Electrification 101

Health & Safety Retrofits in Homes and Apartment Buildings

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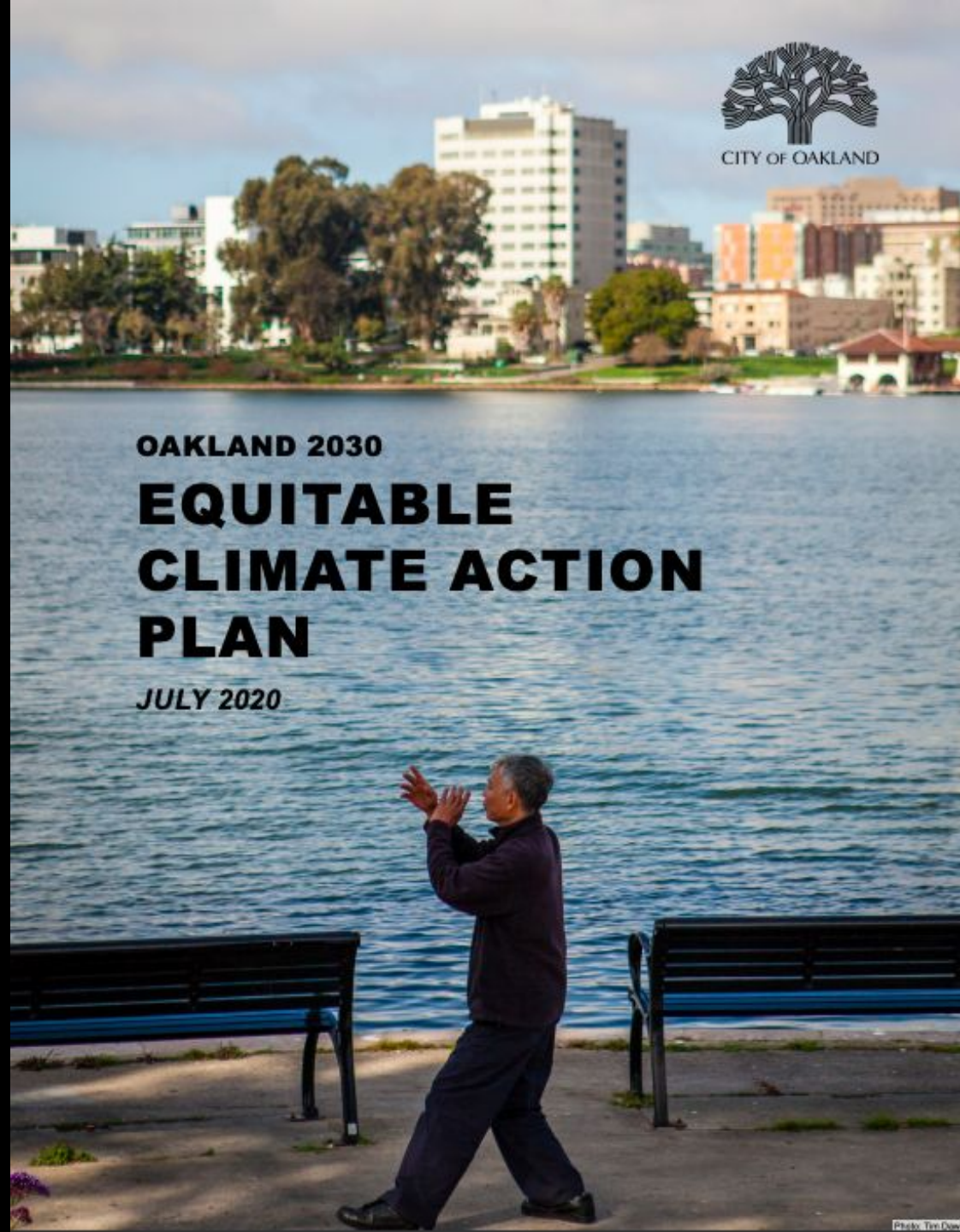
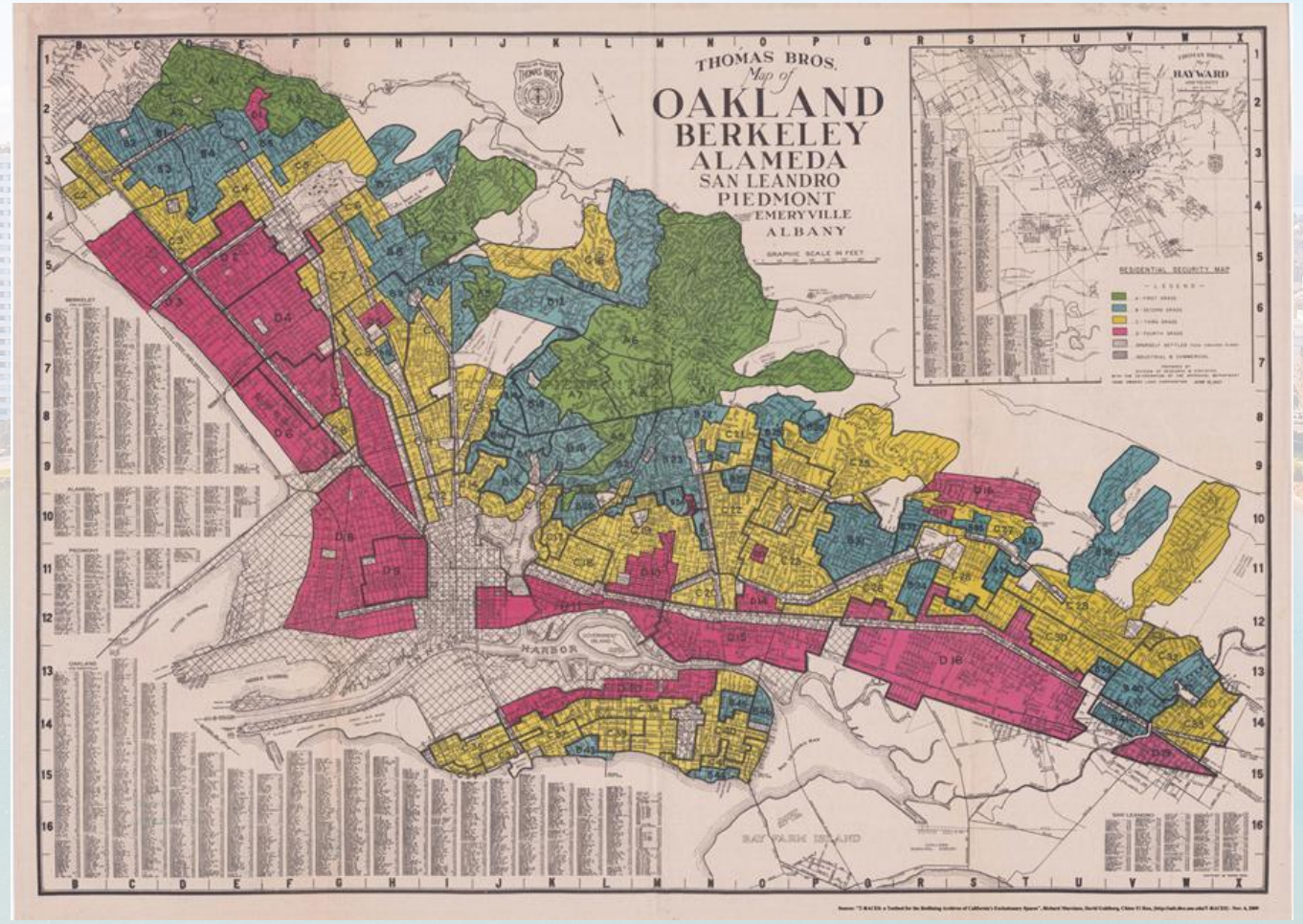
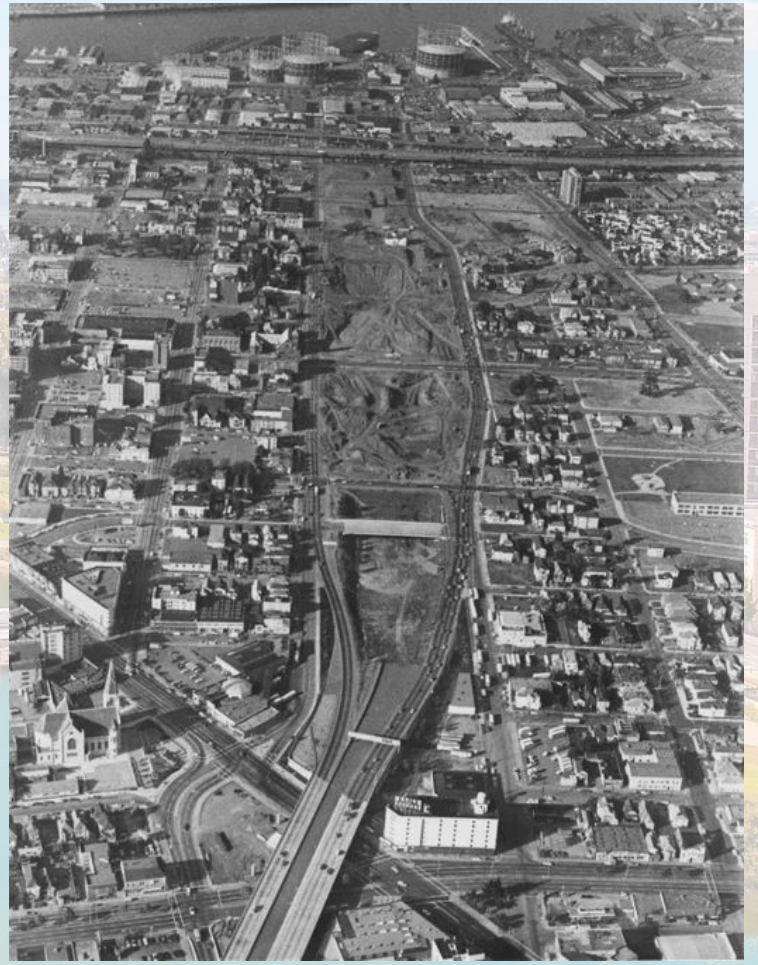


Legacy of Redlining and Environmental Injustice



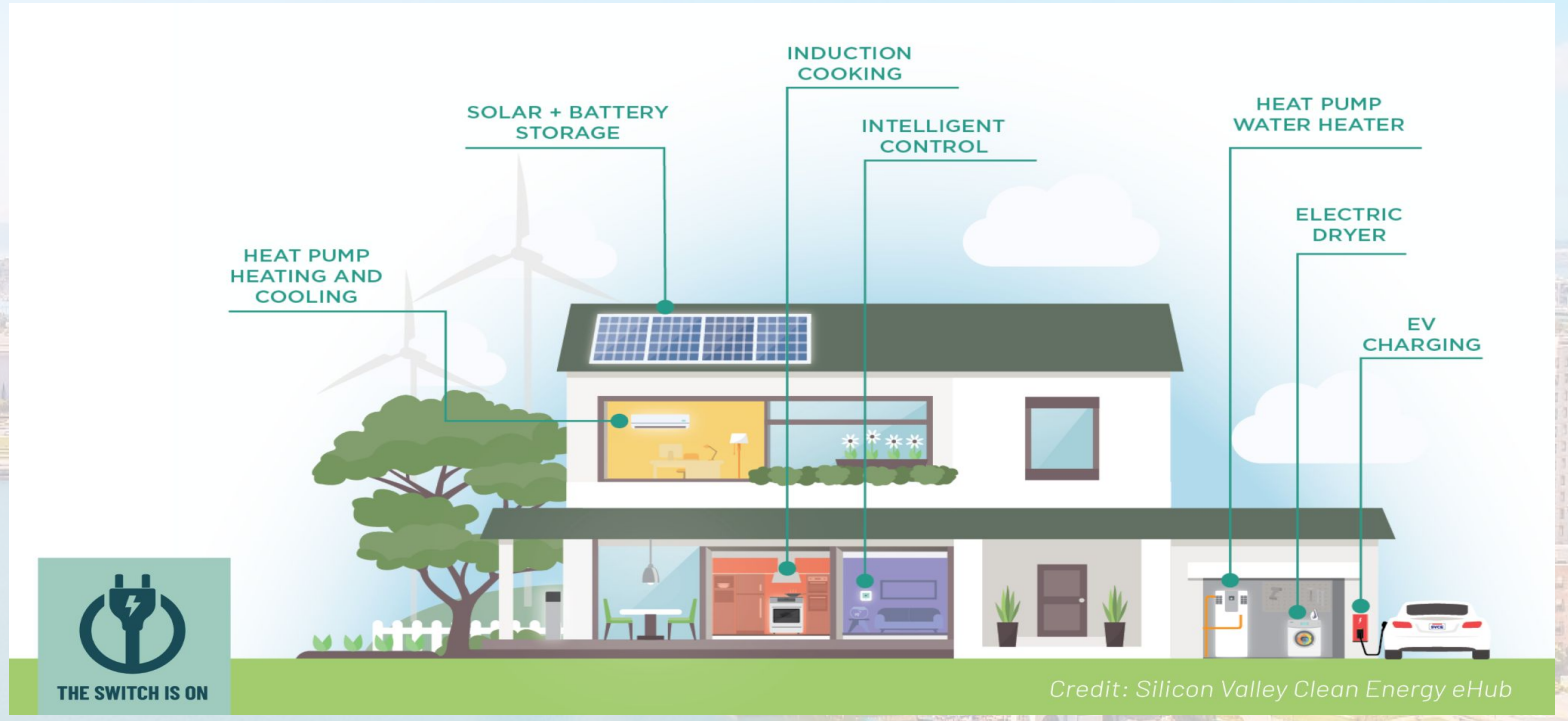


WOCAP

Why Building Electrification?

What is holistic electrification?

- Transition from gas appliances to 100% electric power +
- Energy efficiency +
- Improved indoor air quality and comfort +
- Reduced environmental health risks +
- Energy resilience



Examples of All-Electric Appliances

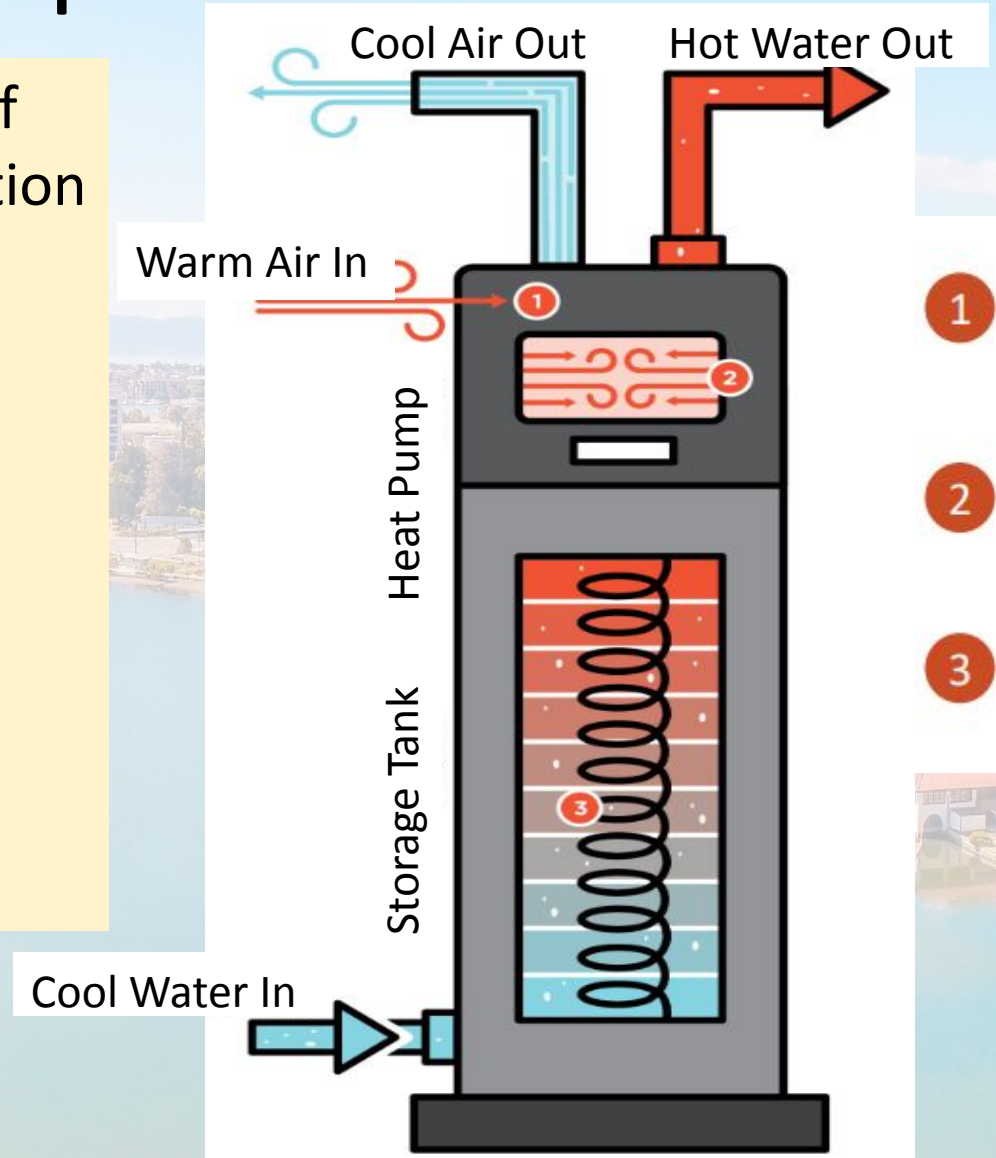
	Space Heating	Water Heating	Cooking	Clothes Drying
Residential				
Commercial				

What is a heat pump?

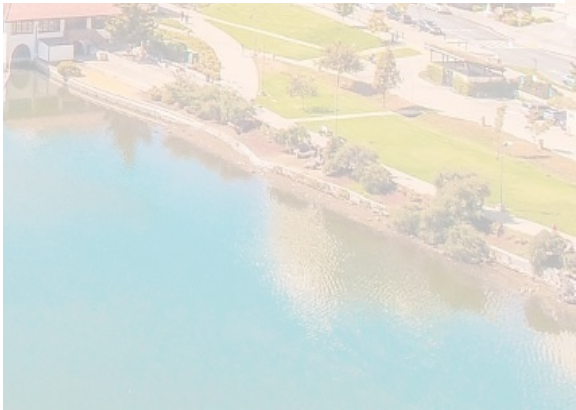
A Heat Pump uses a small amount of energy to **move heat** from one location to another, like a refrigerator.

Can be used for space conditioning (heating + cooling) as well as water heating

Uses energy much more efficiently than traditional gas furnaces/water heaters



1. Heat Pump pulls warmth from the air
2. Warm air is compressed, increasing its temperature
3. Condenser coils transfer heat to the water

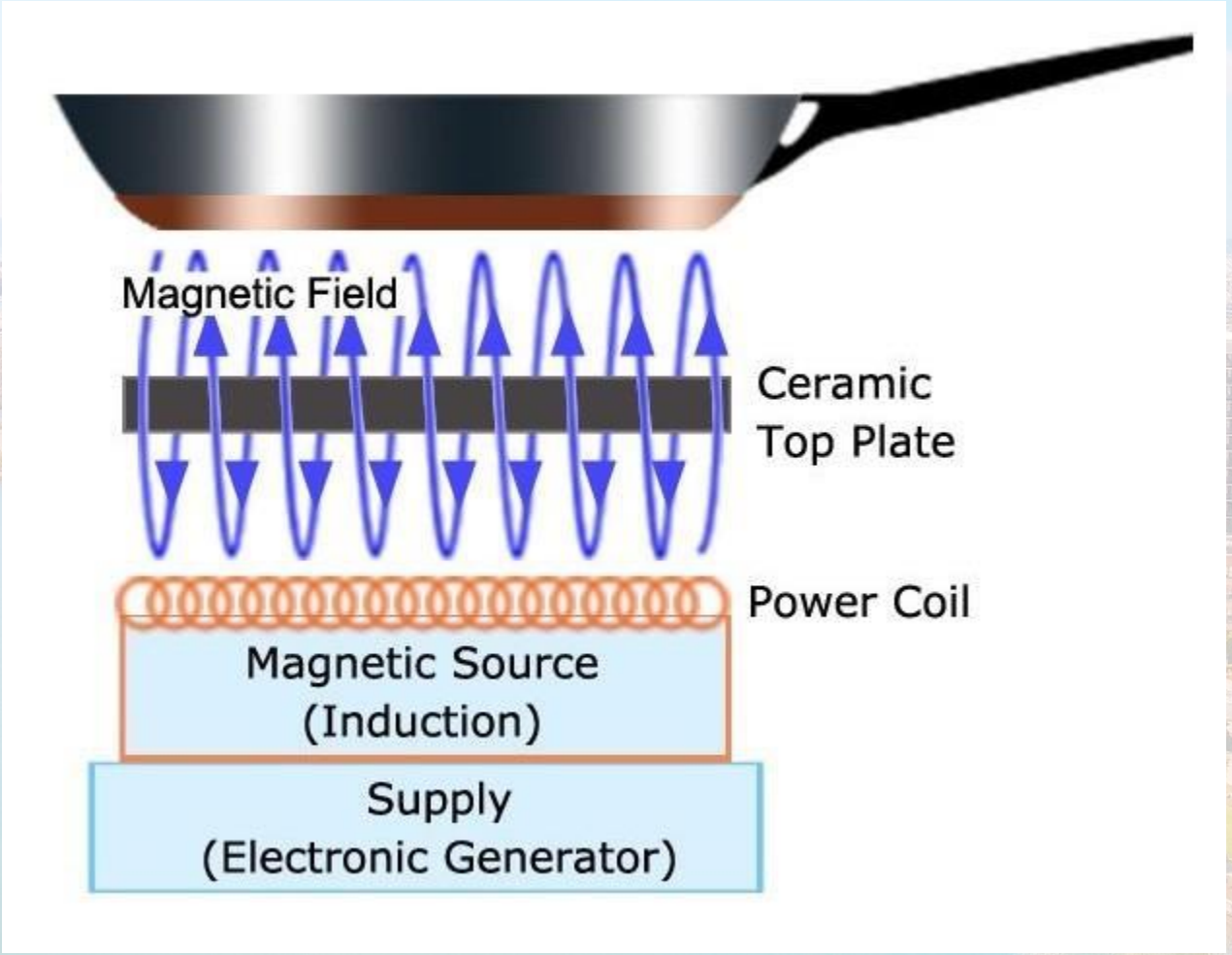


How does induction cooking work?

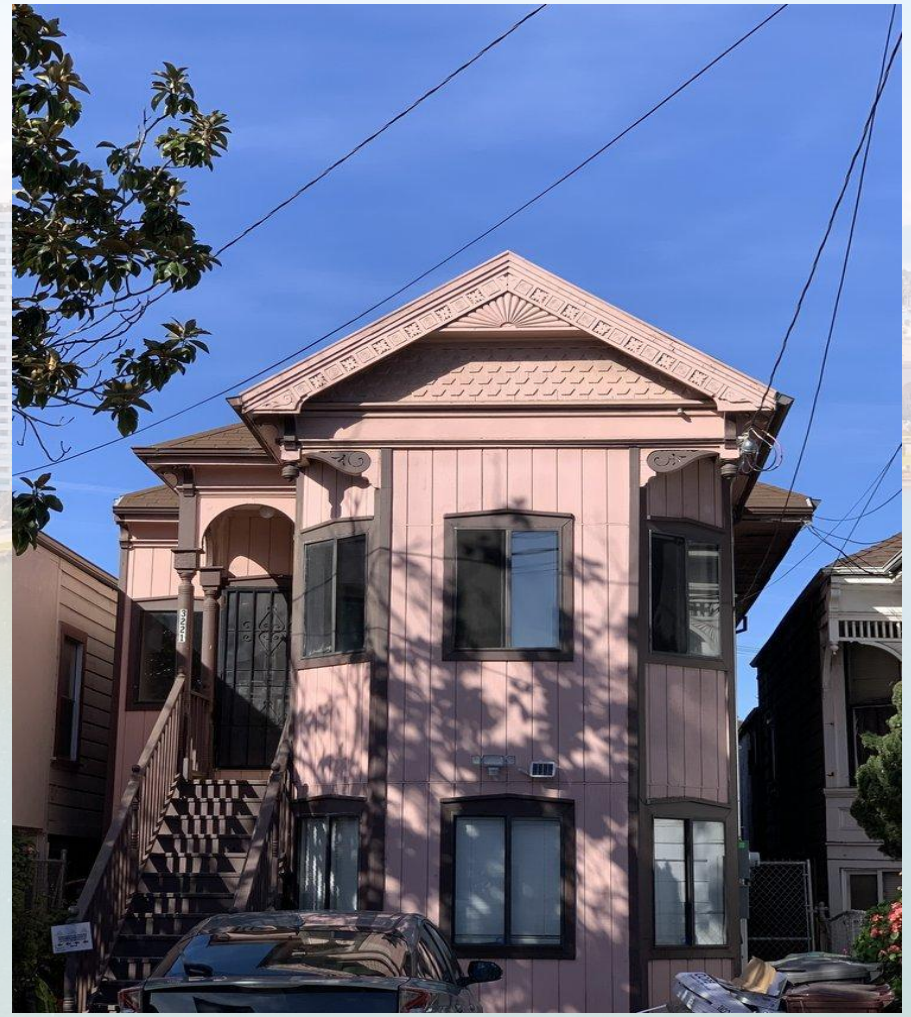
Induction cooktop uses **electromagnetism** to heat cooking pan itself, which in turn heats the food or water.

Cooking pan must be able to carry a magnetic field. Can test with a simple magnet!

Ceramic top remains cool while cooking.



Example projects and workforce development



Revalue.io x BlocPower- Dogtown Duplex

- Heat pump, insulation, lighting, smart electrical panel
- Oakland native, duplex rented for affordable housing.
- Stacked rebates, incentives and social impact financing to deliver affordable project with energy saving benefits
- Employed local minority, woman owned contracting firm + apprentices from Cypress Mandela.

Example projects and workforce development

Revalue.io x BlocPower- Northern California Land Trust Peace Gardens

- Electrification retrofit complete with induction stoves, mini split heat pumps, and solar panels in 5-unit low income cooperative housing
- Employed local minority women owned firm with apprentices from Cypress Mandela
- Stacked rebates, incentives, social impact and forgivable loan funds to make project feasible for LMI residents and ownership group.

Home Electrification Process

Understand your home

- Self assess your home and your needs or;
- Free consult with an energy assessor, *BayREN Home Energy Score* or *Green House Call from Rising Sun*
- Talk with your landlord about the multifamily energy efficiency incentives available in Oakland

Plan your journey

- Consider your priorities and budget with Electrify Everything guide
- Consult a BayREN Home Energy Advisor **(866) 878 – 6008**
- The City of Oakland's Residential Lending program provides low-interest financing for low-income homeowners

Start electrifying

- Take advantage of BayREN and California Energy Smart Home rebates
- Find a qualifying contractor at www.switchison.org

Home Electrification Checklist

- ✔ **Renewable electricity-** opt up with EBCE, or install solar
- ✔ **Electrical service**- 100 Amps can be sufficient with efficiency!
- ✔ **Heat pump space heating and cooling**- maximize efficiency & Wx
- ✔ **Heat pump water heater**
- ✔ **Electric cooking-** portable induction cooktop uses 120V
- ✔ **Electric clothes dryer-** combo washer + dryer, clothesline/drying rack
- ✔ **Electric vehicles + charger-** 120V wall outlet or 240V appliance outlet
- ✔ **Home battery storage-** standalone backup battery

Incentives and Rebates

California Low Income Weatherization Program- https://www.csd.ca.gov/Pages/Low-Income-Weatherization-Program.aspx

Rising Sun Center for Opportunity- https://risingsunopp.org/programs/ghc/

Grid Alternatives- https://gridalternatives.org/what-we-do/energy-for-all

East Bay Community Energy- https://ebce.org/clean-power-appliances/

- Induction cooktop loaner- https://ebce.org/induction-cooking/

Incentives and Rebates (cont.)

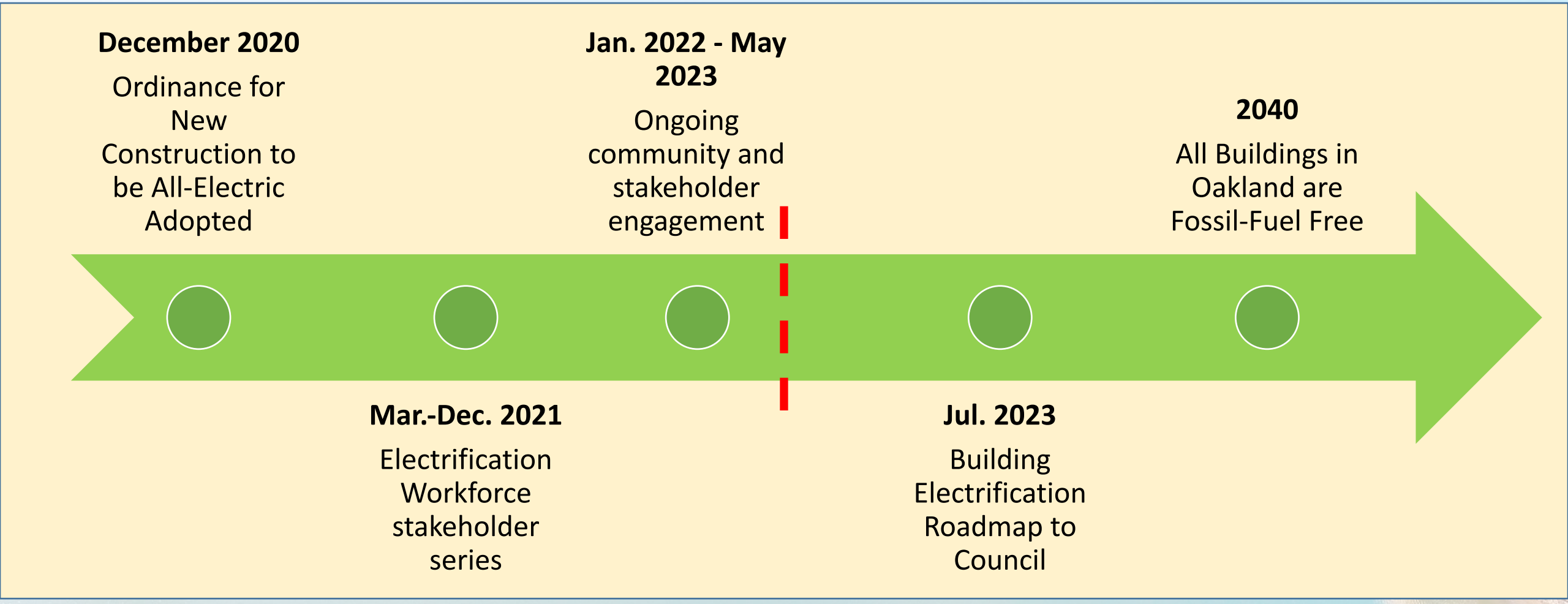
BayREN- https://www.bayren.org/rebates-financing/single-family-homeowners

California Energy-Smart Homes- https://www.caenergysmarthomes.com/alterations/

PG&E- https://guide.pge.com/

$100s to $1000s available for heat pumps, induction cooktops, electric dryers, insulation, air sealing, and more! Stay up to date on the latest incentives at **Switch Is On** (https://incentives.switchison.org/)

Oakland Building Electrification Timeline



Preliminary Community Feedback

Concerns & Needs

- Cost
- Education/outreach
- Workforce training
- Cultural customs
- Weatherization & energy efficiency
- Seismic upgrades
- Permitting process
- Relocation & Right to Return

Learn more:

www.oaklandca.gov/projects/building-electrification

Thank you!

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NCLT Peace Garden Project Details

Item	Cost
Induction stoves *(NCLT provided stipends for new cooking equipment)	$ 6,974.53
Mini-split heat pump heating/ AC	$ 17,441.93
Heat pump water heaters	$ 8,194.00
Energy Star refrigerators	$ 9,115.92
Electrical service upgrade	$ 36,057.00
Solar panels	$ 25,000.00
New windows	$ 37,345.00
Roof, wall, crawlspace insulation	$ 16,535.00
New roof	$ 33,712.66
Lighting upgrades	$ 1,599.00
Total Cost	**$ 191,975.04**
Per unit cost	**$ 31,995.84**

NCLT Peace Garden Project Details

Program	Incentive Amount
Low Income Weatherization Program (LIWP) Rebates	$ 15,615.00
Bay Area Multifamily Building Enhancements (BAMBE) Rebate	$ 21,100.00
Multifamily Solar on Affordable Housing (MASH) rebate	$ 5,000.00
Hammond Foundation Solar Moonshot Grant	$ 25,000
B Quest Grant	$ 4,875.00
SPARCC Microgrant	$ 7,500.00
Total Incentives	**$ 79,090.00**
Gap (covered by city funding and Green and Healthy Homes loan)	**$ 112,885.04**

NCLT Peace Garden Project Details

Takeaways

- Solar energy offset 50% of energy consumption at property
- Net bill savings of 4% since going all electric (not factoring in new windows and insulation which can increase savings further)
- Local incentives (excluding grants) cover 15-20% of electrification project costs
- Battery storage for resiliency is extremely expensive (excluded from scope)

Resources

- SPARCC- https://www.sparcchub.org
- Solar Moonshot Grant- https://www.hammondclimatesolutions.ocm/solar-moonshot