



Hydropower Energy

Explain why do we need renewable energy?

Claim: We need renewable energy because it reduces smog that can be harmful in our air and in our water resources. For example some water resources are oceans, lakes, rivers, and more.

Evidence: Based on the text, “. . . and clean energy also reduces harmful smog, toxic buildups in our air and water, and the impacts caused by coal mining and gas extraction.” The article also stated that it can take time to make renewable energy but we will eventually make some renewable energy.

Reasoning: This is important because we need renewable energy to make our environment a safe and harmless place. For example, if we have renewable energy our air will not be polluted and we won't be harmed by the air pollution.

Renewable Energy vs. Non-renewable Energy

Renewable Energy	Non-renewable Energy
<p>1. Solar Energy: Energy from the sun captured and converting it into electricity.</p> <p>2. Wind Energy: Wind is used to make electricity to use.</p> <p>3. Biomass Energy: Energy produced by once-living organisms. Some materials are plants, such as corn, fruits or any kind of crops.</p>	<p>1. Coal: It comes from remains of crops that died hundred of million of years ago.</p> <p>2. Oil: A liquid from petroleum, used for fuel or lubricant.</p> <p>3. Nuclear Energy: The energy released during nuclear fusion when electricity is used.</p>

How does it work?

Hydropower plants capture the energy of the water in order to make electricity. It also makes the kinetic energy to mechanical energy. Then another part of the plant converts that mechanical energy into electrical energy.



Advantages

1. It is fueled by water, so it means that it is a good clean fuel source.
2. Hydropower energy is cheap to produce.
3. If a dam is constructed, the electricity can be produced at a persistent rate.
4. It is an example of renewable energy so it means that it's a friendly environment thing.



Disadvantages

1. Important living space in the water is being reduced.
2. There are fish losses because of the turbine of the source of the hydropower.
3. Mostly function in mountains where the rain falls.
4. When the dams are being built it can cause a flood to the city or town if it is build in a town or city.



Locations

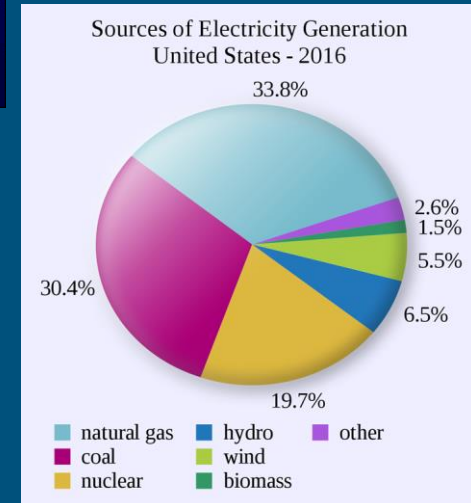
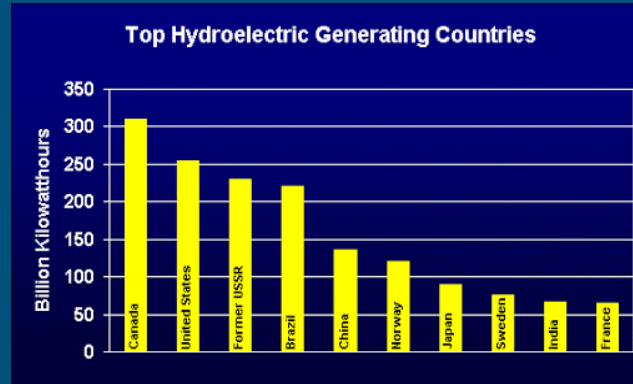
Most of the hydropower dams are constructed in the western United States. For example, Washington, California, and Oregon. They can also be found in Brazil, Canada, India, and Russia.



Percentage used in America or

In the pie chart, it states that the United States uses 6.5% of hydropower.

The bar graph states that the United States uses more hydropower energy than Former USSR.



Environmental Impact

Research on how does it affect our environment.

1. The hydropower impacts land use. It also affects our homes, but it depends where the hydropower dams are built.



2. It mostly harms the natural habitats of the animals that live there.

3. A strong greenhouse gas called methane, may form in some body of waters. Methane can also be released into the atmosphere.



Economic Impact

Research on how it affects America's economy (jobs, businesses, etc.)

1. Some operating costs are too low. The power plants are resistant to rising fossil fuel prices.
2. It has a significant role in the keeping electricity costs affordable, which means it is a positive impact to the economy.



Defend why your renewable resource is the most energy efficient among the rest.

Claim: Hydropower energy is the most energy efficient compared to solar energy , wind energy , and biomass energy because they are the most efficient to provide energy. The most modern hydropower plants can convert as much as 90% of energy into electricity.

Evidence: According to this website called Wisconsin Valley Improvement Center , it stated, "Hydropower is the most efficient way to generate electricity. Modern hydro turbines can convert as much as 90% of the available energy into electricity. The best fossil fuel plants are only about 50% efficient.

Reasoning: This means that hydropower is the most energy efficient among the rest. My evidence supports my claim because it states the same but was from a website.

Resource Slide

1: Wisconsin Valley Improvement Center

<http://www.wvic.com/content.cfm?PageID=687&Cat=0>

2: Reclamation: Hydroelectric Power

<https://www.usbr.gov/power/edu/pamphlet.pdf>

3: Value To The Nation

<https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/Hydropower/Hydropower-Economic-Impact/>

CATEGORY	4	3	2	1
Amount of Information	All topics are addressed and all questions answered with at least 2 sentences about each.	All topics are addressed and most questions answered with at least 2 sentences about each.	All topics are addressed, and most questions answered with 1 sentence about each.	One or more topics were not addressed.
Quality of Information	Information clearly relates to the main topic. It includes several supporting details and/or examples.	Information clearly relates to the main topic. It provides 1-2 supporting details and/or examples.	Information clearly relates to the main topic. No details and/or examples are given.	Information has little or nothing to do with the main topic.
Diagrams & Illustrations	Diagrams and illustrations are neat, accurate and add to the reader's understanding of the topic.	Diagrams and illustrations are accurate and add to the reader's understanding of the topic.	Diagrams and illustrations are neat and accurate and sometimes add to the reader's understanding of the topic.	Diagrams and illustrations are not accurate OR do not add to the reader's understanding of the topic.
Sources	All sources (information and graphics) are accurately documented in the desired format.	All sources (information and graphics) are accurately documented, but a few are not in the desired format.	All sources (information and graphics) are accurately documented, but many are not in the desired format.	Some sources are not accurately documented.