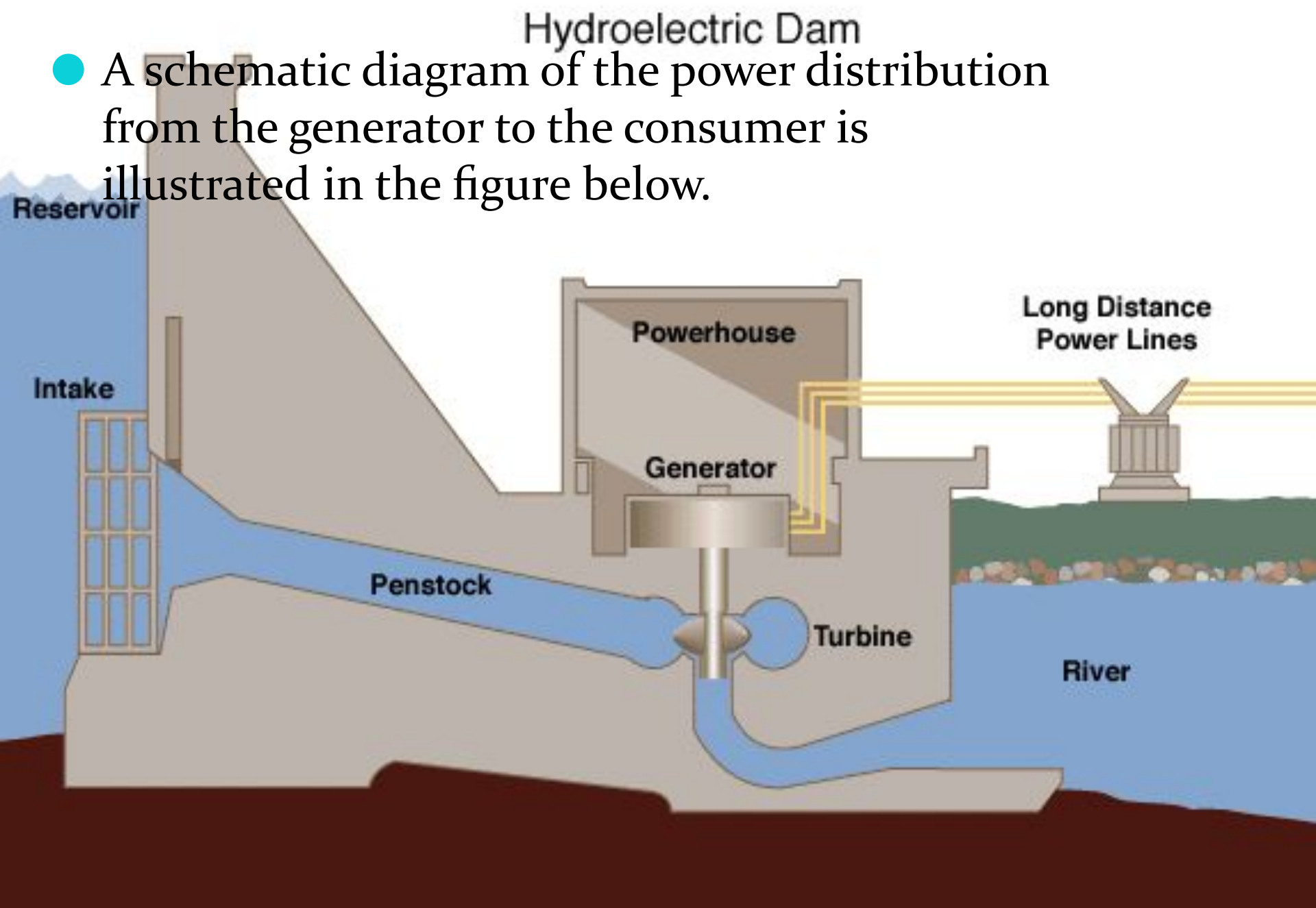
Distribution of Electricity

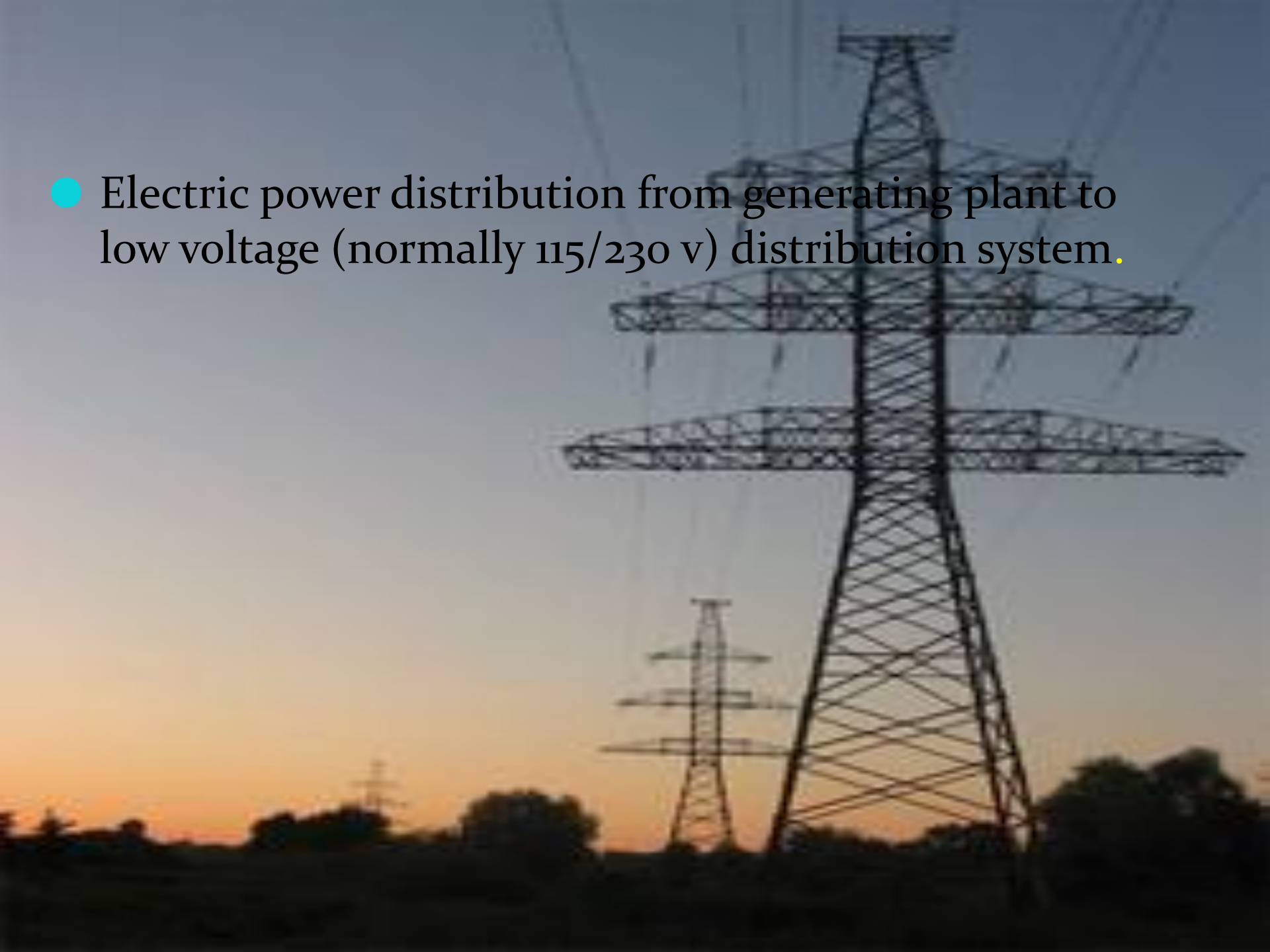
Keywords

- Power Distribution – распределение электроэнергии
- Generators - генераторы
- Transformer – трансформатор
- Higher voltage – высокое напряжение
- Transmission lines – линии передач
- Substation - подстанция

- Most electrical power originates from generators capable of generating many thousands of watts.

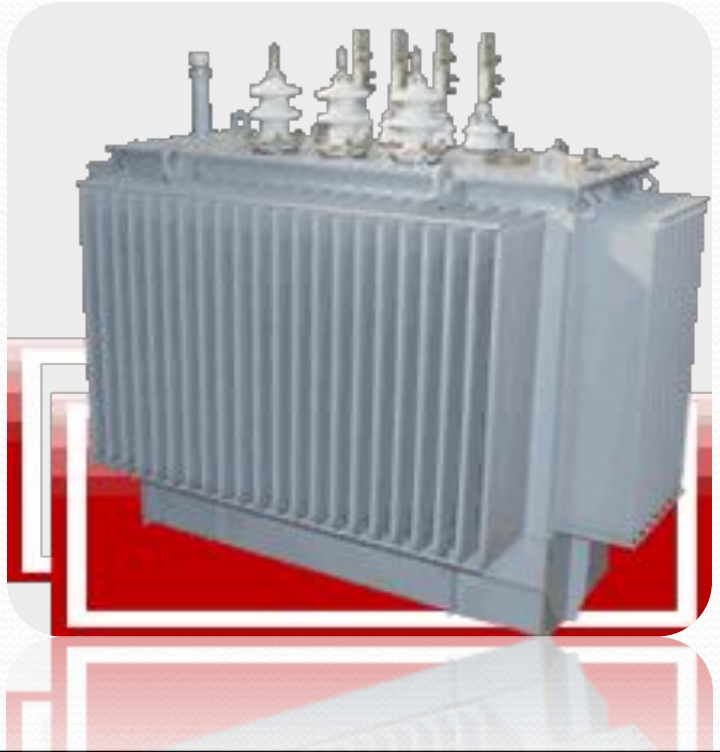
- A schematic diagram of the power distribution from the generator to the consumer is illustrated in the figure below.





- Electric power distribution from generating plant to low voltage (normally 115/230 v) distribution system.

- After generation at 2.3 - 13.8 kv the electricity travels to a transformer where the voltage is stepped up to several thousand volts; in come cases it approaches one million volts.



- This high voltage electricity may travel for many miles. With the higher voltage, a lower current is developed, causing lower losses. Thus, the losses due to resistance heating are reduced greatly in high voltage transmission lines.

- Along the way there may be step-down transformers that lead to secondary transmission lines.

- As the lines near residential areas, communities, or industries there generally is a substation located in which there are further step-down transformers. From these substations are primary mains that may carry only a few thousand volts, e.g 2 300. Then from the primary main the electricity may be taken off at distribution transformers to secondary mains that carry 115/230 v for most residences, farm customers, and small business and industries.

- The service wires at 115/230 v then go to a meter and hence into the residential or farmstead electrical distribution system. Some higher voltage systems, such as 220/440 v are used for small business or processing and manufacturing plants.

- *Answer the following question:*

- *1. What is a main thing in electric distribution?*
- *2. What are the step-down transformers used for?*
- *3. How generators are driven?*