

5.7 Technical Specification: Heat Pump Water Heating

Small Premium Project Type:

Heat pump water heaters (HPWH) use a compressed refrigerant cycle to heat water for service and domestic hot water usage. An air source heat pump water heater pulls heat from the surrounding air and rejects it, at an increased temperature, into an insulated water storage tank. Because of the high energy efficiency of heat pump heating cycles, compared to conventional electric and gas water heating, the system reduces energy use.

Description:

These projects will replace traditional hot water heaters, or tankless hot water systems, with heat pump water systems. These systems may have back-up resistance heating elements.

Minimum Operation:

The facility must have an annual average hot water load of more than 250 gallons per day and remain in operation a minimum of 2,000 hours per year (for commercial buildings).

Equipment Type, Capacity and Performance:

The following performance requirements must be met:

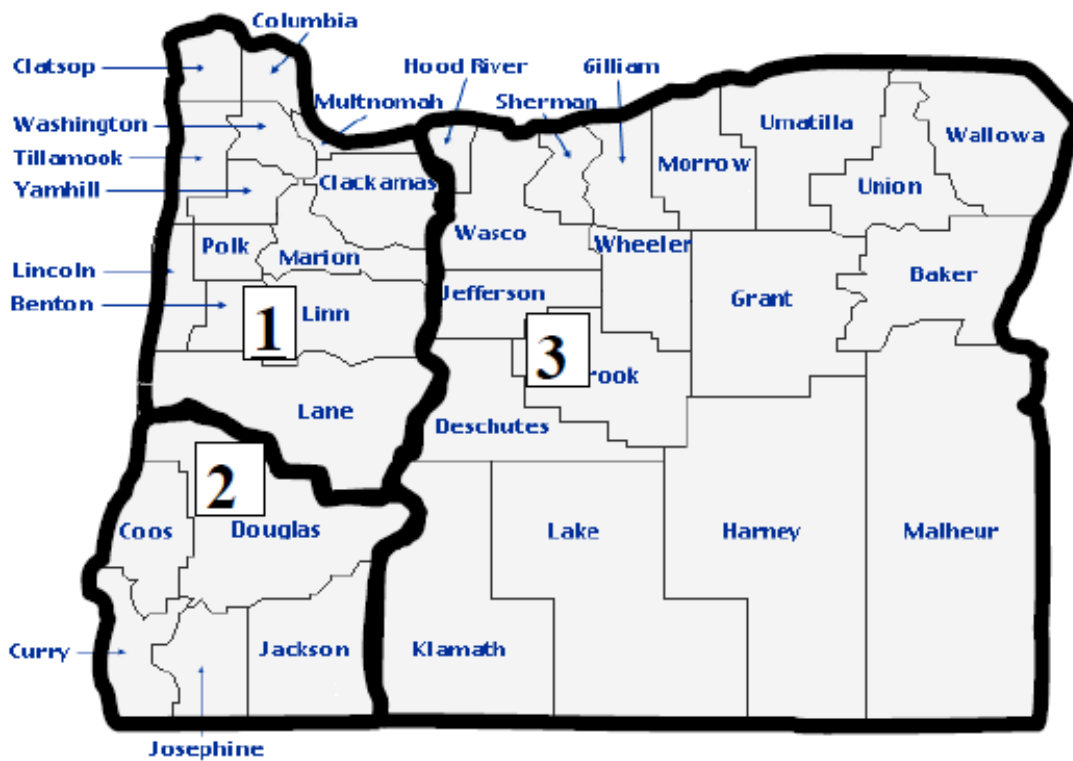
1. Heat pump water heater must be installed in accordance with manufacturers specifications and conform to the requirements of Oregon's Building Code.
2. Qualifying equipment must have minimum Energy Factor (E.F.) of 1.8.
3. Qualifying equipment must have a first hour rating of 50 gallons per hour.
4. Storage tank must be between 40 and 120 gallons.
5. Hot water storage tanks must be installed in one of the following locations:
 - a. Inside conditioned space (including heated basements).
 - b. Unheated basement (must have exterior wall and floor insulation).
 - c. Attached garage that is at least 1000 cu. ft.
6. The temperature of installation location should maintain a minimum of 45 degrees and equipment should not be installed outdoors.
7. Heat pump water heater and installation must include a warranty covering repair or replacement for a minimum of five (5) years from the date of purchase.
8. Heat pump water heater must be UL listed.
9. Heat pump water heater must be built in accordance with ANSI Z21.10.3/CSA 4.3.

Incentive Estimate Worksheet:

The incentive worksheets shown in the following schedules are the prescribed tax credit amounts that small premium projects can receive heat pump service hot water heaters. The Oregon solar climate zones are shown on the following figure. Choose the climate zone corresponding to the county the heat pump water heater is being installed in and select the corresponding incentive amount on the incentive worksheet.

Oregon Solar Climate Zones (by county)

Zone 1	Zone 2	Zone 3
Benton	Coos	Baker
Clackamas	Curry	Crook
Clatsop	Douglas	Deschutes
Columbia	Jackson	Gilliam
Lane	Josephine	Grant
Lincoln		Harney
Linn		Hood River
Marion		Jefferson
Multnomah		Klamath
Polk		Lake
Tillamook		Malheur
Washington		Morrow
Yamhill		Sherman
		Umatilla
		Union
		Wallowa
		Wasco
		Wheeler



Oregon Heating Climate Zone	HPWH Location	Storage Capacity (gallons)	A. # Units	B. Measure Incentive (\$) (A x B)	C. Total Incentive (\$) (A x B)
Zone 1	Heated Basement or Inside	≤ 50 gallons		\$210	
		> 60 gallons		\$361	
	Unheated Basement	≤ 50 gallons		\$179	
		> 60 gallons		\$340	
	Garage	≤ 50 gallons		\$182	
		> 60 gallons		\$342	
Zone 2	Heated Basement or Inside	≤ 50 gallons		\$210	
		> 60 gallons		\$361	
	Un-Heated Basement	≤ 50 gallons		\$166	
		> 60 gallons		\$322	
	Garage	≤ 50 gallons		\$175	
		> 60 gallons		\$332	
Zone 3	Heated Basement or Inside	≤ 50 gallons		\$210	
		> 60 gallons		\$361	
	Unheated Basement	≤ 50 gallons		\$156	
		> 60 gallons		\$308	
	Garage	≤ 50 gallons		\$137	
		> 60 gallons		\$273	

Total from Column C. _____