The electric output of a power plant is 720 MW . Cooling water flows through the power plant at the rate 1.30×10^8 L/hr. The cooling water enters the plant at 11.0°C and exits at 26.0°C.

$$\begin{aligned}
\frac{m}{t} &= 1.30 \times 10^8 \text{ kg/h} \\
&= 1.30 \times 10^{11} \text{ g/h} \\
&= 3.61 \times 10^7 \text{ g/s} \\
\frac{n}{t} &= \frac{3.61 \times 10^7 \text{ g/s}}{18.015 \text{ g/mol}} \\
&= 2.0045 \times 10^6 \text{ mol} \\
Q_c &= n \cdot c \cdot \Delta T \\
&= 2.0045 \times 10^6 \text{ mol} \cdot 4190 \text{ J/mol K} \cdot 15 \text{ K} \\
&= 1.26 \times 10^1 1 \text{ J} \\
\eta &= \frac{W_{out}}{Q_H} \\
&= \frac{7.20 \times 10^8 \text{ J}}{7.20 \times 10^8 \text{ J} + 1.26 \times 10^{11} \text{ J}} \\
&= 0.57\%
\end{aligned}$$