

Chapter 2

2.2: Converts thermal or the hydro kinetic energy into rotating mechanical energy that drives the generator

2.3: To convert the mechanical energy of the turbine into electrical energy

2.4: To increase the potential energy of the water behind the dam

2.5: To increase the voltage of the transmission lines, so current can be reduced. Thus the transmission lines can be made of a small cross section wires.

$$2.6: n = 120 \frac{f}{P} = 120 \frac{60}{2} = 3600 \text{ rpm}$$

$$2.7: n = 120 \frac{f}{P} = 120 \frac{50}{2} = 3000 \text{ rpm}$$

2.8: To prevent the conductors from touching the tower

2.9: To increase the flashover distance between the conductor and the tower

2.10: To reduce the size of the magnetic components

2.11: Competition prevented collaboration and different safety concerns

2.12: Higher voltage

2.13: Wind storm, freezing rain, and earth movements