



Efficiency Of a Laser System & Energy loss as heat:

The source for optical pumping has to deliver a very large amount of energy so that the energy density $U(\omega)$ may be high. The energy delivered is of the order of kilojoule derived out of the electrical system used to operate the optical system. Because of the narrow absorption band selected, a laser absorbs energy in the order of a few joules.

The emitted radiation contains a fraction of the absorbed energy. Thus the output of energy is small. Most of the energy pumped into the laser system is lost as heat. The system requires high degree of cooling. (Ruby laser uses liquid nitrogen) the overall efficiency of a laser is less than 1%.