Heating our homes and water is a significant source of climate change. Consider installing more efficient, electric equipment to cut your carbon footprint and save money.

**Heat Pump Water Heaters (HPWH)**

Your water heater may be hidden in closet, but it’s burning gas 24/7. It uses 18% of the energy used by an average home – more than a refrigerator, dishwasher, clothes washer and dryer combined. Especially if it’s getting old, you may want to consider replacing it with a HPWH. It’s roughly the same size and shape as your old model, but it uses about 70% less energy! It costs more than conventional water heaters, but is a great value.

**A Great Investment**

Right now Home Depot charges up to $738 for an electric water heater and $1,129 for a gas water heater (with cheapest models half that). HPWHs start at $1299 (now on sale for $1169)—with Wi-Fi vacation scheduling, smart learning (heats more water when you need it and less when you don’t), 10-year warranty, leak detection and high temperature/pressure alerts. **PSE offers a $500 rebate.**

The average HPWH costs a small family about $200-300+ less per year to operate than a standard electric model, saving you as much as $3,500 over the life of the water heater!

It can be installed in a tiny closet with a louver in the door or ducted to the outside, but also works well in garages. It makes no more noise than a new refrigerator. With ducting, noise is even less, no house air is exhausted, and no cool air is introduced into the house. For new homes, it get three times more points toward the state energy code as a condensing gas furnace. A win-win deal! If your water heater is new, consider at least making plans for the replacement and so when it fails you’ll be all set.

**Do Not Resuscitate!!**
Home Heating Systems

Heating our homes accounts for roughly half of our energy use, so making improvements in heating systems can take big chunk out of your carbon footprint.

Replace a gas furnace with a central heat pump. New models are driven by variable speed motors, making them considerably more efficient and much quieter than others. PSE has a $1500 rebate for this replacement, or $800 for putting one in a new home.

Replace electric resistance (ER) heat with ductless heat pumps (DHPs). Scrap baseboards, wall heaters, or electric furnace and install DHPs (aka “mini-splits”), which are 3-4x more efficient, very quiet, and work well in cold weather—and they provide cooling on hot, smoky summer days. PSE has $800 rebate for this! This can reduce your carbon footprint by 6 tons over 10 years.

Replacing Thermostat. Swapping a conventional model for a Nest E ($169 less $75 from PSE), which allows remote programming and adjustment and sets back when it senses you’re not home. If you can’t replace ER heat, at least replace the mechanical thermostat with a programmable electronic thermostat with remote control (~$100).

Have ductwork sealed and insulated. Ductwork is often leaky, cutting system efficiency by 10-20% and increasing drafts by pressuring or depressurizing the house, and sometimes sucking in air from the attic or crawlspace (yuck!). Make sure they’re sealed using mastic (not duct tape). PSE will pay half the cost for homes built prior to 2001.

Appliances
Choose ENERGY STAR appliances and get PSE rebates: $25 for washer or dryer

Envelope
Seal and insulate roof, walls, and floor. These are permant investments in the comfort, value, and operating costs of your home. PSE offer will pay half the cost of improving attic (from R-11 to R-49) up to $600, floor (from R-11 to R-30) up to $200, and whole-house air sealing up to $350. Similar PSE rebates for multi-family and manufactured homes are also available.
Information Resources as of 12/2/2019

PSE rebates: https://www.pse.com/rebates

Hot Water Solutions: https://hotwatersolutionsnw.org/

ENERGY STAR Residential Water Heaters:

HPWH kWh/year: ENERGY STAR p. 2:

1.5 Pounds carbon/kWh: PSE https://infogalactic.com/info/Puget_Sound_Energy

Lifetime savings: NEEA: https://hotwatersolutionsnw.org/

Annual Savings: NEEA: https://hotwatersolutionsnw.org/compare

Kg per MMBtu: 14.5/MMBtu https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

Metric tons/therm: 0.0053 metric tons CO2/therm and 1,074.7 lbs CO2 per megawatt-hour, EPA: https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

Pounds per MMBtu: https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

HPWH Savings: http://e3tnw.org/ItemDetail.aspx?id=172

DHP savings: 5.5 kWh/SF baseline, DHP 3.7 kWh/year, savings 32%, for 2000 SF home 6,000 kWh/year. But typically for just 45-70% of the home served, typical 3500 kWh/yr : http://e3tnw.org/ItemDetail.aspx?id=300

Vendor Recommendation: Pacific Air is converting their business away from natural gas products to 100% efficient electric heating, including heat pump water heaters. They are experts on this subject, and strong supporters of reducing carbon emissions, to the point of changing their business model. Please consider supporting this environmentally conscious business.

This information provided by the Home Heating Rapid and Just Climate Action Team. Our goal is to convert at least 10 water heaters in Thurston County in 90 days, or collect pledges to do so when it comes time for a household to replace their water heater. You can help by letting us know if you have acted or plan to act on any of the suggestions presented above. Please send responses or questions to actionteam.tcwa@yahoo.com. Thank you for taking action to reduce your carbon footprint!
PLEDGE

I/We,

_________________________________________________,

pledge to replace this water heater with
___ a heat pump water heater
___ the most energy efficient electric water heater available for our location and budget

Dated _________________________________
Suggestion: Post the pledge near your water heater.