

Distribution of Electricity



Keywords

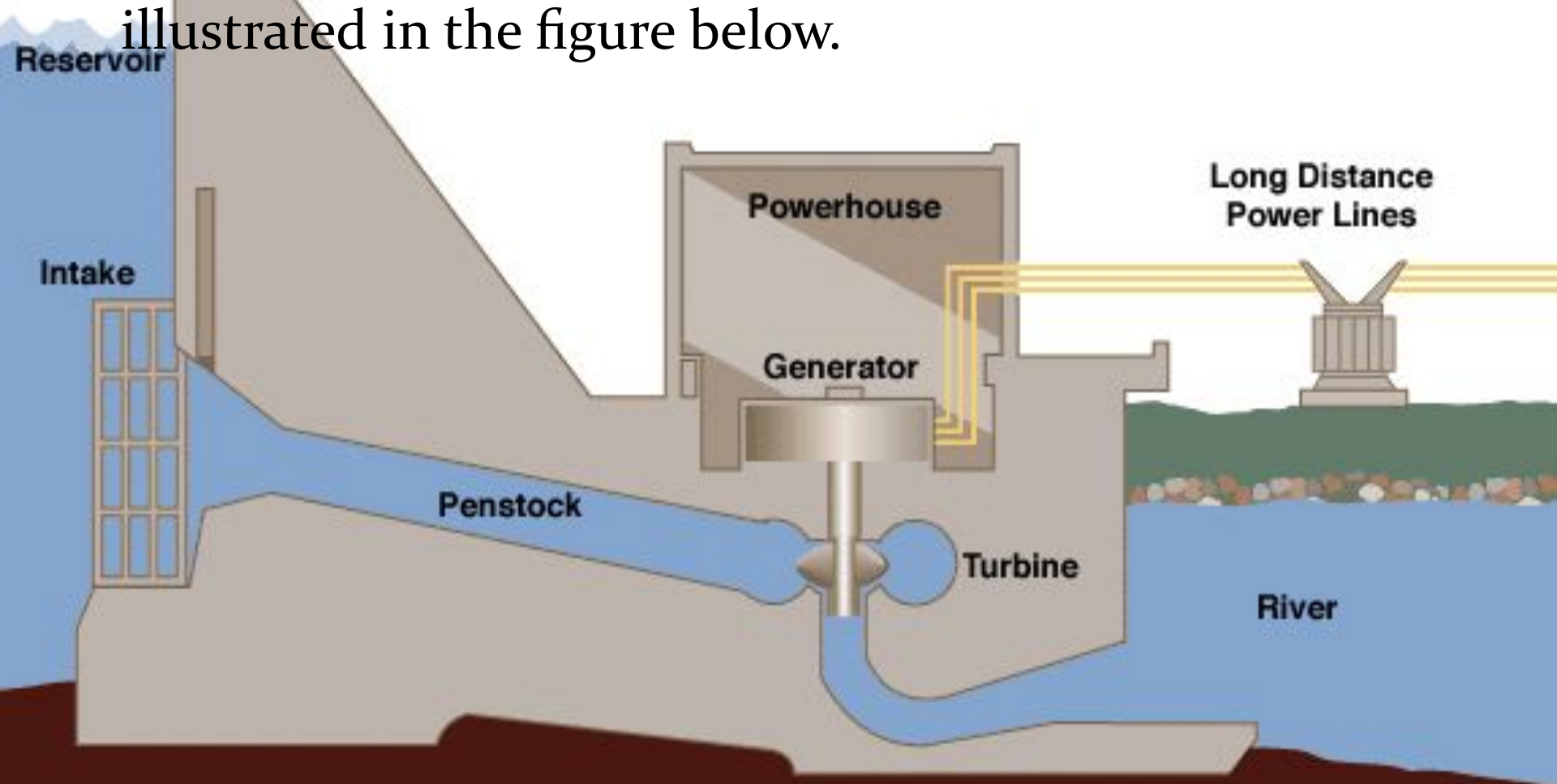
- Power Distribution – распределение электроэнергии
- Generators - генераторы
- Transformer – трансформатор
- Higher voltage – высокое напряжение
- Transmission lines – линии передач
- Substation - подстанция

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



Hydroelectric Dam

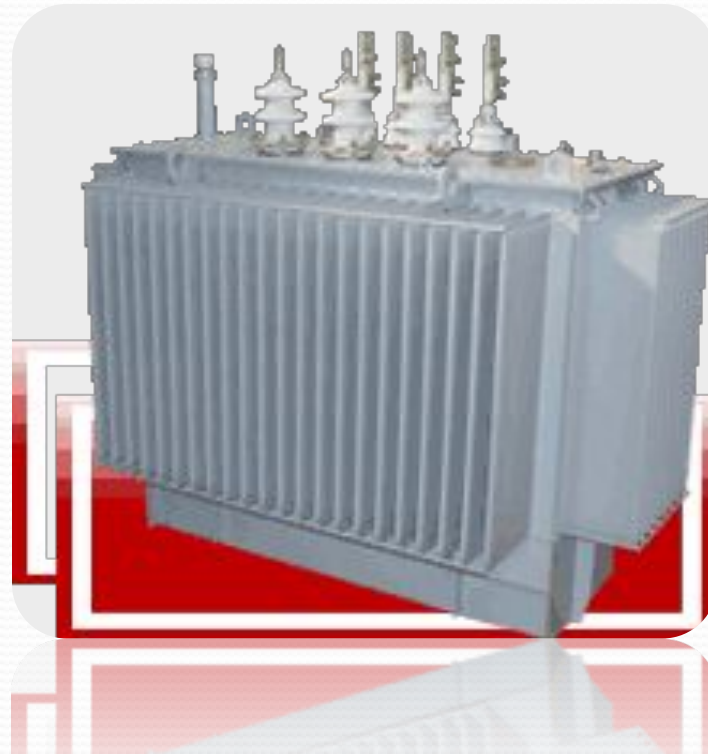
- A schematic diagram of the power distribution from the generator to the consumer is illustrated in the figure below.



- 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 some 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 I^2R 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.



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- *Answer the following question:*
 - *1. What is a main?*
 - *2. What is a step-down transformers used for?*
 - *3. How generators are driven?*