

**Cost to heat DHW**

= user input cells

**Cold and Hot Water Temperatures (F):**

Warmest inlet temperature per year  
 Coldest inlet temperatures per year  
 Target or Storage Temperature for Water Heater  
 Gallons used per day

Fahrenheit	Celsius
55	12.78
55	12.78
120	48.89
64	

Celsius to Fahrenheit Converter

C	F
0	32

Liters to Gallons Converter

L	G
0	0.00

Net BTU Energy Input per Gallon  
 Net BTU Energy Input per Gallon

541.45	at design conditions when inlet temperature is coldest
541.45	at design conditions when inlet temperature is warmest

Average yearly temperature rise  
 Average daily net energy required

65	
34,652.80	BTUs

**EF Ratings:**

Energy Factor Rating (EF) - Tankless  
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 Energy Factor Rating (EF) - Tank  
 Energy Factor Rating (EF) - Tank  
 Energy Factor Rating (EF) - Tank  
 Energy Factor Rating (EF) - Heat Pump

0.98	* gas hi-eff
0.80	* gas
0.91	* electric
0.98	*electric
0.63	*gas
0.53	*oil
2.35	* heat pump WH

**Yearly Cost for DHW**

**Energy Cost:**

Electric: cost per kWh  
 Natural gas: cost per cubic foot  
 Propane: cost per gallon  
 #2 fuel oil: cost per gallon

	HE Tankless	Tankless	Standard Tank	Heat Pump
Electric: cost per kWh	\$0.120000	\$488.55	\$453.65	\$189.18
Natural gas: cost per cubic foot	\$0.009390	\$121.19	\$148.46	\$188.52
Propane: cost per gallon	\$3.870000	\$544.09	\$666.51	\$846.37
#2 fuel oil: cost per gallon	\$3.990000		\$710.60	

3,414 BTUs per watt    1,000 watts per kWh  
 1,000 BTUs per CF  
 91,800 BTUs per gallon  
 134,000 BTUs per gallon

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ECV (= reduction in energy cost)  
 CD (cost diff between hi-eff & low-eff installations)  
 ROI =

input <b>your</b> numbers
\$306.23
\$1,100.00
27.84%

Example of installed costs

Heat pump WH	\$2,250.00
Electric tank	\$850.00
CD =	\$1,400.00
less rebate	\$300.00
net CD =	\$1,100.00

Example: heat pump WH vs electric WH

ECV = (operating cost diff)                      \$306.23 (elec @ 12-cents per kWh)  
 CD = (installed cost diff)                      \$1,100.00  
 ROI = ECV ÷ CD (up-front installed cost difference)