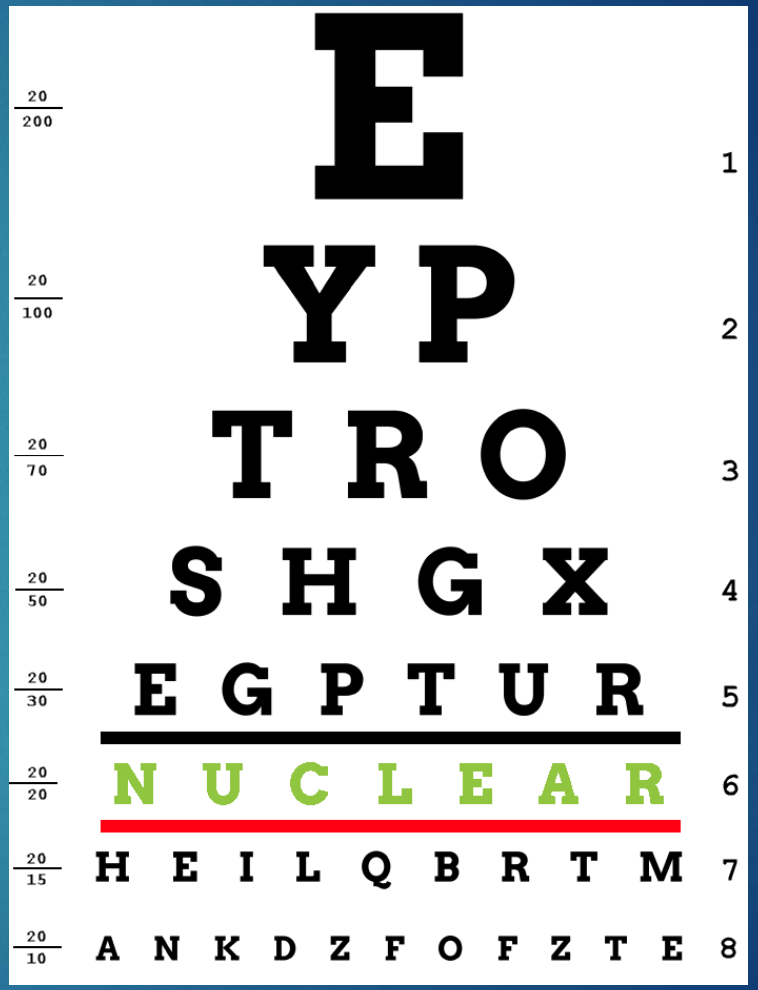
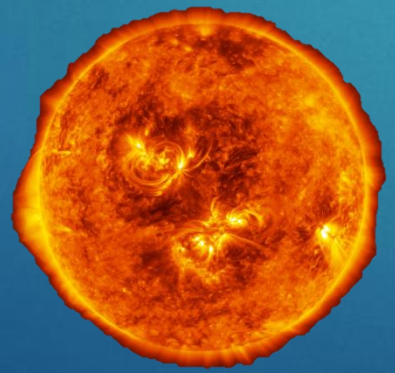
2020 Fission: Bringing Nuclear Energy Into Focus



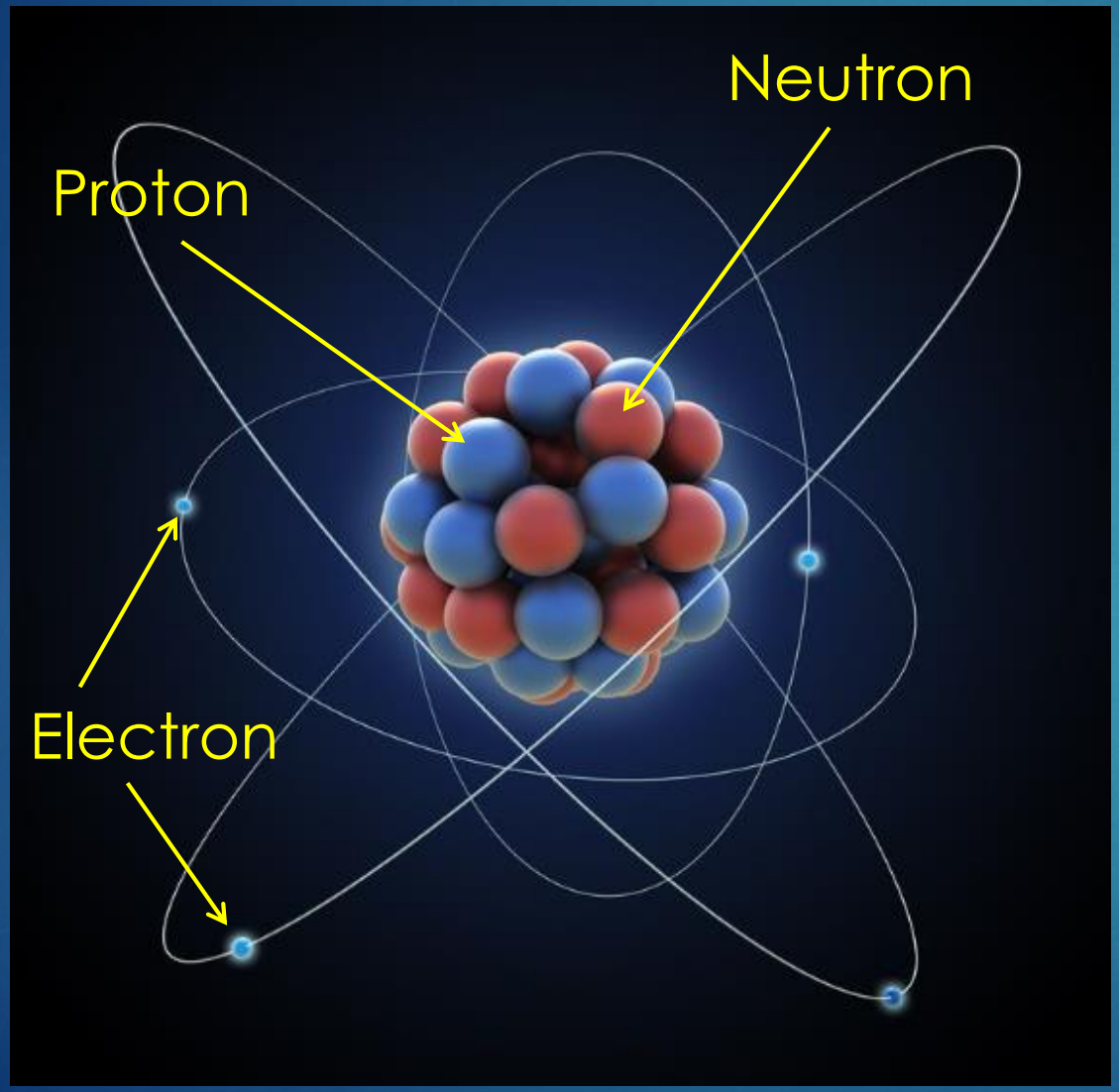
NAYGN
NORTH AMERICAN YOUNG GENERATION IN NUCLEAR

What is Energy?

Energy is the ability to do work. It is the capacity or ability to cause a physical change.



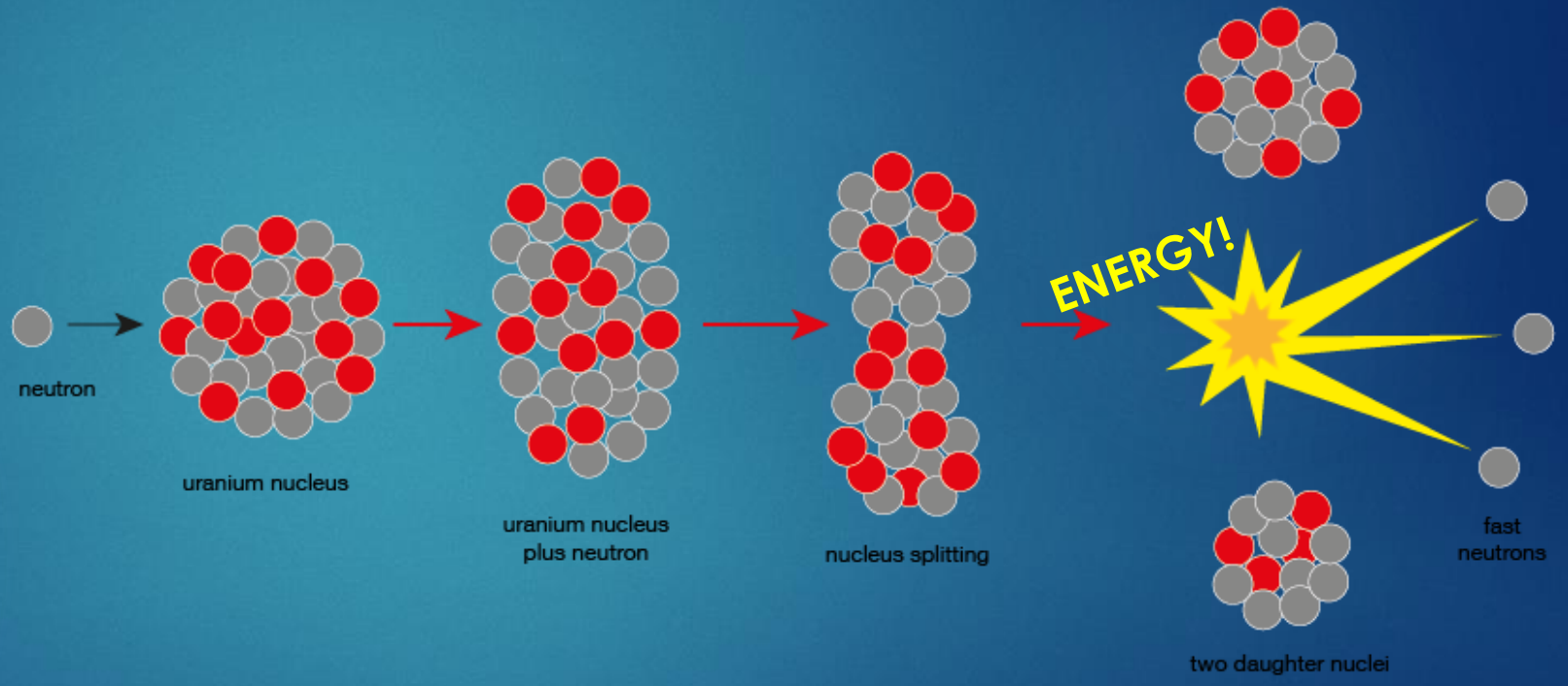
What is an Atom?



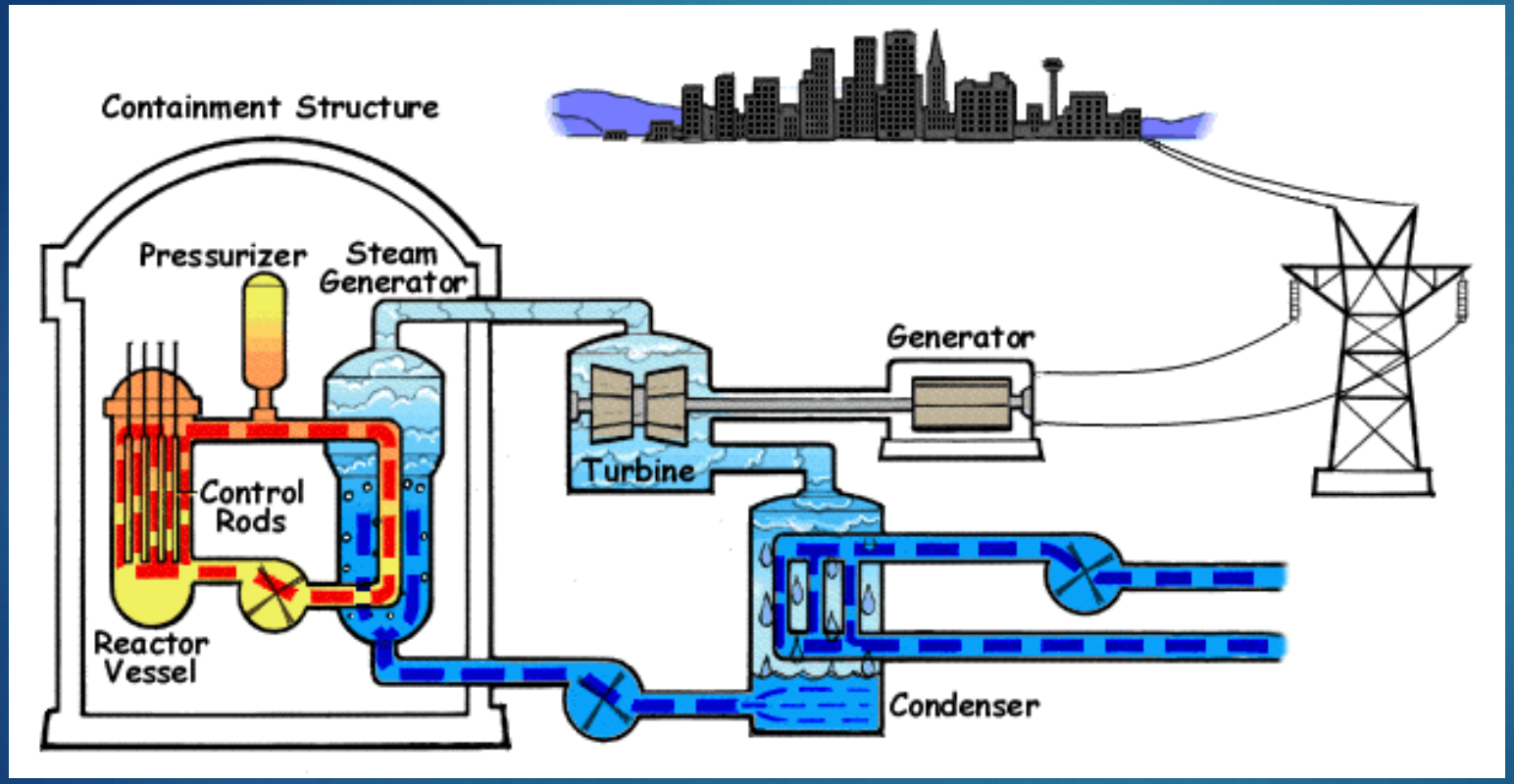
An atom is the smallest unit of matter.

What is Nuclear Energy?

When you split an atom in half (Fission), or force two atoms together (Fusion), you can release an enormous amount of energy!

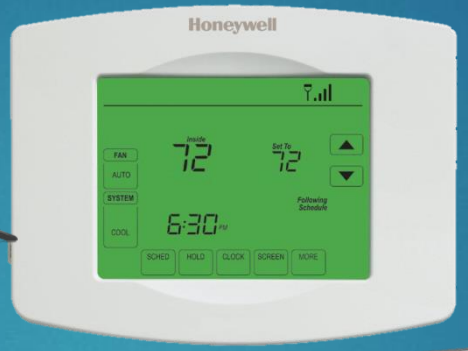


What can we do with Nuclear Energy?



If we can capture the energy created from multiple nuclear reactions, we can use it to create electricity!

What do you use electricity for?



Where Are Other Places Electricity Comes From?

- Coal Power Plants 
- Natural Gas Power Plants 
- Hydroelectric Power Plants 
- Wind Farms 
- Solar Farms 
- Biomass Power Plants 
- NUCLEAR POWER PLANTS! 

Let's talk about energy for 2020 and beyond!

What do you think some of the challenges we will face are?

Challenge 1:

Meeting the Energy Needs of the Future

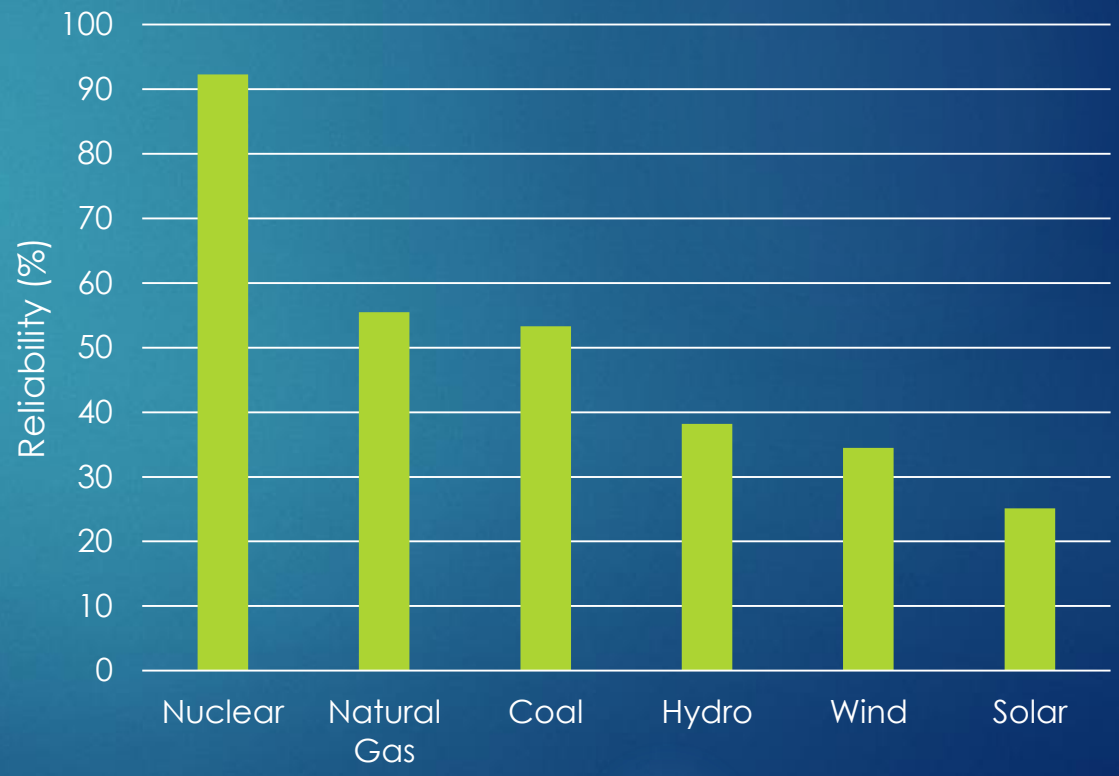
Our world is becoming more and more reliant on electricity.

As we become more dependent on electricity, it creates bigger problems when electricity isn't available.

Challenge 1:

Meeting the Energy Needs of the Future

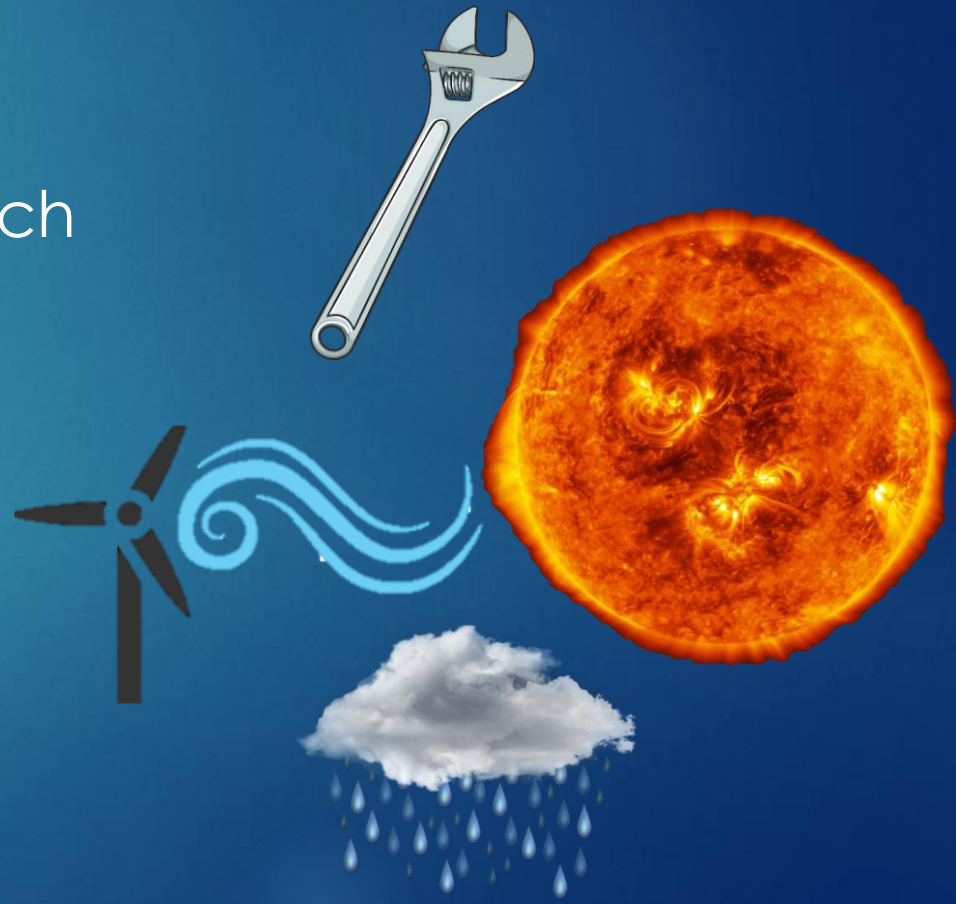
NUCLEAR power plants are more reliable than ANY OTHER form of electricity generation!



Challenge 1:

Meeting the Energy Needs of the Future

- Coal and natural gas plants **need more maintenance** than nuclear power plants (which means less time they can produce electricity)
- Solar farms **need the sun** to make electricity
- Wind farms **need the wind** to make electricity
- Hydro plants **need water** to make electricity



Challenge 1:

Meeting the Energy Needs of the Future

NUCLEAR power plants are **reliable** and can produce power **whether its sunny or dark**, **whether the wind is blowing or not**, and **whether it's been rainy or dry**!

Challenge 1:

Meeting the Energy Needs of the Future

The world is expected to use nearly **50%** more energy by 2040!

Challenge 1:

Meeting the Energy Needs of the Future

Large NUCLEAR plants can provide very reliable electricity for power hungry cities.

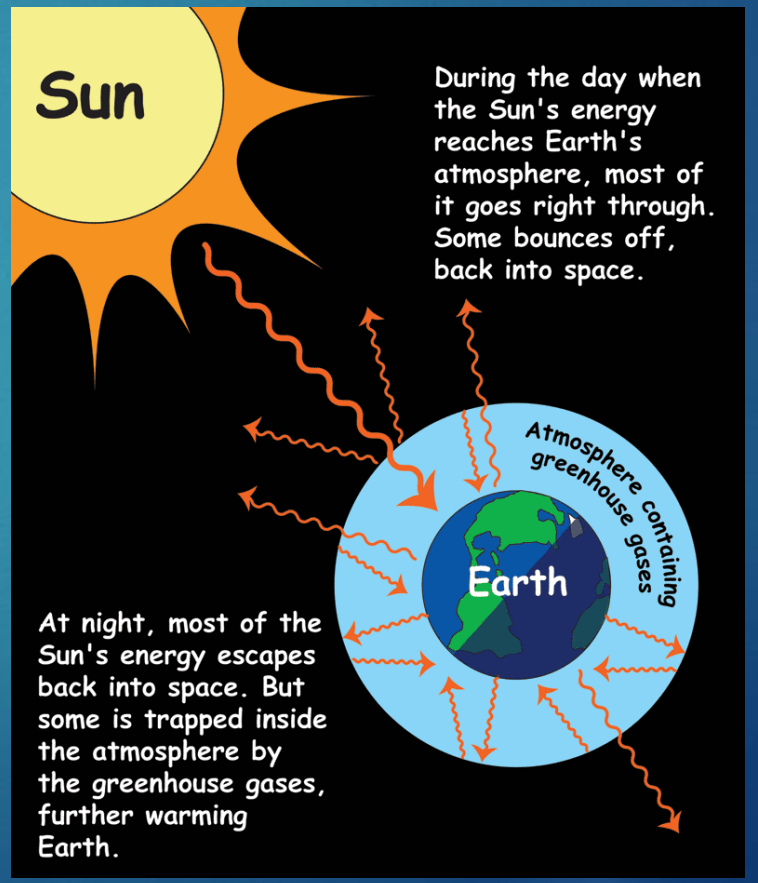
Small Module Reactors (SMRs) are mini NUCLEAR power plants that can provide electricity for areas more difficult to deliver power to.

As we make more electricity, we want to do it with as **little impact on the environment** as possible.

Challenge 2 :

Protect the Environment: **Reduce GHG Emissions**

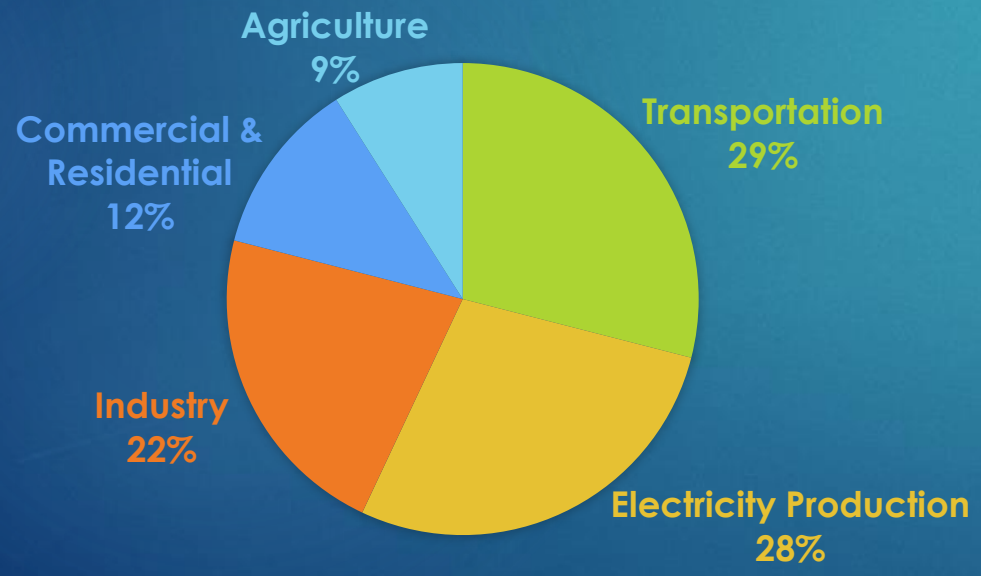
Greenhouse gases (GHG) can build up in our atmosphere, trapping heat and making the planet warmer.



Challenge 2:

Protect the Environment: **Reduce GHG Emissions**

What creates GHG emissions?



Challenge 2:

Protect the Environment: **Reduce GHG Emissions**

Nearly all the GHG emissions from Electricity Production can be stopped by using technology that doesn't produce GHGs.

NUCLEAR is a technology that doesn't produce GHGs!

Challenge 2:

Protect the Environment: **Reduce GHG Emissions**

Just like wind, solar, and hydro power production, **NUCLEAR** power plants produce **ZERO greenhouse gases** when generating electricity!

Challeng

Protect the R urces

Challenge 3:

Protect the Environment: **Natural Resources**

NUCLEAR fuel has **WAY more energy** than any other type of fuel!

- Coal has 50% more energy than wood
- Gasoline has 187% more energy than wood
- Natural Gas has 244% more energy than wood
- NUCLEAR fuel has **24,374,900%** more energy than wood!

Challenge 3:

Protect the Environment: **Natural Resources**

Another way to look at it:

With 1 gallon (3.8L) of gasoline, the average car can drive 25 miles (40km).

With the same weight of gas in **NUCLEAR** fuel, the same car could drive 2,212,500 miles (3.56M km)!

That's like driving to the moon and back… 9 times!

Challenge 3:

Protect the Environment: **Natural Resources**

There is a LOT of energy in **NUCLEAR** fuel. Which means we can **use a LOT less natural resources** to produce energy than other forms of fuel.

BUT WAIT!!!

THERE'S MORE!

Challenge 3:

Protect the Environment: **Natural Resources**

Nuclear fuel can be recycled!

Challenge 3:

Protect the Environment: **Natural Resources**

When nuclear fuel is "used up" in most nuclear reactors, there is about **90%** of it's energy left!

Challenge 4:

Protect the Environment: **Land Development**

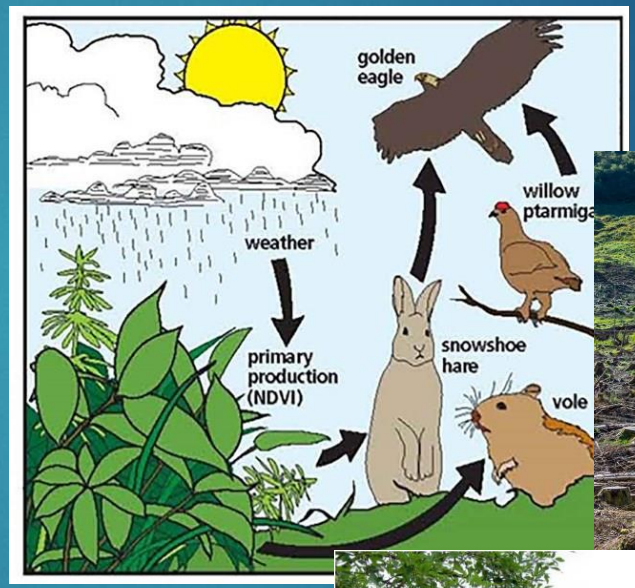
Building roads, houses, buildings, power plants, and other things requires land to be changed by removing trees, plants, and dirt.

Challenge 4:

Protect the Environment: **Land Development**

Land development can create problems for the environment:

- Animals must find new homes
- Plants are removed
- Increases soil erosion



Challenge 4:

Protect the Environment: **Land Development**

NUCLEAR power needs **less** land area than solar or wind to produce the same amount of electricity!

Summary

- We have learned that nuclear energy can help us **produce electricity** for 2020 and beyond
  - Nuclear energy is very reliable
  - Nuclear energy can make electricity for everyone, everywhere
- We learned that nuclear energy can help us **protect the environment**
  - Nuclear energy can help reduce greenhouse gas emissions
  - Nuclear energy can help protect natural resources
  - Nuclear energy can help prevent land development

2020 Drawing Contest

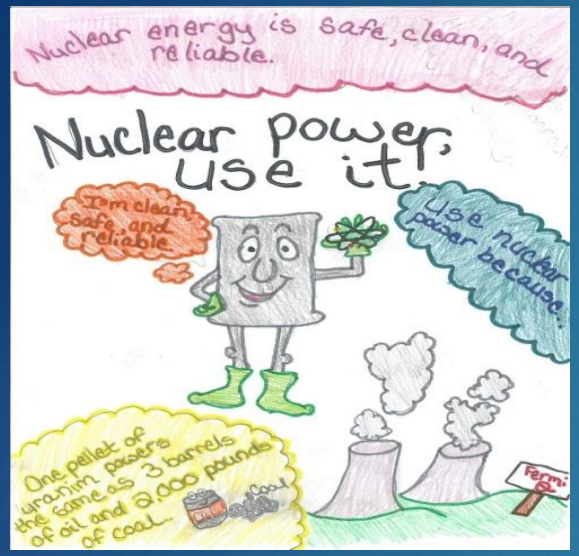
2020 Fission: Bringing Nuclear Energy Into Focus

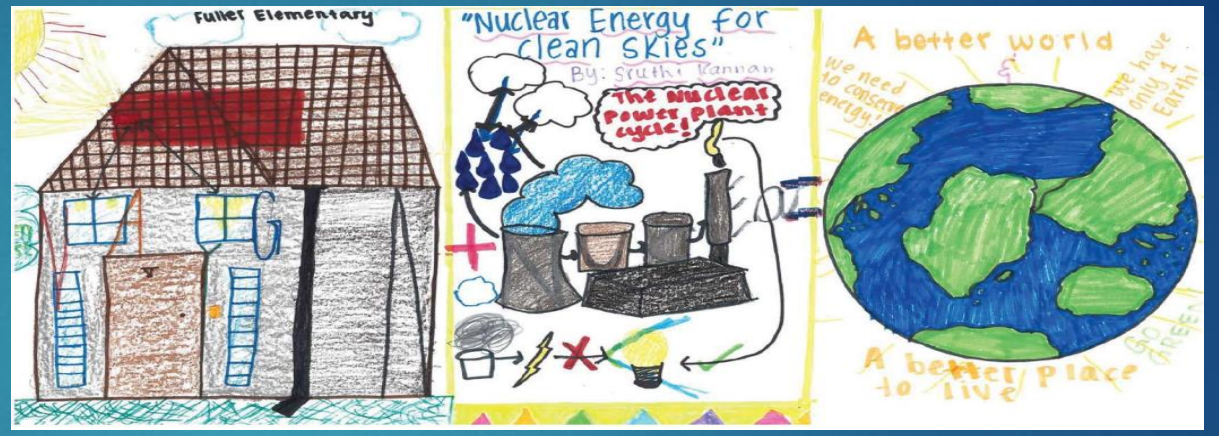
How can nuclear energy help meet the energy and environmental needs of the future?

How will nuclear energy be a part of our future?

Draw your picture showing how nuclear can help us now and in the future.

QUESTIONS?


Nuclear energy is safe, clean, and reliable.
Nuclear power; use it!
I'm clean safe and reliable
Use nuclear power because
One pellet of uranium possess the same as 3 barrels of oil and 2,000 pounds of coal.


Fuller Elementary
"Nuclear Energy for clean skies"
By: Sruthi Vannan
The Nuclear power plant cycle!
A better world
We need to conserve energy!
We have only 1 Earth!
A better place to live


CLEANER AIR • LOWER COSTS • HIGHER ENERGY • NATURAL RESOURCES • HAPPY EARTH • GANG


Energy for clean Skies
A better, blurry safer and better world for all!