

Illustrative Calculation of Economics for Heat Pump and "Grid-Enabled" Water Heaters

Cost (2008 \$)	
HPWH (2.0 EF)	\$1,435 From TSD
TSL 5 (.95 EF)	\$701 From TSD; added \$50 for DR control
Cost (2011 \$)	
HPWH (2.0 EF)	\$1,498 Adjusted based on GDP deflator
TSL 5 (.95 EF)	\$732
Annual payments	
HPWH	\$141 Loan at 3% real, 13 year term (based on product life from TSD)
TSL 5	\$69
Annual kWh	
HPWH	1404 From TSD
TSL 5	2445
Estimated kWh for large water htrs	
HPWH	2050 Added 46% per PTSD Figure 7.3.2
TSL 5	3570
Cost/kWh	\$ 0.1128 For 2015 from AEO 2013
Annual electricity cost	
HPWH	\$ 231
TSL 5	\$ 403
Total annual cost (loan+ electric)	
HPWH	\$ 372
TSL 5	\$ 471
Discount needed for breakeven	
If 100% of power is off-peak	21%
If 50% of power is off-peak and rest "average"	42%
Alternatively, DR payment needed	
Annual	\$ 99
Monthly	\$ 8.28