Heat Engine: Efficiency

The objective: turn heat from hot reservoir into work

The cost: "waste heat" of Q_C (why you need cooling in your car!)

1st Law: $Q_H - Q_C = W$

efficiency $e \equiv W/Q_H$

$\qquad = (Q_H - Q_C)/Q_H$

$\qquad = 1 - Q_C/Q_H$

HEAT ENGINE

T_H

Q_H

W

Q_C

T_C