

CLIMATE 101: WHAT IS RENEWABLE ENERGY?



THE BASICS

Renewable energy is energy generated from ongoing natural processes like wind or sunlight that are not depleted when used. Unlike fossil fuels, these types of energy are theoretically unlimited. In contrast, fossil fuels like oil and gas are finite resources formed in the earth over hundreds of millions of years from the remains of plants and animals.

Importantly, and unlike fossil fuels, renewable energy is clean and doesn't release carbon pollution into the atmosphere (which drives climate change). Burning fossil fuels does.

QUICK FACTS

- Renewable energy employed an incredible [9.8 million people around the world in 2016 alone](#).
- China is the world leader in renewable energy, with [more installed](#) than any other country on the planet. In 2017, the nation unveiled the [world's largest floating solar farm](#). (Better yet, it was over an old coal mine!)
- Businesses of all sizes are embracing clean energy, with [over 130 major corporations – from Apple to Starbucks to Ikea – committed to going 100 percent renewable](#). Many – like Google and Microsoft – are already there.

THREE EXAMPLES OF RENEWABLE ENERGY

Wind Energy

Wind power turns the kinetic energy in moving air currents (wind) into electricity using a [simple technology known as a turbine](#). Here, wind turns blades around a rotor connected to a shaft, which spins a generator to create electricity. Wind turbines can be built on both land and – increasingly and to great effect – offshore in large bodies of water like oceans and lakes.

Solar Energy

Solar energy changes the energy of the sun's rays into electricity or heat we can use. There are many different types of solar energy – including photovoltaic, passive, and thermal – but at the

end of the day, each is about harnessing the sun's virtually inexhaustible energy to power our lives.

Photovoltaic solar (or PV solar) is the best known. Those solar panels you see on a neighbor's house or in a field? That's PV solar. According to the [National Renewable Energy Laboratory](#), the name comes "from the process of converting light (photons) to electricity (voltage), which is called the *PV effect*." **To get a sense of solar's incredible potential, consider this: More energy from the sun strikes the Earth in one hour than all of humanity uses in a year.**

Geothermal Energy

Geothermal is the heat energy under our feet. ("Geo" means "earth" and "thermal" means "heat.") Geothermal energy comes from the nearly unlimited heat generated by Earth's core, which warms underground water reservoirs (called "hydrothermal resources"). Geothermal power plants tap into these resources and convert the heat energy into electricity using a steam turbine and generator.

While not as common as wind and solar, geothermal energy has enormous potential. In fact, Iceland gets about a quarter of its electricity from geothermal and places from California to Costa Rica are harnessing this powerful form of energy too.

WHAT YOU NEED TO KNOW ABOUT RENEWABLES

1. RENEWABLE ENERGY IS RELIABLE.

No sun? No wind? No problem. The right combination of renewables along with modern grid and energy storage technologies can provide around-the-clock power in many cases, regardless of conditions. Plus, shifting the grid from relying on a few dirty power plants to many renewable sources diversifies our energy resources, making the entire system more resilient and dependable.

2. RENEWABLE ENERGY IS AFFORDABLE

Renewable energy is the smarter choice for the planet – and your wallet. According to the [International Renewable Energy Agency](#) (IRENA), many kinds of renewables are already as cheap or cheaper than fossil fuels in many places. It gets better – by 2020, IRENA projects, all renewables will cost the same or less than fossil fuels, on average. If you consider the hidden costs of dirty energy, like the public health impacts of air pollution, it's not even a contest.

3. RENEWABLE ENERGY CREATES JOBS

Renewable energy is a rapidly-growing global industry, employing millions of people around the world. Solar panel installer and wind turbine technician are projected to be the fastest growing jobs in the United States through 2026. [In places like Alberta, Canada](#), clean energy targets are creating hope for laid-off oil and gas workers and expected "[to create more than 7,200 jobs for Albertans](#)" by 2030.

It's clear: The best way to create new jobs and grow the economy, fight climate change, and support a sustainable future for the planet is to invest in clean, renewable energy like wind, solar, and geothermal power.