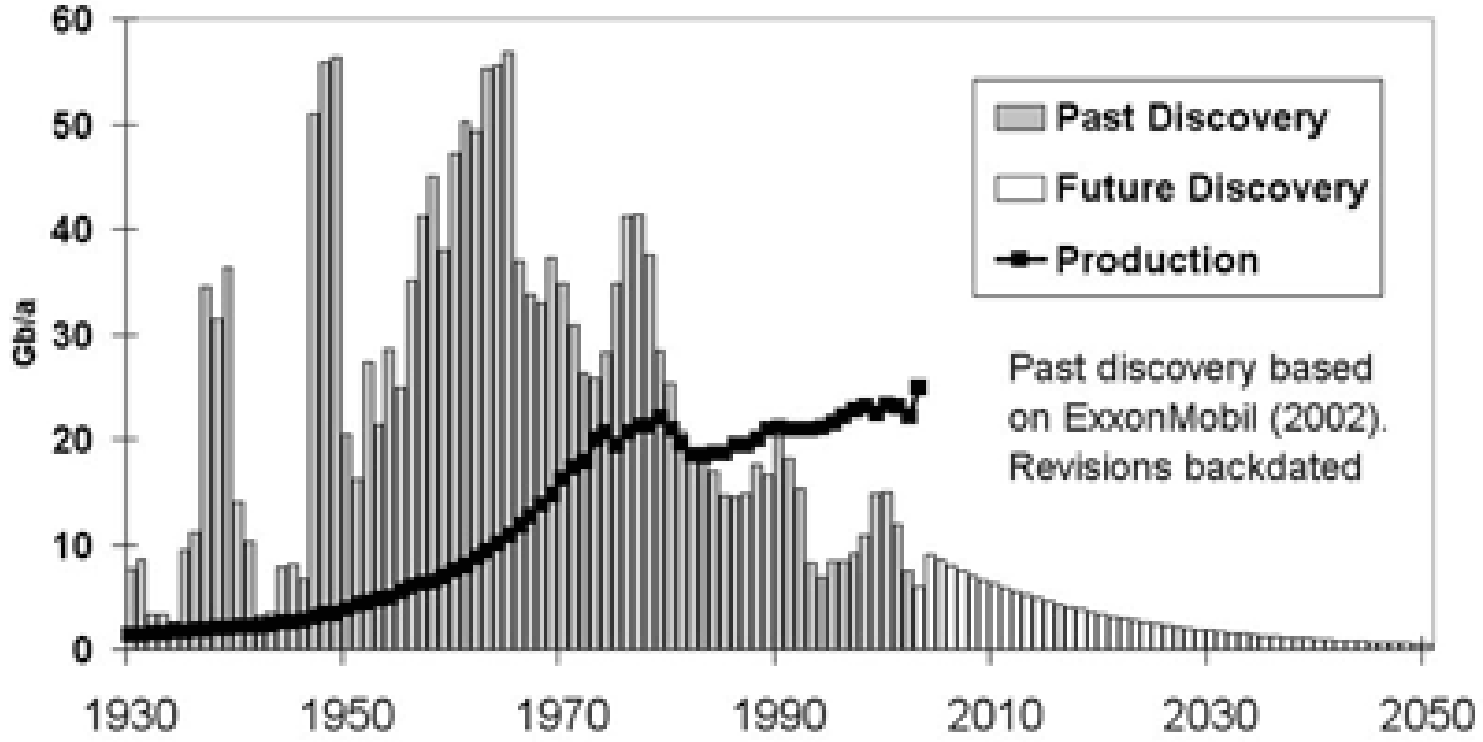

ALTERNATIVE
ENERGY





Fossil Fuels

THE GROWING GAP
Oil Discovery and Production



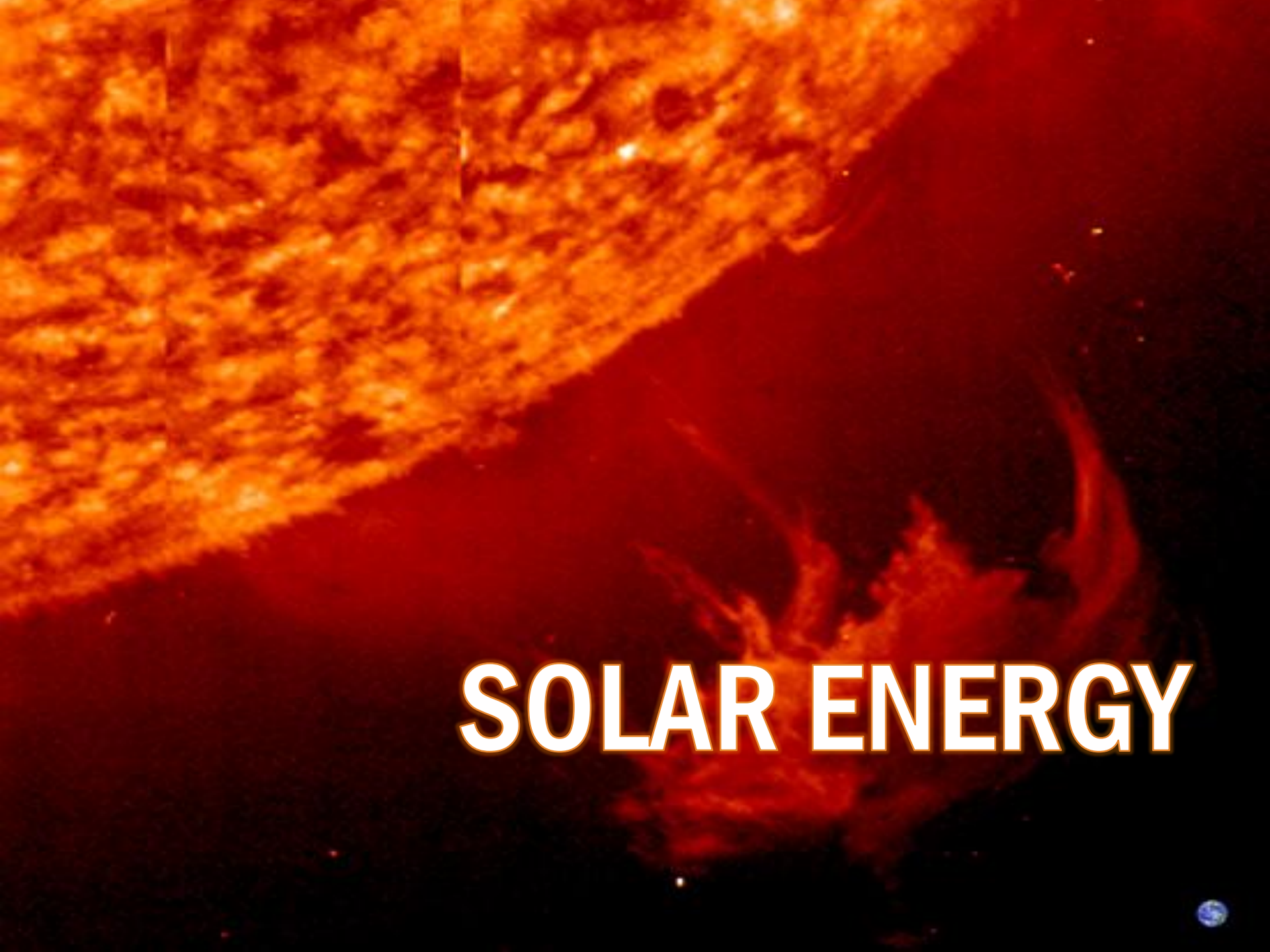
How can we eliminate them?





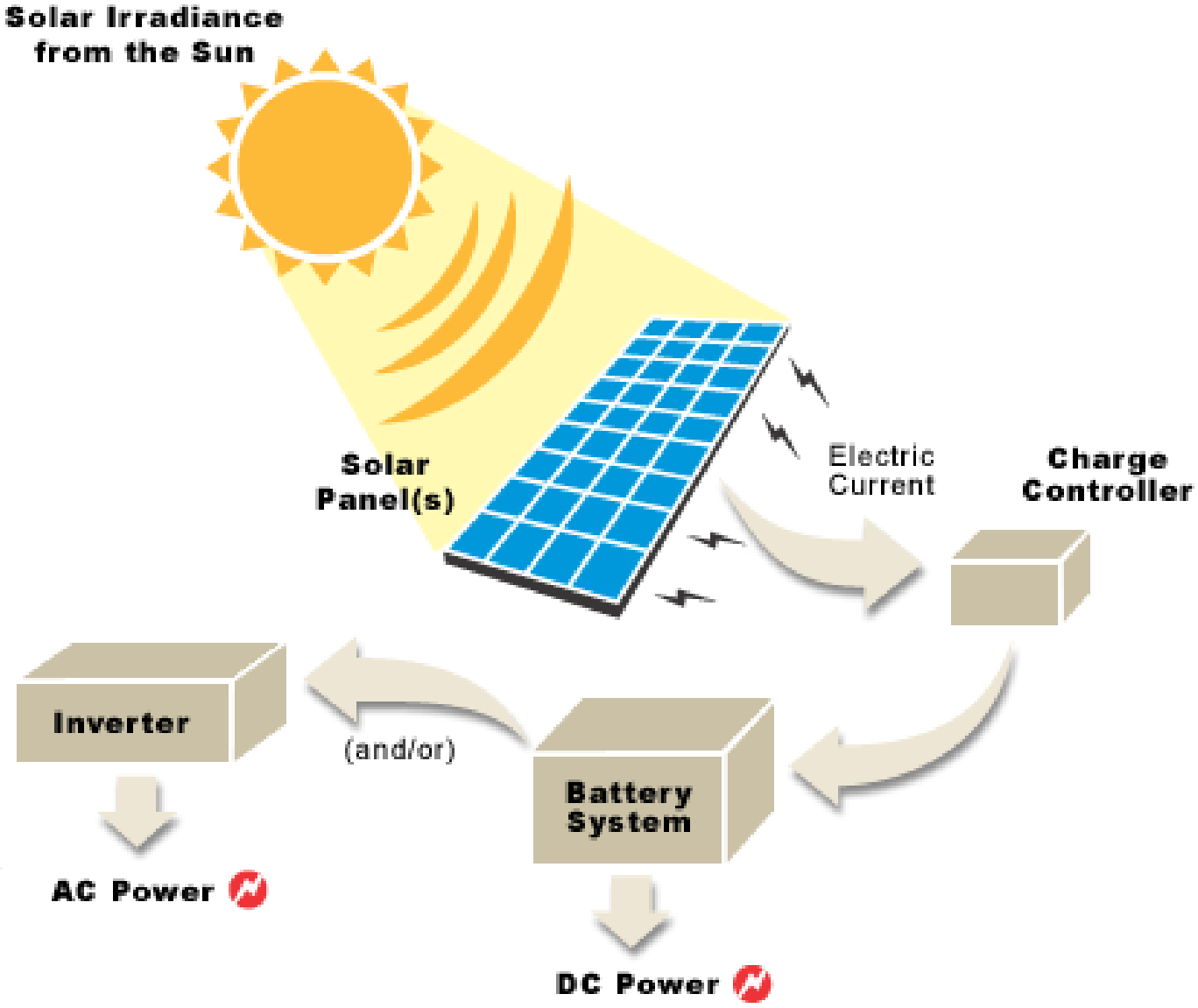





SOLAR ENERGY

Photovoltaic Cells



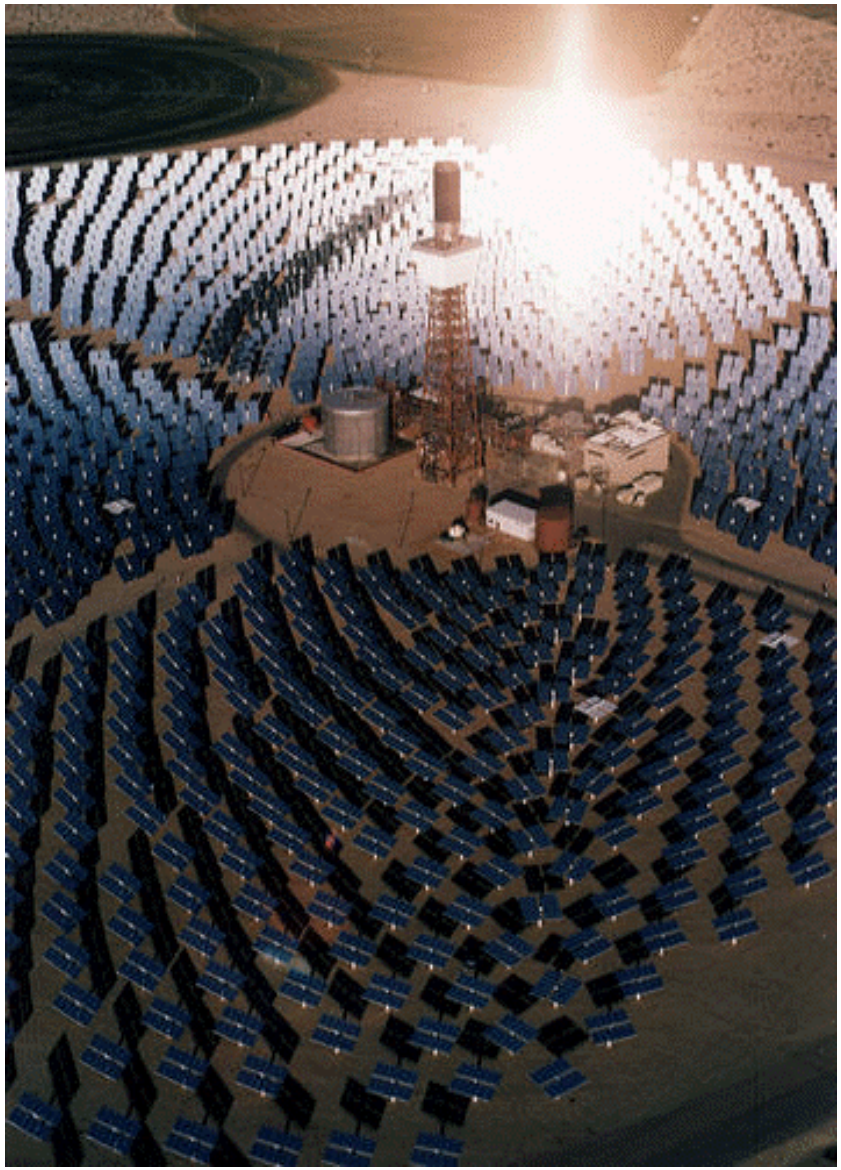

Solar Irradiance
from the Sun
Solar
Panel(s)
Electric
Current
Charge
Controller
Inverter
(and/or)
Battery
System
AC Power
DC Power



Every house in **Mueng Pam Village** has photovoltaic cells given by His Majesty the King. So they can use them to recharge batteries during the day and use them at night.

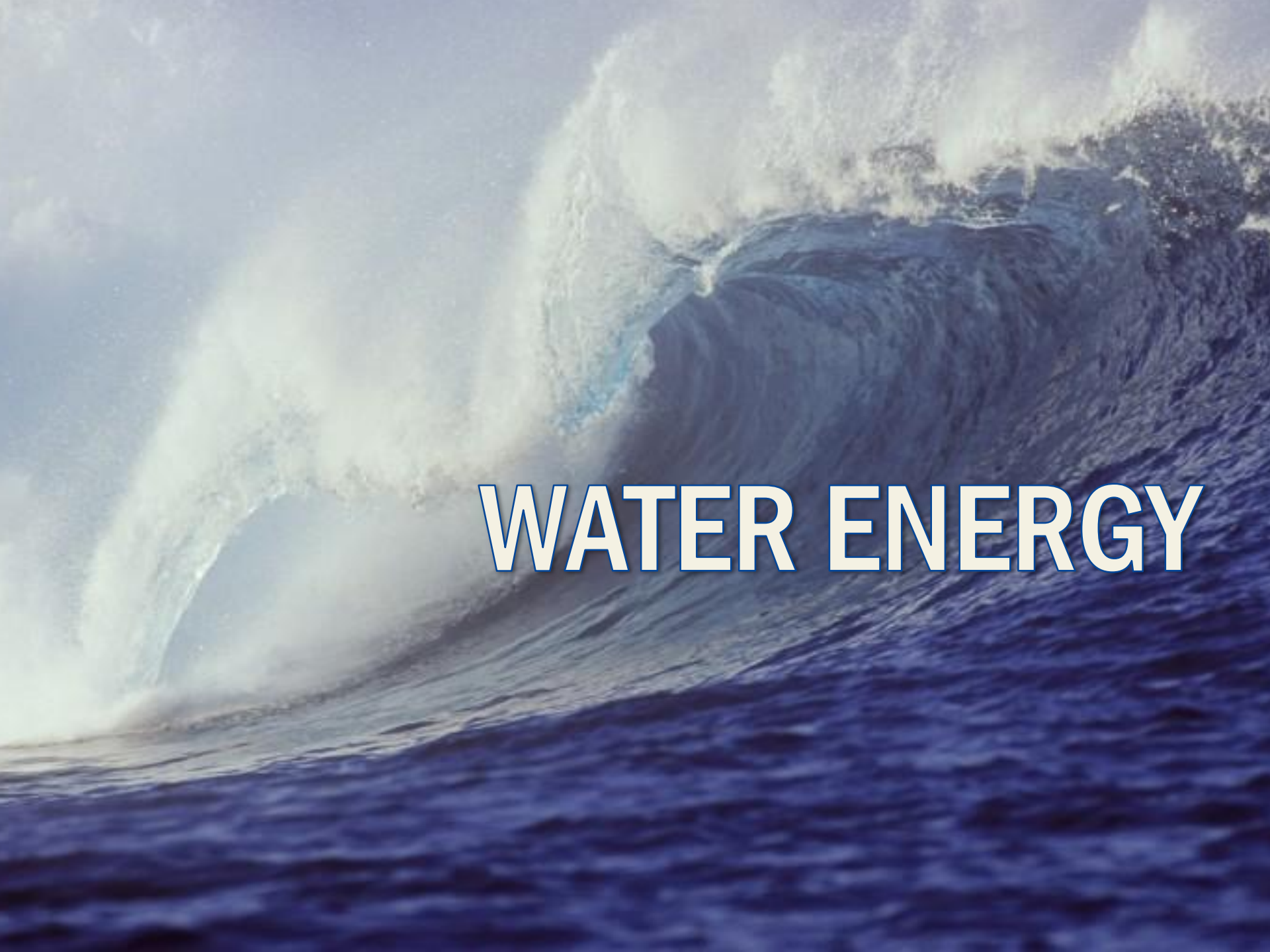
The **Nellis Solar Power** Plant is located within Nellis Air Force Base in Clark County, Nevada, on the northeast side of Las Vegas. It is the second largest photovoltaic power plant in North America with the installed capacity of 14 MW.



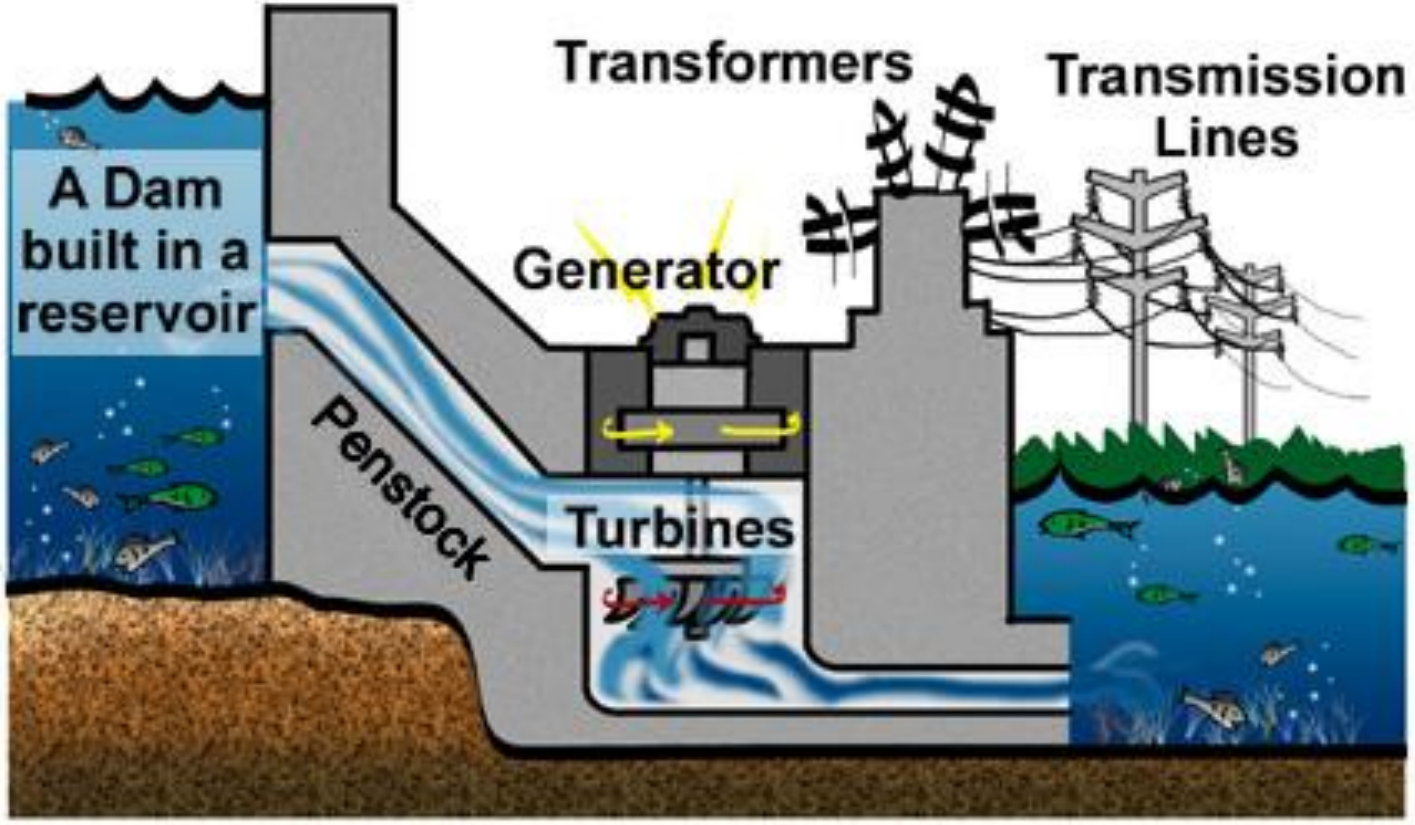


Concentrated solar power (**CSP**) systems, are systems that use mirrors or lenses to concentrate a large area of sunlight, or solar thermal energy, onto a small area. Electrical power is produced when the concentrated light is converted to heat which drives a heat engine (usually a steam turbine) connected to an electrical power generator.

CSP are widely commercialized all around the world and now producing **1.17 GW** of electricity


WATER ENERGY

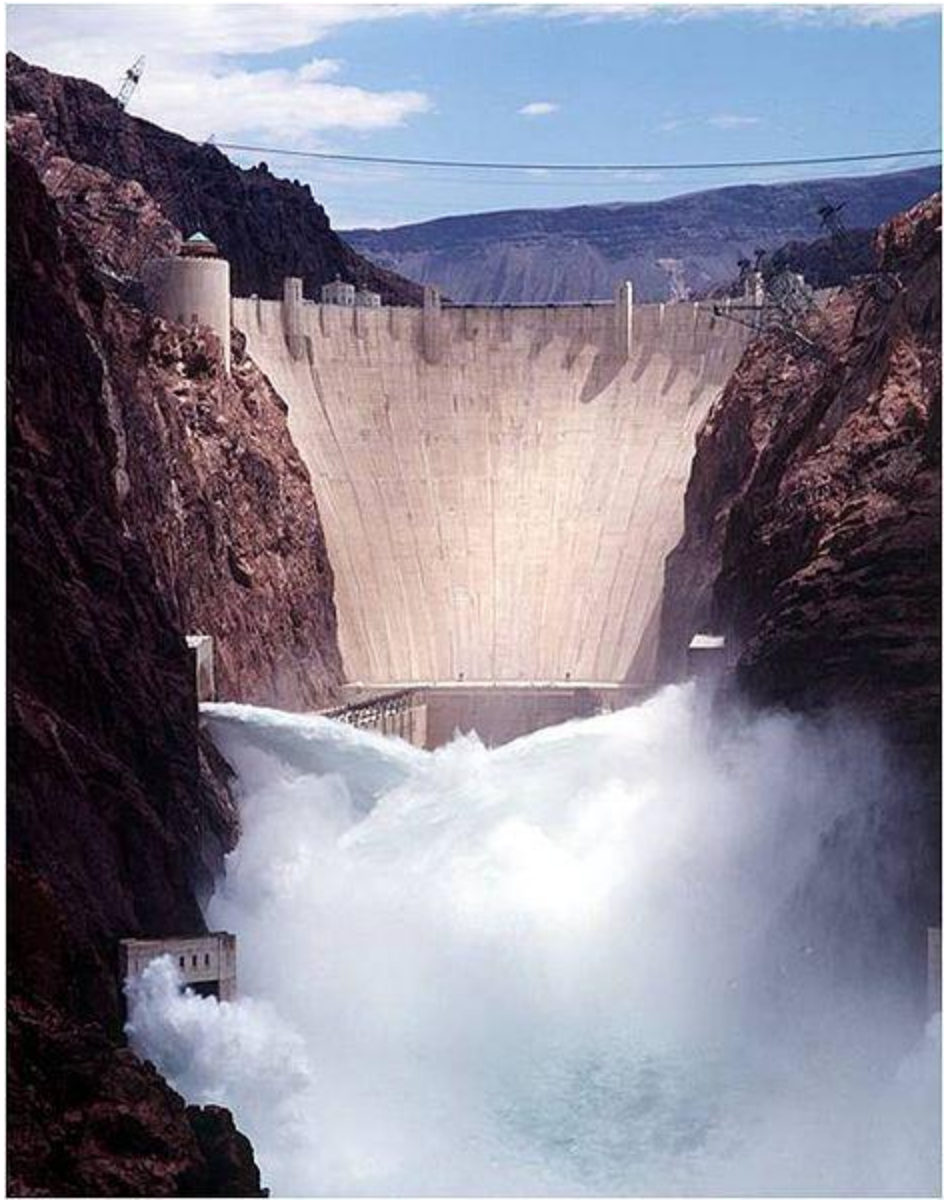
HOW IT WORKS


Transformers
Transmission Lines
A Dam built in a reservoir
Generator
Penstock
Turbines



Bhumibol Dam is considered the largest concrete dam and also largest water energy source of Thailand. It is located in Tak province with the installed capacity of 779 MW.

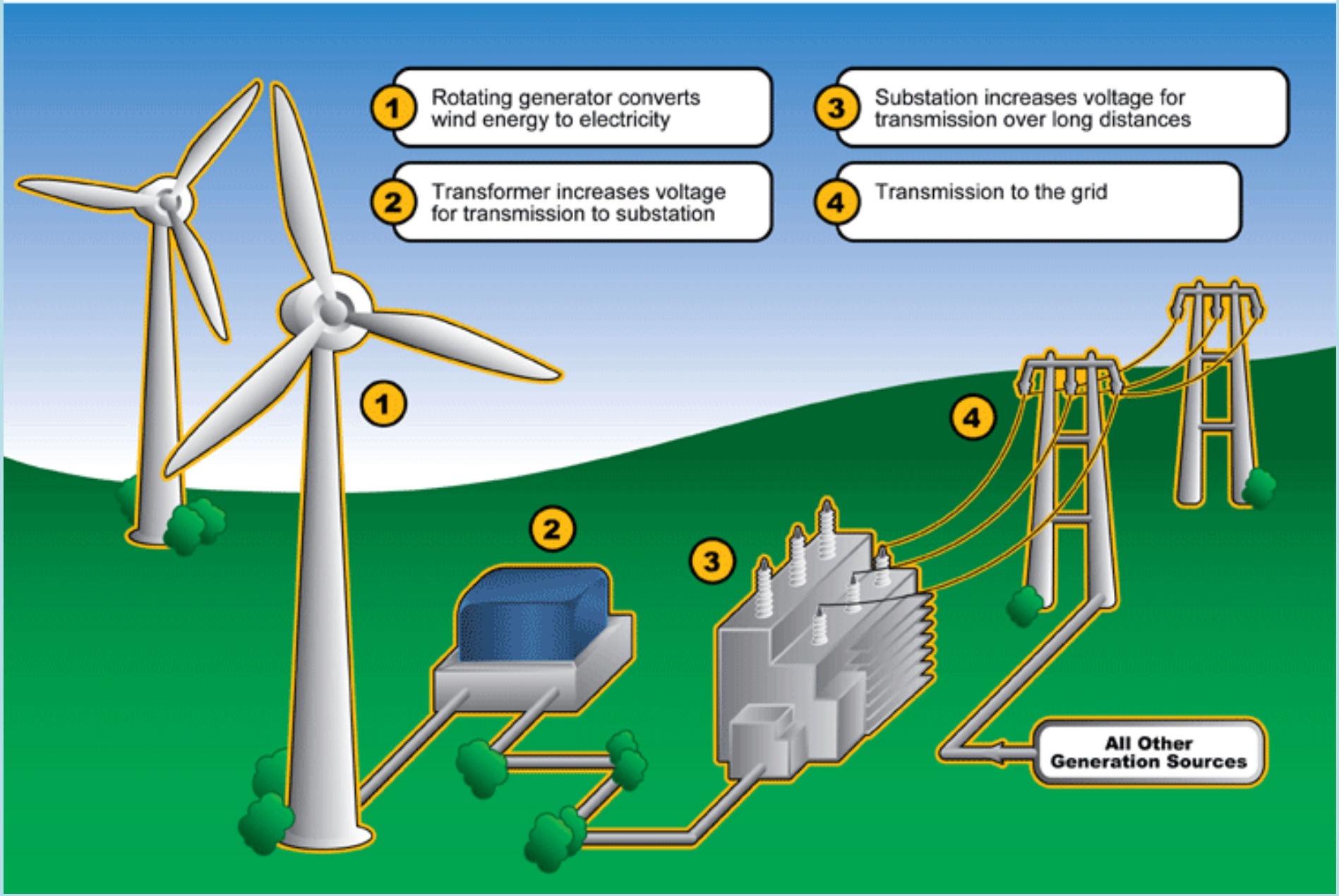
Hoover Dam, once known as **Boulder Dam**, is a concrete arch-gravity dam in the Black Canyon of the Colorado River, on the border between the US states of Arizona and Nevada. It generates 4.2 billion kWh of electricity annually

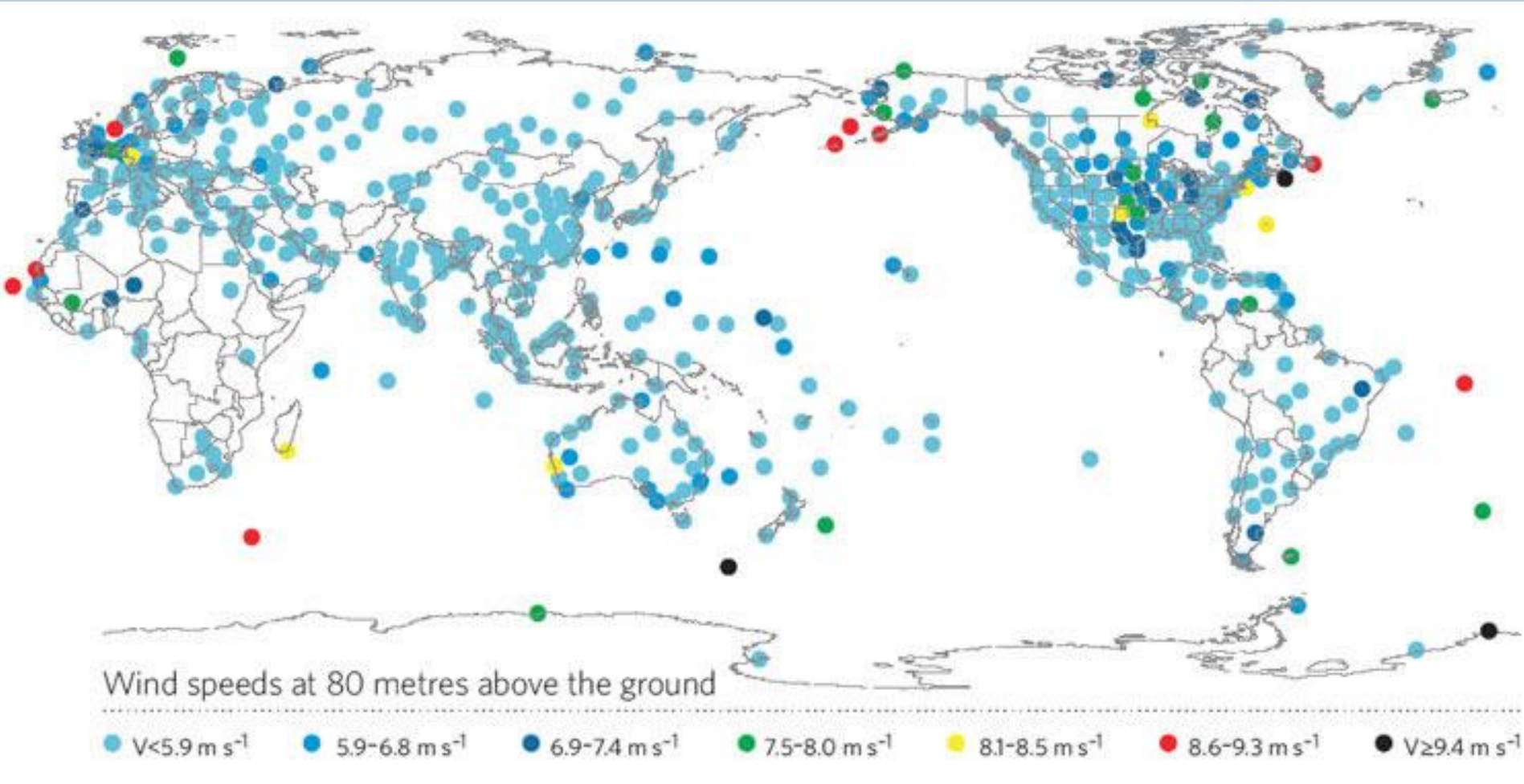


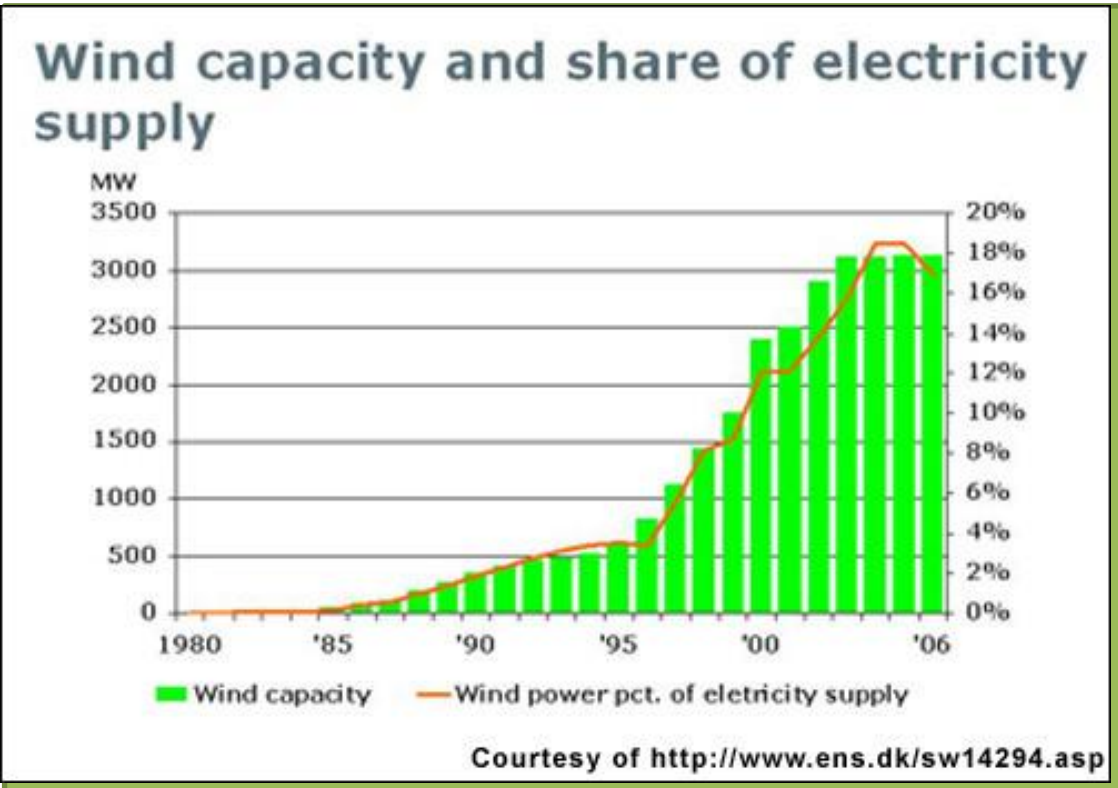
WIND ENERGY



WIND


1 Rotating generator converts wind energy to electricity
2 Transformer increases voltage for transmission to substation
3 Substation increases voltage for transmission over long distances
4 Transmission to the grid
1
2
3
4
All Other Generation Sources


Wind speeds at 80 metres above the ground
V<5.9 m s-1
5.9-6.8 m s-1
6.9-7.4 m s-1
7.5-8.0 m s-1
8.1-8.5 m s-1
8.6-9.3 m s-1
V≥9.4 m s-1



Denmark 21%

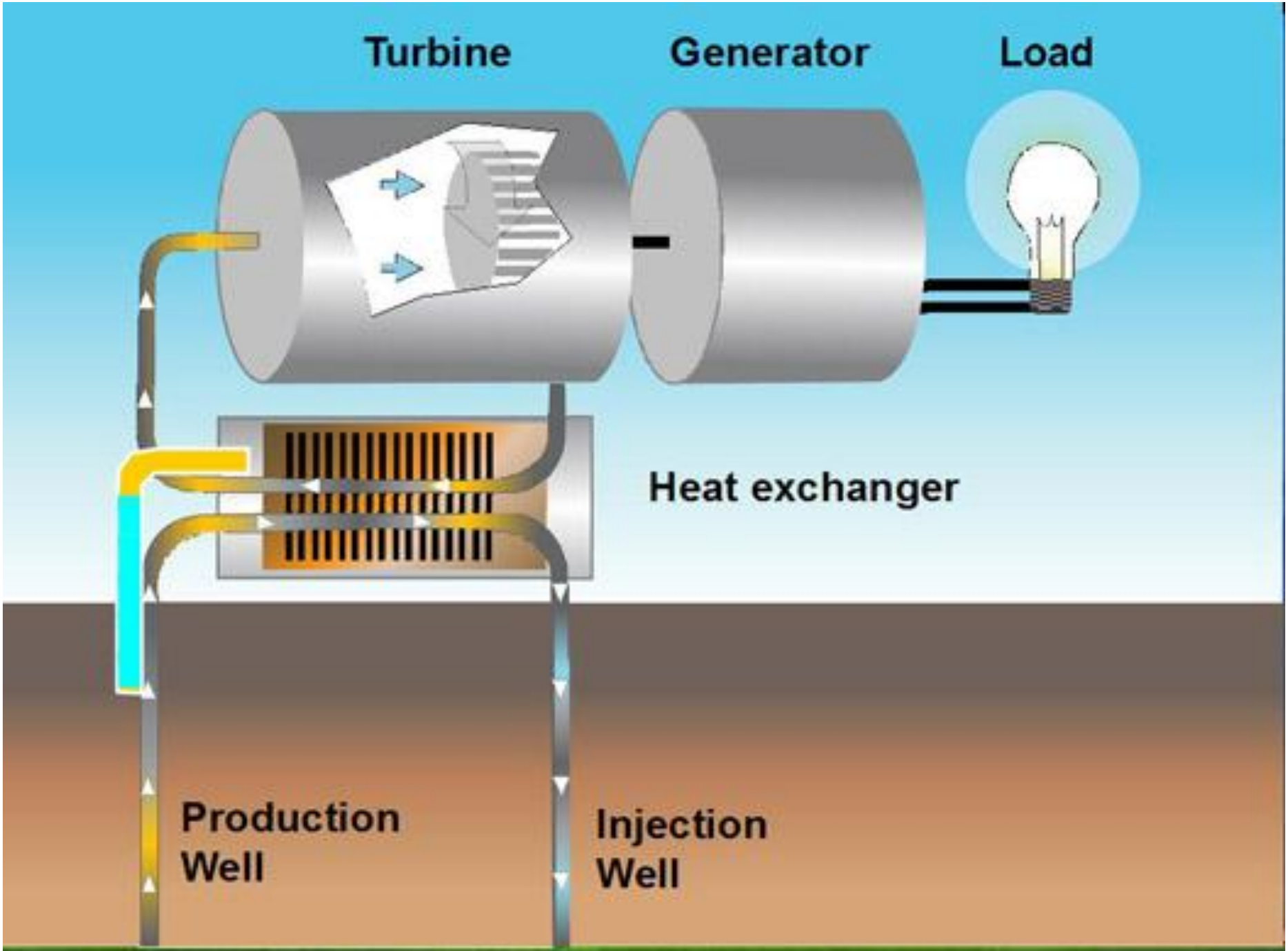
Portugal 18%

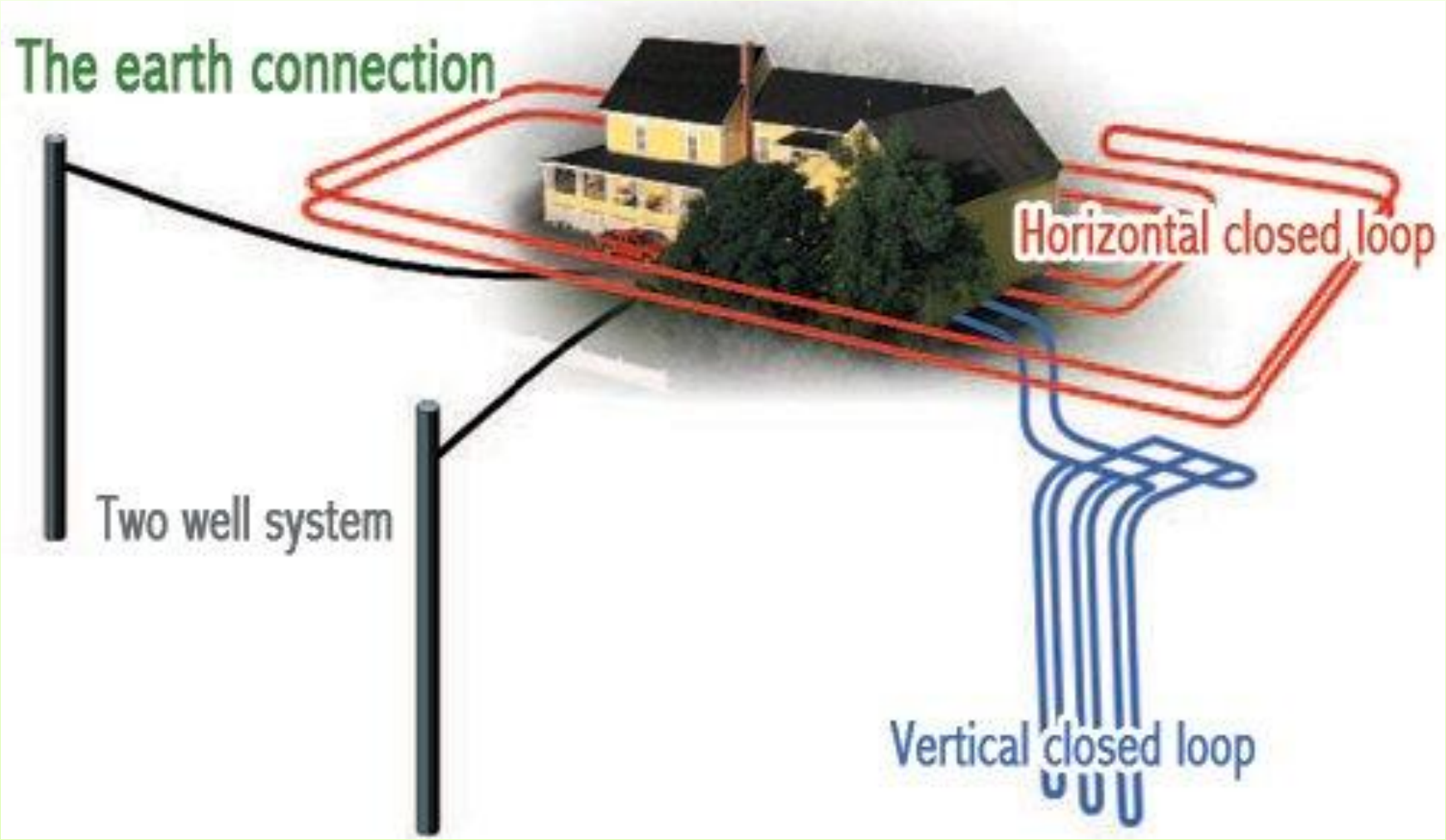
Spain 16%

Ireland 14%

Germany 9%


GEOTHERMAL ENERGY


Turbine
Generator
Load
Heat exchanger
Production Well
Injection Well

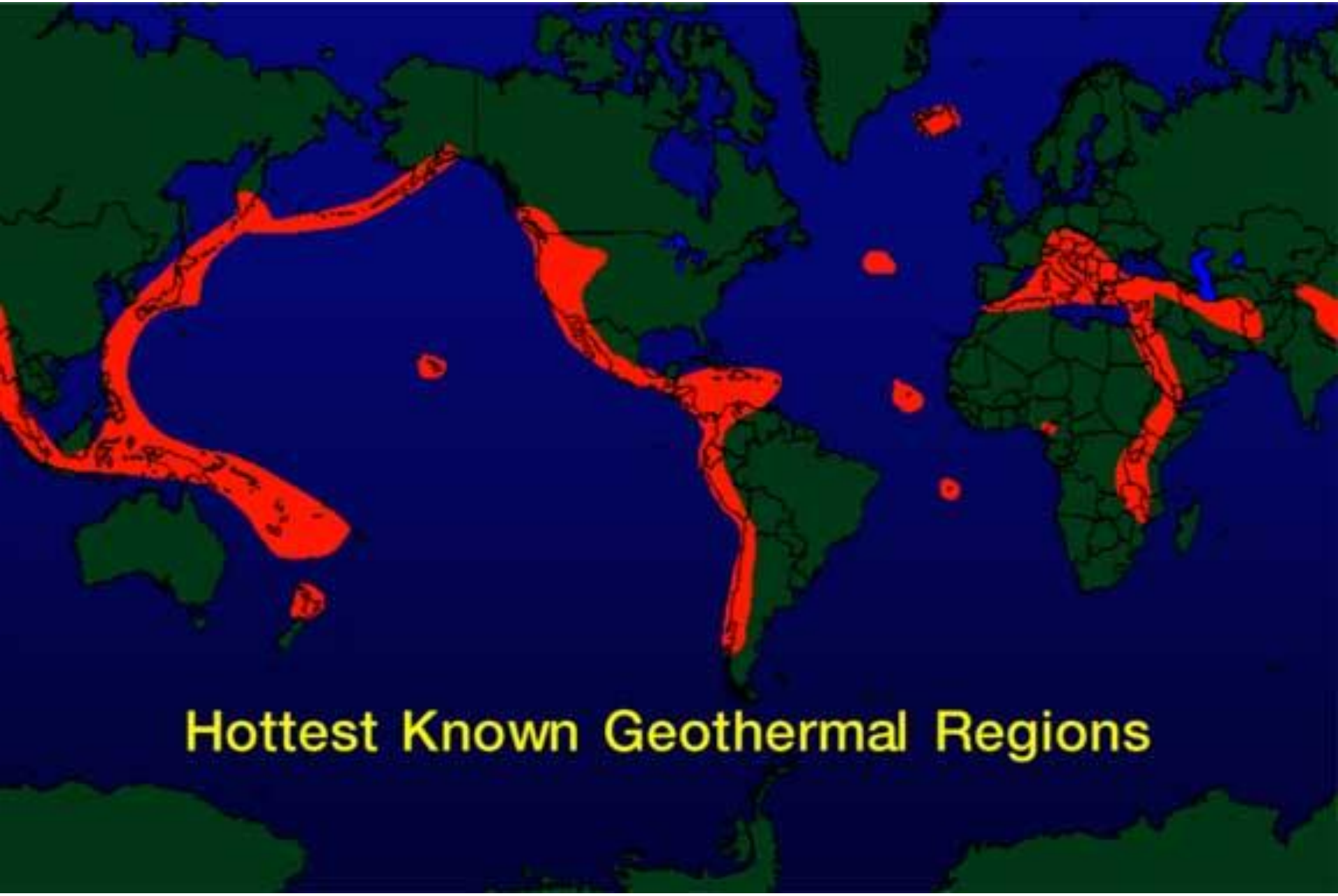

The earth connection
Horizontal closed loop
Two well system
Vertical closed loop

-low maintenance costs

-NO FUEL USE

-significantly reduced energy bill

-completely renewable


Hottest Known Geothermal Regions

The key to the future



Less Air Pollution




Stable climate



National Security



Personal health

Now It's Time to Make a Difference

Thank You!!