

**[Article 04] Climate 101: Renewable Energy Explained,**

National Geographic, June 21, 2024

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Important: *This article was rewritten to make it easier for students to understand.*

## **Climate 101: Renewable Energy Explained**

### **What is Renewable Energy?**

Renewable energy comes from natural things like the sun, wind, and water. These sources are always there and never run out. Unlike coal, oil, and gas that make the air dirty, renewable energy is clean and helps keep the Earth healthy. Using renewable energy also makes jobs, lowers electricity costs, and helps people in poorer countries get power.

### **Hydropower**

Hydropower uses moving water to make electricity. People have used water from rivers for a long time by building dams. The biggest countries using hydropower are China, Brazil, Canada, the U.S., and Russia. While hydropower is clean, building large dams can hurt fish and other animals living in rivers and force people to move from their homes. Dirt can build up in the dams, causing problems, and if there isn't enough rain, there can be less water to make electricity. Plants rotting in the water can also release gases that warm the Earth.

### **Wind Energy**

Wind energy uses big windmills called turbines to catch the wind and make electricity. Wind energy has been used for thousands of years. Today, China, the U.S., and Germany make the most wind energy. Wind energy has grown a lot in recent years, with many new wind turbines being built. Some people don't like how wind turbines look or sound, and they can also be dangerous for birds and bats. But wind energy is very important for making clean power.

### **Solar Energy**

Solar energy comes from the sun. Solar panels on rooftops and big solar farms turn sunlight into electricity. Solar power has grown a lot in the last ten years. China, Japan, and the U.S. use a lot of solar energy. Solar power is still a small part of the electricity we use, but it is growing fast. Solar energy is also used for heating water and buildings.

### **Biomass Energy**

Biomass energy comes from plants and animal waste. It can be used to make fuels for cars, heat buildings, and make electricity. Biomass is flexible but can have problems. For example, using corn to make fuel can compete with growing food and harm the environment. Scientists are working on better ways to use biomass without causing these problems.

### **Geothermal Energy**

Geothermal energy comes from the heat inside the Earth. It has been used for thousands of years for cooking and heating. Large geothermal plants use steam and hot water from deep underground to make electricity. Smaller systems use the stable temperatures a few meters below ground to heat and cool buildings. Geothermal energy is always available but can sometimes have a bad smell from gases.

### **Boosting Renewable Energy**

Many places are making rules to use more renewable energy. In the U.S., 29 states have rules that require a certain amount of energy to come from renewables. Over 100 cities around the world get at least 70% of their energy from renewable sources, and more are trying to reach 100%. Rules like carbon pricing, fuel economy standards, and building efficiency standards can also help. Companies are also buying more renewable energy. Some scientists believe that all states and countries can be powered by 100% renewable energy. This idea is debated, but it shows that we need to move away from fossil fuels because they will run out someday. To protect our planet, we must use renewable energy.