

68. We use  $U = \frac{1}{2}CV^2$ . As  $V$  is increased by  $\Delta V$ , the energy stored in the capacitor increases correspondingly from  $U$  to  $U + \Delta U$ :  $U + \Delta U = \frac{1}{2}C(V + \Delta V)^2$ . Thus,  $(1 + \Delta V/V)^2 = 1 + \Delta U/U$ , or

$$\frac{\Delta V}{V} = \sqrt{1 + \frac{\Delta U}{U}} - 1 = \sqrt{1 + 10\%} - 1 = 4.9\% .$$