

SA

STIEBEL ELTRON

Energy and Running cost comparison for different hot water systems

Product	Energy required per day	COP / Efficiency % / SCF *	Total energy used per day		Tarriff	Energy cost per kWh or MJ	Cost per day	Supply fee	Annual costs
			kW	Mj					
Heat Pump									
Heat pump WWK222(H) - continuous (29 STC's)	10.47 kWh	3.2	3.24	11.68	Domestic All Time	\$0.3780	\$1.23	-	\$447.68
Heat pump WWK302(H) - continuous (28 STC's)	10.47 kWh	3.1	3.35	12.06	Domestic All Time	\$0.3780	\$1.27	-	\$462.12
Electric Storage - 250 L									
Electric storage - continuous	10.47 kWh	83%	12.67	45.62	Domestic All Time	\$0.3780	\$4.79	-	\$1,748.41
Electric storage - controlled load	10.47 kWh	83%	12.67	45.63	Controlled Load 116	\$0.2118	\$2.68	-	\$979.57
Instantaneous Electric									
Stiebel Eltron - DHE, DEL, DHB-E models	10.47 kWh	99%	10.57	38.06	Domestic All Time	\$0.3780	\$4.00	-	\$1,458.72
Gas Instantaneous									
Gas instant NG - 5 star	37.68 MJ	66%	15.86	57.09	AGL Residential NG	\$0.0485	\$2.77	\$253.68	\$1,264.86
Gas instant LPG - 5 star	37.68 MJ	66%	15.86	57.09	ELGas (estimated)	\$0.0587	\$3.35	\$74.00	\$1,297.07
Gas Storage									
Gas storage NG - Stellar 5 star	37.68 MJ	66%	15.86	57.09	AGL Residential NG	\$0.0485	\$2.77	\$253.68	\$1,264.86
Gas storage LPG - Stellar 5 star	37.68 MJ	66%	15.86	57.09	ELGas (estimated)	\$0.0587	\$3.35	\$74.00	\$1,297.07
Solar									
Electric boosted solar (28 STC's)	10.47 kWh	294%	3.56	12.81	Domestic All Time	\$0.3780	\$1.35	-	\$491.00

Assumptions for hot water delivery per day

Hot Water temperature	60 °C
Cold water temperature	15 °C
Average air temperature (Shoulder times)	15 °C
Hot water usage per day	200 L

Gas usage (see 'Tariffs')	Tariff	Electricity (see 'Tariffs')	Tariff
First 2,500 MJ/quarter	\$0.0598/MJ	First 5.4795 kWh/day	\$0.3780/kWh
Next 2,000 MJ/quarter	\$0.0371/MJ	Next 5.4795 kWh/day	\$0.3780/kWh
Remaining MJ/quarter	\$0.0231/MJ	Remaining kWh/day	\$0.3780/kWh
Nat gas supply charge:	\$0.6950/day	Controlled load:	\$0.1425/kWh
Tariffs include GST? (y for yes)	y		

Fuel costs provided by Vince (Jul 2019) from SimplyEnergy (from Energie)

These costs were compared with plans found for SimplyEnergy and used figures considered most adequate

LPG bottle estimated from ELGAS NSW costs by phone consultation - 2017

Tank heat losses have been taken into account.

* COP is the average Coefficient of Performance for the heating cycle, Efficiency % is the efficiency of the electric and gas heating options, SCF is the solar contribution factor as a % for the SWH

COMMENTS ON THE EFFICIENCIES OF GAS WATER HEATERS

The values used are derived from the star rating of the specs data provided by manufacturers.

The actual efficiency is calculated from this star rating by taking into account factors such as:

First and foremost thermal efficiency of the burner, start up heat capacity, pilot rate, etc.

Doing so reveals that 5 stars is equivalent to a 66% overall heating efficiency.

6 stars would be equivalent to 73%

In the case of gas storage, the heat loss of the tank also needs to be factored in and has been.

With the WWKs and SWH, the STCs are used to determine the overall product efficiency for climate zone 3