

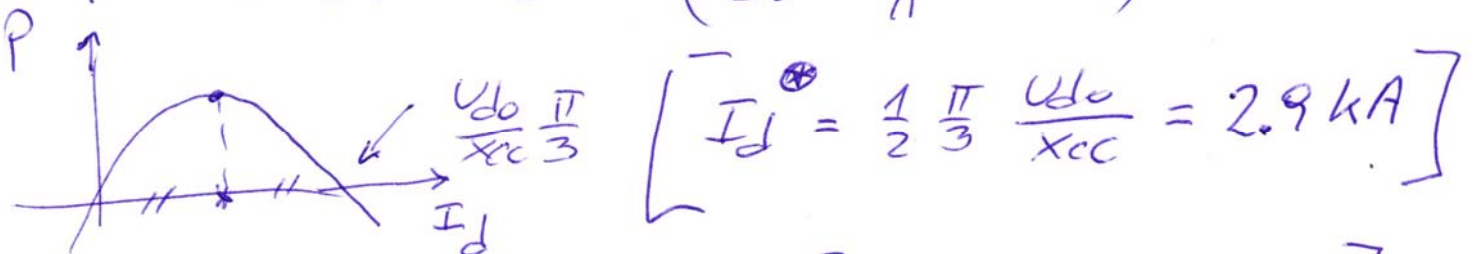
• MÍNIMO CONSUMO DE REACTIVA CON α_{min}

• α_{min} tal que $U_1 \sqrt{2} \sin \alpha_{min} = V_{min}$

$$\Rightarrow \left[\alpha_{min} = \text{Arcsen} \frac{V_{min}}{U_1 \sqrt{2}} = 5.1^\circ \right]$$

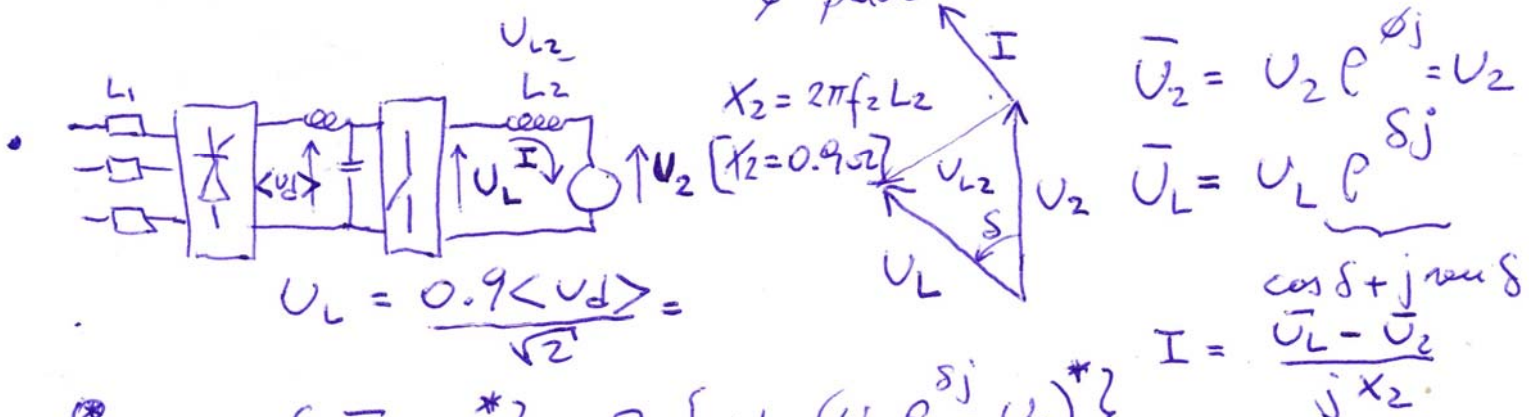
• $\langle U_d \rangle = \frac{3}{\pi} U_1 \sqrt{2} \cos \alpha_{min} - \frac{3}{\pi} X_{cc} I_d$ $X_{cc} = 2\pi f_1 L_1$
 $U_{do} =$ $\left[X_{cc} = 4.7 \Omega \right]$

$$P = \langle U_d \rangle \cdot I_d = \left(U_{do} - \frac{3}{\pi} X_{cc} I_d \right) I_d$$



luego $\left[P^* = 40.2 \text{ MW} \right]$ $\left[\langle U_d \rangle = 13.5 \text{ kV} \right]$

• luego $\left[\mu = \text{Arco} \left[\underbrace{\cos \alpha_{min} - \frac{2 X_{cc} I_d^*}{U_1 \sqrt{2}}}_{\phi \text{ para otro caso}} \right] - \alpha_{min} \approx 85^\circ \right]$



$$P^* = \text{Re} \{ \bar{U}_2 I^* \} = \text{Re} \left\{ U_2 \left(\frac{U_L e^{\delta j} - U_2}{j X_2} \right)^* \right\}$$

$$= \text{Re} \left\{ \frac{U_2 U_L \cos \delta}{X_2} - \frac{U_2 (U_L \cos \delta - U_2)}{j X_2} \right\} = \frac{U_2 U_L \cos \delta}{X_2} = P^* \Rightarrow$$

$$\left[\delta = 33.6^\circ \right]$$