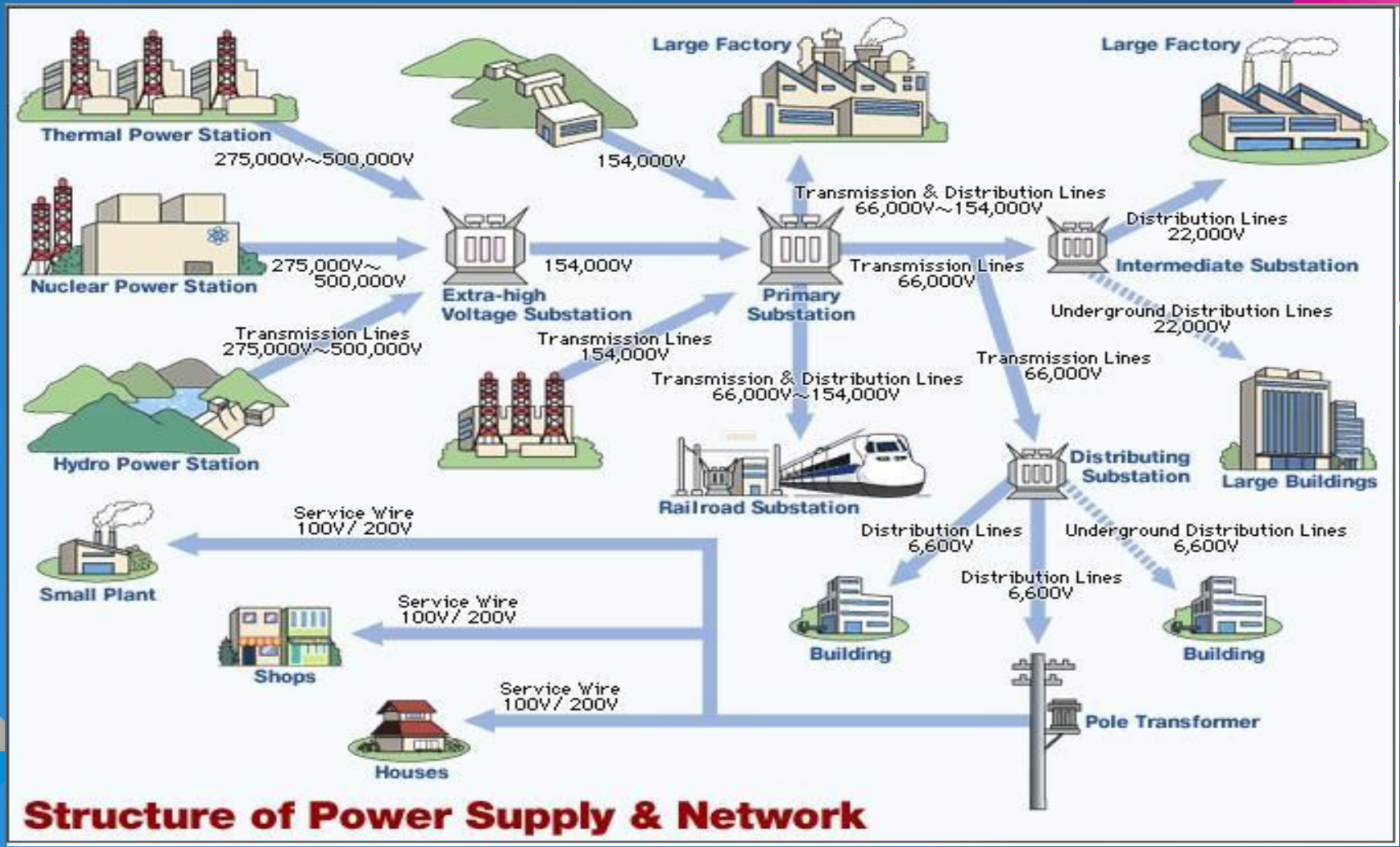
Hydroelectricity

BEC 6th Week Energy Lesson

What Is Hydroelectricity Energy?

Hydroelectric energy which is also known as Hydropower is power that is created by flowing water. This can can be captured and turned into energy.

The most common type of hydroelectric power plant uses a dam on a river to store water in a reservoir. Water released from the reservoir flows through a turbine, spinning it, which in turn activates a generator to produce electricity.


Thermal Power Station
275,000V~500,000V
154,000V
Large Factory
Large Factory
Transmission & Distribution Lines
66,000V~154,000V
Distribution Lines
22,000V
Nuclear Power Station
275,000V~
500,000V
154,000V
Extra-high
Voltage Substation
Primary
Substation
Transmission Lines
66,000V
Intermediate Substation
Underground Distribution Lines
22,000V
Transmission Lines
275,000V~500,000V
Transmission Lines
154,000V
Transmission & Distribution Lines
66,000V~154,000V
Transmission Lines
66,000V
Hydro Power Station
Railroad Substation
Distributing
Substation
Large Buildings
Service Wire
100V/ 200V
Distribution Lines
6,600V
Underground Distribution Lines
6,600V
Small Plant
Distribution Lines
6,600V
Service Wire
100V/ 200V
Building
Building
Shops
Service Wire
100V/ 200V
Pole Transformer
Houses
Structure of Power Supply & Network

History of Hydroelectricity Energy

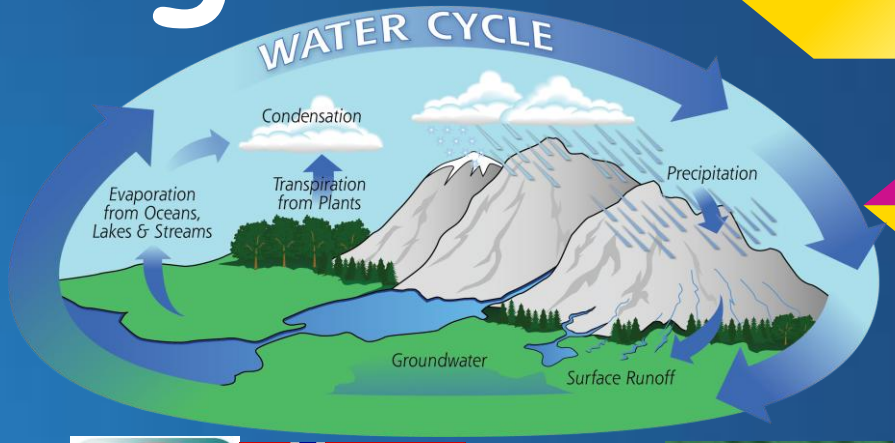
Hydroelectric energy has been around for thousands of years. The building of turbines-wheels turned by water flow was done by the Ancient Romans.

The most common source of hydroelectric energy was the water mills (which were large wheels usually located on the banks) and they were common right up until the Industrial Revolution.

The first Edison hydroelectric power plant was built in 1882 on Fox River in Apple Wisconsin and by 1889 there were 200 hydroelectric plants in the US alone.

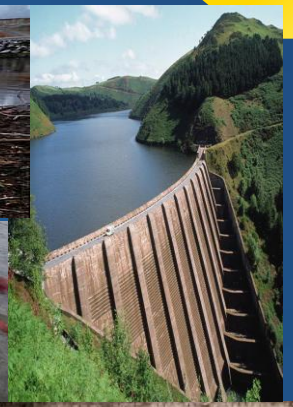
Advantages

1. Renewable
2. Green
3. Reliable
4. Flexible
5. Safe



Disadvantages

1. Environmental Consequences
2. Limited Reservoirs
3. Expensive
4. Droughts
5. Gets Dirty



How Water Flow Is Converted to Electricity?

Conowingo Dam

Waterwheel Activity