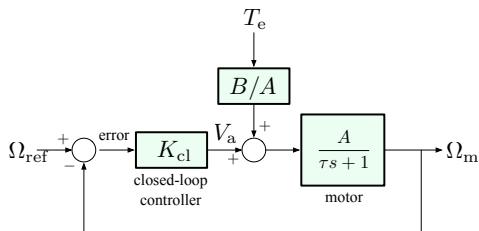


## Disturbance Rejection: Feedback Control



$$V_a = K_{\text{cl}}E = K_{\text{cl}}(\Omega_{\text{ref}} - \Omega_m)$$

$$\Omega_m = \frac{A}{\tau s + 1}K_{\text{cl}}(\Omega_{\text{ref}} - \Omega_m) + \frac{B}{\tau s + 1}T_e$$

Solve for  $\Omega_m$ :  $(\tau s + 1)\Omega_m = AK_{\text{cl}}(\Omega_{\text{ref}} - \Omega_m) + BT_e$   
 $(\tau s + 1 + AK_{\text{cl}})\Omega_m = AK_{\text{cl}}\Omega_{\text{ref}} + BT_e$

$$\Omega_m = \frac{AK_{\text{cl}}}{\tau s + 1 + AK_{\text{cl}}}\Omega_{\text{ref}} + \frac{B}{\tau s + 1 + AK_{\text{cl}}}T_e$$