Solution
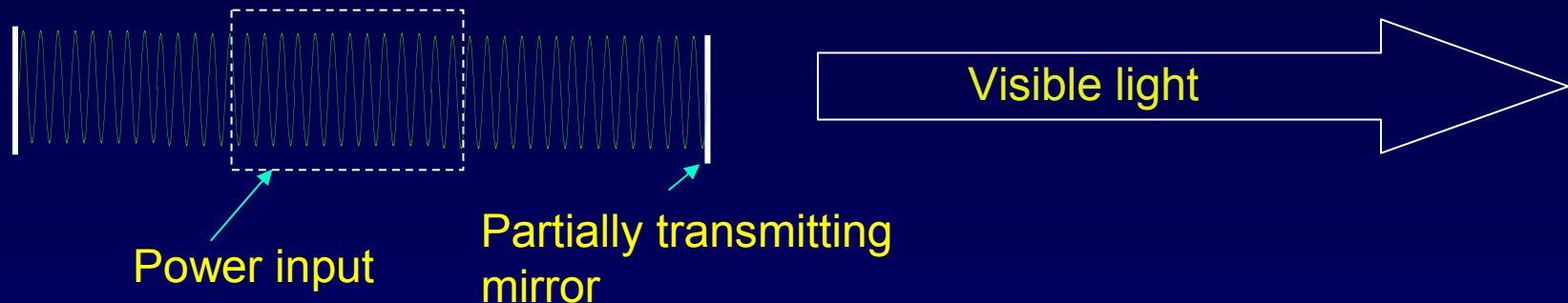
Can we reconcile the notion that light comes in 'packets' with our view of an electromagnetic wave, *e.g.*, from a laser?

Power input

Partially transmitting mirror

Visible light

How many photons per second are emitted from a 1-mW laser (λ=635 nm)?

$$E_{photon} = \frac{hc}{\lambda} = \frac{1240\,\text{eV-nm}}{635\,\text{nm}} \approx 2\,\text{eV}$$

Power output: P = (# photons/sec) x E_{photon}

$$\text{\# photons/sec} = \frac{P}{E_{photon}} = \frac{10^{-3}\,\text{J}}{\text{s}} \times \frac{1\,\text{eV}}{1.6 \times 10^{-19}\,\text{J}} \times \frac{1\,\text{photon}}{2\,\text{eV}} = 3 \times 10^{15}\,\text{s}^{-1}$$

This is an incredibly huge number. Your eye cannot resolve photons arriving every femtosecond (though the rods can detect single photons!).