



Get Current – All Electric Appliances

Rachel Marmorstein

Sarah Kaufman

City of Roseville Electric Department





Make the Switch

Your home can be fully powered by electricity and free of onsite natural gas!

Consider Electric Appliances for:

Home heating and cooling

- Heat Pump HVAC
- Heat Pump Ductless Mini Splits

Water heating

- Heat Pump Water Heater

Cooking

- Induction Cooktop + Ranges

Clothes drying

- Heat Pump Dryer

- Bonus – Your vehicle



Benefits

Power home with clean, renewable energy

- Health and safety
 - Reduce fire hazards
 - Improve indoor air quality

- Energy efficiency
(Incredibly efficient products now available)

- Potential \$ savings
 - Generous install incentives
 - Potential for utility bill savings



Who We Are – Where We Are Going

Today

2045

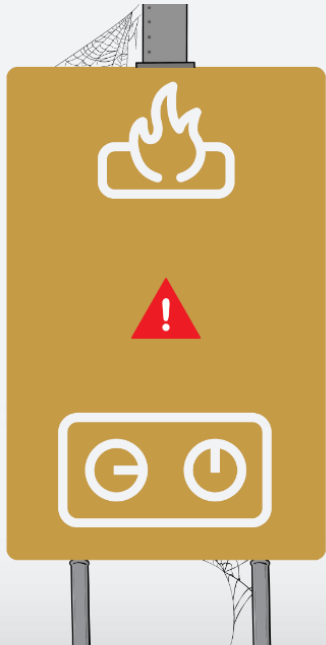




State Goals

- Buildings 25% of CA GHG emissions
- Economy-wide carbon neutrality by 2045 (Exec Order B-55-18)
- Governor's target of 3 million climate friendly homes and 6 million heat pumps by 2030.





Overall Considerations

- Energy previously charged on gas bill will be charged on your **electric bill** instead.
- Which of your gas appliances are nearing **end of life**?
- Factors **specific to your** home
- Product **requirements** for incentives
- Select **Contractors** may give you access to more rebate options.
(TECH Clean Contractors)
(Pace registered contractors) - For PACE lending
Always get at least 3 quotes
- **Potential Electrical Upgrades**
 - 240 volt outlets
 - Wiring upgrades
 - Available amps on electric panel
 - Available circuits on electrical panel

PROGRAM REQUIREMENTS:

- The Heat Pump Water Heater must be NEEA Tier 3 or 4 rated unit.
 - Here is a link to the list of qualified products. <https://neea.org/img/documents/HPWH-qualified-products-list.pdf>
- The Heat Pump HVAC and mini-split systems must be a multi-stage Heat Pump HVAC System with the following minimum specifications:
 - Split System – 16 SEER/8.2 HSPF
 - Packaged System - 15 SEER/8.0 HSPF
 - The duct work must pass Title 24, via HERS CF3R.
 - 2 stage compressor.

\$ Install Cost and Incentives \$

Appliance	Cost*	Additional Costs	Roseville Electric Incentives**	TECH Clean Incentives**	Federal Rebate** (coming late 2023/early 2024) (80-150% AMI*** and point of sale)	Federal Tax Credit** (\$14,000 total cap)
Induction Cooktop	\$1,000 - \$4,000	Labor, electrical work, permits	\$500	None	50% of costs up to \$840	None
Heat Pump Dryer	\$1,100 - \$1,900	Labor, electrical work, permits	\$250	None	100% of costs up to \$840	None
Heat Pump HVAC	\$2,000 - \$8,000	Labor, electrical work, ancillary products, permits	\$600/ton gas to electric \$250/ton electric to electric (2-5 tons typical)	\$1,000 per system	100% of costs up to \$8,000	30% of costs up to \$2,000
Heat Pump Water Heater	\$1,800 - \$2,500	Labor, electrical work, permits	\$2,000/unit gas to electric \$600/unit electric to electric	Expected ~\$3,100 (coming late Summer/early Fall)	100% of costs up to \$1,750	One HP product per year
Panel Replacement	\$\$\$\$ Consult with your electrician on costs		\$1,500	None	100% of costs up to \$4,000	30% of costs up to \$600 (must be combined with another upgrade)
Home energy efficiency improvements	Federal Rebate 100% of costs up to \$1,600 (80-150% AMI*)		Federal Tax Credits 30% of costs capped at: \$1,200 insulation and air sealing \$250 per door \$600 windows \$150 energy audits			

*rough estimates, please consult with your contractor and electrician on costs specific to your home and appliance

**subject to change, please refer to websites for most up to date information

***AMI = area median income

Incentive Resources

Roseville Incentives and Product Requirements - [roseville.ca.us/rebates](https://www.roseville.ca.us/rebates)
(Electrification) <https://www.roseville.ca.us/cms/One.aspx?portalId=7964922&pageId=19015895>

Tech Clean California Incentives + Product Requirements

https://incentives.switchison.org/residents/incentives?field_zipcode=95747&field_zipcodes1=95747&field_functional_category=All

Tech Clean California Contractors

https://switchison.cleanenergyconnection.org/?_ga=2.125595599.450122915.1683736148-15420004.1683216474&_gl=1*1wovc00*_ga*MTU0MjAwMDQyMTY4MzIxNjQ3NA..*_ga_8NM1W0PLNN*MTY4MzgxODgwNC40LjEuMTY4MzgyMDM5Mj41My4wLjA

Federal Tax Incentives and Rebates (Talk to a tax professional)

[How much money can you get with the Inflation Reduction Act? — Rewiring America](#)

- Many tax rebates are **income qualified**.
 - [Area Median Income Calculator](#)

Federal Tax Credit Product Requirements

<https://cee1.org/node/729>

Financing Options

Financial Product	HELOC	Home Equity Loan	Cash-out Refinance	HERO /PACE Program	Credit Card or Personal Loan
Description	Credit line based on home equity.	Second mortgage.	New mortgage.	Loan based on home equity, but payments made through property tax bill.	Varies.
Loan Terms	Usually variable interest rate with 10, 20, and 30 year terms available.	Usually fixed rate. Up to 30 years.	Fixed rate, variable, or interest only. New mortgage replaces existing mortgage. Up to 30 years.	Up to 30 years, requires home assessment, all costs of program rolled into loan.	Varies.
Advantage	Retains existing mortgage, simpler application than mortgages.	Retains existing mortgage and fixed payments.	Cash can be used as needed.	No credit requirements.	Simple application, no closing costs.
Disadvantage	Higher interest rates, can have interest only payments, early termination fees. Lien on property.	Higher closing costs than HELOC.	May result in unfavorable change to interest rate on mortgage. Higher closing costs than HELOC.	Lien on property that generally must be paid off before a home is sold.	Higher interest rates.

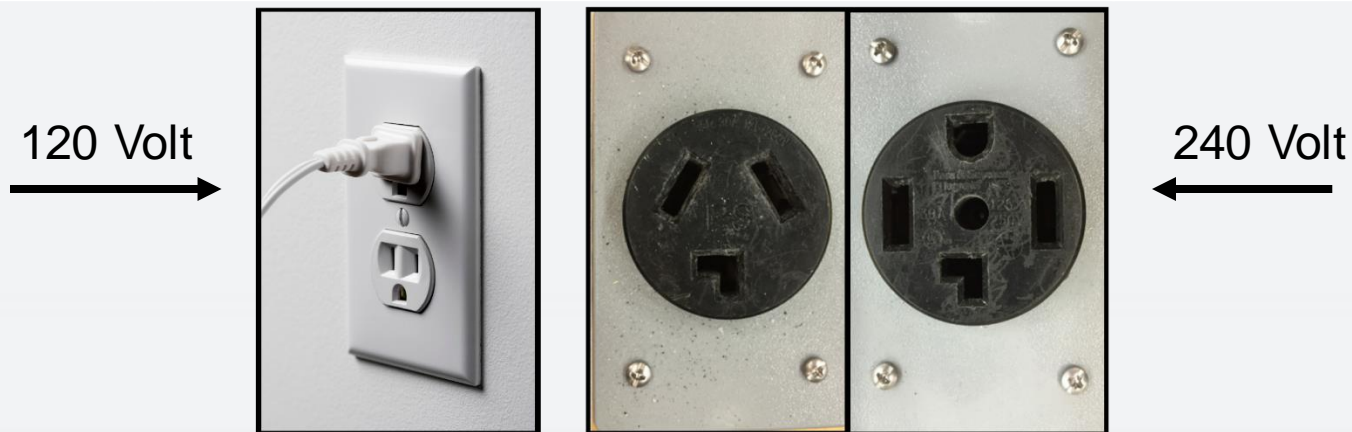


Potential \$ Savings

- Gas bill will go down, electric bill will go up
- On net gas and electric bills, estimated savings of up to
 - \$118 per year for water heating
 - \$279 per year for space heating
- Why? Electric appliances are more energy efficient

Electrical Voltage and Outlets

HVAC	Water Heater	Dryer	Cooktop
Heat Pump 240 Volt	Heat Pump 240 volt typical Some 120 volt options	Heat Pump 240 Volt	Induction 240 volt typical Some 120 volt options
Non Heat Pump AC Often 240 Volt	Traditional Electric 240 volt	Traditional Electric 240 Volt	Traditional Electric 240 volt
Gas Furnace 120 Volt	Gas No Electrical, or 120 volt for ignitor	Gas Often 120 Volt Electrical	Gas Often 120 Volt Electrical





Panel Replacement?

200 Amp Panel

- Likely not necessary

100 Amp Panel

- More likely to need enhancements
- Many ways to avoid a full replacement

Work with an Electrician

Ask About-

- Panel Enhancements/Rearrangements
- Junction Boxes (bring low powered circuits together)
- Load Sharing Devices (plugs and hardwired)
- Circuit Pausers
- Sub Panel (if you need circuits, not amps)
- Smart Panel



getneocharge.com



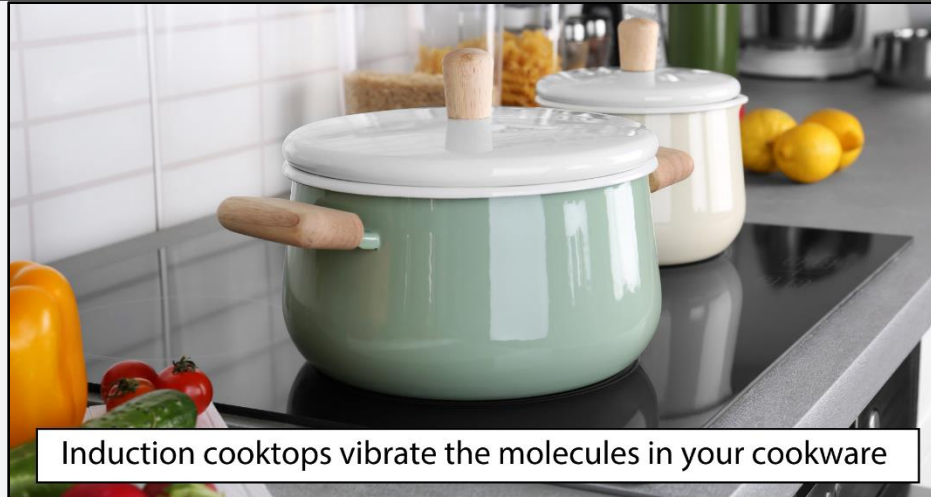
simpleswitch.io

Product Amperage

HVAC	Water Heater	Dryer	Cooktop	Electric Vehicle Charger
Heat Pump 10 - 30+ Amps	Heat Pump 15 - 30 Amps	Heat Pump 30 Amps	Induction 20 - 50 Amps	EV Charger 16 - 50 Amps
Non Heat Pump 15 - 60 Amps	Traditional Electric 20 Amps	Traditional Electric 30 Amps	Traditional Electric 20 - 60 Amps	
Gas Furnace 6 - 20 Amps	Gas 0 - 20 Amps	Gas 4 -10 Amps	Gas 15 - 20 Amps	

- **Consider lower amp products**
- **In some cases your electric choice could be lower amperage than your original.**

Induction cooking is fast, efficient, safe and precise



Induction cooktops vibrate the molecules in your cookware



The single flat surface makes it easy to clean!

Induction Cooktop

- Different than a standard electric cooktop
- Heats cookware directly through magnetism
- Highly responsive - can increase and decrease heat quickly
- Temperature settings are precise and consistent
- Cook twice as fast as gas and or electric

- Won't heat up your home
- Reduces Fire Risk
- Improves indoor air quality

- Easy Cleanup

Induction Cooktop - Considerations

- May interfere with **Electronics**
 - Pacemakers
 - Digital meat thermometers
- Cookware must be **magnetic**
 - Cast Iron or magnetic stainless steel
- Some models make **noise**
- Unless full surface induction, best to **match pan sizes** to induction area

Induction Cooktop Compatible Cookware

You can test your pans with a magnet to ensure they'll work with your induction cooktop. If the magnet sticks, the pan will work!



(Products with a red X will work if they have a magnetic layer on the bottom.)

Heat Pump Dryer

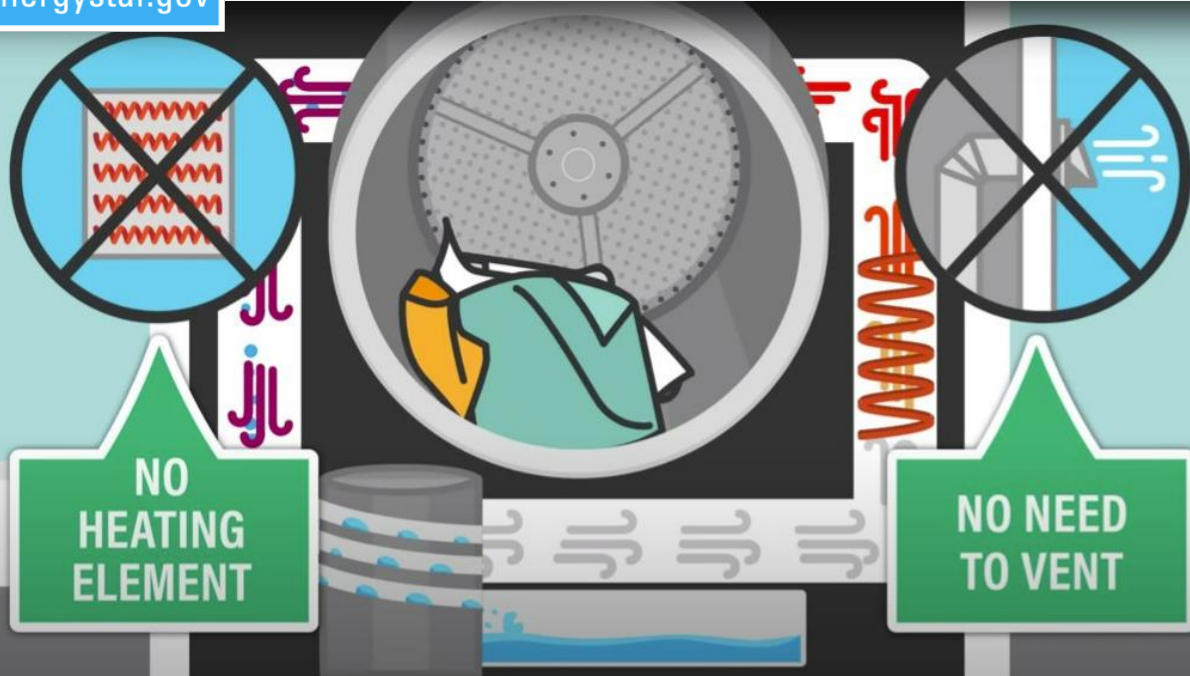
How does it work?

- Closed loop system heating air and removing moisture through an evaporator

Considerations

- Can last twice as long – up to 20 years
- Venting not required
- Fire hazard reduced
- Drying time is longer, but lower heat is gentler on clothes
- Standard electric dryers are an alternative route to all electric appliances, but an RE incentive will not be available.

USES 50%
LESS ENERGY



Do you know?

What is a heat pump?

Almost everybody owns an appliance that functions with similar technology?

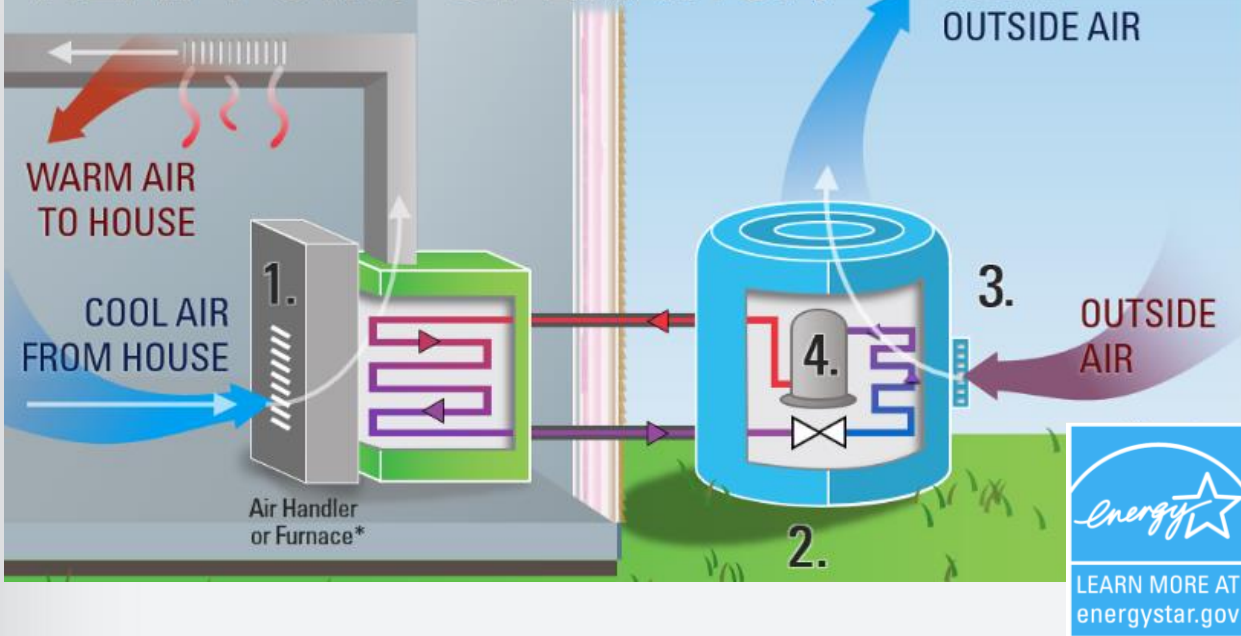
Do you know what it is?

Do you know?

A refrigerator!



HEAT PUMP OPERATION

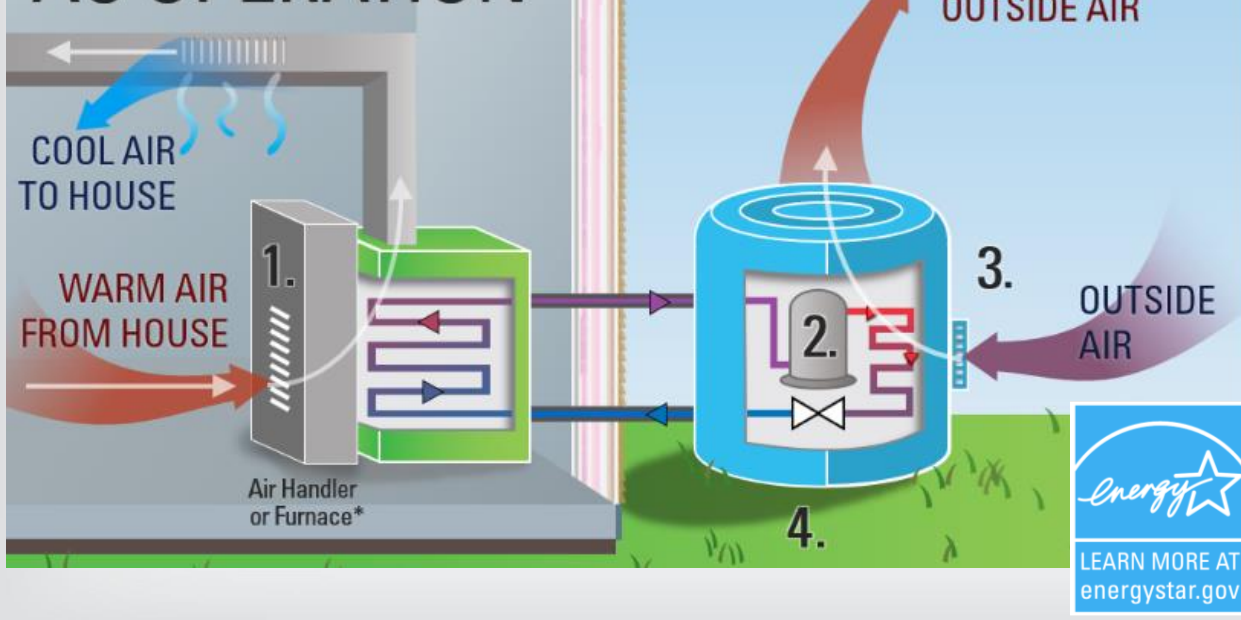


Heat Pump HVAC & Mini Split

How does it work?

- Moves heat rather than burning fuel
- Uses pressurized refrigerant
- Refrigerant can run in reverse to heat or cool home (2 for 1 appliance)
- Can generate 3-4 times more energy than it consumes

AC OPERATION



[ENERGY STAR Explainer](#)

[Gov Heat Pump Explainer Video](#)

Heat Pump HVAC





Heat Pump HVAC & Mini Splits

- Improved indoor air quality
 - Continual filter and circulation
- More comfortable
 - Steady temperatures
 - Humidity control
 - Quieter
- Ductless options are affordable and well reviewed





Considerations

Home needs air sealing?

(Weather stripping, windows, insulation, ducting)

- Home may not be a candidate for all Heat Pumps
- Consider addressing air sealing with project

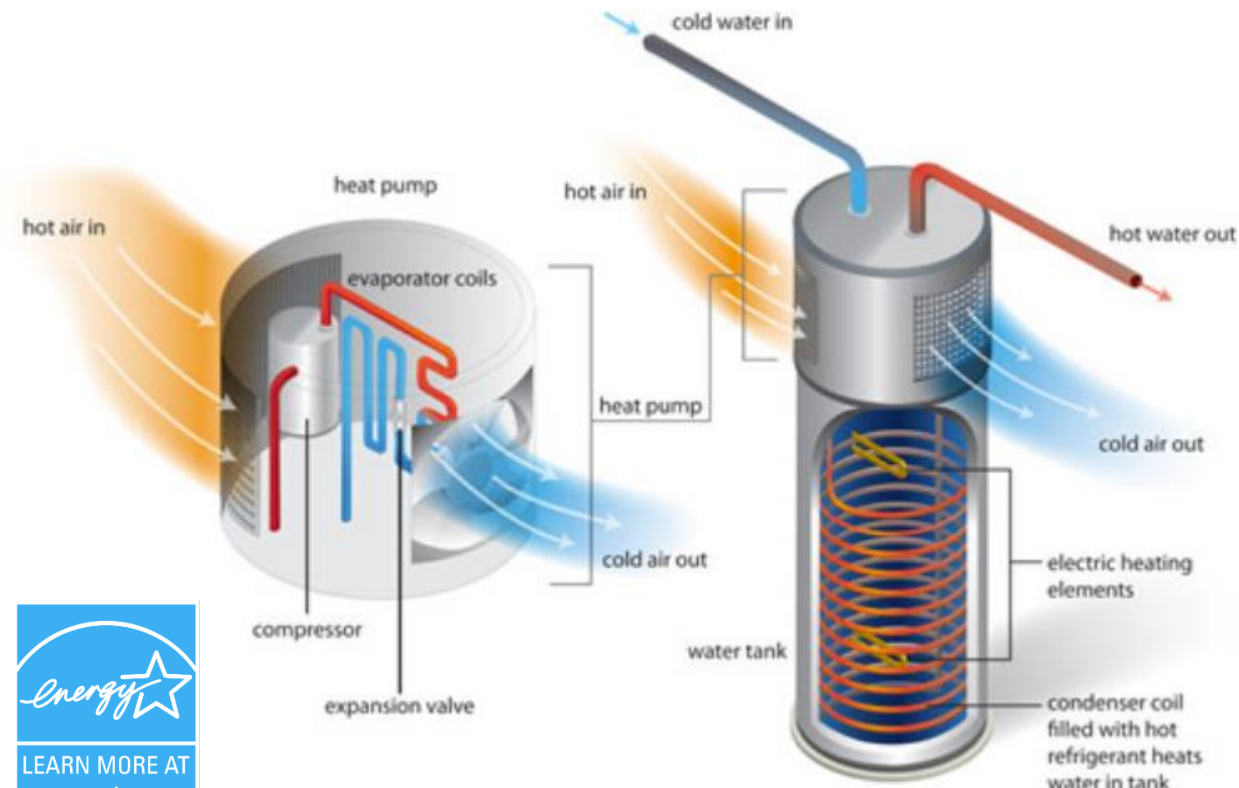
Variable Speed/Inverter Driven + fully communicating systems

- Best efficiency
- Best comfort (greater + faster temp change)
- Best lifespan
- May be able to purchase a smaller system

Ask your contractor to walk you through tips for using your new system.



Heat Pump Water Heater



- Uses **refrigerant lines** to transfer heat from surrounding air to water in tank
- **Longer life** - 13-15 years vs 8-12 years
- 10 year **warranties** are common
- **No open flames**
- Releases **cool, dry air**
- Up to **3x more efficient**



Heat Pump Water Heater Considerations

Location

- Air space (700-800 cubic feet)
- Louvered or undercut closet door
- Split system with compressor outside and tank in original space
- Unit will likely be taller
- Adequate sound barrier (appliance may make noise 40-80 dBA)

Sufficient hot water

Full tank reheat is more gradual.

- Sizing up your tank may be helpful
- Ask about a unit with a mixing valve
- Hybrid Water Heaters (back up Electric resistance)



Summarizing Advice

- Consider the opportunity to fuel with renewables and hydropower vs a fossil fuel.
- Don't rule out Energy Efficient Electric Appliances due to assumed cost.
(Consider what incentives you qualify for)
- Make preparations prior to appliance burnout.
- Consider that electrical work takes time. Consult an Electrician early on in your process to evaluate what products you can consider.
- Consider that multiple quotes takes time. Ask for quotes prior to product burnout if possible.