

# SWITCHING TO ELECTRICITY

The Home Electrification Readiness Assessment (HERA) helps guide and assist residents with electrification. Employing the success of the Home Efficiency Genie program, City of Palo Alto Utilities (CPAU) offers this additional service to provide guidance and help residents make informed decisions on electrification for their homes. Here's our process:



## AWARENESS GET THE WORD OUT

- About 80% of home carbon emissions come from using natural gas for heating water and heating homes
- Palo Alto's electric portfolio is 100% carbon neutral

## EDUCATION GIVE THE LOWDOWN

- Educate residents about what electrification means
- Provide information, resources and independent advice on switching to electric, including options for electric appliances

## PREPARATION MAKE IT HAPPEN

- Offer on-site or virtual visits
- Help residents understand electrical needs of their existing equipment as well as available capacity of their electric panel
- Provide up to three scenarios for switching to electric



EV CHARGER



HEAT PUMP HVAC



ELECTRIC PANEL



INDUCTION COOKTOP



HEAT PUMP WATER HEATER



## Home Electrification Readiness Report

HOME EFFICIENCY  
**GENIE**

**Homeowner:**  
 Address: Palo Alto, CA 94301  
 Sq. Ft.: 2,750      Year Built: 1963      Date: 8/29/2019

**Mechanical Systems, Appliances, and Other Equipment**

Heating: Gas Furnace	Cooking: Gas	Other Large Equipment: Yes
Cooling: None	Solar Panels: No	Description: second fridge
Water Heater: Gas	EV Charger: None	Amps: 6      Amps = Watts/Voltage
Clothes Dryer: Electric		Examples: Hot Tub, Patio Heater, 2nd Freezer, etc.

**Electrical Panel Details**

Panel Type: Zinsco; GTE-Sylvania; Sylvania  
 Breakers: No breaker space available  
 Existing Panel Amps Rating: 100  
 Estimated Existing Amp Load: 80  
 Estimated Amps Available: 20

**WARNING**  
 These brands of panels are faulty and known to fail. Upgrade highly recommended.

**WARNING**  
 Additional breakers likely necessary, upgrade highly recommended.

Electrification Upgrade Options	Scenario A		Scenario B		Scenario C	
	Yes/No	Amps Needed	Yes/No	Amps Needed	Yes/No	Amps Needed
Add Central Air Conditioning	No		No		No	
Gas Furnace to Heat Pump (Ducted/Ductless & AC)	Yes	79	Yes	79	Yes	8
Gas to Electric or Heat Pump Water Heater	Yes	8	No		No	
Gas to Electric Cooktop with Electric Oven	No		No		No	
Gas to Induction Cooktop with Electric Oven	No					
Gas Dryer to Electric Dryer						
Gas Dryer to Heat Pump Dryer						
Electric Resilience/Baseboards or Furnace to Heat Pump (Ducted/Ductless & AC)						
Electric to Heat Pump Water Heater					No	
Electric Cooktop/Ovens to Induction			No		No	
Electric Dryer to Heat Pump Dryer	No		No		No	
Install Level 2 Electric Vehicle Charger	No		No		No	
Install DC Fast Charge Electric Vehicle Charger	No		No		No	
Install Solar Panels	No		No		No	
Install Solar Panels + Battery Storage		86		79		8
<b>Estimated Additional Amps for Upgrades</b>		<b>166</b>		<b>158</b>		<b>87</b>
<b>Estimated Amps for Upgrades and Existing Load</b>						
<b>Panel Upgrade Needed?</b>		<b>Panel upgrade required</b>		<b>Panel upgrade required</b>		Panel adequate

**Disclaimer:** Estimated Existing Amps Load is derived from (a) the City of Palo Alto Residential Electrical Load Calculator ([https://cityofpaloalto.org/gov/depts/ds/building/building\\_permits.asp](https://cityofpaloalto.org/gov/depts/ds/building/building_permits.asp)), (b) additional assumptions by CLEARResult engineering, and (c) any large load values manually entered. Estimated Existing Amps Load includes (a) selections on heating, cooling, water heating, clothes dryer, cooking, solar, and electric vehicle charger, (b) any large loads manually entered, (c) lighting loads and small appliance circuits assumptions based on home size, and (d) one (1) of each of the following: refrigerator, freezer, dishwasher, disposal, range hood, microwave. Breaker size for equipment is different than panel load, follow local code and manufacturer requirements for breaker sizing. Estimated Amps Needed for Solar + Battery Storage is a rough estimate as this equipment combination/configuration is highly variable. A licensed electrician must provide a complete assessment and recommendations specific to your home. The City of Palo Alto Utilities is providing this Home Electrification Readiness Report as a starting point for homeowners interested in electrifying their homes. Results in this report are estimates and must not be official electric load calculations.

## Home Electrification Readiness Report

HOME EFFICIENCY  
**GENIE**

### Recommendations and Next Steps

- Electrical Panel Assessment by Licensed Electrician**  
 A licensed electrician is qualified to perform a thorough assessment of your home's electrical panel, current electrical load size, status of your home's electrical safety, and will recommend necessary electrical upgrades due to safety and/or increasing the electrical load in your home. The electrician will provide a quote on cost of electrical upgrades.
- Heating/Cooling Equipment**  
 Contact licensed Heating, Ventilation and Air Conditioning (HVAC) contractors to upgrade your heating and cooling equipment. It is recommended to upgrade to a ducted or ductless heat pump with air conditioning included. Ducted heat pumps may utilize existing duct work, while Ductless Heat Pumps can be installed in homes without existing duct systems.
- Water Heating Equipment**  
 Contact licensed plumbers for options and quotes to upgrade your home's water heater. Switching to a Heat Pump Water Heater is the most energy efficient option and will save you money on water heating bills.

**Additional Notes:**

- Your main electrical panel is a Zinsco panel, this brand has been known to have more frequent issues than similar brand products.
- Sub-panel installed for kitchen remodel. Sub Panel has no breaker spaces available.
- Your natural draft water heater is currently located in an interior closet. To support an electric heat pump water heater it will most likely need to be relocated to a location with sufficient air volume to support a heat pump water heater
- The heat pump estimate is based on replacing the whole central system head load with a heat pump heating system

Report prepared by: Tony Jung      Date: 8/29/2019

City of Palo Alto Utilities - Home Electrification Readiness Report      2019 v.1

# FUN FACTS ABOUT HERA:

**Number of HERA participants to date:**

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In-home — 28

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Virtual — 30

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**HERA supports CPAU's heat pump water heater rebate program — offering up to \$1500 for replacing a gas water heater.**

**HERA is subsidized by CPAU — the cost to customer is \$49, or included free with either the virtual assessment (\$49) or in-home assessment (\$149).**