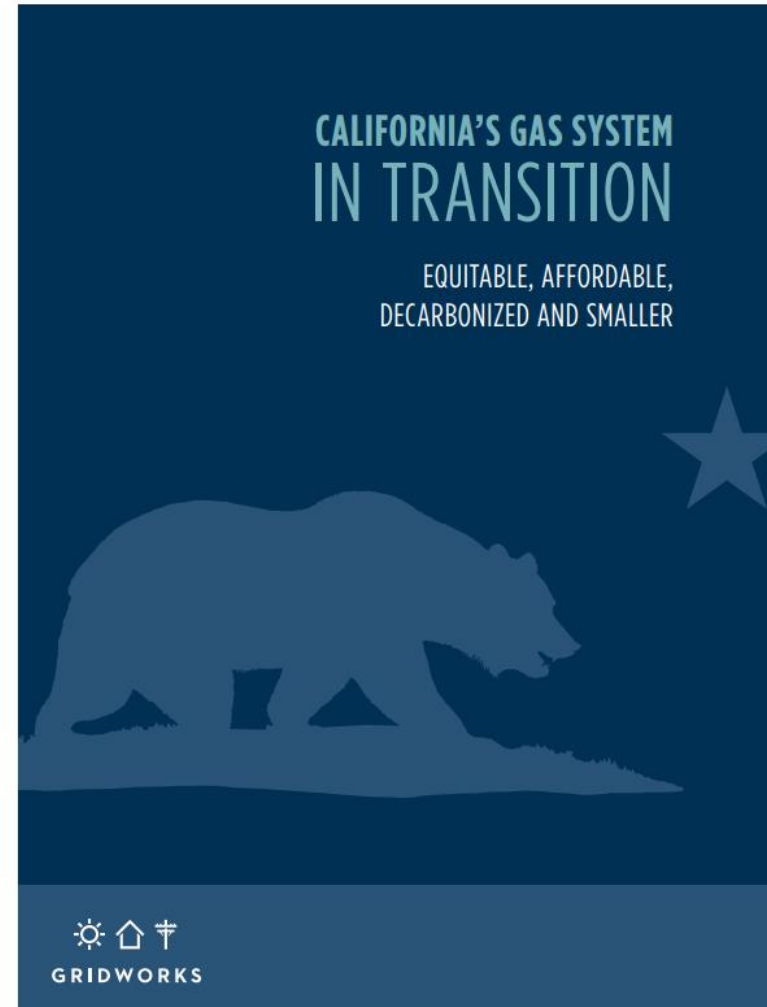
COUNTY OF SAN MATEO

# Convergence of Electrification Efforts

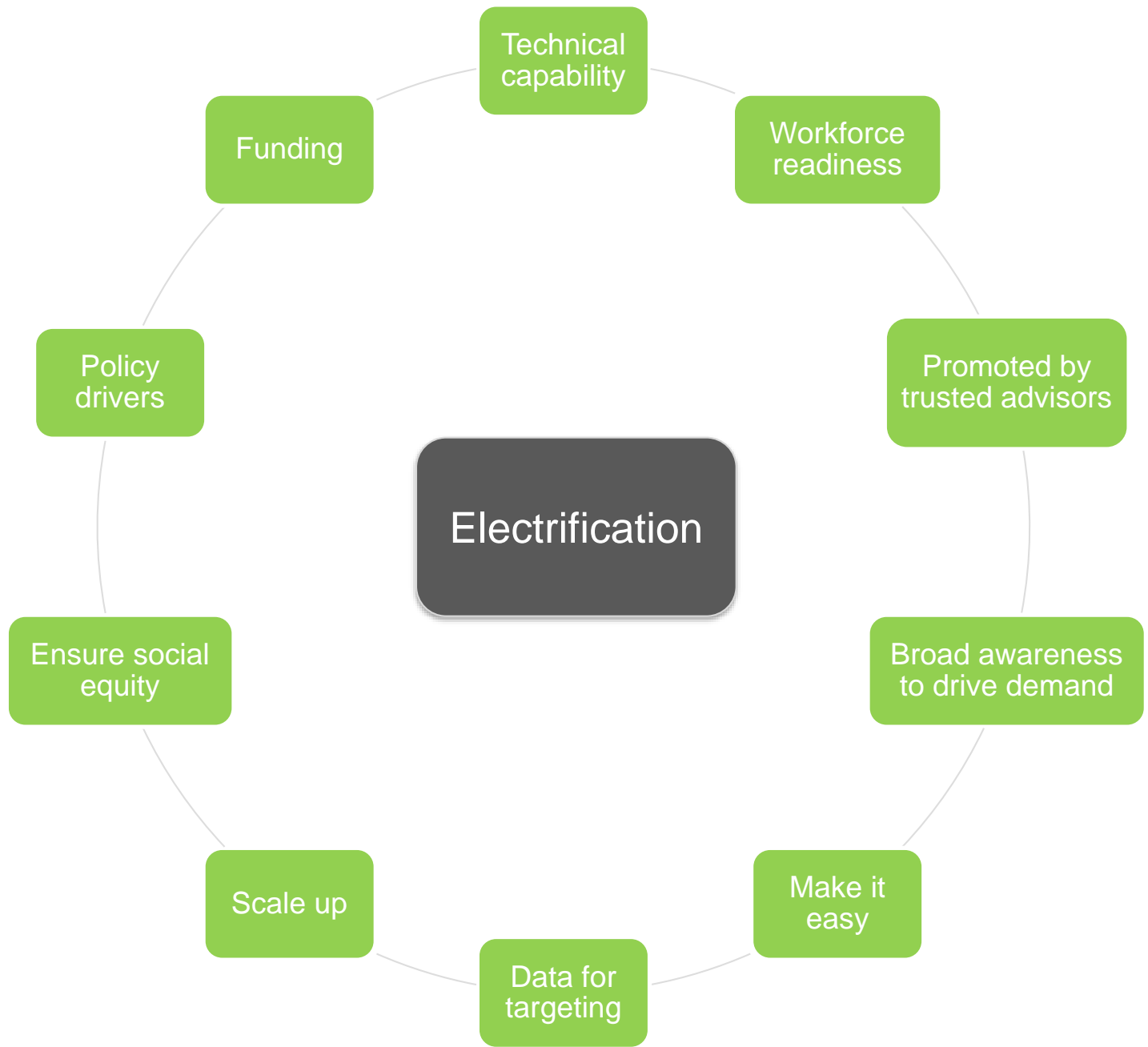
Susan Wright, County of San Mateo

**State Goal:**  
Carbon  
neutrality by  
2045

**SB 100:** Retail  
electricity  
carbon-free by  
2045



[https://gridworks.org/wp-content/uploads/2019/09/CA\\_Gas\\_System\\_in\\_Transition.pdf](https://gridworks.org/wp-content/uploads/2019/09/CA_Gas_System_in_Transition.pdf)

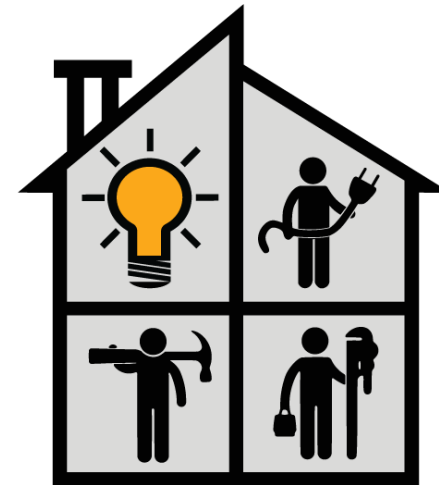


# Technical capability

Single appliances



Whole house



# harvest thermal

Residential hot water and space heating in one unit

## “Climate Smart Home”

CARBON	<b>PATH TO ZERO NET CARBON</b>
	Adequately sized electric panel (prereq when needed)
	Space heating/cooling - electric
	Heat pump water heating - provides A/C
	Heat pump (or conventional elec) clothes dryer
	Induction stove top
EFFICIENCY	<b>KEEPING UTILITY COSTS FROM RISING</b>
	Attic + under-floor air sealing + insulation + WUI upgrades
	Wall insulation (drill & fill)
	Window replacements (if single-pane)
	Water efficient indoor fixtures
	HVAC & DHW distribution improvements (as needed)
	LED lighting
	Replacement appliances (top tier)
	Smart house - whole house energy management (opt.)
MARKET LEVER	<b>RESILIENCY + COST BENEFITS</b>
	Solar
	Battery storage + load mgmt software
	Vehicle-to-grid inverter for solar (opt.)
	EV charger (opt.)
ECOSYSTEM/ INFRASTRUCTURE	<b>LANDSCAPE MEASURES</b>
	Stormwater features (rainwater runoff to bioswales, rainbarrels, permeable pavement)
	Greywater system (laundry to landscape)
	Drought-tolerant landscaping
	Landscaping supports biodiversity, wildlife corridors
	Tree canopy provides shade (balance with fire safe)

# Workforce readiness

Training  
Individual  
Contractors



Prompting  
Whole House  
teams



**Electrical and  
Plumbing Unions**



# Promoted by trusted advisors

Recommended by  
small percentage  
of advisors



Best practice/  
standard  
recommendation



**Contractors**



**Real estate  
professionals**

# Broad awareness to drive demand

Individual  
program  
marketing

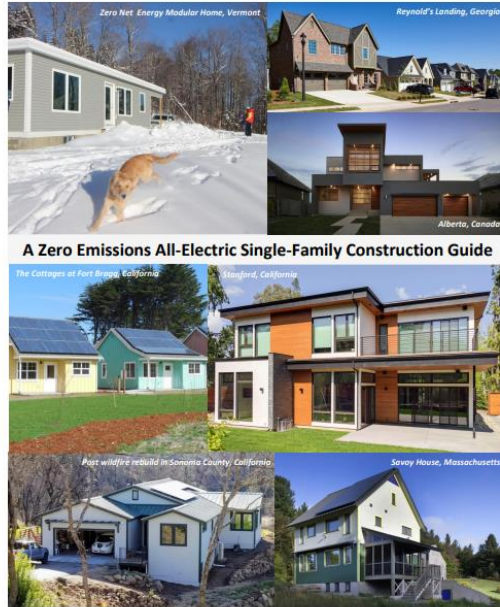


Regional  
messaging

**“The Switch is On”**  
marketing campaign  
from Building Decarbonization Coalition



# Make it easy



REDWOOD ENERGY

April 2020

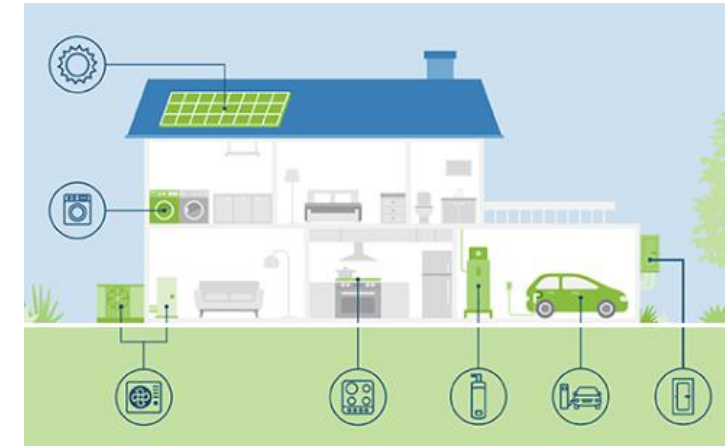
**Fossil Free Buildings Campaign**  
3 guides to all-electric construction:  
single-family, multi-family,  
commercial

<https://fossilfreebuildings.org/>

# HI

HOMEintel

“No touch” audits using  
15-minute interval data  
[corp.hea.com/hintel](http://corp.hea.com/hintel)



**City of Palo Alto Home  
Electrification Readiness  
Assessment**

[www.encygenie.com](http://www.encygenie.com)

# YellowTin



Solar  
System



Electric  
Vehicle



Battery  
Backup



Water  
Heater



Induction  
Cooktop

Pricing and calculations for electrification measures  
[www.yellowtin.com](http://www.yellowtin.com)

# Data for targeting

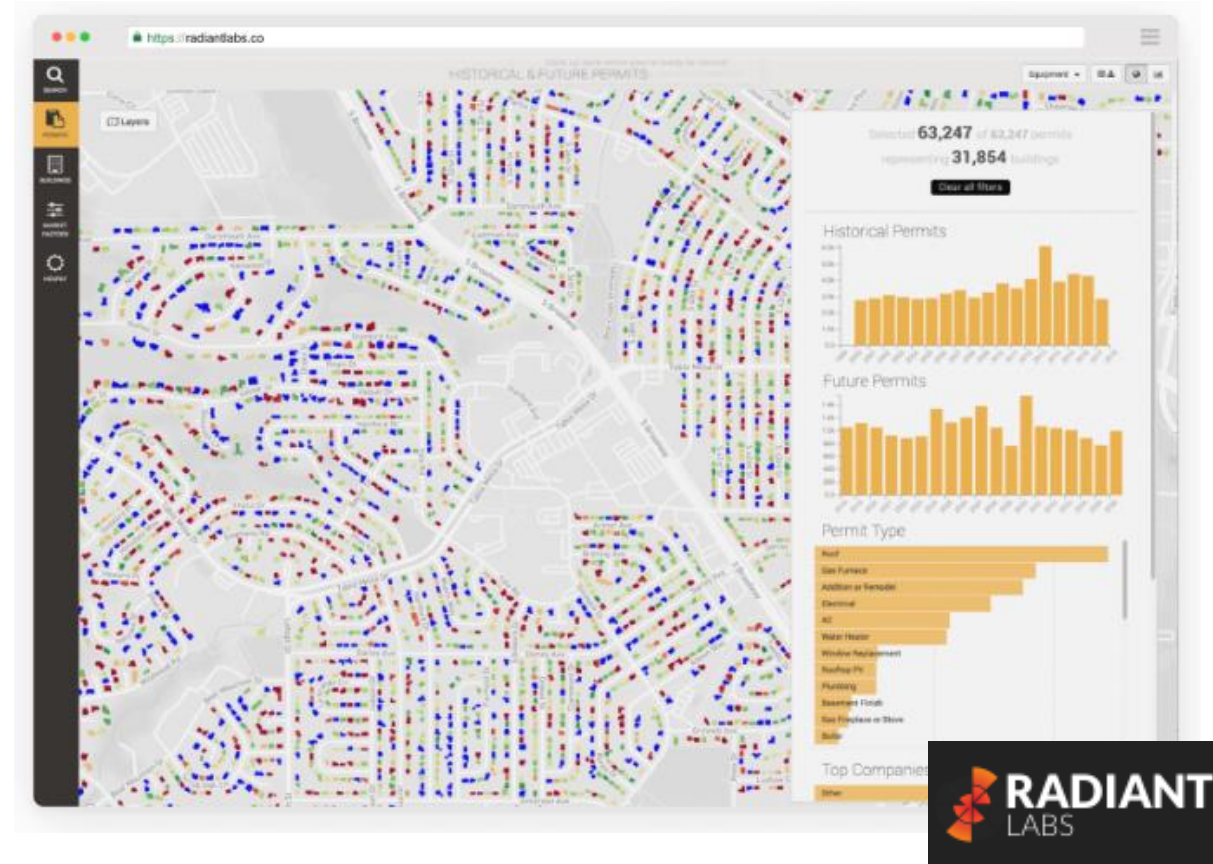


Meter data plus AI plus targeted messaging to customers

## UCLA Energy Atlas

A first of its kind interactive website built with the largest set of publicly available disaggregated energy data in the nation.

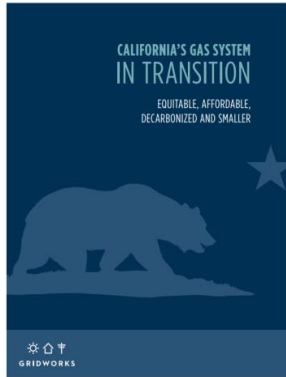
Draft database coming to Bay Area this spring via BayREN



## City of Berkeley – Parcel-level data analysis from Radiant Labs

- Equipment replacement forecasting
- Profiles of most cost-effective building types for electrification

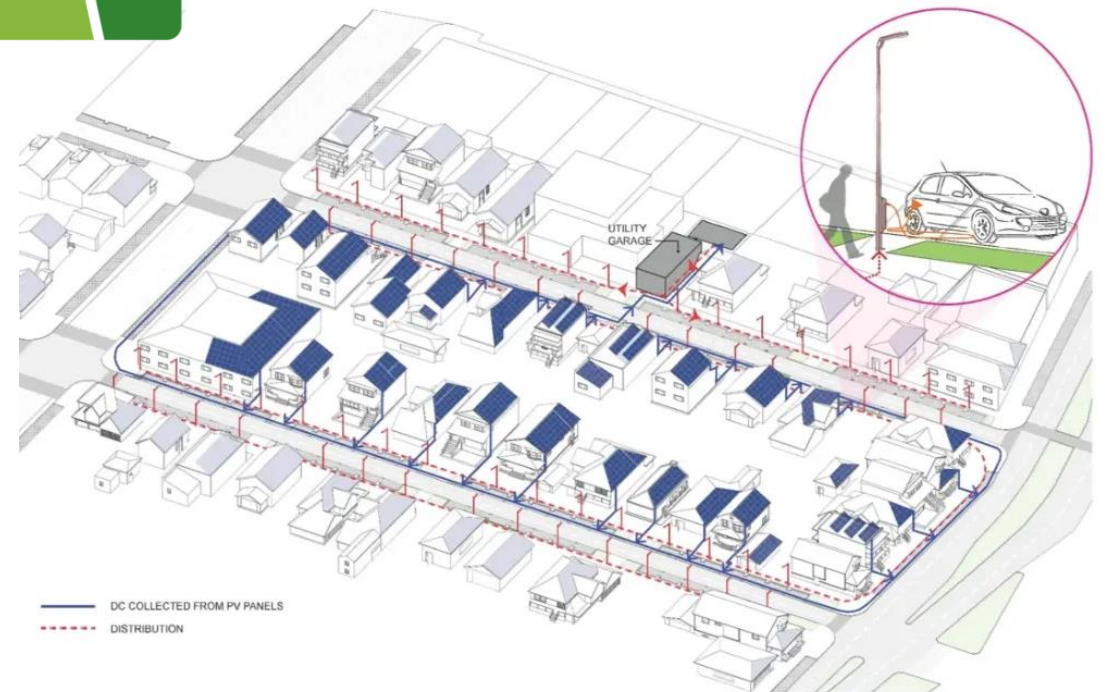
# Scale up



ecoblock

## Exploring neighborhood electrification pilot

- Conversations with PG&E's Grid Edge group
- Looking for areas with "strong social cohesion" in unincorporated County
- Electrify several blocks instead of upgrading the gas line
- Neighborhoods need to have electric grid capacity



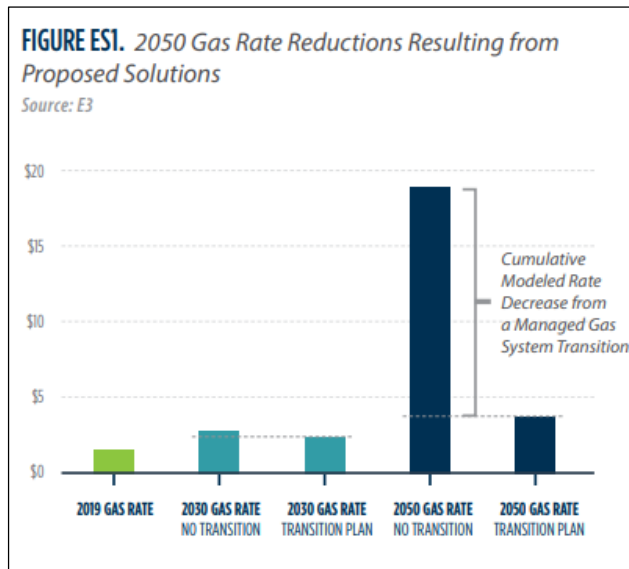
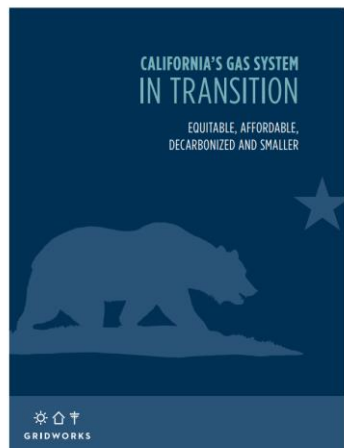
Oakland concept

# Ensure social equity



## El Concilio of San Mateo County

Installation of energy efficient appliances through PG&E Energy Savings Assistance and Healthy Home Connect programs



Key component of proposed transition strategy is social equity to ensure fair rates



**Neighborhood electrification pilot**  
One “market rate” neighborhood, one DAC neighborhood



# More policy drivers

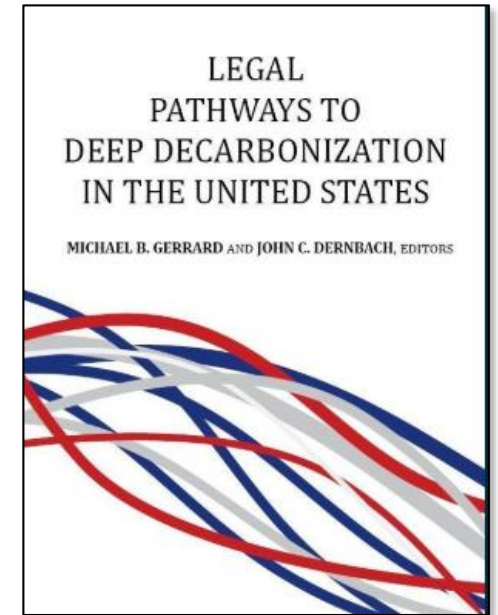


**CPUC Eliminated 3-Prong Fuel Substitution Test**  
Enables EE funding for electrification

## CLIMATE ACTION PLAN

Significant electrification needed to meet CAP 2030 goals

**“Date-certain” Policy Options**  
are being considered by  
“Climate Smart Home” Policy Subcommittee



<https://lpdd.org/>

Website with 1000+ model federal, state, and local laws that can be customized and adopted

**Reach Codes**  
New construction codes underway. Opportunity for existing buildings?

# Funding



## Electrification incentives

Additional \$1000 from  
BAAQMD for heat pump  
water heaters



Can we repurpose budget  
diverted from upgrading  
gas infrastructure?



More incentives coming...

## Potential grant opportunities:



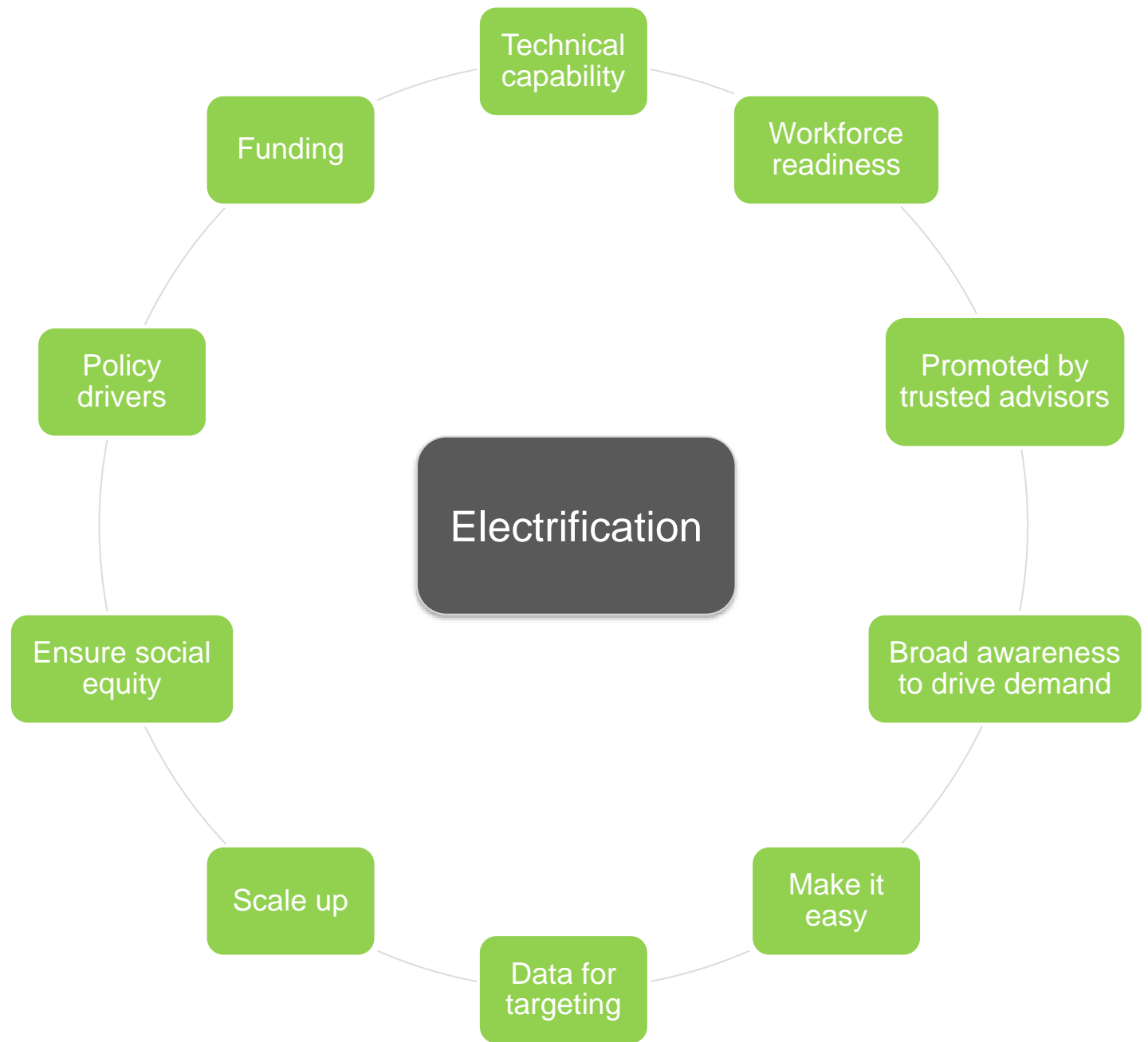
BAY AREA  
AIR QUALITY  
MANAGEMENT  
DISTRICT



## More funding and financing options are needed!

Residential on-bill repayment  
Leverage private financing

# Challenge and opportunity: Coordinating efforts



# Discussion

- Which of the coordinating efforts should we focus on most?
- If you (could) go look around at BestBuy, you'll see lots of induction stoves. Is it a matter of “socializing” electrification?
- Should we promote electrification to those who can afford it, as a way to build the market and workforce, and bring costs down, as in the CA Solar Initiative?
- What transition is needed to be able to start progressively disconnecting or removing underground natural gas infrastructure for parcels that make sense? Campuses that shift to all electric? At some point, city blocks of early adopters?



THANK YOU!

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