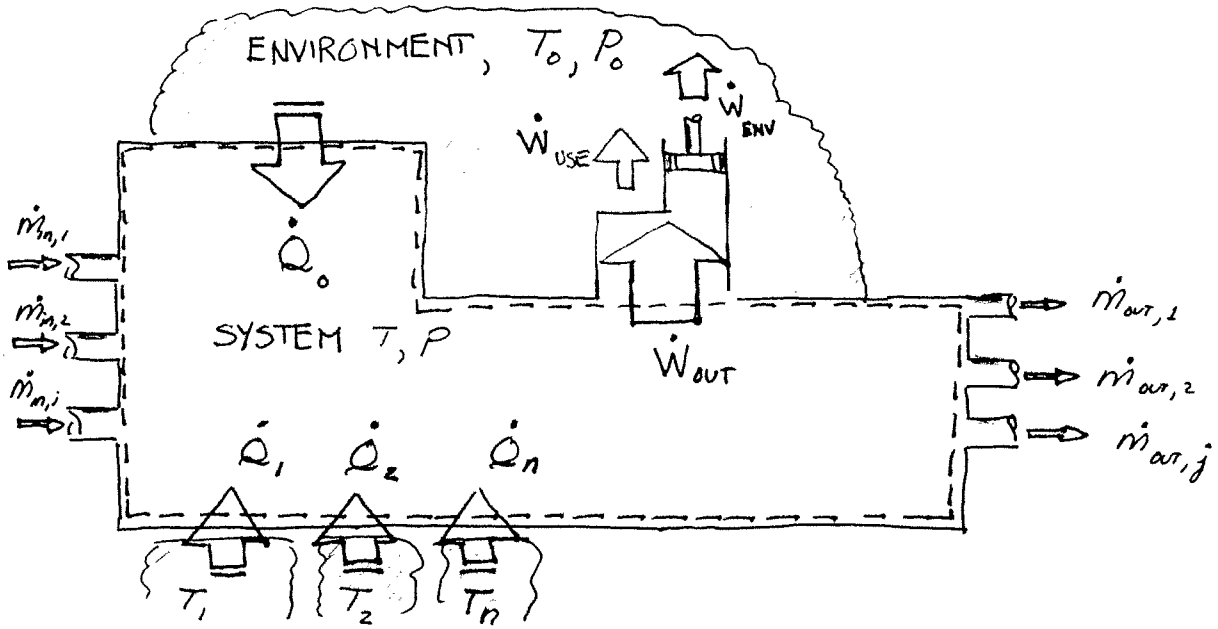
CONSIDER A GENERAL SYSTEM EXCHANGING HEAT & POWER W/ THE ENVIRONMENT AS WELL AS HEAT TRANSFER W/ n RESERVOIRS.



THE BIG QUESTION

¿HOW BIG CAN WE GET $\dot{W}_{OUT}$ TO BE KEEPING THE HEAT TRANSFER TO/FROM RESERVOIRS THE SAME AS THE SYSTEM GOES THROUGH THE SAME STATE POINTS?

Cons. of Energy →

Acct. of Entropy →

SOLVE ACCT. of ENTROPY FOR $\dot{Q}_o$ & SUB INTO ENERGY:

$\dot{Q}_o =$

ENERGY BECOMES

SOLVE FOR $\dot{W}_{out}$

$$\dot{W}_{out} = -\frac{d}{dt}\left(E_{sys} - T_o S_{sys}\right) + \sum_{i=1}^{n}\left(1 - \frac{T_o}{T_i}\right)\dot{Q}_i + \sum_{in} \dot{m}\left(h + \frac{V^2}{2} + gz - T_o s\right)$$

$$- \sum_{out} \dot{m}\left(h + \frac{V^2}{2} + gz - T_o s\right) \quad -$$

$\equiv$ (rate of)

$\dot{W}_{out,MAX}$ OCCURS WHEN

$\therefore \dot{W}_{out,MAX} = \dot{W}_{out,}$

AND

$$\dot{W}_{out} = \dot{W}_{out,} \quad -$$

RATE of IRREVERSIBILITY = LOST