

Proposed Updates to Deemed Savings

Energy Efficiency Implementation Project (EEIP)



June 2, 2011



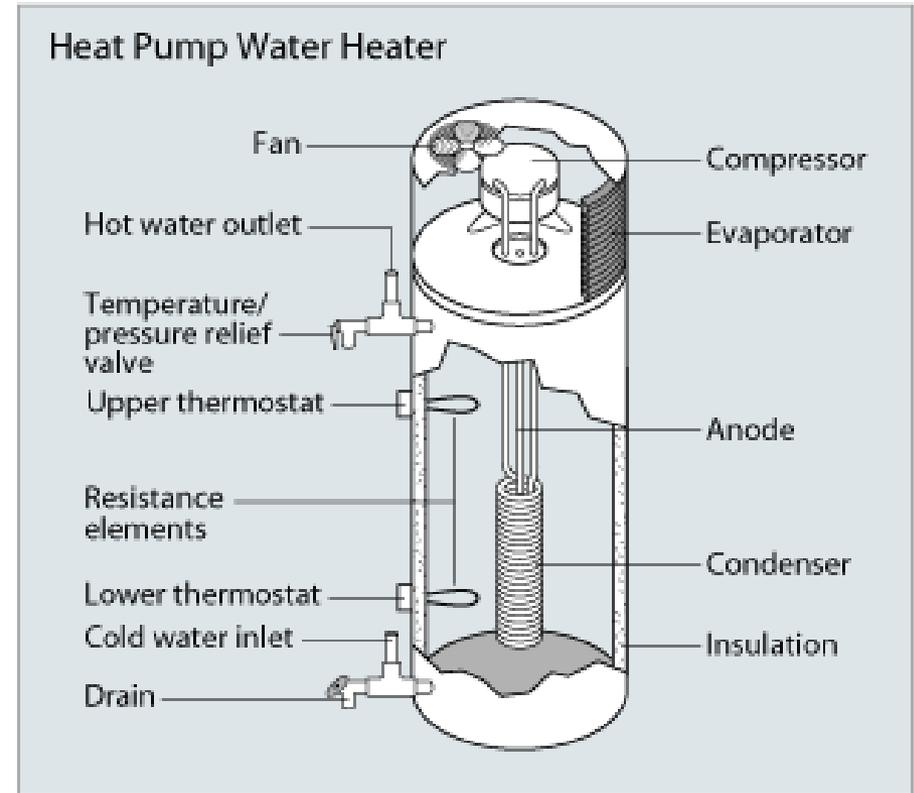
ENERGY STAR Clean-Up Items

- **Deemed Savings document references outdated ENERGY STAR minimum standards for the following measures:**
 - Clothes washers
 - Dishwashers
 - Refrigerators
 - Ground-Source Heat Pumps
 - Window A/C Units
 - CFLs
- **Future petitions will re-word deemed savings to avoid this issue in the future for all measures**



Heat Pump Water Heaters

- **Use electricity to move heat from one place to another instead of generating heat directly**
 - Operates like a refrigerator in reverse
 - Efficiency factor (EF) of 2.2 (+/-)
 - If operated in a conditioned space:
 - Cooling benefit during cooling season
 - Heating penalty during heating season
 - New models being introduced by major water heater manufacturers



<http://www.energysavers.gov>



Heat Pump Water Heaters

- Calculation of deemed savings is more complicated than for most other water heater measures due to the changes in performance of unit with changes in ambient temperatures, and the consideration of space conditioning impacts.



Heat Pump Water Heaters

- Calculation procedure based on:
- WHAM – Water Heater Analysis Model (LBL)
- Information tool kit developed by D&R International for DOE Weatherization Assistance Program
- Residential Energy Conservation Survey (RECS)
- Metered field test data from California
- ASHRAE 152-2004



Challenges

- Relating water heater sizes to occupancy and usage
- Water heater gallons per day calculation.
Calculation methodologies may need updating
- Percentage of time backup resistance element is used
- Accurately modeling space conditioning impacts in shoulder months



Heat Pump Water Heaters

- Results are preliminary and haven't been reviewed.



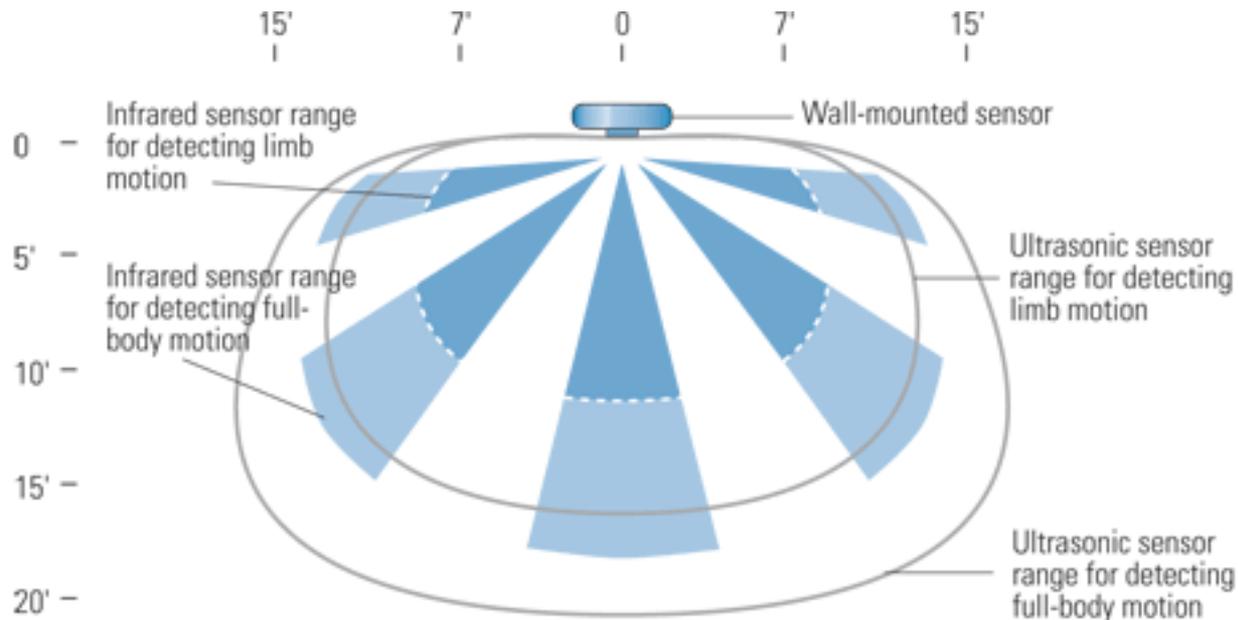
Heat Pump Water Heaters

Zone 3					
HPWH kWh Savings					
		HPWH Size Range, Gallons			
Water Heater Location	Heating Type	40-49	50-59	60-79	80 and above
Conditioned Space	Gas	1,360	1,368	1,377	1,394
Conditioned Space	Heat Pump	943	950	957	970
Conditioned Space	Elec. Resistance	488	493	498	507
Unconditioned Space	All	1,171	1,178	1,185	1,200
HPWH kW Savings					
		HPWH Size Range, Gallons			
Water Heater Location	Heating Type	40-49	50-59	60-79	80 and above
Conditioned Space	All	0.14	0.14	0.14	0.14
Unconditioned Space	All	0.14	0.14	0.14	0.14



Occupancy Sensors

- **Control lighting usage by detecting activity within an area**
 - Turn lights on when a room is in use and turn them off when it is not



Courtesy: *E SOURCE Lighting Technology Atlas* (2005)

<http://www.energystar.gov>



Occupancy Sensors

- **Savings methodology exists as a part of retrofit projects only**
 - Established for estimating kWh but not kW
- **Developing Deemed Savings as a stand-alone measure**
 - Issues under research:
 - Peak demand
 - Savings by building type
 - EUL
 - Persistence
- **Expect to file a Petition by the end of summer**



Questions?