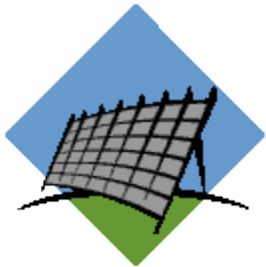


Energy Forms and Transformations

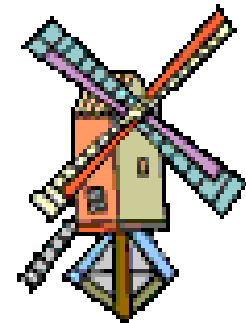
Objective: Examine the various forms of energy in order to identify and describe specific energy transformations.

Energy

- the “stuff” that makes “stuff do stuff”



OR



- the ability to do work.

$(W = F \times D)$ Unit = Joules



(F=force d=distance)

Types (kinds) of Energy

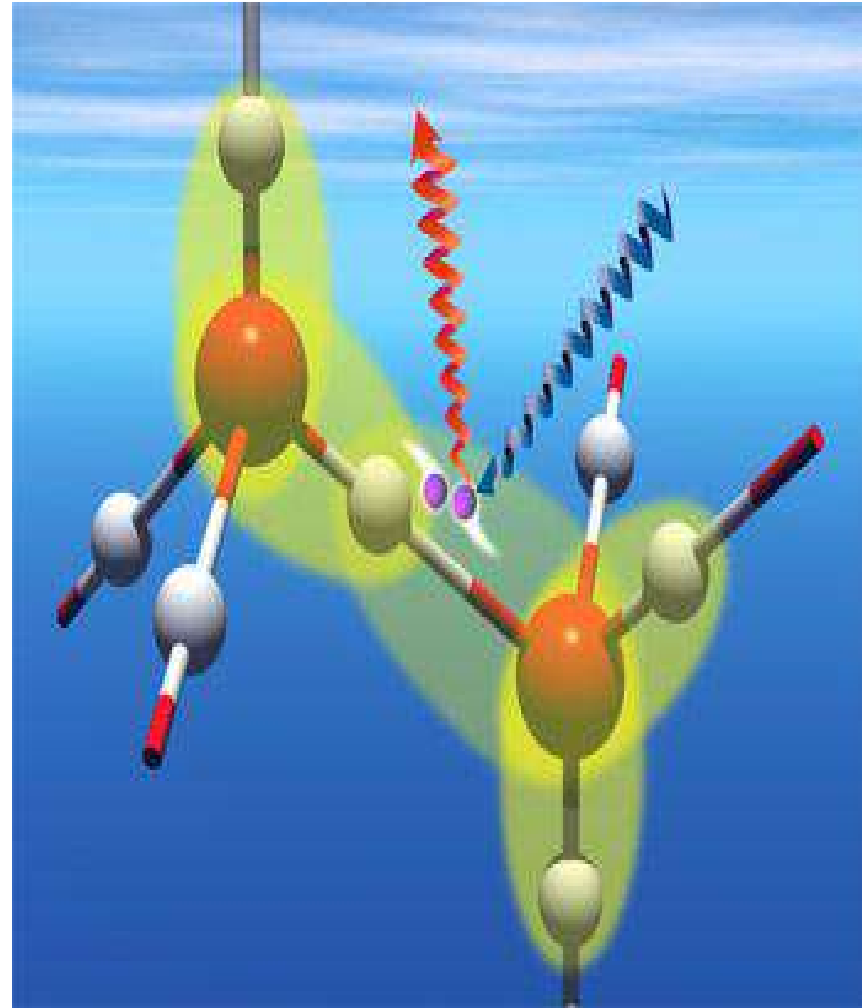
- KE (kinetic energy)-
the energy of motion.
- PE (potential energy)-
stored energy.

Forms of energy

- Mechanical
- Heat/Thermal
- Chemical
- Electrical
- Electromagnetic
- Nuclear
- Sound

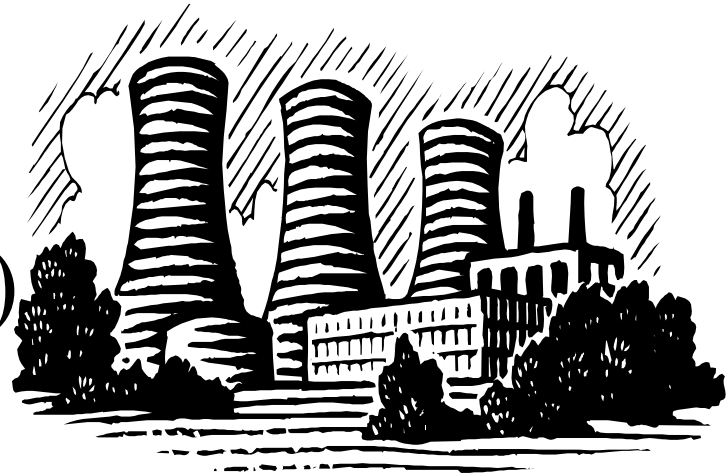
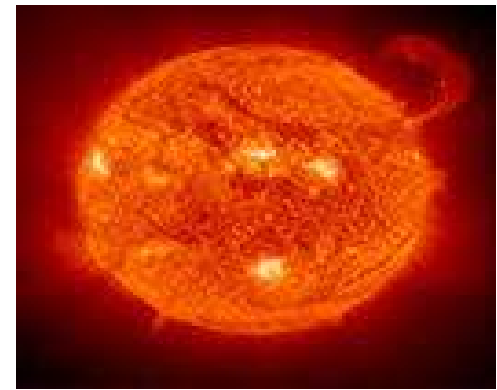
Chemical Energy

- Energy stored by chemical bonds in an object.
- When bonds are broken energy is released.
- PE only
- gasoline, food, coal, wood, batteries



Nuclear Energy

- Energy stored in center(nucleus) of an atom.
- Fission (breaking apart)
- Fusion (forming)
- The sun - fusion
- Approx. 20% of our electricity comes from Nuclear energy(fission)
- Most powerful
- PE only



Mechanical Energy

- The total Energy of motion and position.
- $ME = PE + KE$
- KE or PE
- All matter has Mechanical energy.
- Not 100% efficient much lost to heat



Electrical Energy

- Moving electrical charges.
- Electricity
- Chemical energy converted from batteries, power lines, lightning
- KE



Electromagnetic Energy

- energy that travels in waves; have electrical and magnetic properties
- Light, Magnetism, X-Rays, Radio waves, microwaves, ultraviolet and infrared radiation
- KE



Heat/Thermal Energy

- The internal motion of an objects atoms and molecules.
- Measured by temperature.
- The faster particles move, the more thermal energy they have.
- KE only
- Thermal energy is a byproduct of ALL energy transformations.





Sound Energy



- Caused by an objects vibrations.
- A vibration is a rapid, back-and-forth motion.
- This energy travels through matter in the form of waves.
- Sound must have a medium to travel through.
- Beating on a drum, talking, a horn blowing, dog barking, singing.
- KE