# POWER OF ENERGY

$$P(t) = V(t) \cdot i(t)$$

$$= C \cdot V(t) \cdot \frac{dV}{dt}$$

$$p(t) = \frac{dw(t)}{dt}$$

$$dw(z) = p(z)\,dz$$

$$\int_{w(t_1)}^{w(t_2)} dw(z) = \int_{t_1}^{t_2} p(z)\,dz$$

$$W(t_2) - W(t_1) = \int_{t_1}^{t_2} C \cdot V(z) \frac{dV(z)}{dz}\,dz$$

$$= C \int_{V(t_1)}^{V(t_2)} V(z)\,dv(z)$$

$$W = \frac{1}{2} C \left[ V^2(t_2) - V^2(t_1) \right] = \frac{1}{2} C\, \delta V^2$$

$$\frac{1}{2}(20 \times 10^{-6})\left(\frac{12}{4 \times 10^{-3}}\right)^2$$



absorbed   stored   released