

44. (a) The magnitude of the dipole moment is

$$p = qd = (1.50 \times 10^{-9} \text{ C}) (6.20 \times 10^{-6} \text{ m}) = 9.30 \times 10^{-15} \text{ C}\cdot\text{m} .$$

- (b) Following the solution to part (c) of Sample Problem 23-5, we find

$$U(180^\circ) - U(0) = 2pE = 2 (9.30 \times 10^{-15}) (1100) = 2.05 \times 10^{-11} \text{ J} .$$