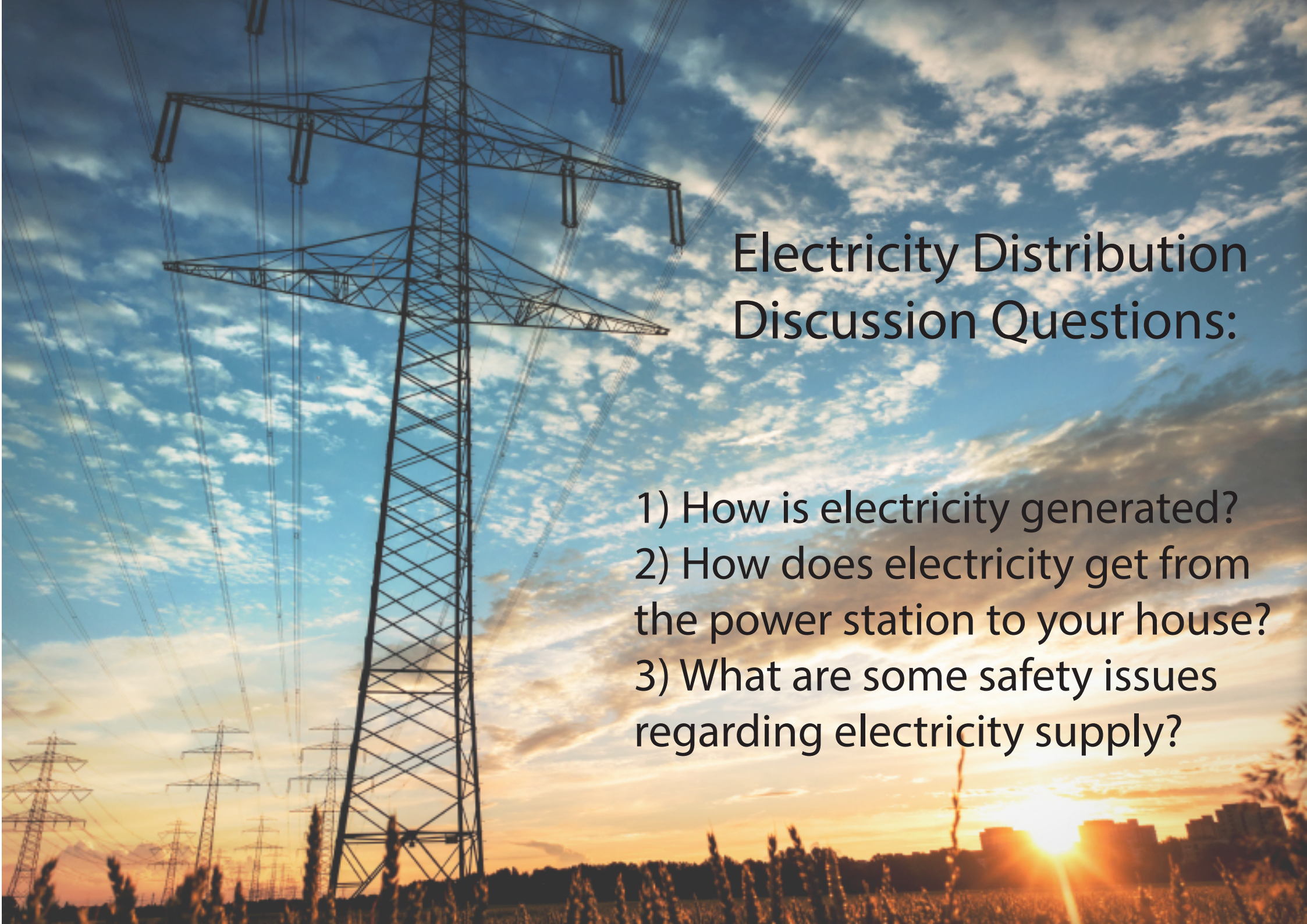

Electricity Distribution
Discussion Questions:
1) How is electricity generated?
2) How does electricity get from the power station to your house?
3) What are some safety issues regarding electricity supply?

Michael Faraday was a British chemist and physicist who experimented with electromagnetism and electrochemistry during the 1830s. He found that an electric current could be produced when a copper disc was rotated between the poles of a magnet. His work in the field of electromagnetic induction led to the production of the transformer and the generator.

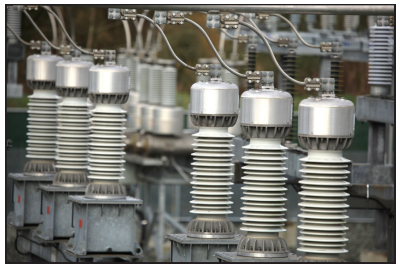
A modern electric motor (or generator) works using the same principle. Metal wire is coiled around a metal rod. The rod spins within a strong magnetic field. Electric current is generated and pushed along within the wires.

Power stations produce electric current using the same method. A coiled metal rod spins within a magnetic field inside a turbine. The power to turn the turbine usually comes from steam. (The steam comes from water that is heated by burning coal or by nuclear fission.) Alternative methods of turning the turbine include wind power, and the power of moving water.

Michael Faraday (1791 - 1867)

How Electricity is Supplied to Households.

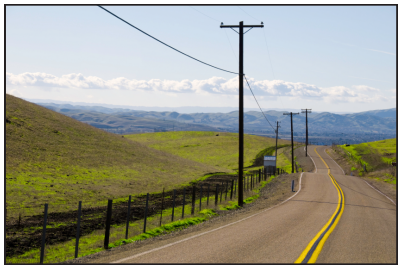
1 Electricity is produced in generators at the power plant.



2 The current is sent through transformers to increase the voltage so it can travel a long way.

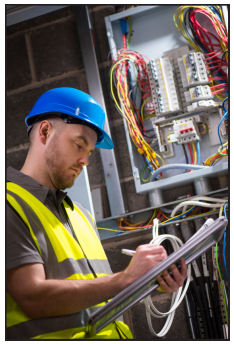
3 The current travels through high voltage wires across the country.

4 The voltage is lowered at substations so that the current can run through smaller wires.



5 The current travels through distribution wires to all areas.

6 The voltage is lowered again so it can be distributed to households.



7 The distribution wires connect to your household wiring.

Why don’t birds get electrocuted when they sit on the overhead wires?

Why don't birds get electrocuted when they sit on the overhead wires?

You might think the reason is because overhead electric wires are encased in a protective covering, but they are not.

Electricity travels along the path of least resistance from areas of high energy to areas of low energy.

If the bird were to put one foot on a high voltage wire and one foot on a lower voltage wire then electricity from the high voltage wire would pass through the bird's body to get to the lower volyage wire. The bird would be electrocuted.

The same thing would happen if the bird could place one foot on the wire and one on the ground.

Birds can only sit on overhead wires safely if they are not touching anything else.

If you touch a live wire electricity will flow from the wire, through your body to get to the ground you are standing on. Never touch exposed electric wires or poke things into a power socket!