Warm-up

Note: you MUST write in COMPLETE sentences.

1. An “Ore” is a mineral that can be Ex-**tracted** at from the Earth to make a P**rofit**.

2. What type of rock process makes heavy minerals? (Sedimentary, metamorphic, igneous?)

3. What makes Coal Electricity **better** and **worse** than solar electricity?

“Alternate Energy Sources”

Chapter 4, Section 2

Solar Energy

- 1 Second…
- The Earth gets enough energy from sun to power all nations for 10,000 days.
- **Solar energy** = **Sun's Rays** → **heat** & **electricity**

Solar Energy…

- **Good:**

  1. **“Fuel” is free**
  2. **No Pollution!**

- **Bad:**

  1. **Equipment & installation = Expensive!**
  2. **Backup supply needed when it’s night/cloudy.**

What makes this a good place for a "SOLAR FARM?"

Nuclear Energy

7 % U.S. Energy.

- **Nuclear Fuel** = **radioactive** materials
  - Large atoms
  - "Heavy Metals"

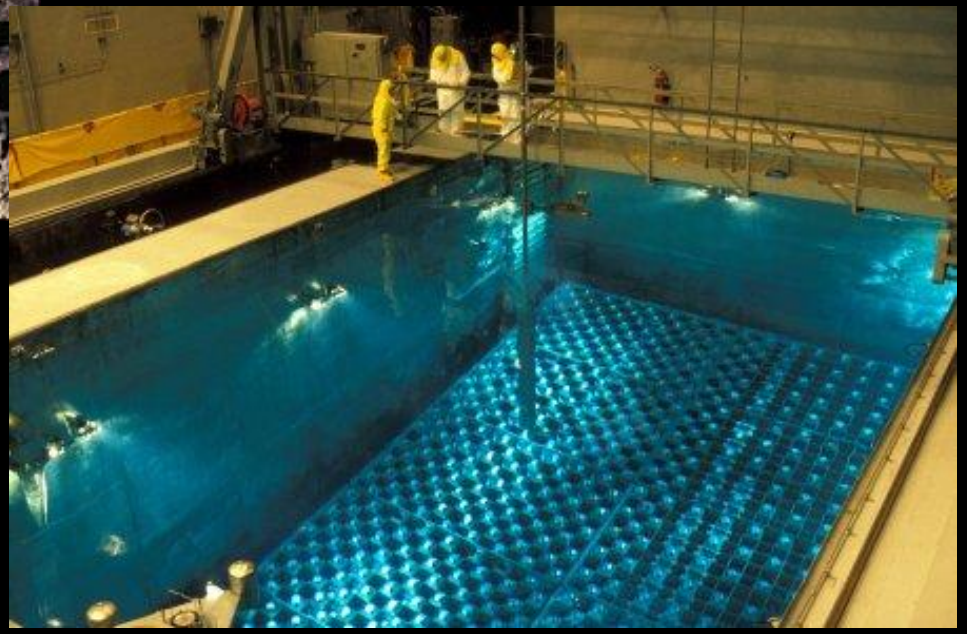
- **Nuclear Fission:**
  1. Splitting large atoms
  2. Releases Energy
  3. Heat

- **Heat → spins steam turbines → Electricity**

Nuclear Energy

San Onofre Nuclear Plant, California

Fuel Pool



Wind Energy

Q: What do we use wind for?

- In the year 2000, wind supplied a little less than one percent of California's electricity

Goal: Wind power = 10 % US Electricity.

Good = Free "Fuel"

Bad:

1. "Noise pollution" **(NOISY!)**
2. Needs LOTS of **land! = EXPENSIVE!**


Where?
Why!?

Hydroelectric Power

Q: How have humans USED moving water?

Hydroelectric Power

Glen Canyon Dam and Lake Powell, Arizona and Utah Border

Geothermal Energy

“Geo” = Earth **“Thermal” = Heat**

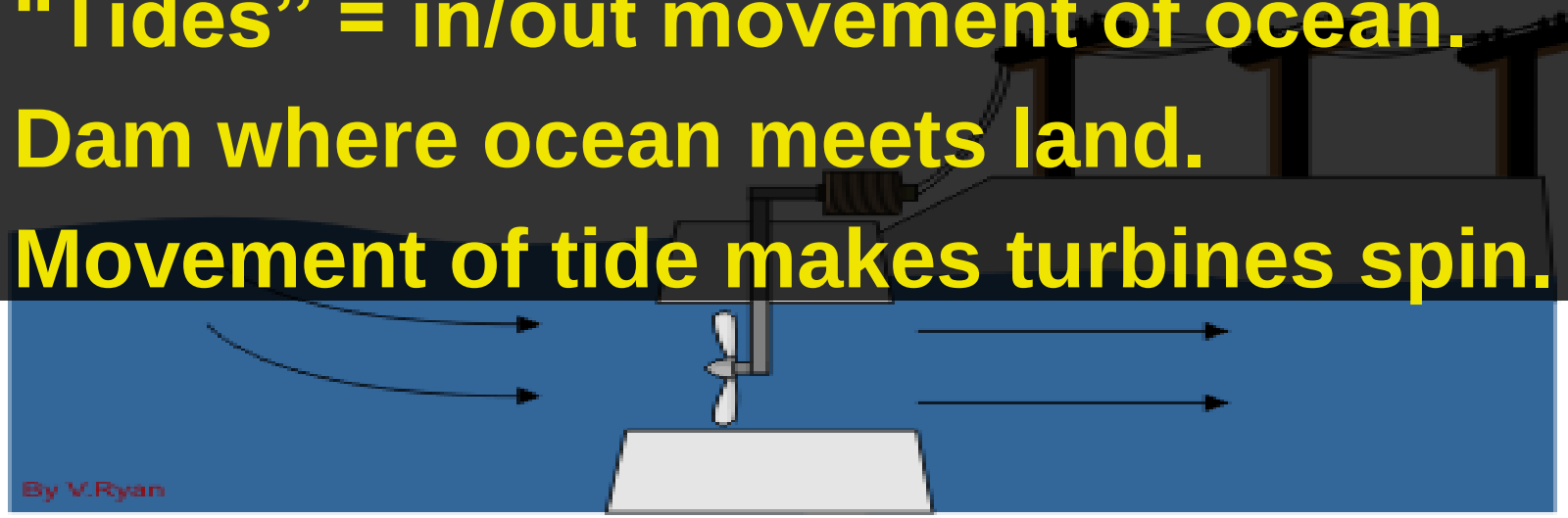
Energy from **Earth’s Internal heat**

- Inside heat.

1. **Near Volcanoes.**
2. **Clean.**
3. **Runs out.**
4. **“Cools off”**

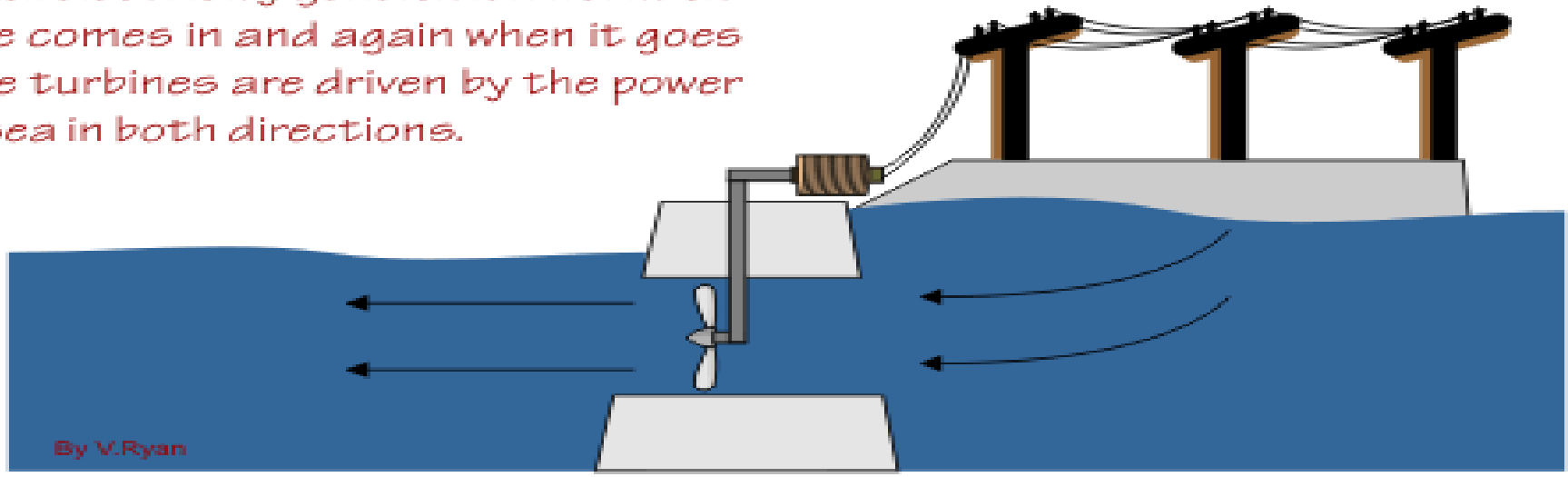
Tidal Power

1. "Tides" = in/out movement of ocean.
2. Dam where ocean meets land.
3. Movement of tide makes turbines spin.



TIDE COMING IN

This tidal electricity generation works as the tide comes in and again when it goes out. The turbines are driven by the power of the sea in both directions.



TIDE GOING OUT

HW: Assignment

- Read Ch. 4, Sect. 2 (pg. 102-107)
- Do Section 4.2 Assessment #1-6 (pg. 107)