

83. With $\tau_L = L/R = 0.0010$ s, we find the current at $t = 0.0020$ s from Eq. 31-43:

$$i = \frac{\mathcal{E}}{R} \left(1 - e^{-t/\tau_L} \right) = 0.86 \text{ A} .$$

Consequently, the energy stored, from Eq. 31-51, is

$$U_B = \frac{1}{2} Li^2 = 3.7 \times 10^{-3} \text{ J} .$$