

9. The efficiency of a Carnot engine depends only upon the temperatures of the two heat reservoirs.

$$e_c = (T_H - T_L) / T_H$$

This calculation requires that we use absolute temperature in Kelvin, so we must first convert the two Celsius temperatures to Kelvin by adding 273.2 to each. Thus $T_H = 293.2 \text{ K}$ and $T_L = 277.2 \text{ K}$

$$e_c = (293.2 \text{ K} - 277.2 \text{ K}) / 293.2 \text{ K}$$

$$e_c = 0.055$$

or expressed as a percentage

$$e_c = 5.5\%$$

Admittedly this is a rather low efficiency, but there is a large amount of ocean water available at a very low price (free), so some efforts are being made to develop such systems.