

Chapitre 22

Application 1

$\Delta U = 0$ sur un cycle $W_{\text{cycle}} = -Q$ (1 seul transfert thermique si monotherme)

$\Delta S = 0$ sur un cycle $\frac{Q}{T_b} + S^c = 0$
 $\uparrow > 0 \Rightarrow Q < 0 \Rightarrow W_{\text{cycle}} > 0 \rightarrow \text{Récepteur}$

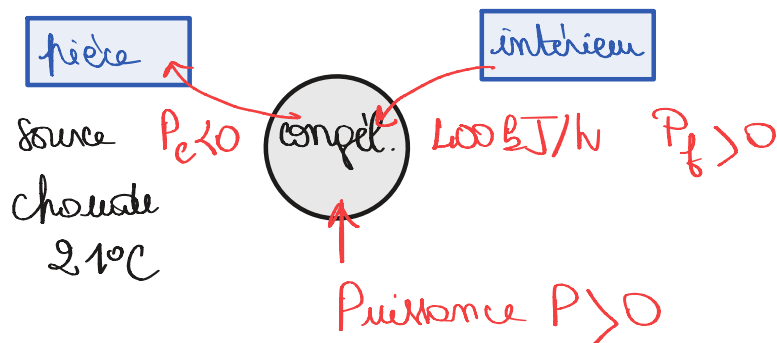
Application 2

$$\eta_{\text{Carnot}} = 1 - \frac{T_b}{T_c} = 48\% \quad \eta_{\text{réel}} = 27\% = -\frac{W}{Q_c} = -\frac{P}{P_c}$$

$|P_f|$ puissance fournie à l'alternateur $1300 \text{ MW} \Rightarrow P_c = 4815 \text{ MW}$

$$P_c = |P| + |P_f| \quad |P_f| = 3515 \text{ MW}$$

Application 3



$$1) e = \frac{Q_b}{W} = \frac{P_f}{P} = \frac{T_b}{T_c - T_b} = 6,35$$

$$2) P = \frac{P_f}{e} \approx 63 \text{ J/h}$$