

Building Emissions Saving Ordinance (BESO)

Time of Sale Upgrade Requirements

June 3, 2024



Background and Current BESO Requirements

Residential Energy Conservation Ordinance (RECO)

- Started in 1987
- Required 10 minimal energy/water measures at point of sale or remodel
- Buyer to install within 12 months

Lessons Learned

- One size doesn't fit all
- Wasn't getting to deep GHG reductions



City of Berkeley
Chapter 19.16
Ordinance 6099-N.S.

Residential Energy Conservation
Ordinance (RECO)
Certificate of Compliance

FORM A

Escrow Closing date: ___/___/___ Address of Property: _____ Unit # _____

Title Company: _____ Escrow #: _____

Structure ___ of ___ Number of units: _____ (NOTE: Each structure requires a separate Form A) Circle one: PASS FAIL

Acceptance of this form by the City deems the property to be in compliance with RECO (Ordinance 6099, BMC 19.16). It is given to property owners by the RECO inspector after a satisfactory RECO inspection. File this form with: City of Berkeley Building & Safety Division, 2120 Milvia St., Berkeley, CA 94704; Telephone 981-7440. **A \$20 filing fee is required for each residential structure.** The maximum required expenditure for meeting the requirements of this Ordinance is 0.75% of the final sale price for the property. See below.

KNOB & TUBE WIRING Notification (Attach Electrician's safety inspection report, if applicable.)	YES	NO	N/A
If Knob & Tube wiring is in the attic, has a licensed electrician inspected, signed & posted a safety notice in the attic?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RECO MEASURES:	Complete	Incomplete	N/A	Unit #
1. Ceiling insulation of minimum thermal resistance value R-30 installed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
2. Furnace heating ducts sealed at plenum and all joints in heating duct system sealed with mastic and insulated to a minimum of R-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
3. Hot water pipes in pumped, recirculating domestic water heating systems insulated to a minimum thermal resistance of R-3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
4. All domestic storage water heaters insulated to a minimum total of R-12.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
5. All exposed hot and cold water pipes within at least 24 inches of water heater are insulated to a minimum thermal resistance of R-3, except within 6 inches of single-wall flue and one inch of a double walled flue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
6. Installed low-flow faucet devices or fixtures with a maximum flow rate of 3 gallons/minute in all showers; a maximum of 2.75 gallons per minute in all sinks and lavatories; and a maximum of 4 gallons/minute in all other faucets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
7. Installed toilet fixtures designed to use no more than 1.6 gallons per flush, or existing fixtures modified to reduce the amount of water used while ensuring correct operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
8. Approved weatherstripping must be installed on all exterior doors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
9. Approved dampers, doors, or other devices to block air flow and reduce heat loss through chimneys are installed and working	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___
10. Multi-unit structure common area light fixtures have lamps of at least 25 lumens per watt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	___

NOTE: If any items are checked "INCOMPLETE" because the maximum required expenditure for this sale has been met, check here and attach itemized receipts for RECO measures (with an explanation, if necessary) and note the maximum required expenditure amount:

Final Sale Price \$ _____ X 0.0075 = \$ _____ City Inspector: _____ Date: _____

Seller/Owner: _____
(Type/Print Name)

Seller/Owner: _____
(SIGNATURE)

Address: _____

Phone: (____) _____

Inspector Name & Agency: _____ Date: ___/___/___

Inspection Fee paid by: _____ Amount paid: \$ _____

Filing Fee (\$20/structure) paid by: _____ Amount paid \$ _____

Buyer: _____
(Type/Print Name)

Buyer: _____
(SIGNATURE)

Address: _____

Phone: (____) _____

ORIGINAL: Building & Safety Yellow: Owner Pink: Inspector

Zero-NOx Appliance Rule



Prohibits the sale and installation of **NEW** NOx emitting gas water heaters and furnaces

No Gas Water Heating

- **2027** – Smaller buildings
- **2031** – Medium/large buildings

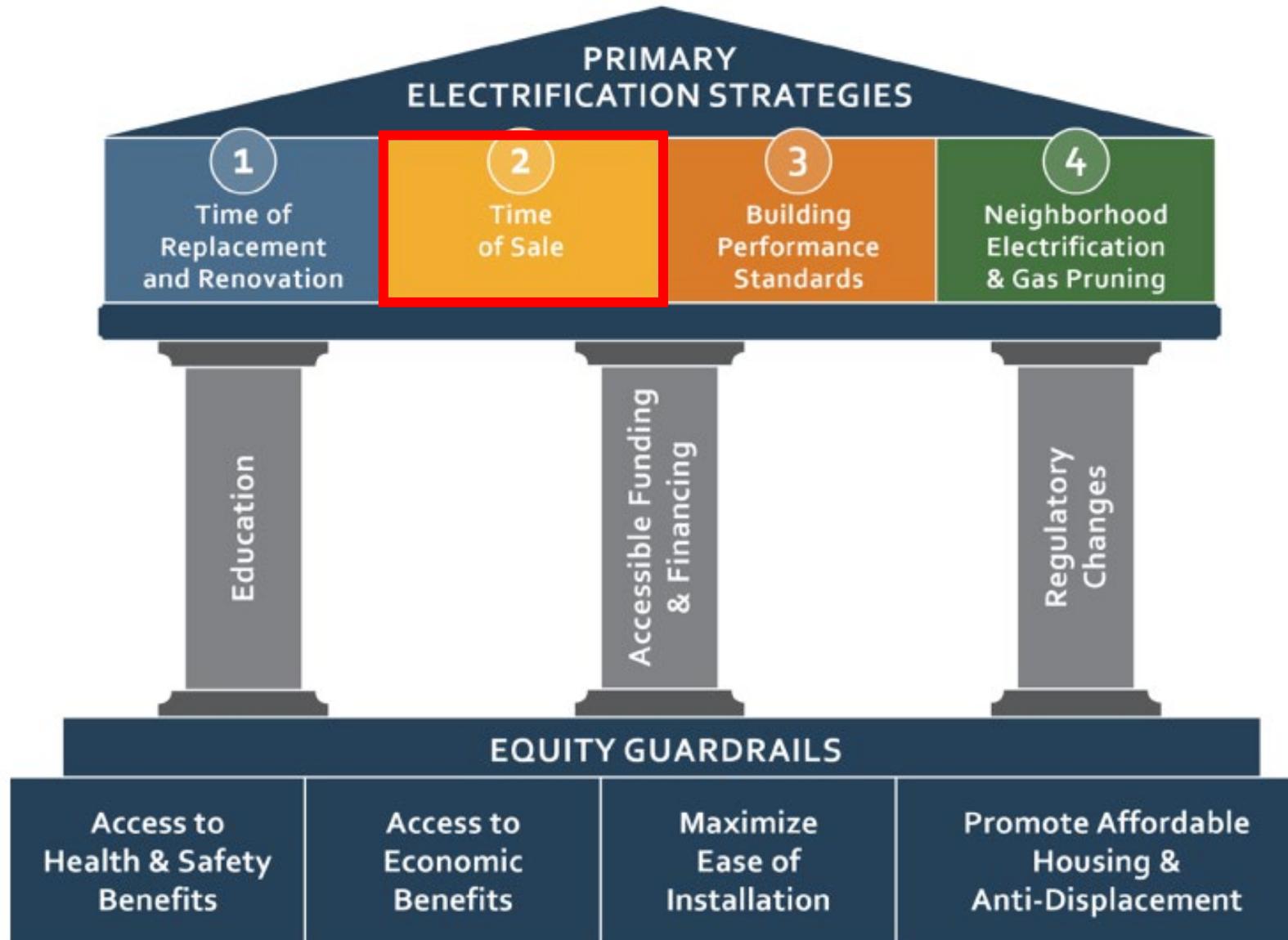
No Gas Space Heating (HVAC)

- **2029** – All buildings



BAY AREA
AIR QUALITY
MANAGEMENT
DISTRICT

Berkeley's Existing Building Electrification Strategy



Building Emissions Saving Ordinance (BESO)

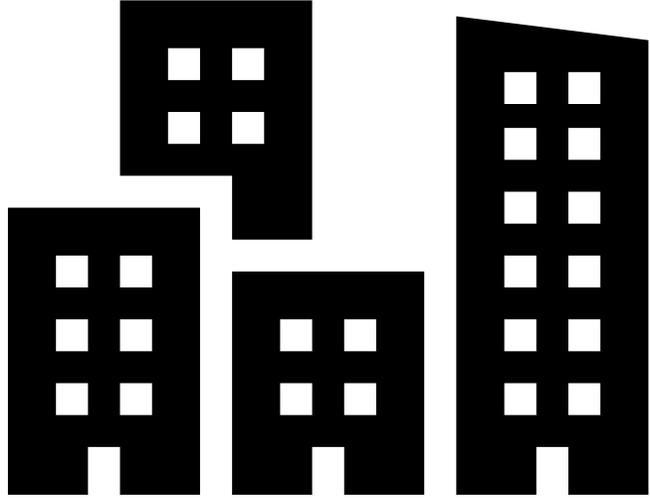


Time of Sale Program



Buildings **less** than
25,000 sqft

Large Building Program



Buildings **greater** than
25,000 sqft

Upgrade Requirements Timeline

Small Residential: Time of Sale



- Develop policy recommendation



- Bring proposal to Council
- Prep for implementation



- Start implementation



- Start developing policy recommendation



Medium/Large Buildings: Building Performance Standard (BPS)

Current Time of Sale Program

- Requires an **energy/electrification assessment** prior to listing a building for sale.
 - Home Energy Score for Single family homes
 - Provides information to potential buyers
- Refers building owners into local incentive programs to complete voluntary upgrades



Policy Objectives for Proposed Requirements



 Accelerate building electrification and resilience upgrades

 Promote early compliance

 Align with available resources

 Ensure smooth sales process

 Provide flexibility in required upgrades

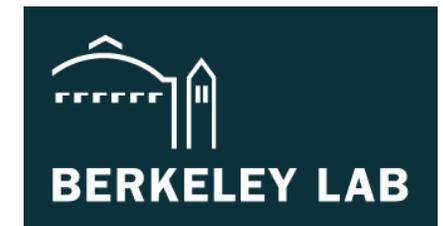
 Ensure renters are protected

Technical Advisory Committee



Members:

- Building Decarbonization Experts
- BESO Assessors
- Architects
- Electrification Contractors
- Utilities
- Regional and State entities



Outreach and Engagement



- Real Estate Community
 - Realtor Offices
 - Real Estate Professionals Webinar
 - Bridge Association of Realtors
- Berkeley Rent Board – Sustainability Committee
- Berkeley Neighborhoods Council
- City Green Building Coordination Team
- Berkeley Property Owners Association
- Community and Environmental Organizations
- Council Policy Sub-committee (FITES)
- Environment and Climate Commission



Proposed Upgrade Requirements

Overview of Proposed BESO Requirements

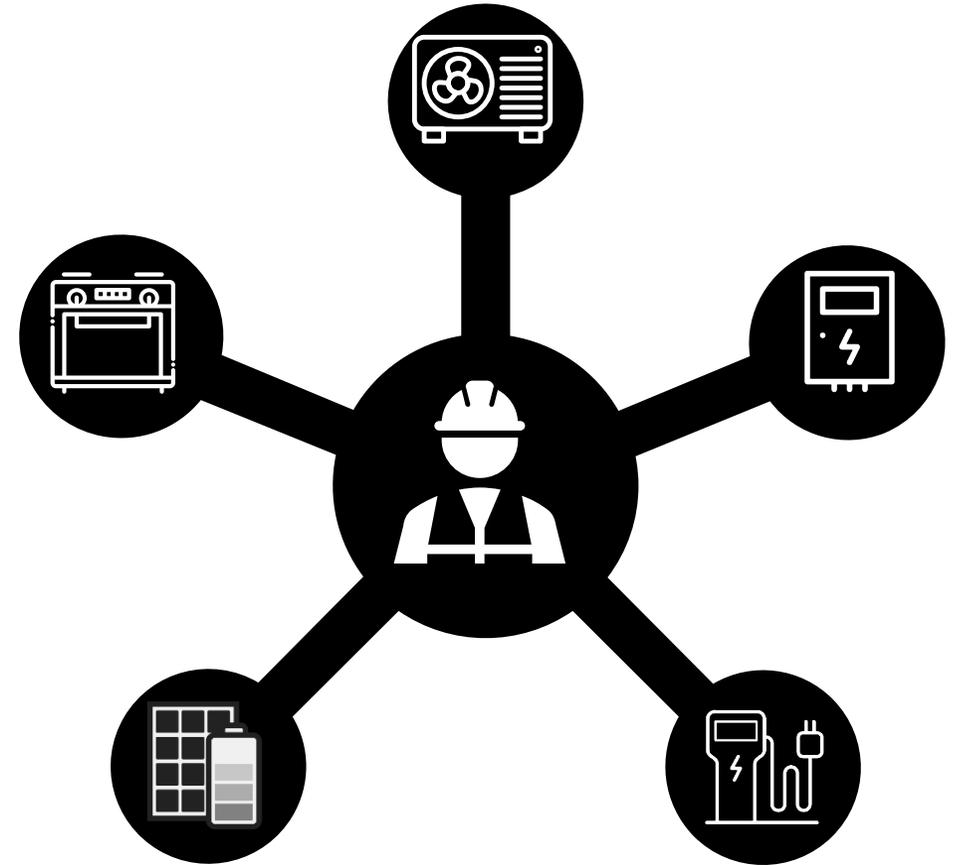


- Seller completes the BESO assessment
- Buyer completes the upgrade(s) within 2 years of the sale if compliance has not been met



Flexible Resilience Standard

- **Upgrade requirements:**
 - List of possible upgrades
 - Each upgrade has a corresponding credit value
 - Buildings need to achieve minimum number of credits through upgrades
- **Credit value criteria:**
 - Emissions savings
 - Cost
 - Health, safety, resilience bonus
- **Rationale:**
 - Addresses range of building conditions
 - Owner can prioritize



Potential Measures & Credits



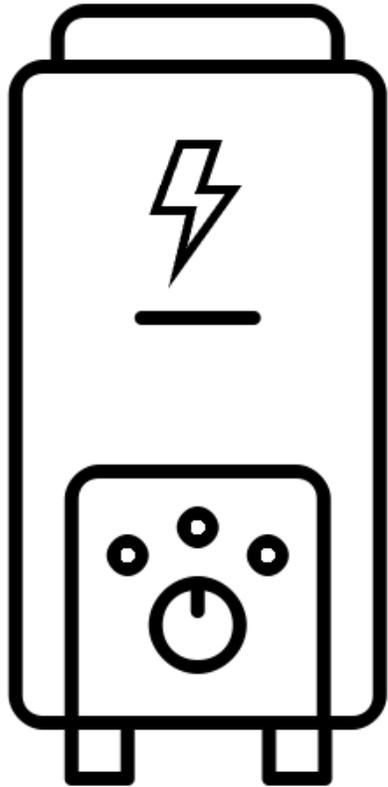
Credits Needed: 6

Measure	Credits*	Criteria
Heat Pump Water Heater	6	Emissions
Heat Pump HVAC	6	Emissions
Knob + Tube Replacement	6	Cost
Smart Panel	6	Cost
Solar PV + Storage	6	Cost
Panel Upgrade	4	Cost
Duct Sealing & Replacement	3	Emissions
Bi-Directional EV Charger	3	Cost
EV Charger	2	Cost

Measure	Credits*	Criteria
Induction Range	2	Emissions
Window Replacements	2	Emissions
Attic Insulation	2	Emissions
Wall Insulation	2	Emissions
Floor Insulation	1-2	Emissions
Greywater System	1-2	Cost
Air Sealing	1	Emissions
Prewiring & 240v receptacles	1/2 per receptacle	Cost

*The credit values are subject to change once vetted by the Technical Advisory Committee

Example Compliance Costs

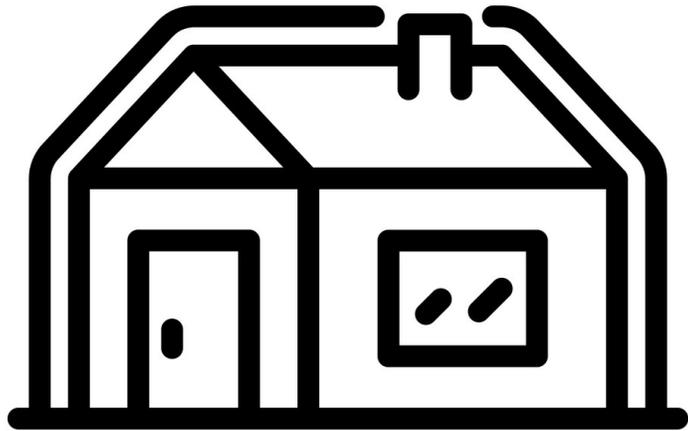


**Heat Pump
Water Heater**

Measure	Credits	Average Cost	Available Incentives
Heat Pump Water Heater	6	\$6,800	Tax credit, TECH Clean CA, etc.
Total	6	\$6,800	\$2,000+

Average Cost after incentives:
\$4,800 or less

Example Compliance Costs



Measure	Credits	Average Cost	Available Incentives
Attic Insulation	2	\$2,500	\$1,000
Air Sealing	1	\$1,500	n/a
Duct Sealing/Replacement	3	\$4,600	\$800
Total	6	\$8,600	\$1,800

**Energy Efficiency &
Envelope
Improvements**

**Average Cost with incentives:
\$6,800**

Example Compliance Costs

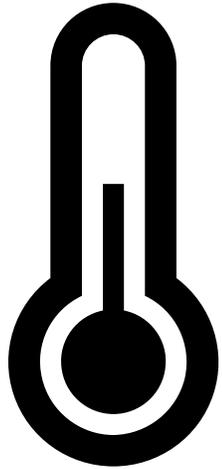


**Electric Ready –
Preparing for
BAAQMD Compliance**

Measure	Credits	Average Cost	Available Rebate
Panel upsizing and replacement	4	\$4,300	n/a
240v outlet installation (oven, dryer, water heater, EV charger)	2	\$1,800	n/a
Total	6	\$6,100	n/a

**Average Cost after rebates:
\$6,100**

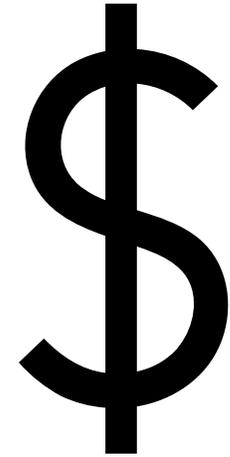
Benefits to Homeowners



**Improve Comfort
and Indoor Air
Quality**



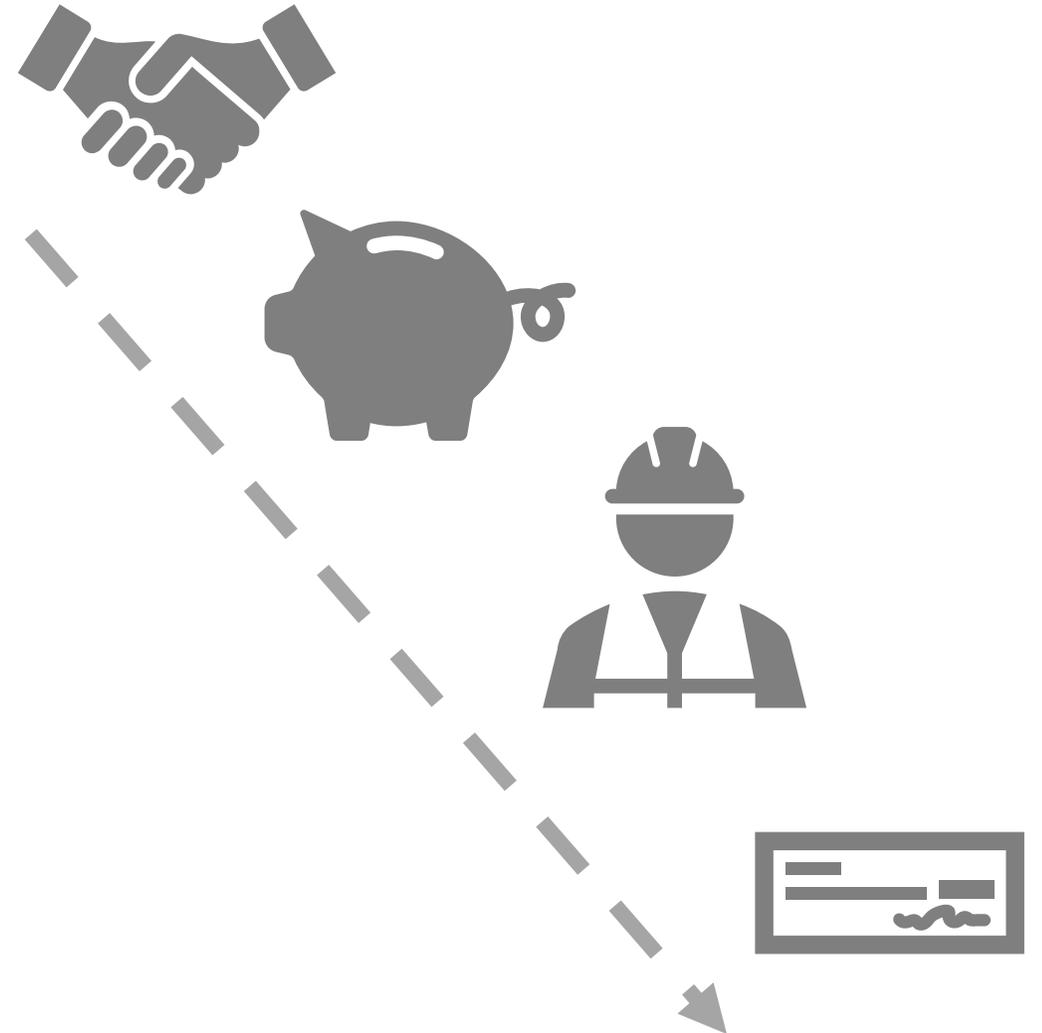
Increase Safety



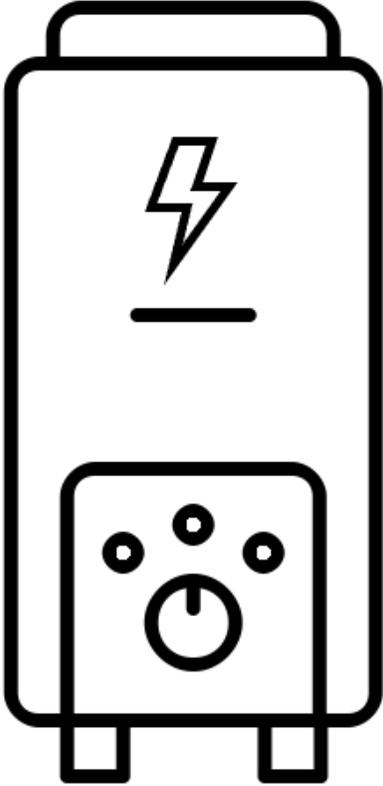
**Decrease utility
costs**

Utilize Escrow Deposit

- Deposit sent from escrow to City
- Buyer has up to 2 years to complete upgrades
- Refunded once property is compliant
- After 2-years the funds are forfeited to the City and could be used to help fund low-income electrification programs
- Operate similar to Private Sewer Lateral

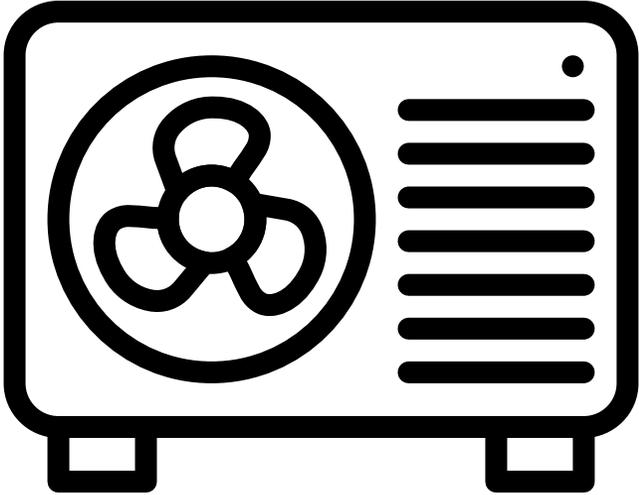


Exemption Pathway: Heat Pump System



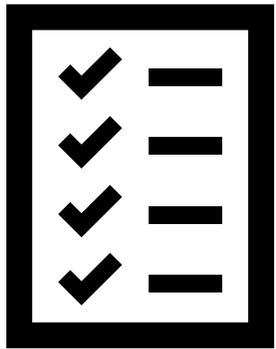
Water Heating

OR

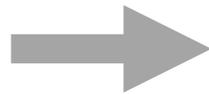


Space Heating/HVAC

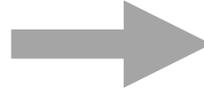
Example: Home *doesn't* have a heat pump system



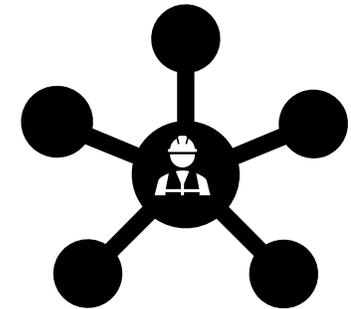
Seller completes assessment
(Home Energy Score)



Home listed for sale

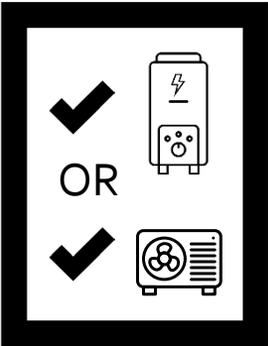


Funds to cover upgrades negotiated at closing through escrow deposit



Buyer completes upgrades to meet target credit requirement and utilizes escrow deposit

Example: Home *has* a heat pump system



Seller completes assessment
(Home Energy Score)

Home listed for
sale

Fully Compliant, no
upgrade needed

Phase-in by Building Type

- **Phase I: Single-family, ADUs, Duplexes, Condos within 1-4 unit buildings**
 - Expected implementation 2025
 - Likely to be owner-occupied
 - Bulk of sales

- **Phase II: 3-4 Units**
 - Expected implementation 2027
 - Likely to be rental properties
 - Complex/shared systems
 - Need to develop additional support systems



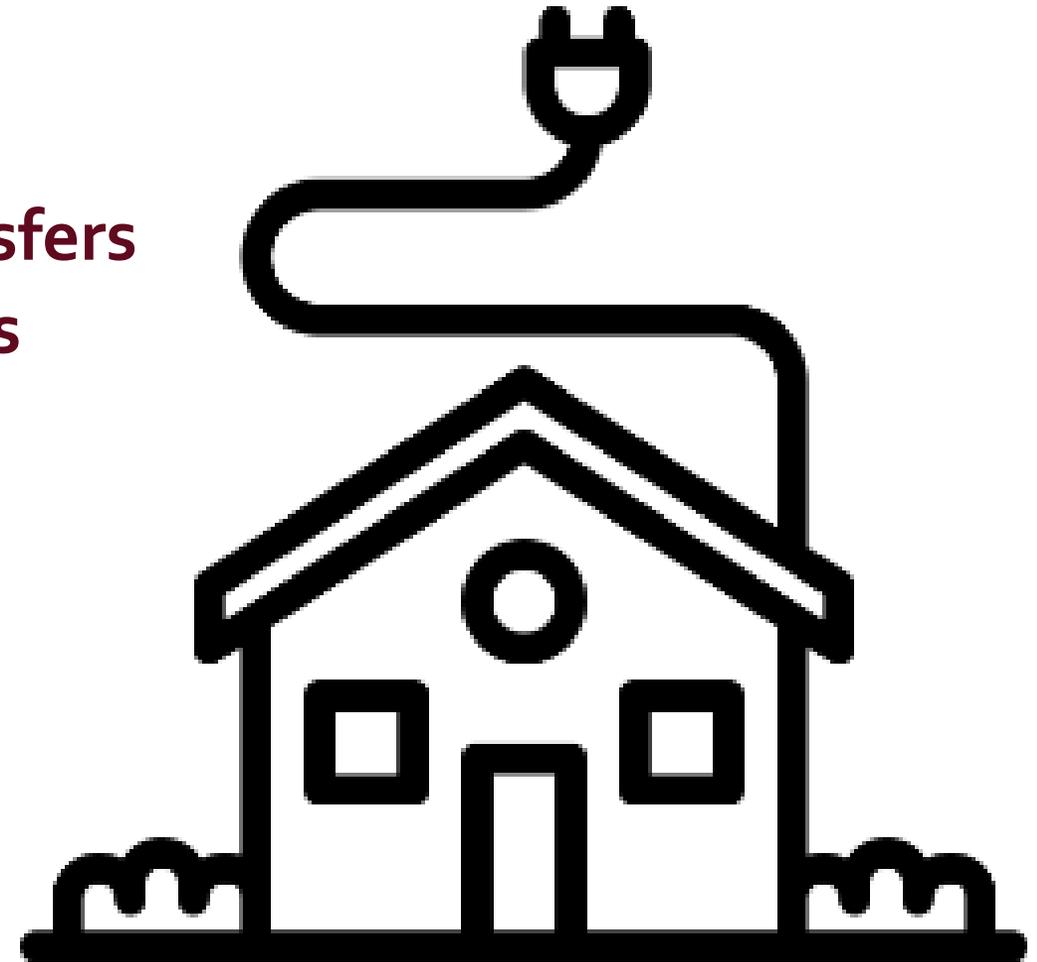
Berkeley Sales Analysis



Building Type	Avg. # of Buildings Sold per Year	% of Sales
Single Family	600	61%
Duplex	60	6%
Condominiums (within 2-4 Unit Buildings)	30	3%
3-4 Units	50	5%
Not subject buildings (Commercial, larger Multifamily, industrial)	260	25%

Proposed Exemptions/Support

- **BESO Exemptions:**
 - **All-electric homes** with permits showing capped gas line
 - **Refinances, partial and inheritance transfers**
 - Income qualified **First Time Home Buyers**
- **Support:**
 - **Offset assessment costs** for income qualified sellers
 - Credit for **High Home Energy Score**
 - Option to obtain **early refund**
 - **Hardship** extensions and deferrals



September 9, 2020 – Berkeley Marina



Thank You!



Ammon Reagan

BESO Program Coordinator

Office of Energy and Sustainable Development

AREagan@BerkeleyCA.gov

Sarah Moore

Manager

Office of Energy and Sustainable Development

SMoore@BerkeleyCA.gov

