

TP8 - hidrica

$$1) \quad m = Q \times \rho = 50 \times 10^3 \text{ kg/s}$$

$$P = \eta \times m \times g \times h \quad \Rightarrow \quad h = 425 \text{ m}$$

$$2) \quad a) \quad P_N = 32 \times 700 = 22500 \text{ MW} = 22,5 \text{ GW}$$

$$f_c = \frac{98800}{22,5 \times 365 \times 24} = 0,5$$

$$b) \quad P_N = 14 \text{ GW}$$

$$f_c = \frac{98630}{14 \times 365 \times 24} = 0,8$$

$$3) \quad \eta_{\text{carga}} = \eta_{\text{descarga}} = 0,8$$

durante o dia :  $E_{\text{produzida}} = mgh \eta$

durante a noite :  $E_{\text{gasta}} = \frac{mgh}{\eta}$

custos noturnos < custos diurnos

$$\Leftrightarrow P_{\text{noite}} \cdot \frac{mgh}{\eta} < P_{\text{dia}} \times mgh \eta \quad (\Rightarrow)$$

$$\Leftrightarrow \frac{P_{\text{noite}}}{P_{\text{dia}}} < \eta^2 \quad (\Rightarrow) \quad \frac{P_{\text{noite}}}{P_{\text{dia}}} < 0,64$$