

Clean Energy 101

A Renewable Energy Explainer



presented by



and





Have you ever wondered where, exactly, your electricity comes from? A rising interest in sustainability and an increasing awareness of renewable technologies are encouraging more people to think about the source of their electricity.

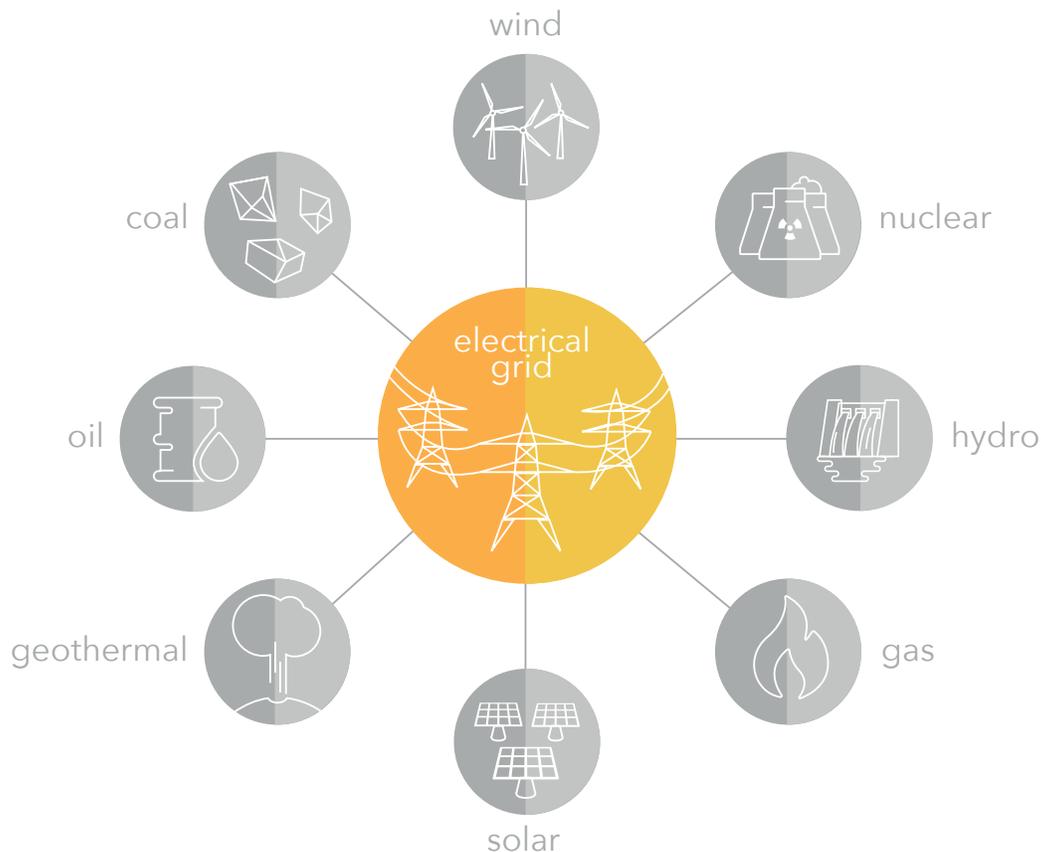
For decades, electricity has been generated by burning fossil fuels. But in recent decades it has become clear that fossil fuels release noxious pollutants into the atmosphere and increase the amount of carbon dioxide. The *scientific consensus is that the burning of fossil fuels* over the last 100 years has caused the climate to change.

We now know that dirty electricity generation is no longer viable due to its polluting properties, but fortunately, solutions are abundant. Clean energy technologies are accessible through new products and services becoming effective replacements for fossil fuel technology and traditional electricity generation.

What is renewable energy, and what are its benefits over fossil-fuel based sources? Time for an explainer!

What Does Renewable Energy Look Like Today?

Renewable generation that taps into clean energy sources like the sun, wind, and water has been extensively developed over the last 50 years. These renewable technologies are now mature, cost effective, and being installed at a rapid rate—and don't require any digging, pumping or fracking, unlike fossil fuels. Generating electricity from *renewable sources results in improved air quality that corresponds to lower rates of health problems and premature deaths*. As more clean renewable infrastructure is built onto the electrical grid, the burning of polluting fossil fuels becomes less necessary to meet demand. Solar and wind energy are often referred to as "clean energy" because they generate no carbon emissions when they're turned into electricity.



How Wind and Solar Are Empowering More Communities and Transforming the Grid

Photovoltaic (PV) solar technology harnesses the power of the sun. While the sun's energy has been used for centuries to heat homes via direct sunlight, today's PV semiconductors convert photons from the sun's rays into power to make a more efficient electrical output. With no emissions, no noise, and no water wasted to operate, PV solar can be installed anywhere the sun shines. It's no wonder an assortment of solar options are multiplying rapidly, from grid-tied energy consumers becoming producers with rooftop installations to consumers having access to local solar production through community solar farms, and more. Thanks to decades of investment put into research and development, *solar is a growing part of our energy mix* and a realistic alternative to fossil fuel generation.

Wind turbines *are being installed* around the world at a faster rate than ever before, both onshore and offshore. The *largest wind farms* are installed miles out into the ocean where they tap into the strongest winds, and then generate megawatts of power for cities globally. Today's wind turbine tech has evolved from simply grinding grain to powering homes. Wherever the wind blows, turbines can be installed to harness the kinetic energy, spin a generator, and create power. One of the most exciting hotspots for wind development is in the heart of oil country in the central United States, in states like Texas and Oklahoma.

Why is Renewable Electricity Generation Important?

These new renewable energy sources have allowed millions of individuals and communities to choose clean, renewable energy, and rely less on dirty fuels.

Generating electricity from clean sources means that communities benefit in both direct and indirect ways. Communities benefit because there is less pollution coming from nearby coal and gas power plants, which means cleaner air and water. Indirectly, it means that the community is no longer putting pressure on the global ecosystem and contributing to climate change.

Purchasing clean energy also sends a clear, powerful message to the local utility and government decision makers that when given the option, customers choose clean energy over antiquated, unsustainable fossil fuel technologies.

These benefits, combined with the growing efficiencies in manufacturing renewable technologies, are the reasons that clean energy generation is growing so quickly. In fact, *51% of the new electricity generating capacity added in the United States last year was in renewables*. To realize the full potential of renewables, the electrical grid must be able to store power so it can be used when it is needed. For example, *electricity generated from the sun or wind can be stored in batteries to capture excess energy for later use*.

New Energy Capacity 2017



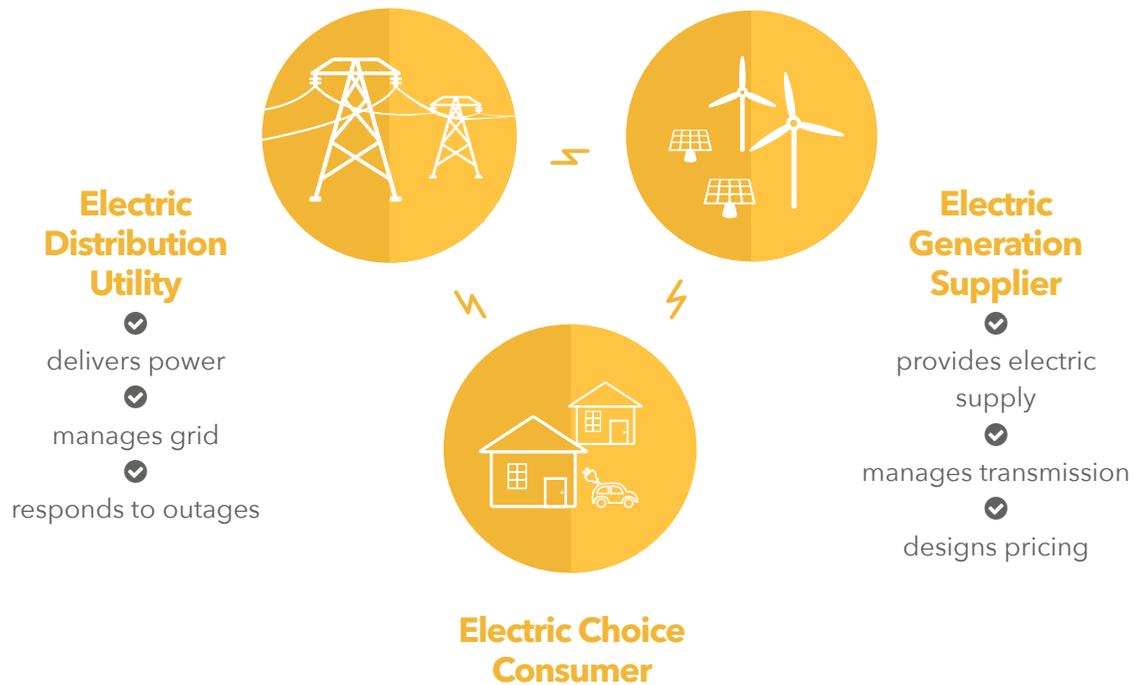


Even with the rapid growth of clean energy, many people still experience barriers to take advantage of it. For example, some homes are lacking sufficient roof space, or don't have enough sun or wind to generate their own clean power on-site. Renters are also in a difficult situation, because adding on-site renewable production has to be initiated by the owner; and in multi-family housing any large project like solar or wind would require approval from the local homeowners' association.

But now, homeowners, renters, and multi-family housing tenants in many states have the option to purchase renewable energy from providers who specialize in supplying renewable electricity to their customers. This means that consumers who buy renewable energy from electricity suppliers are supporting the continued development of solar and wind power instead of dirty fossil fuels.

Energy Choice Gives Consumers More Options

Over the last few decades, an increasing number of electricity markets have been deregulated, meaning many utility customers are no longer locked in to buying electricity from their utility. Giving consumers a choice allows more companies to offer electric supply service to consumers and, most importantly, allows consumers to choose what type of electricity powers their homes.



Letting consumers choose clean energy gives them the power to vote with their wallets. The more individuals choosing clean renewables, the more wind and solar are able to come online; avoiding the need to burn fossil fuels. Energy choice for consumers has allowed clean energy to flourish, and many homeowners, renters, and businesses are switching to regional renewable energy suppliers like [CleanChoice Energy](#).

With CleanChoice Energy, customers simply switch to clean energy and all the energy the customer uses is replenished on the grid with 100% clean wind and solar power. What makes CleanChoice unique? They make it easy for energy customers to make the most positive impact by supplying 100% clean energy from wind and solar.

With CleanChoice, wind and solar are sourced regionally, based on where customers live, which means less air pollution and cleaner air. Plus, they source

energy from newer farms whenever possible, which supports industry and job growth. The energy your home uses will be paired with renewable energy sources through the purchase of Renewable Energy Certificates from regional wind and solar farms. Additionally, CleanChoice's retail service includes no cancellation fees, no add-on service fees, or other "hidden" costs.

In the United States, these Renewable Energy Certificates—or REC's—are issued for each megawatt-hour of renewable energy produced. REC's represent the environmental attributes of renewable electricity generation and can be bought and sold, giving the owner the right to claim to have purchased renewable energy. Through the verified purchase and retirement of REC's, businesses and consumers can support the growth of renewable projects and green the electric grid.

Electricity choice is transforming the relationship between consumers, utilities, and our electric system. Now, harnessing your consumer power towards more renewables helps create cleaner air, and also works to create a more distributed, reliable grid. Installing wind turbines and solar farms to generate additional electricity adds resiliency to the grid and reduces the likelihood of power outages.

Clean energy generation in more locations means power is being generated closer to the customers who use it, directly offsetting regional fossil fuel-fired electricity generation, and reducing the amount of energy needed for transport and transmission.

But perhaps most importantly, the freedom of electricity choice unshackles electricity consumers from utilities' monopoly on generation and ultimately gives customers the ability to choose not only who supplies the power, but



where their power comes from and what impact the energy they use will have on the planet. This allows individuals to take a very proactive, positive stance for the type of world within which they want to live: they can purchase clean power produced from regional sources; creating healthier lives and cleaner air.

The exciting part about clean energy is that it's only going to continue to grow as an industry and thereby offer more energy related services. Green electricity suppliers like [CleanChoice Energy](#) are innovating on clean technologies in addition to retail electric services, to give consumer even more options.

There has never been a better time to choose clean energy for your home or business. Every individual or business that switches to clean, renewable energy sends a loud and clear message to your community, your utility, and policymakers that consumers want energy choice. Learn more about how clean energy works, and the services that CleanChoice Energy provides on their website. With more consumers choosing clean, renewable energy, the future is looking bright for a more sustainable future for all.

**When it comes to energy,
now you have a choice.**

**Choose clean energy today
for a cleaner future.**

CleanChoiceEnergy.com



and

