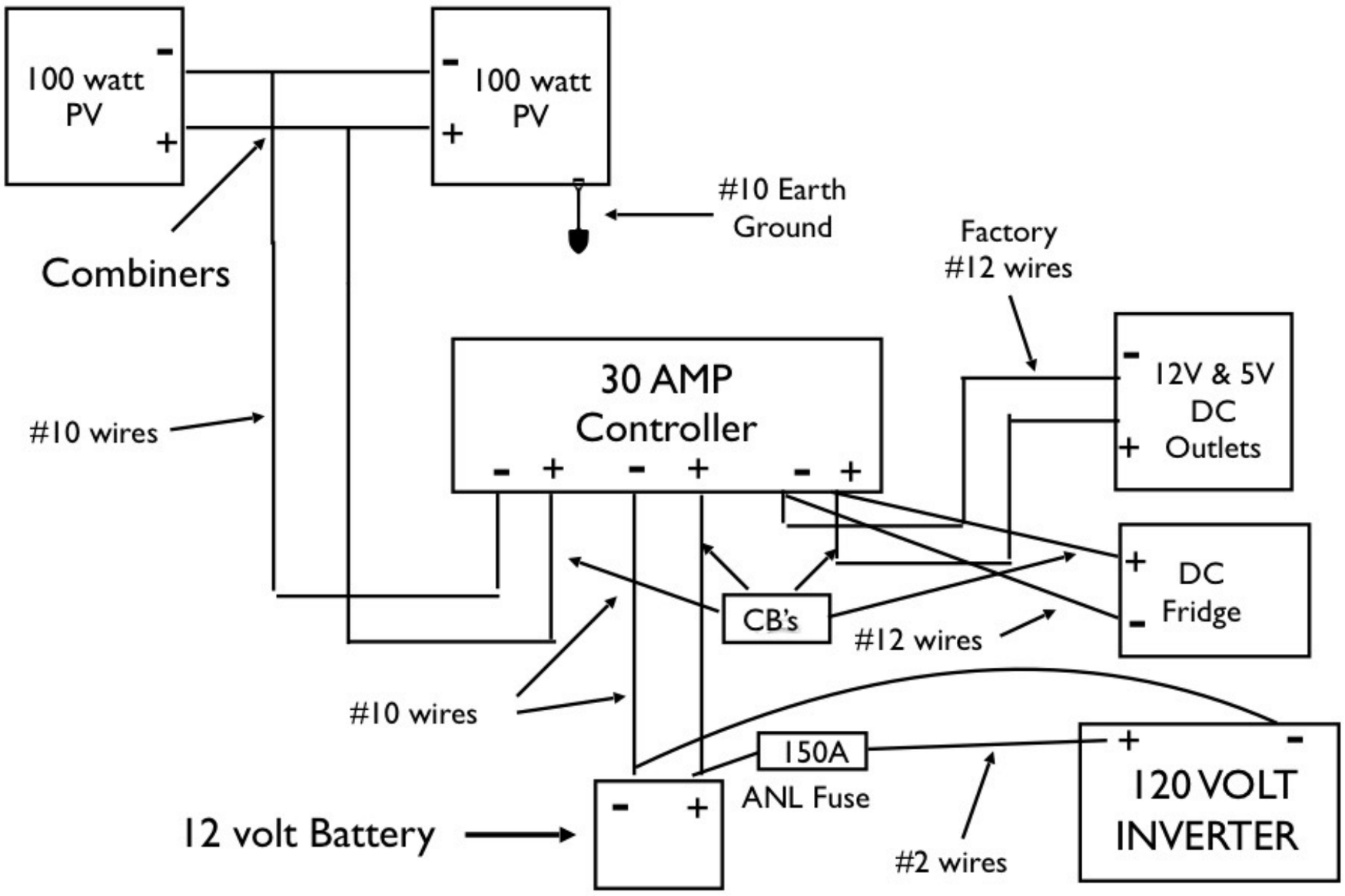
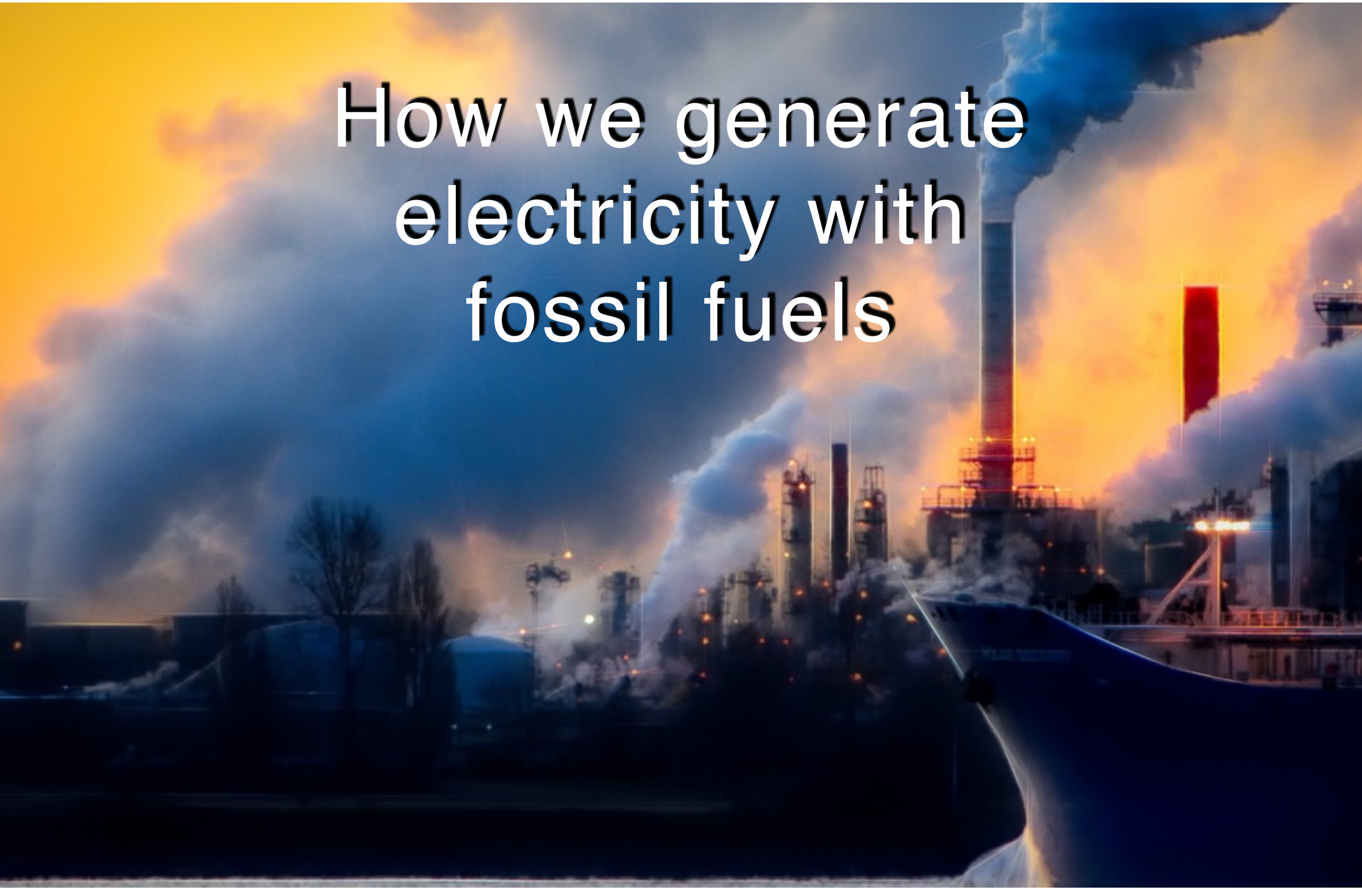
your system

Gallup Solar 12 Volt Hogan Basic System



Electricity Generation

Class 1 for Gallup Solar Team 6


How we generate electricity with fossil fuels

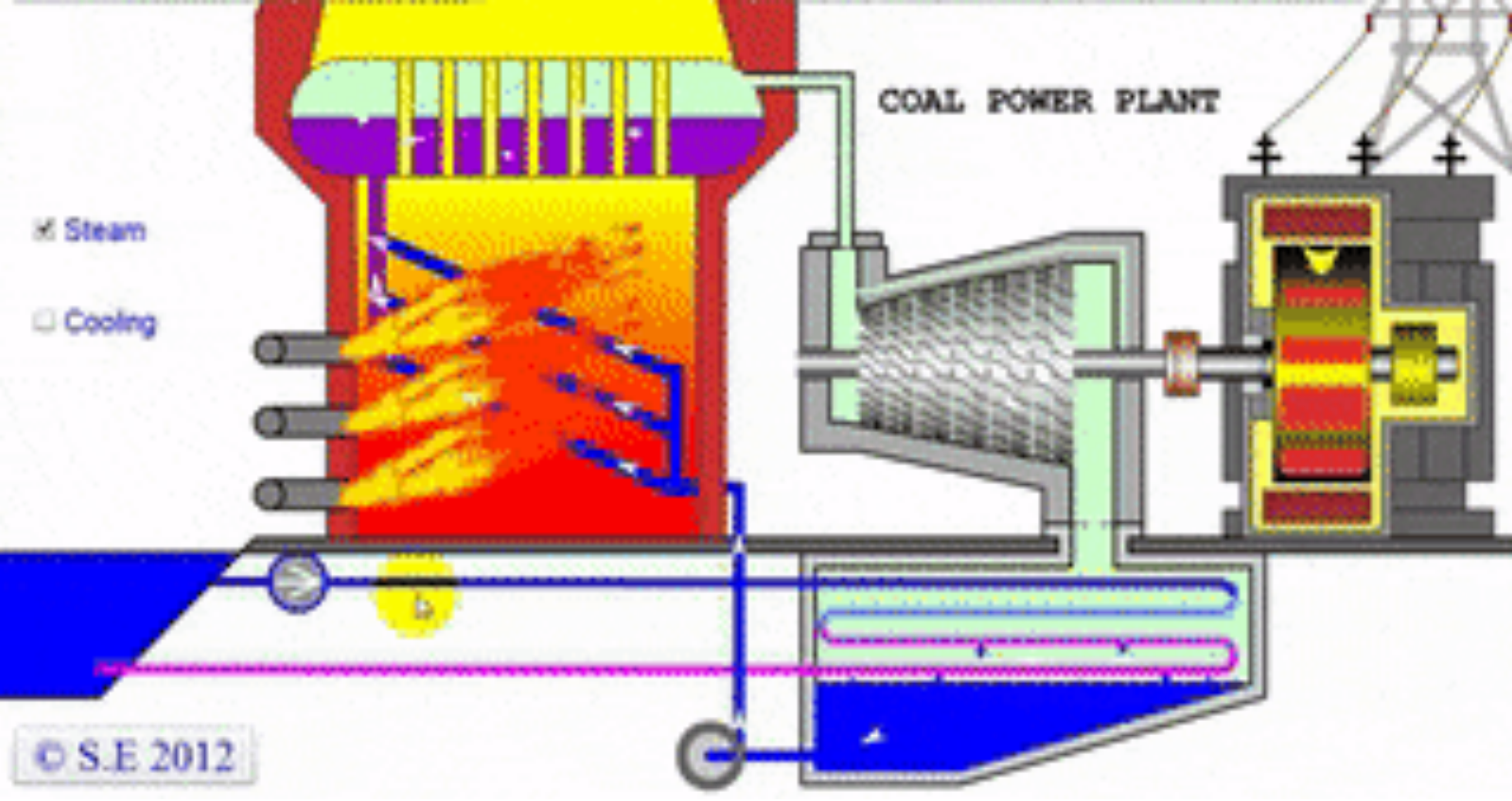
When fossil fuels* are burned
to generate electricity,
they release carbon dioxide
and other greenhouse gases,
which trap heat in our atmosphere,
making them the primary contributors
to global warming and climate change

*Fossil fuels are made from decomposing plants and animals. These fuels are found in the Earth's crust and contain carbon and hydrogen which can be burned for energy.

Coal, oil, and natural gas are fossil fuels.

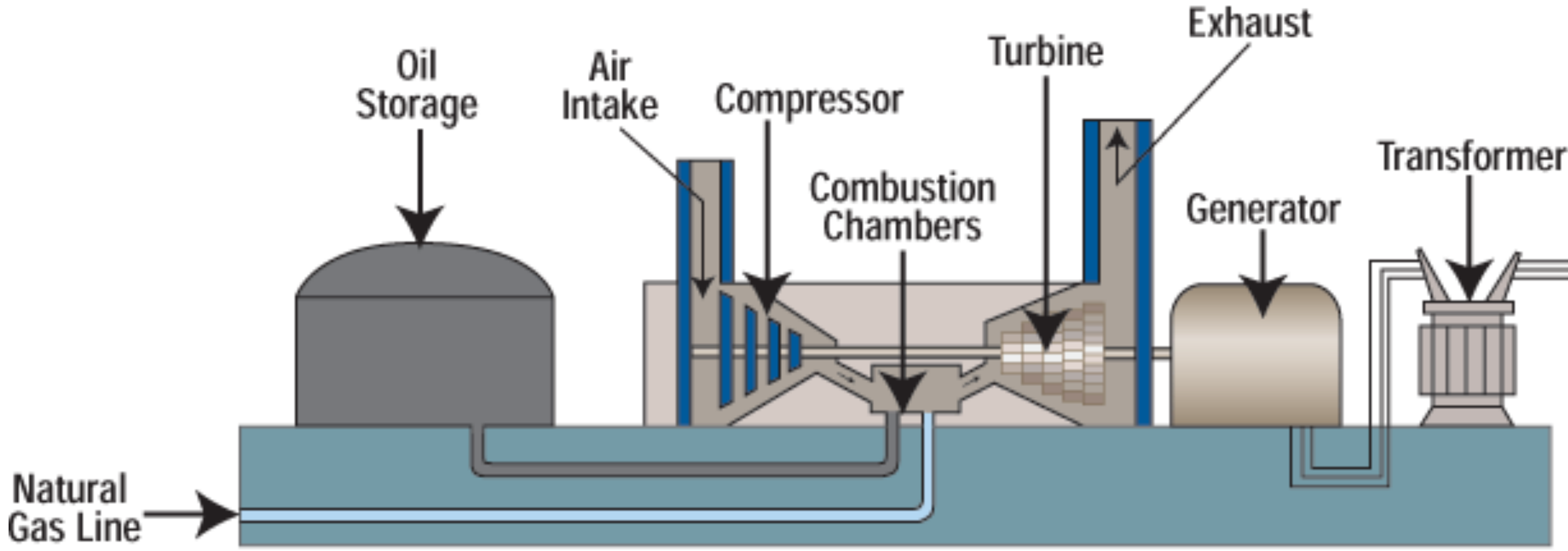
Coal

The New Mexico Public Regulation Commission approved a plan to replace the San Juan Generating Station with solar generation. But that plan is in jeopardy

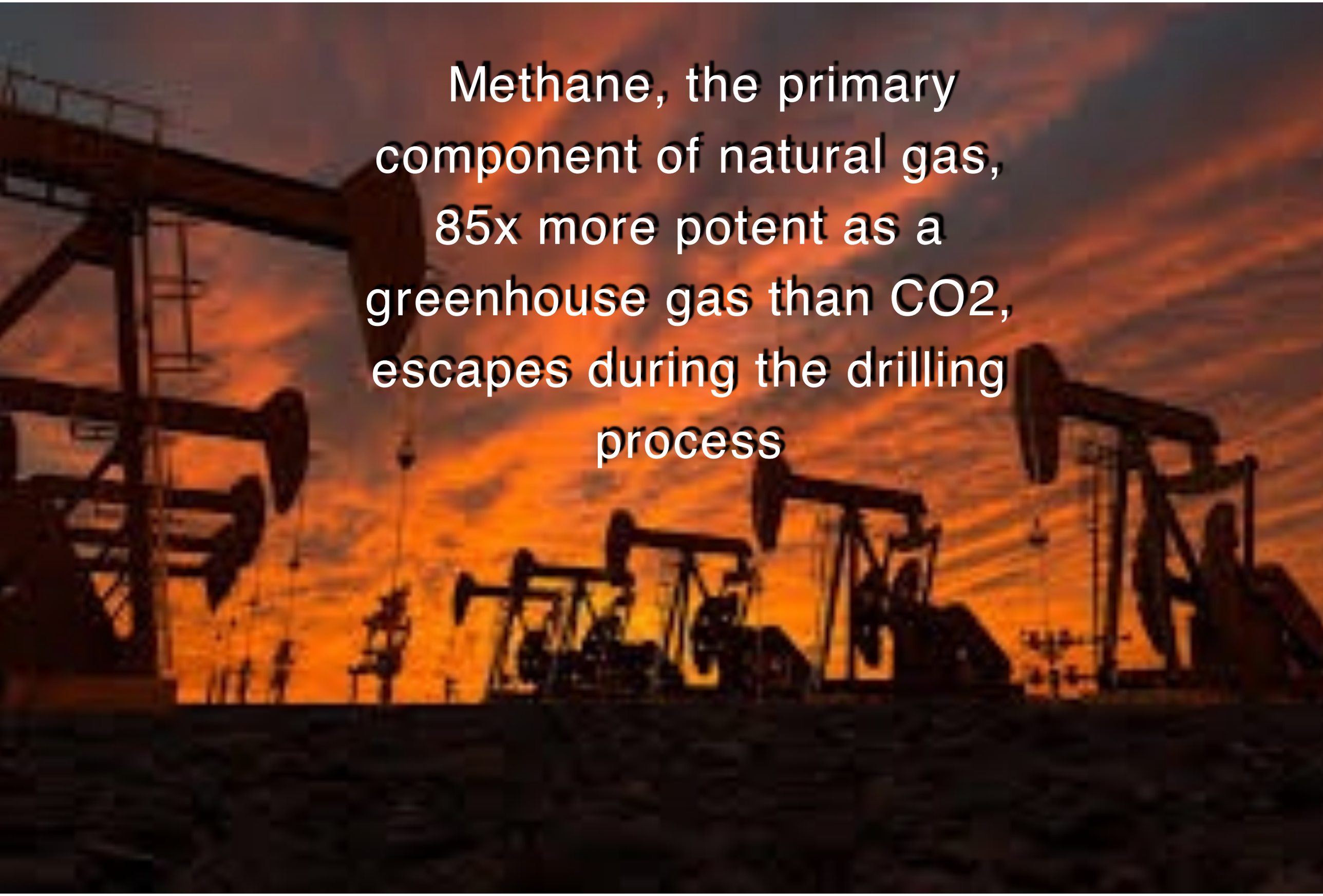


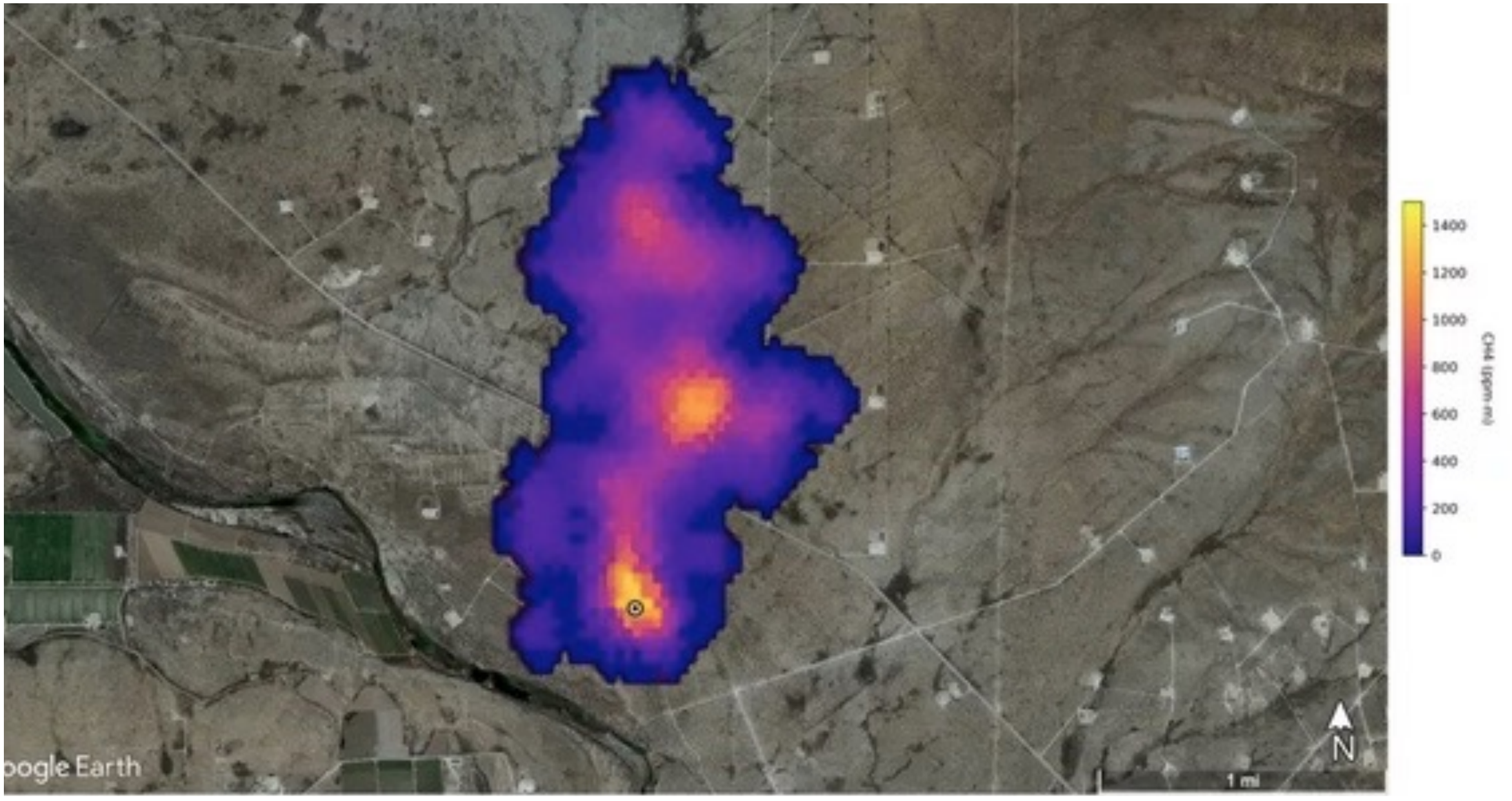
Steam heated by burning coal
turns turbine which turns generator.

Natural Gas



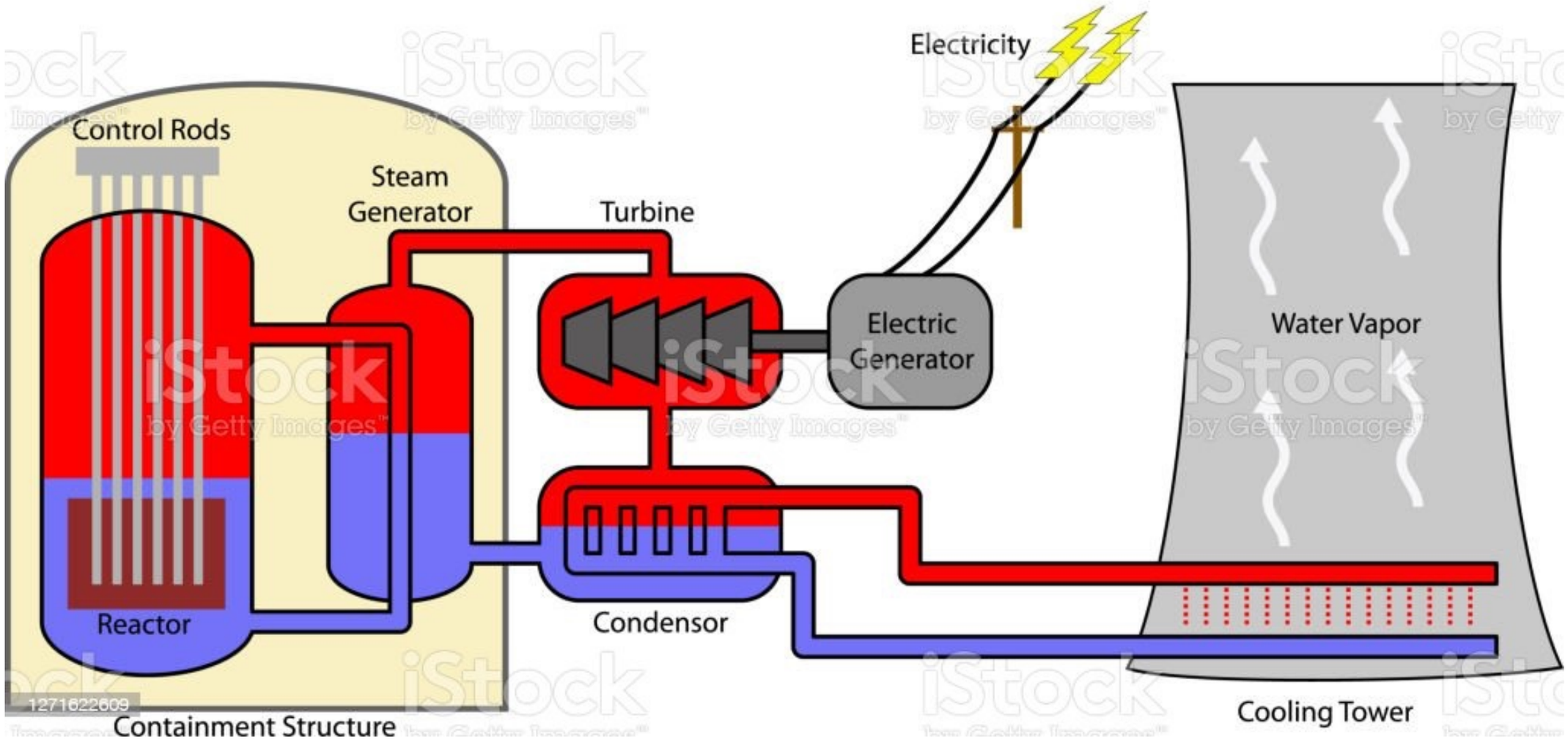
Heat from
gas combustion
turns turbine which turns generator.


Methane, the primary component of natural gas, 85x more potent as a greenhouse gas than CO2, escapes during the drilling process



Some of the largest clouds of heat trapping methane gas ever detected are floating over the drilling fields in Permian Basin in New Mexico.

Nuclear



Steam heated by fuel rods
turns turbine which turns generator.

You thought it was more complicated than that?

Nuclear doesn't produce greenhouse gases, but does produce radioactive waste. Fukushima

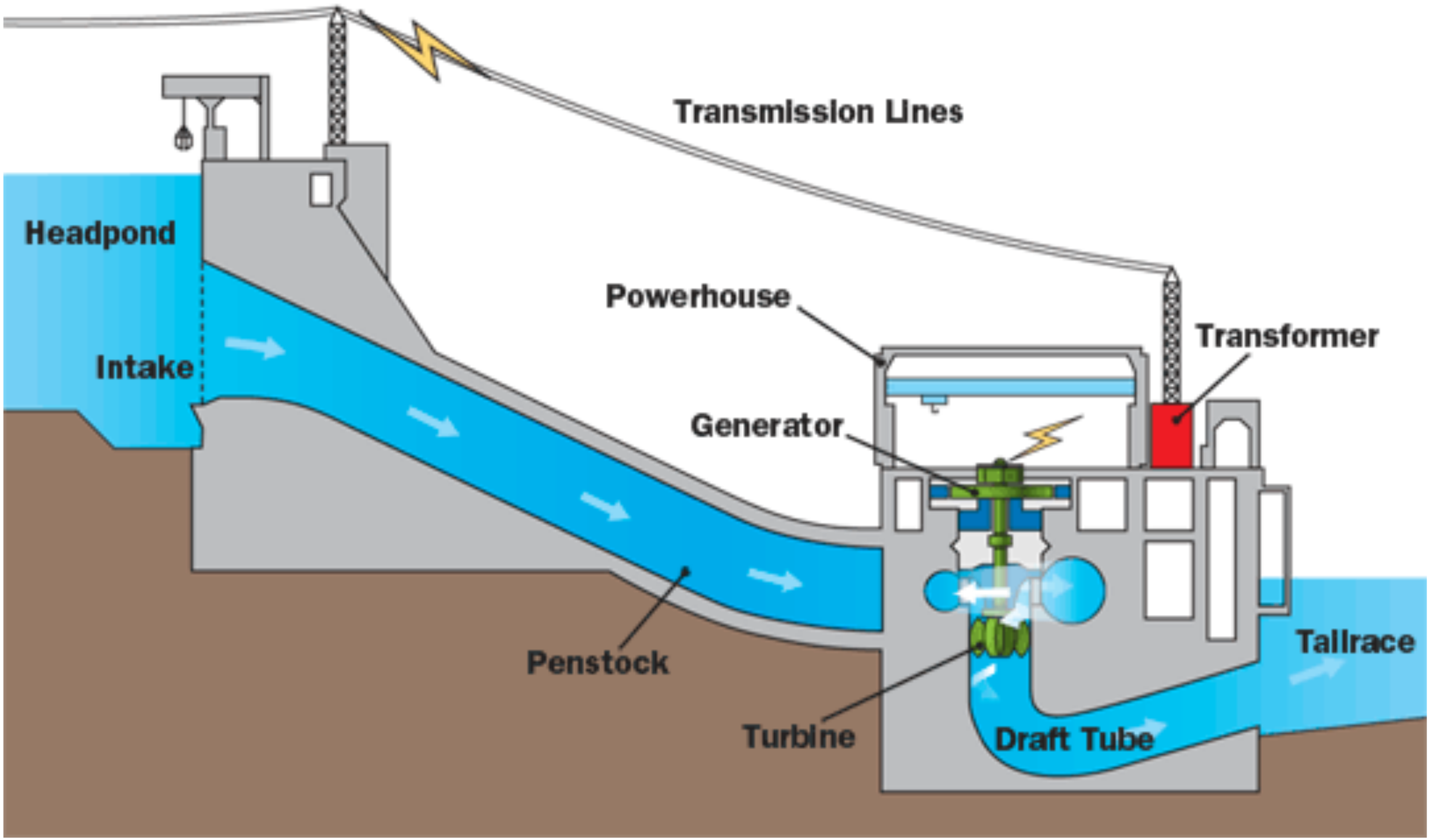
And bad history here

Church Rock spill in 1979 and they want to start up again 2023

We also generate electricity with renewable energy.

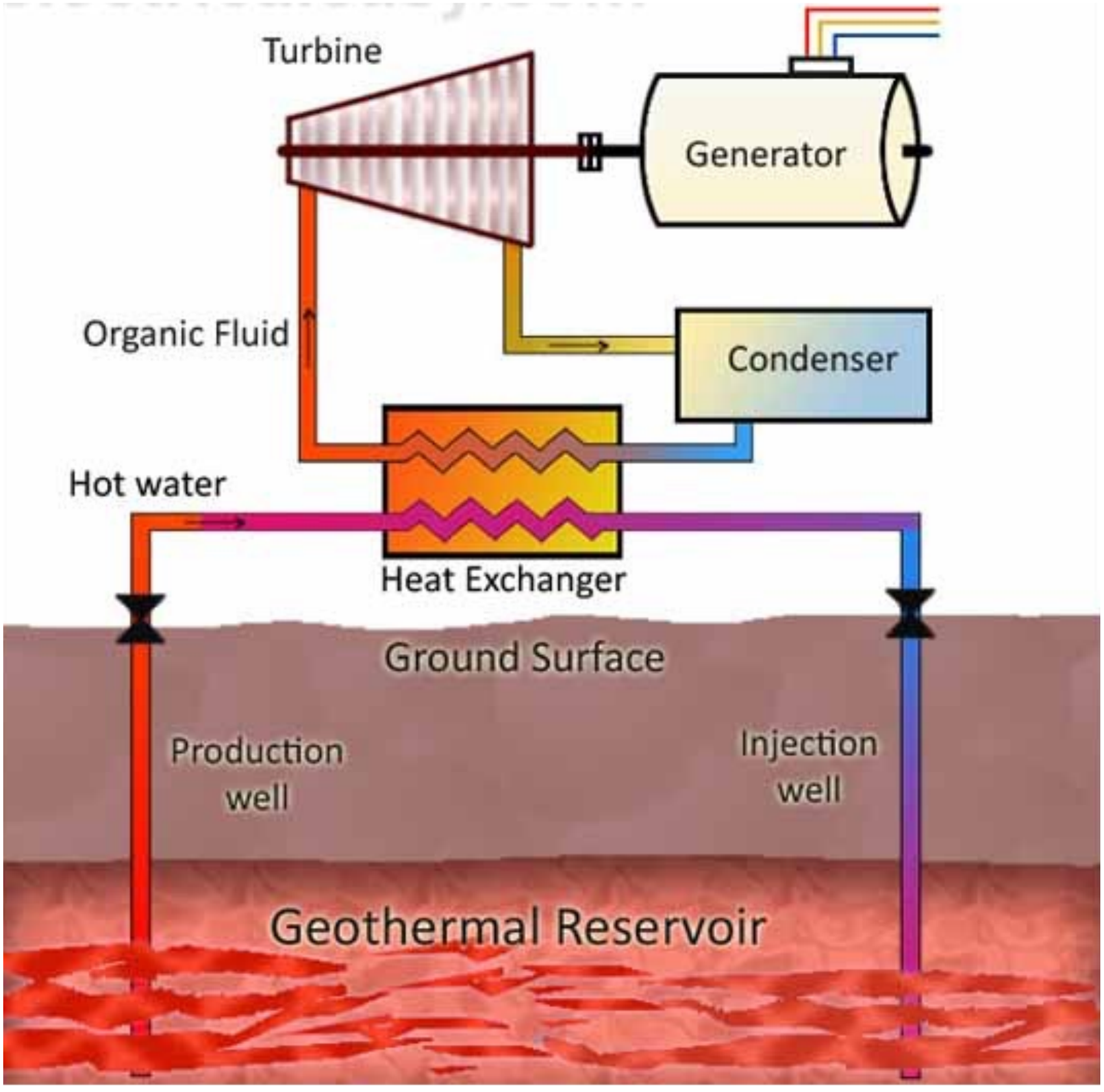
Renewables don’t get used up.

Hydroelectric



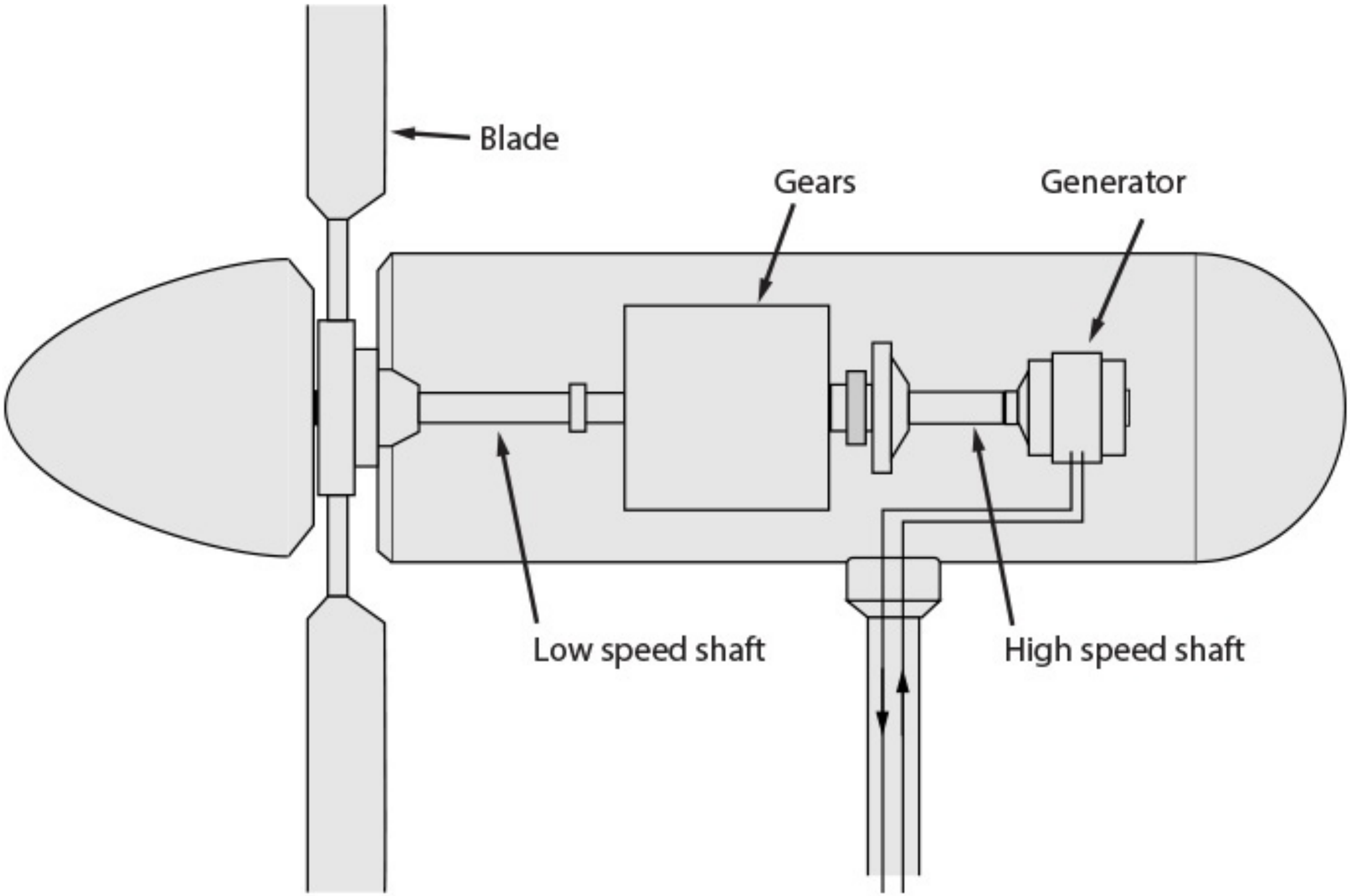
Flowing water pressure
turns turbine which turns generator.

Geothermal



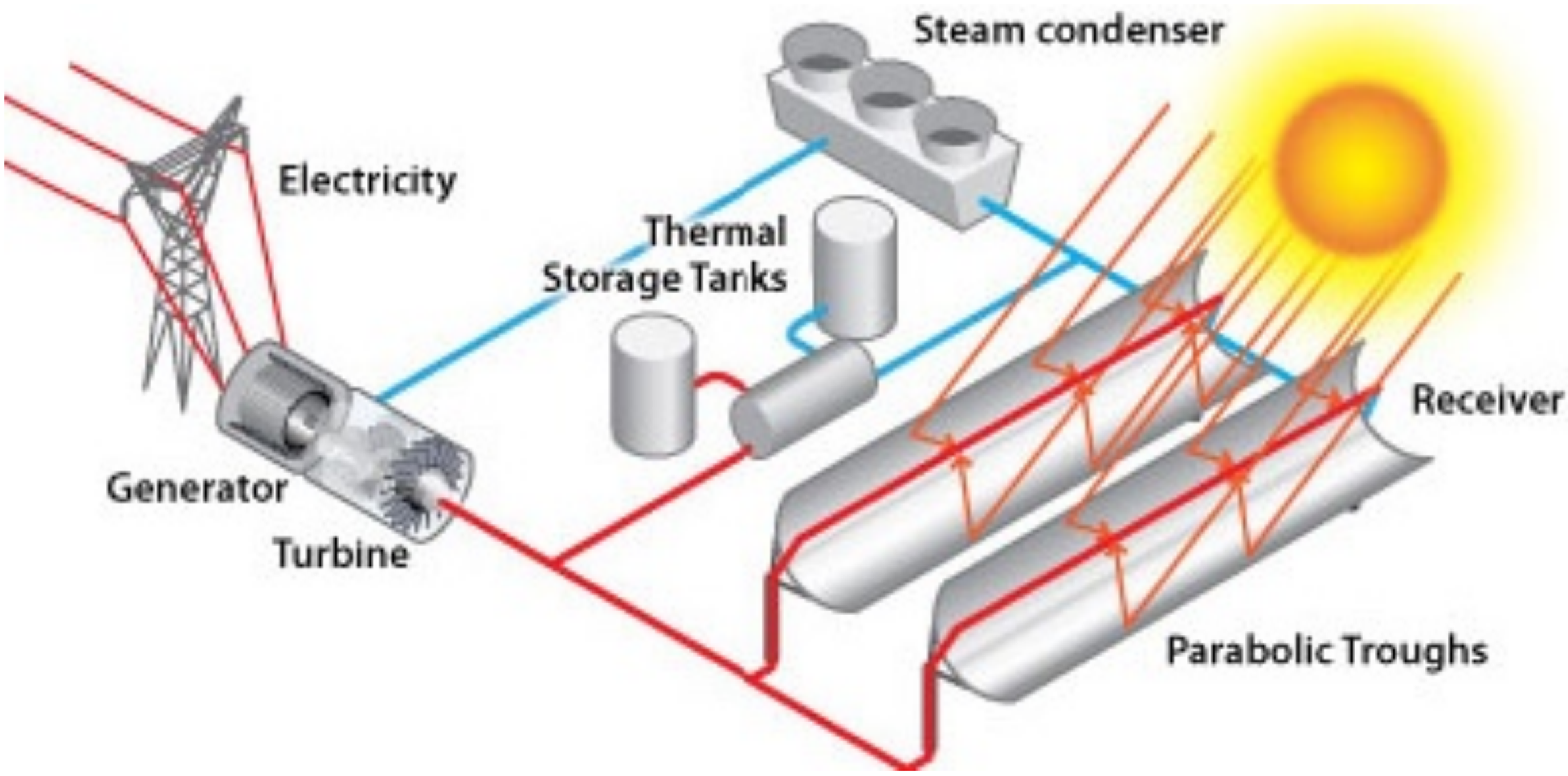
Heat from the deep in the earth turns turbine which turns generator.

Wind

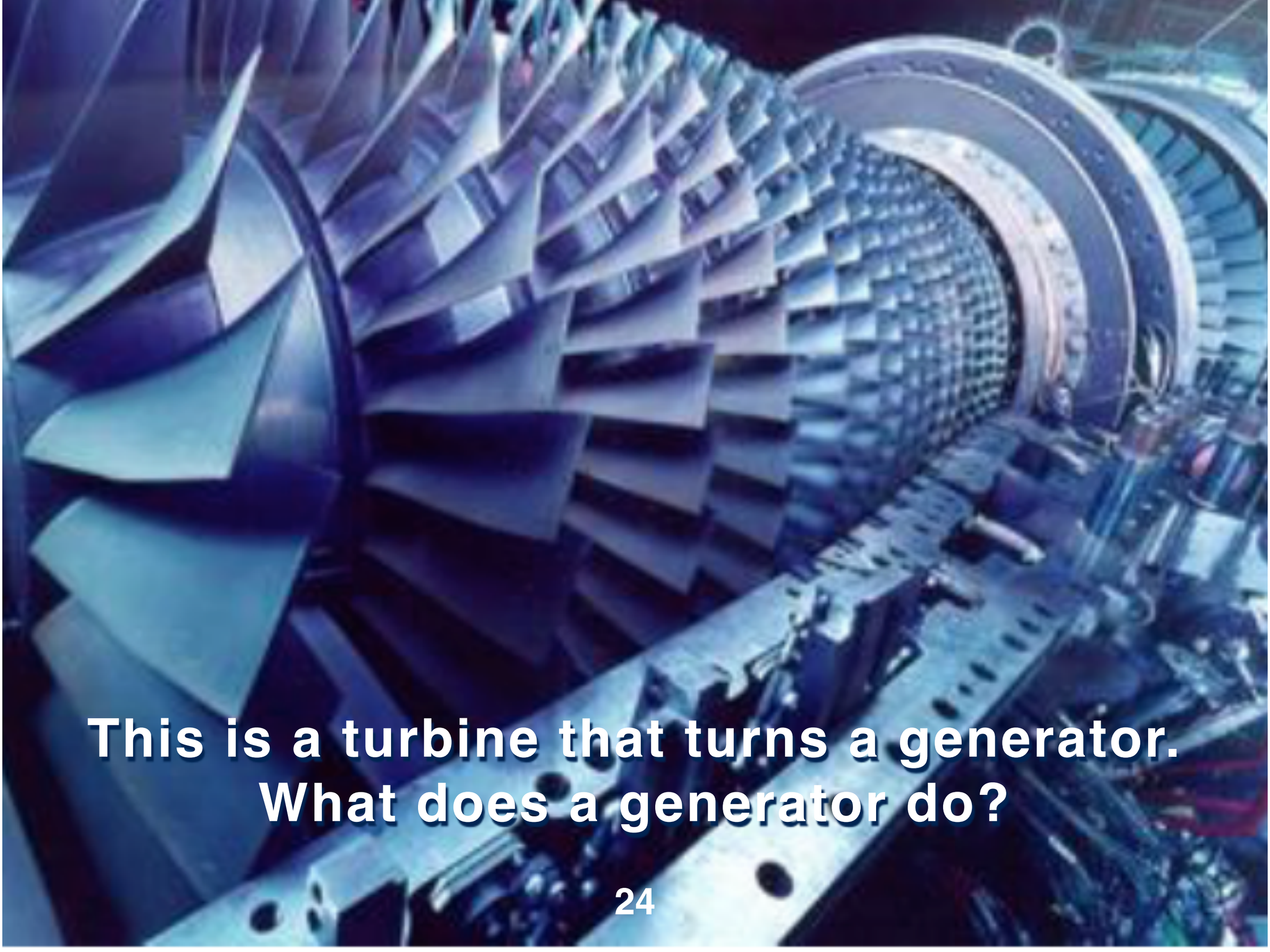


Wind turns generator

Concentrating Solar Power *It's not PV*



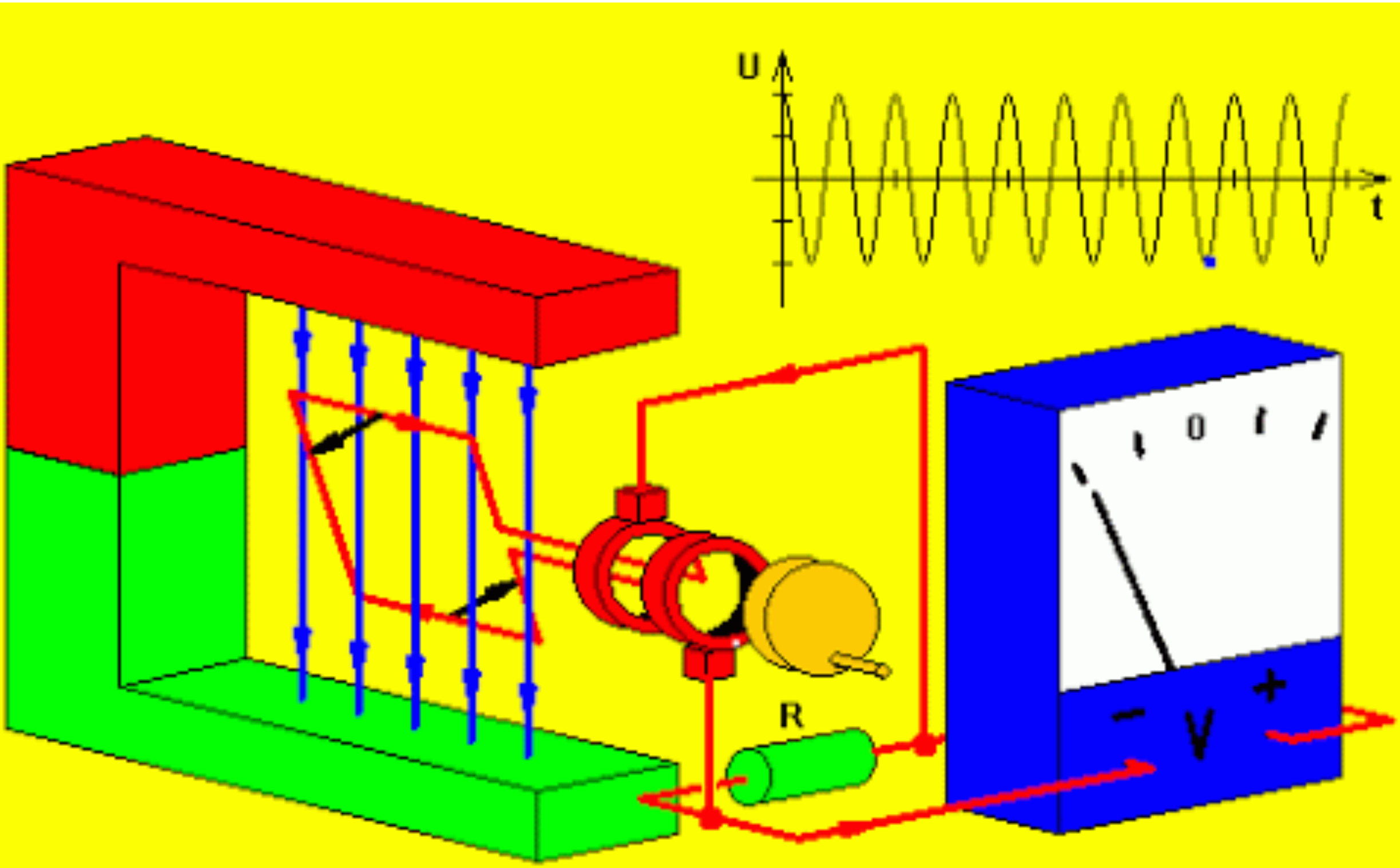
Heat transfer fluid
turns turbine which turns generator.



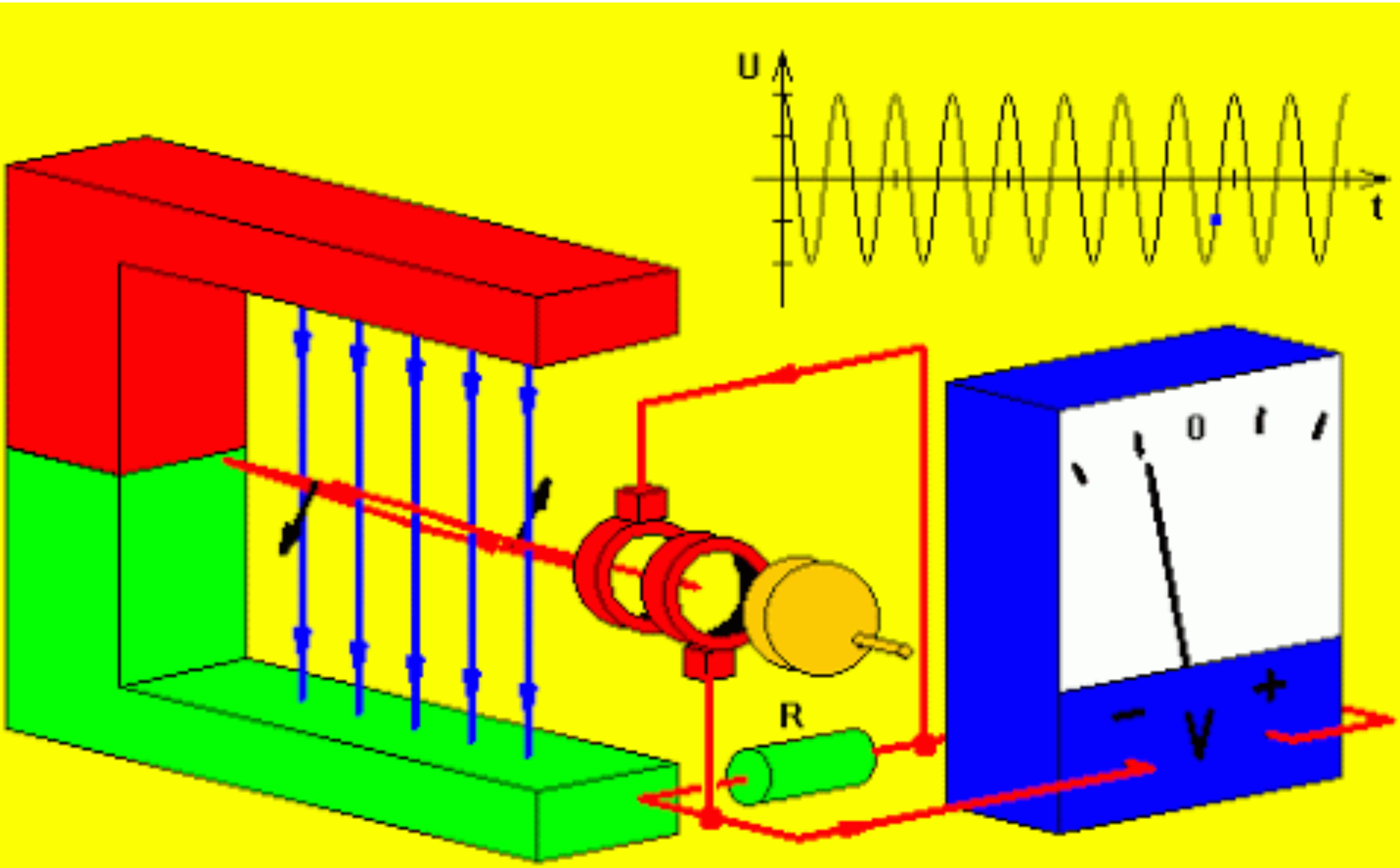
This is a turbine that turns a generator.
What does a generator do?

Generators make electricity:
Alternating Current, AC.

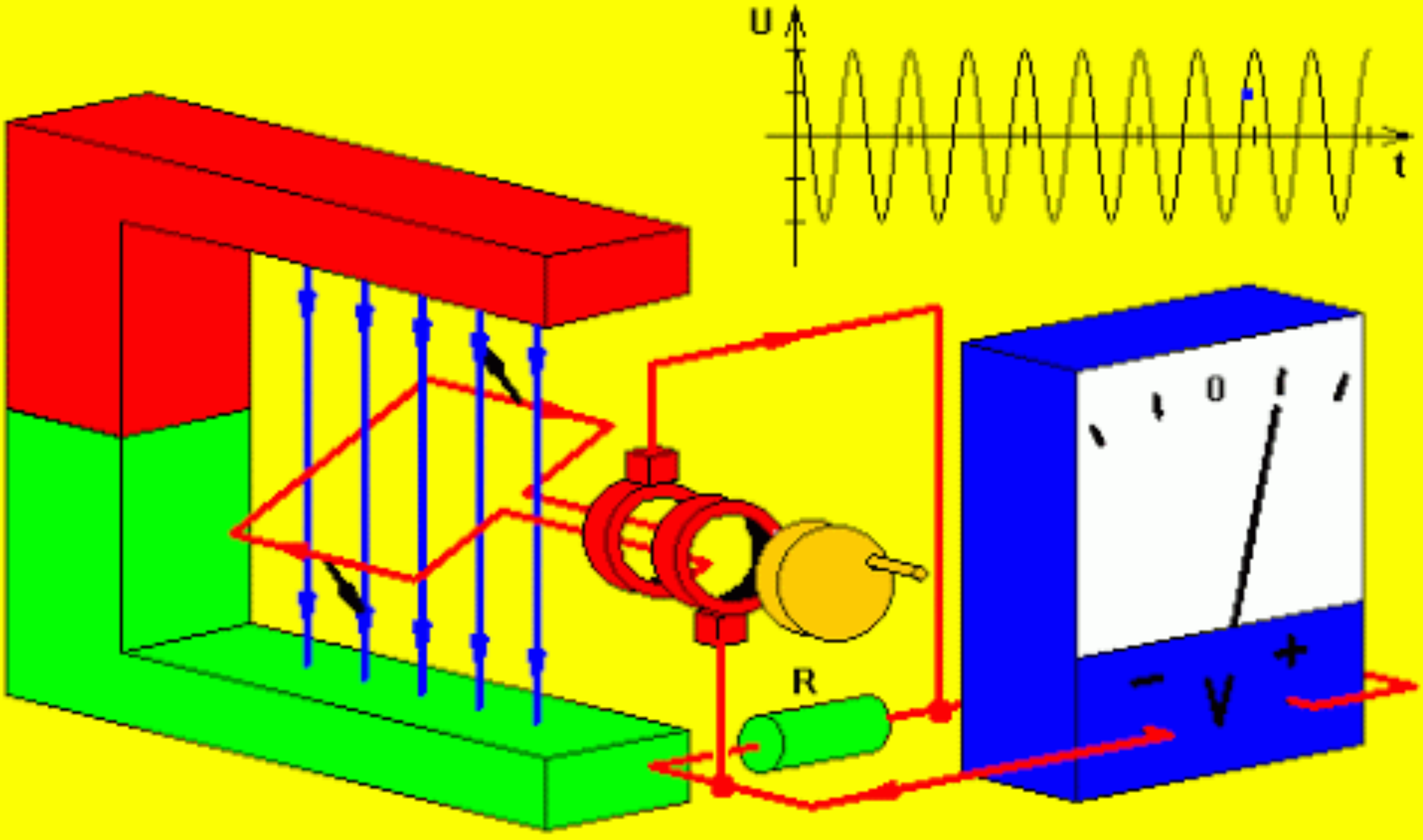
AC can be transmitted safely
on transmission lines
over long distances
at high voltage.



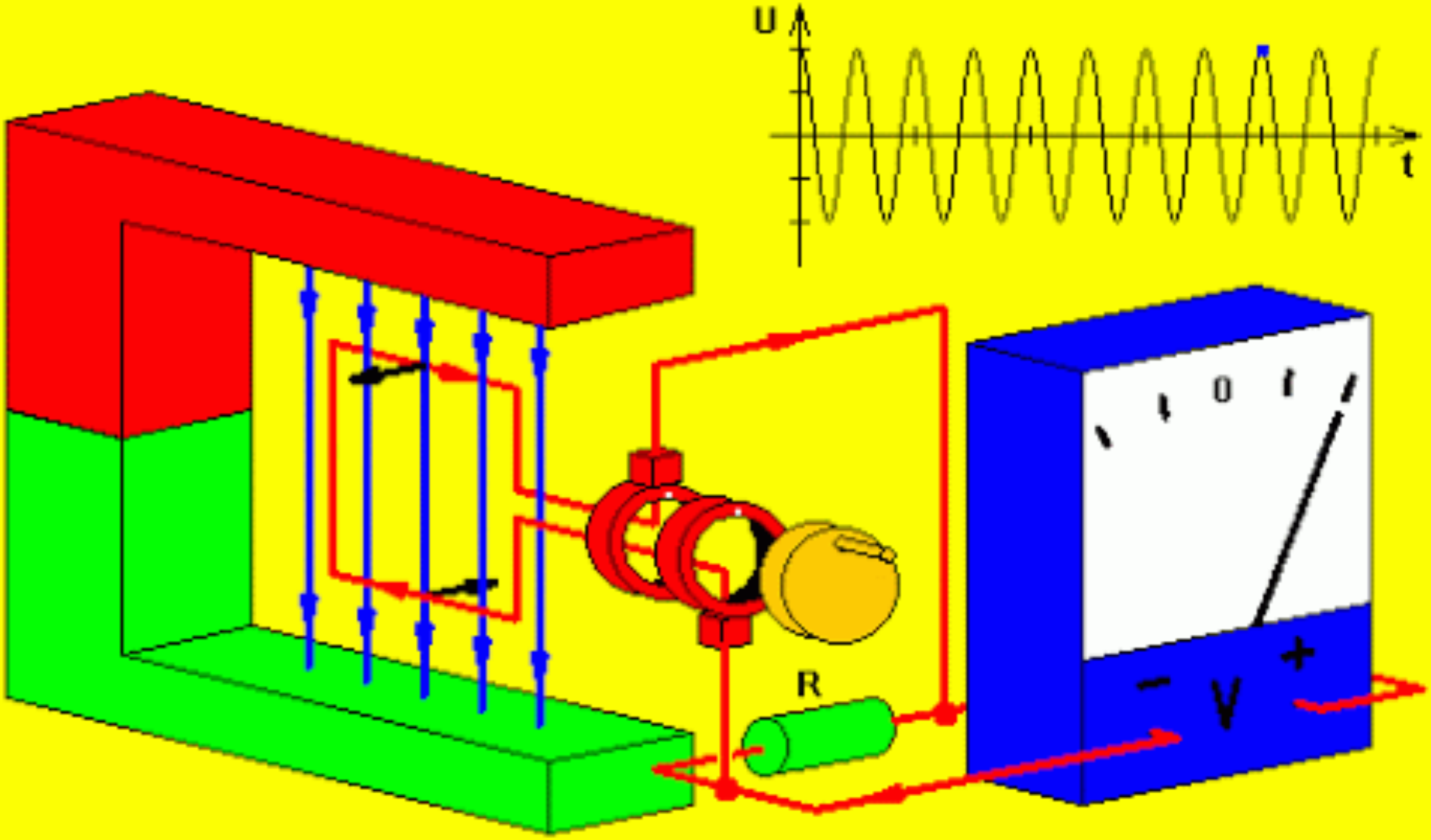
Wire rotates between magnetic poles.



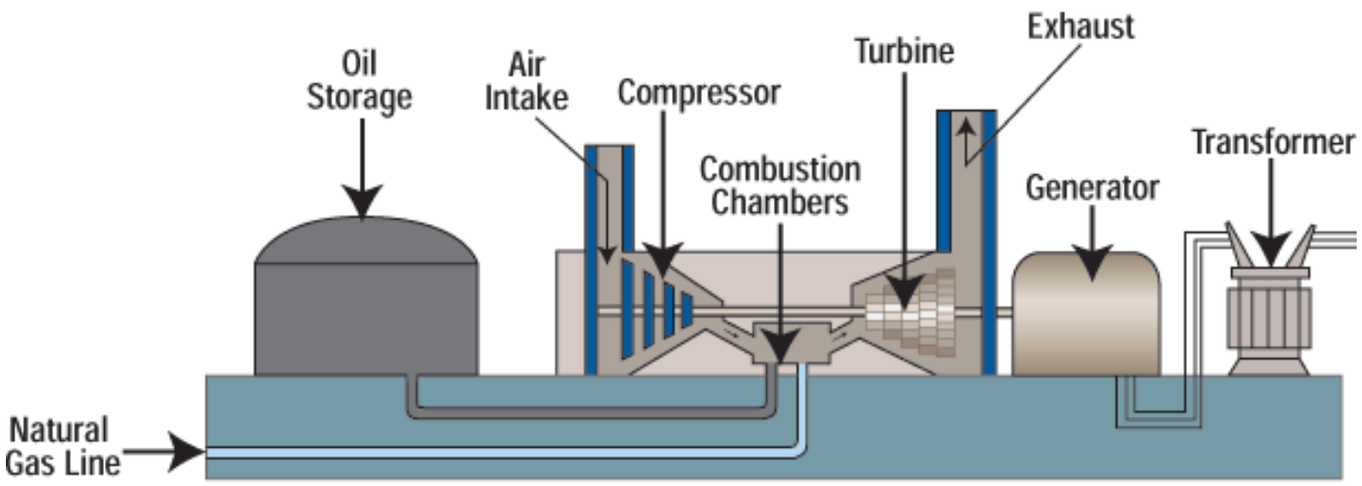
Magnetic field induces electricity into wire

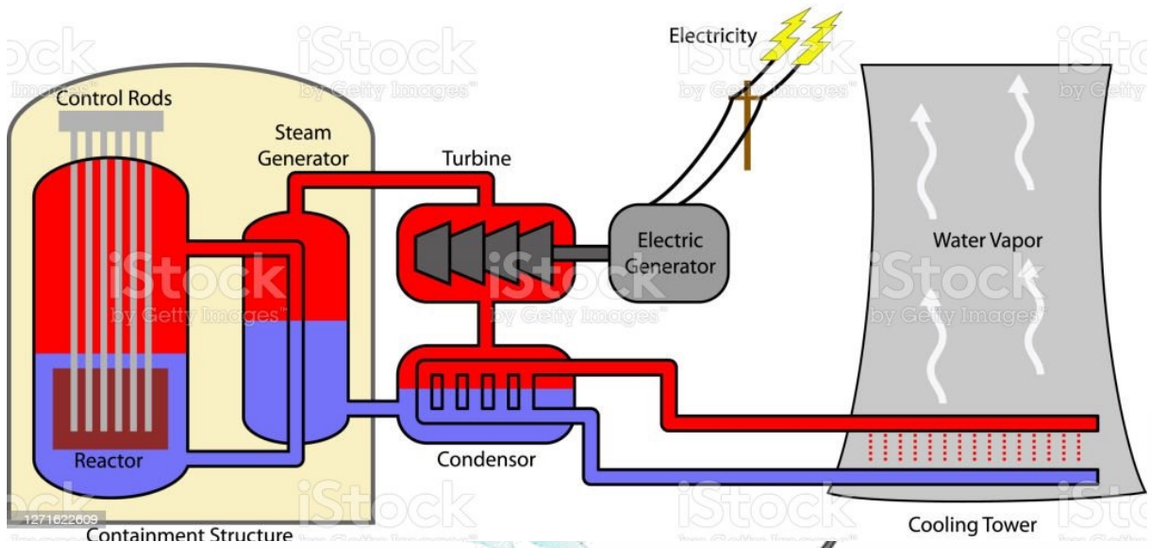


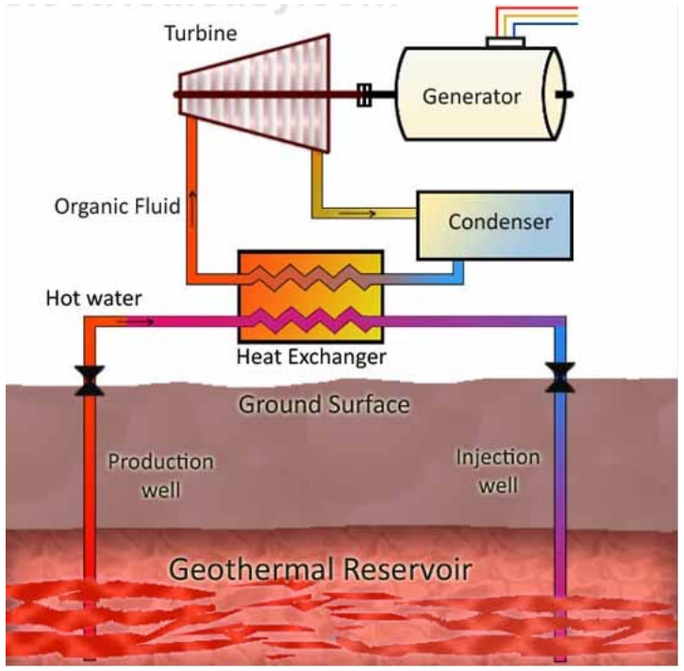
Charge alternates between negative and positive



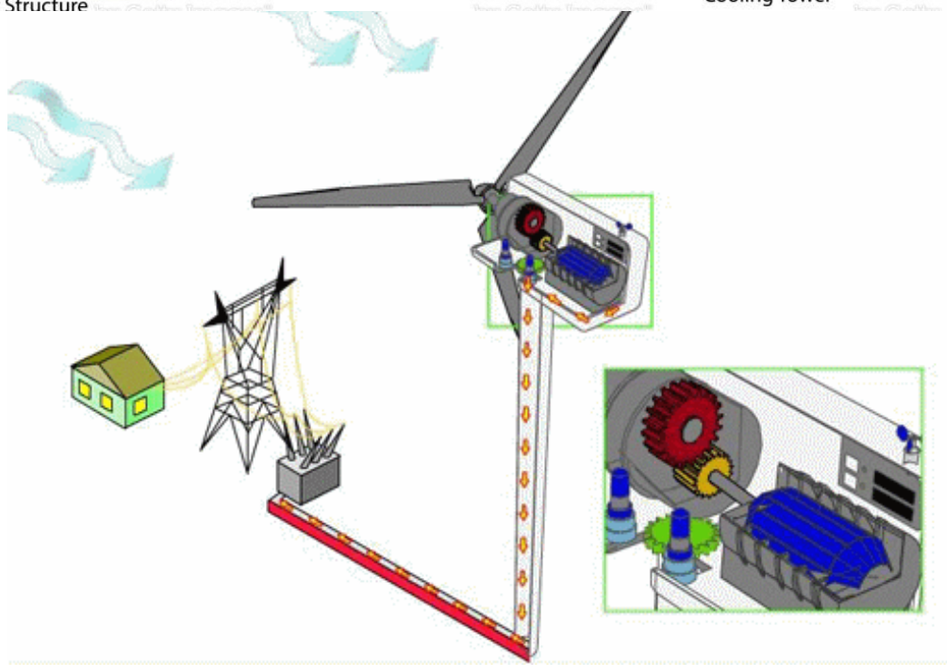
Alternating Current, AC, is generated!

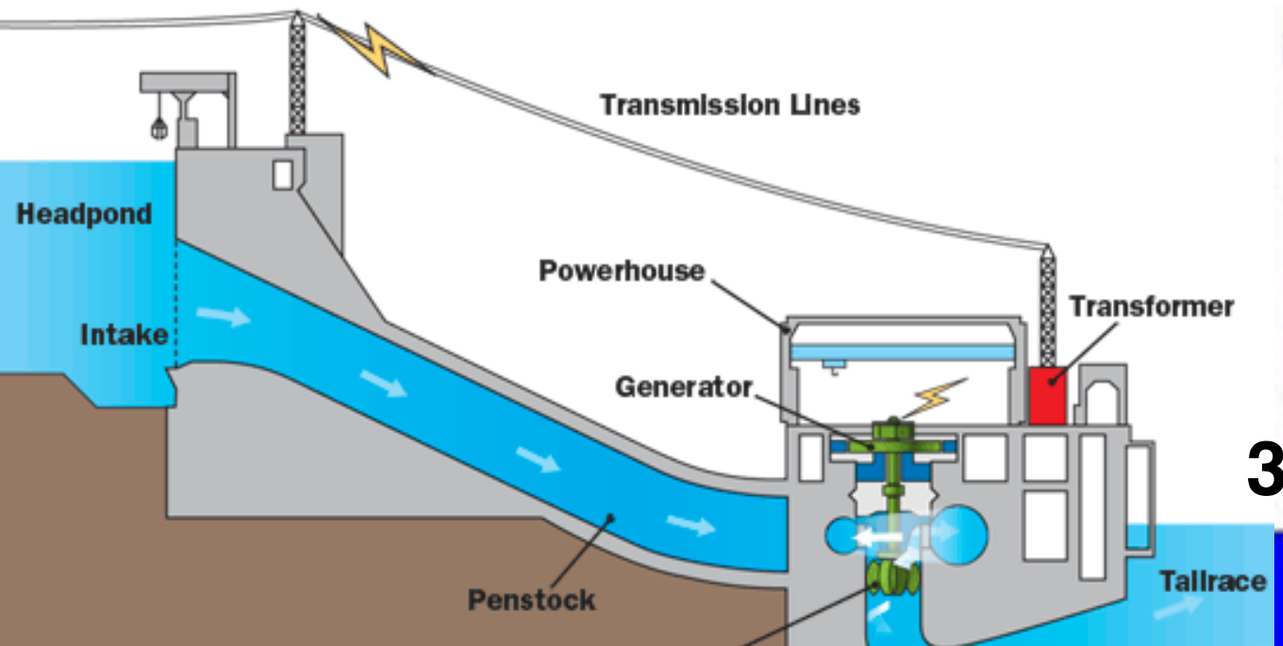


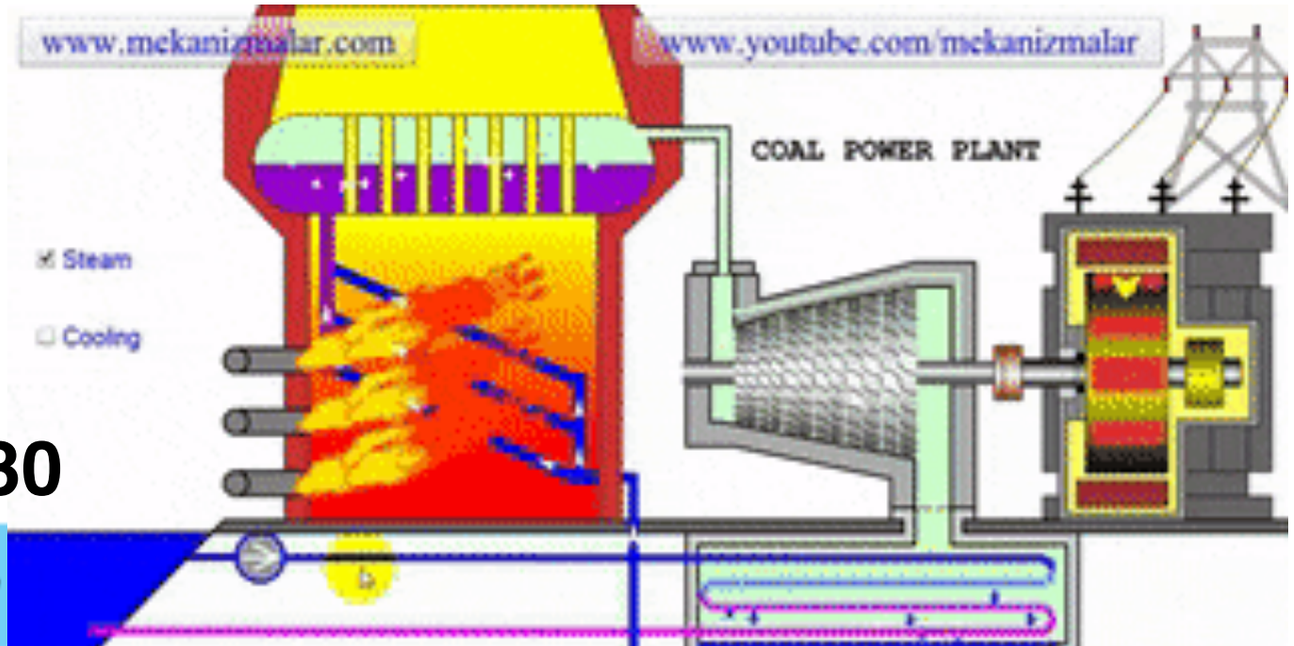




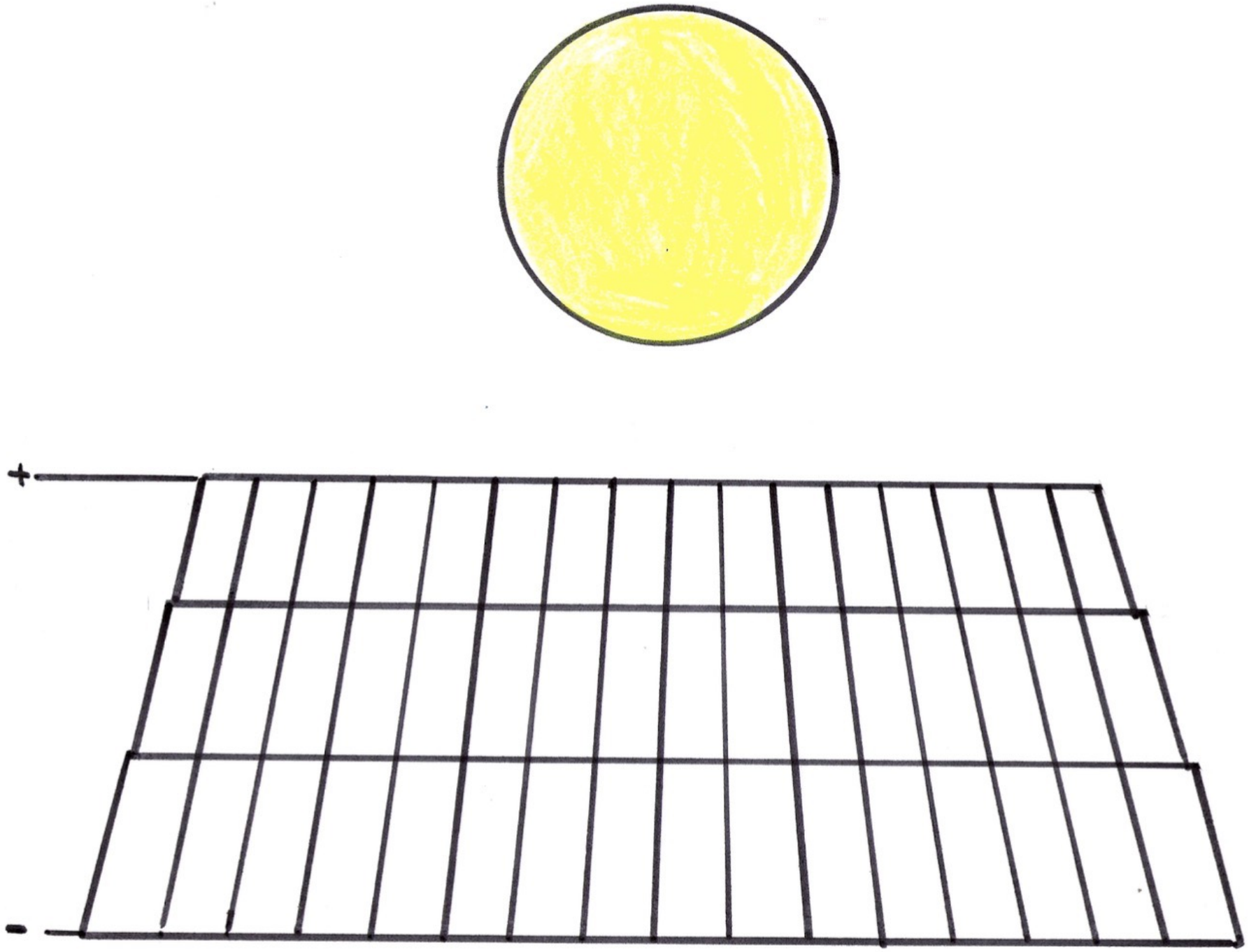
They all work the same way





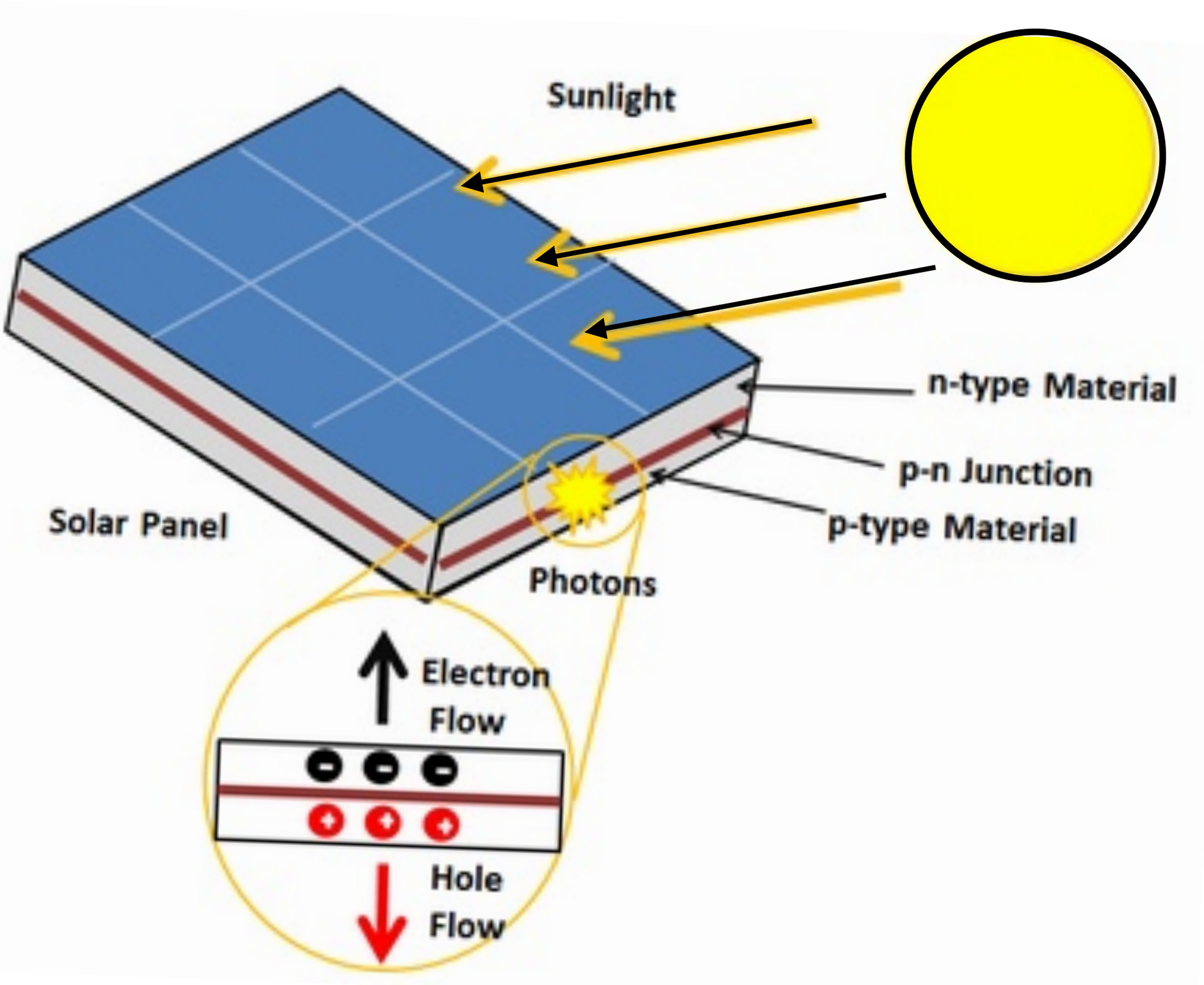


Are you ready for solar?



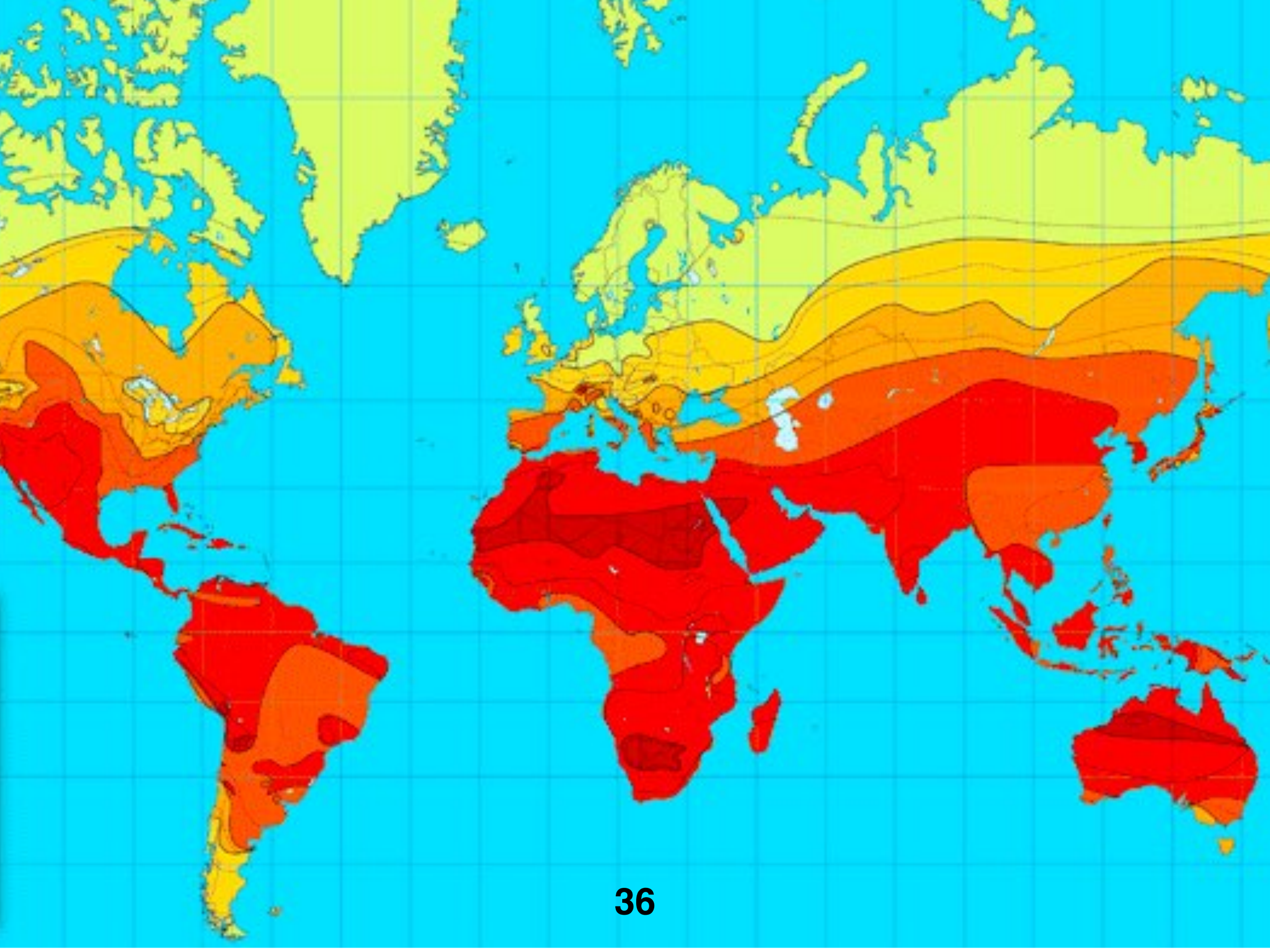
Sunlight makes electricity,
no turbine or generator needed

The photovoltaic effect

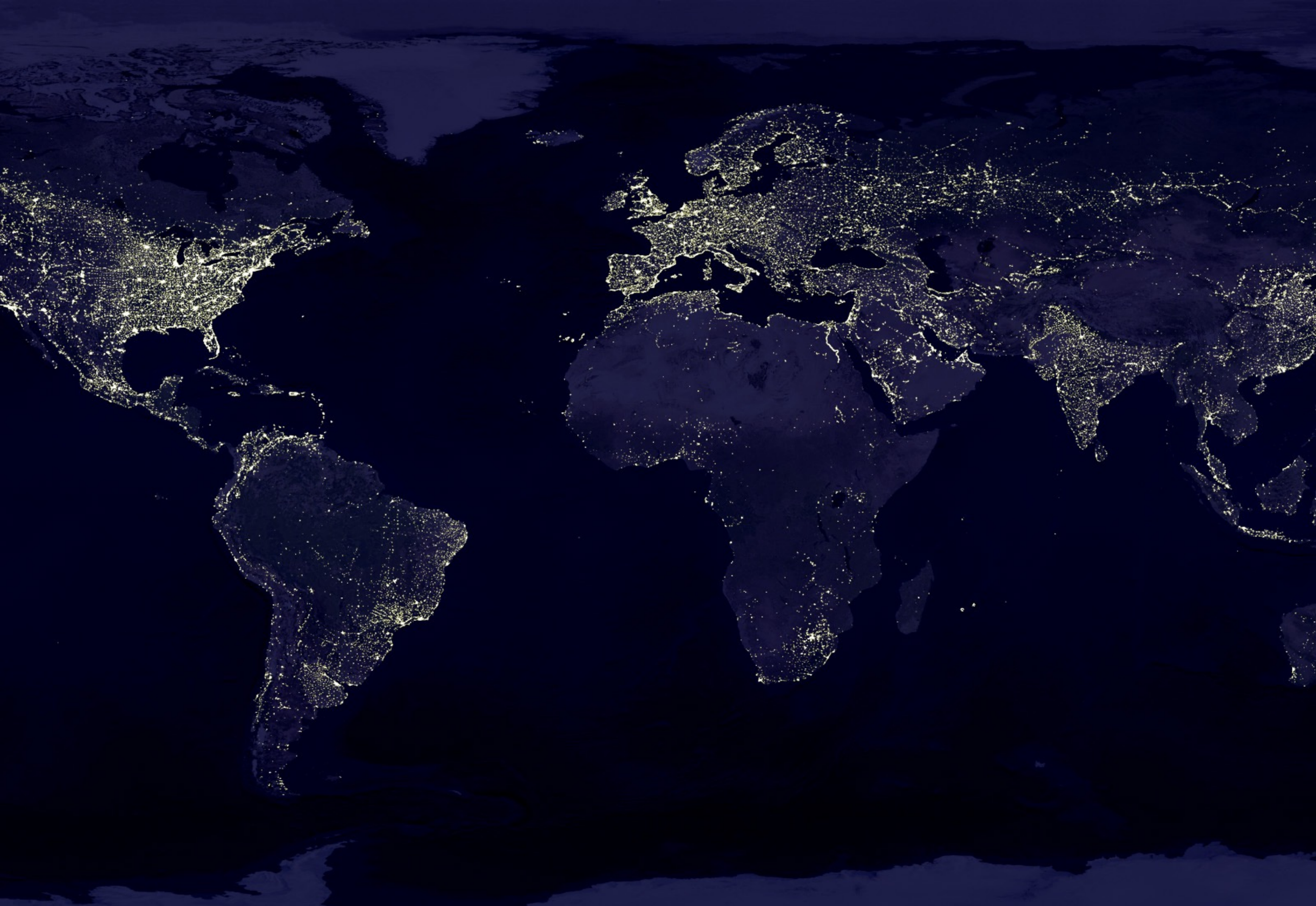


Sunlight causes electrons to flow from **negatively charged silicon** to **positively charged silicon** which creates Direct Electrical Current, DC, in a circuit.

Where there is Sun...



Where there is need...



GALLUP SOLAR!

Gallup Solar Teams


Hy-Line

photo by Blaine Nez Solar Team 1

Terms for Discussion

Fossil Fuels
Greenhouse Gases
Carbon
Hydrogen
Coal
Natural Gas
Generator
Steam
Turbine
Methane
Nuclear

Radioactive Spill
Renewable Energy
Hydroelectric
Geothermal
Concentrating Solar Power
Transmission Lines
Alternating Current
Photovoltaic
Positive
Negative
Direct Current

until we meet again