

# Lecture 01

12 February 2021 11:19

## War of currents - Edison & Westinghouse

DC

AC

first set of power systems - generation + transmission + utilization

were all DC

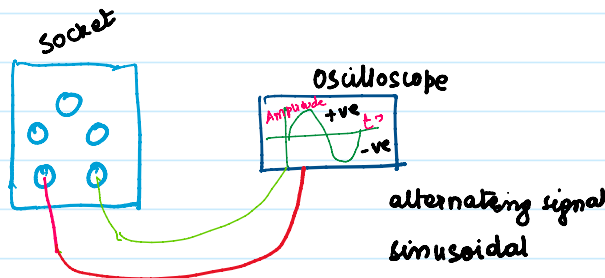
transformers and machines - AC

→ increase or decrease voltage levels easily (step up) or (step down)

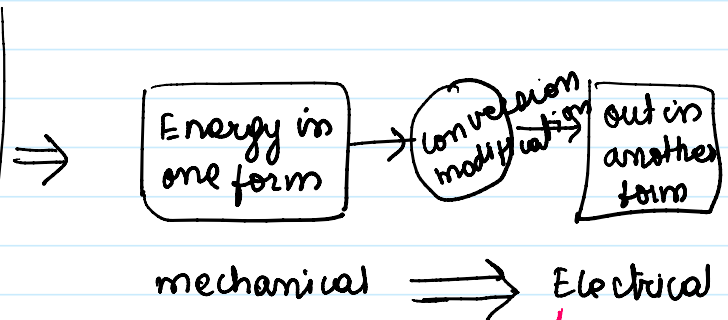
large volumes of power transfer AC systems are used

HVDC transmission - High voltage -  $\pm 400 \text{ kV}$

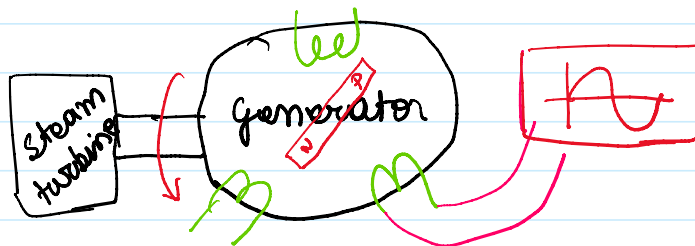
High power levels  $\sim 100\text{'s MW}$



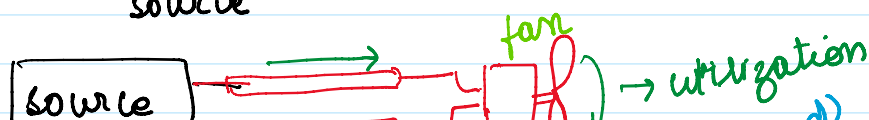
Hydro generators  
Nuclear power stations  
Thermal power stations  
Geothermal power  
wind power generation  
solar power generation

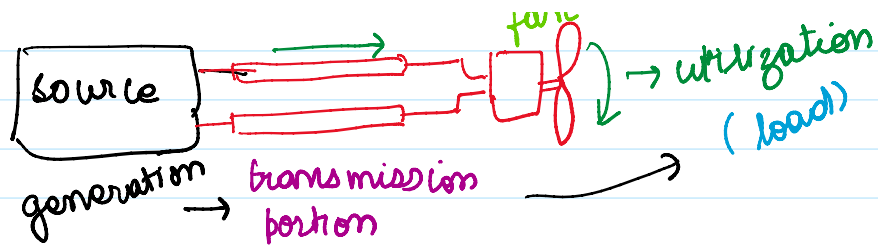


Direct energy conversion

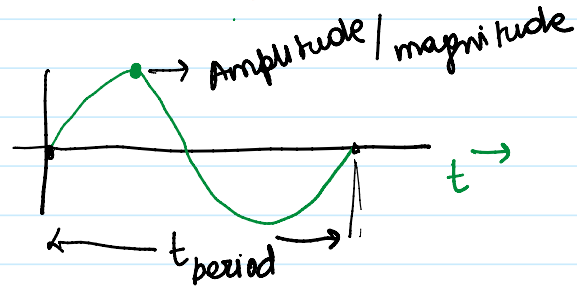


Source





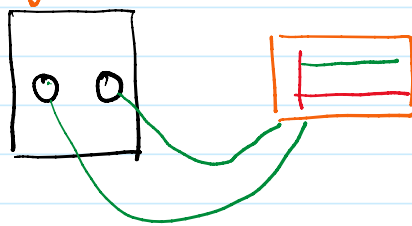
This chain of power generation, transmission and utilization is in its entirety called a power system



frequency = time in which it repeats  
 50 Hz / 60 Hz  
 power signals

400 Hz - Airplanes

Battery



Direct current