

W4-4-3 Total differential: Energy representation 3

Compute the partial derivative $\left(\frac{\partial u}{\partial v}\right)_s$

From $du = Tds - Pdv$ and
 $du = \left(\frac{\partial u}{\partial s}\right)_v ds + \left(\frac{\partial u}{\partial v}\right)_s dv$ follows:

$$\left(\frac{\partial u}{\partial v}\right)_s = -P$$