$$E = P_1 V \left[\ln\left(\frac{P_1}{P_0}\right) + \frac{P_0}{P_1} - 1 \right]$$

$$\Delta P_0 \frac{\partial E}{\partial P_0} = \left(V - \frac{P_1 V}{P_0}\right) \Delta P_0$$

$$\Delta P_1 \frac{\partial E}{\partial P_1} = V \ln\left(\frac{P_1}{P_0}\right) \Delta P_1$$

$$\Delta V \frac{\partial E}{\partial V} = \left(P_1 \ln\left(\frac{P_1}{P_0}\right) + P_0 - P_1\right) \Delta V$$

$$\Delta E = \left|\left(V - \frac{P_1 V}{P_0}\right)\Delta P_0\right| + \left|V \ln\left(\frac{P_1}{P_0}\right)\Delta P_1\right| + \left|\left(P_1 \ln\left(\frac{P_1}{P_0}\right) + P_0 - P_1\right)\Delta V\right|$$

$$\frac{F}{L^2}\left(L^3\right) \qquad F(L) = E$$

$$\frac{\partial E}{\partial P_0} = \left(P_1 V \ln\left(\frac{P_1}{P_0}\right) + P_1 V \frac{P_0}{P_1} - P_1 V\right)\frac{\partial}{\partial P}$$

$$= \frac{P_1 V}{\frac{P_0}{P_0}}\left(\frac{-P_1}{P_0^2}\right) + V - 0 = \left(\frac{-P_1 V}{P_0} + V\right)\Delta P_0$$

$$\frac{\partial E}{\partial P_1} = V \ln\left(\frac{P_1}{P_0}\right) + 0 + 0 - V = \left(V \ln\left(\frac{P_1}{P_0}\right) - V\right)\Delta P_1$$

$$\frac{\partial E}{\partial V} = P_1 \ln\left(\frac{P_1}{P_0}\right) + P_0 - P_1 = \left(P_1 \ln\left(\frac{P_1}{P_0}\right) + P_0 - P_1\right)\Delta V$$