BE-5 a) $Q = \dot{m}_{avg} \cdot c_{p,avg} \cdot \Delta T_{avg} = \dot{m}_v \cdot c_{p,v} \cdot \Delta T_v$

$$\Rightarrow \dot{m}_v = \frac{\dot{m}_{avg} \cdot c_{p,avg} \cdot \Delta T_{avg}}{c_{p,v} \cdot \Delta T_v} = 580{,}9 \text{ kg/s}$$

b) $Q_{värme} = \dot{m}_{avg} \cdot c_{p,avg} \cdot \Delta T_{avg} = 97{,}13 \text{ MW}$

c) $$\alpha = \frac{P_{el}}{Q_{värme}} = \frac{75}{97{,}13} = 0{,}77$$

$$Q_{bränsle} = \frac{P_{el}}{\eta_{tot}} = \frac{75}{0{,}34} = 220{,}6 \text{ MW} \Rightarrow \eta_{tot} = \frac{P_{el} + Q_{värme}}{Q_{bränsle}} = \frac{75 + 97{,}13}{220{,}6} = 0{,}78$$

d) $\eta_f = 0{,}98 \Rightarrow$ Förbränningsförluster $\approx 97{,}13 \cdot 0{,}02 \approx 2$ MW

$\eta_{m+g} = 0{,}95 \Rightarrow$ Generatorförluster $\approx 75 \cdot 0{,}05 \approx 3{,}8$ MW