

Where does Ohio's electricity come from?

In Ohio, the majority of our electricity is generated using nonrenewable resources like coal, natural gas, nuclear and petroleum. While these resources are found naturally in the earth and produce large amounts of electricity, nonrenewable resources take a long time to form, and there is a limited supply available for people to use for power generation. Renewable resources including hydropower, wind, biomass and solar energy are also used to produce electricity, but often on a smaller scale. These resources are readily available in nature and can be replenished relatively quickly.

The Public Utilities Commission of Ohio (PUCO) supports a mix of generation resources in order to minimize the risks, including price spikes, associated with an exclusive reliance on any one type of electric generation. Below are brief descriptions of the generation resources currently used in Ohio.

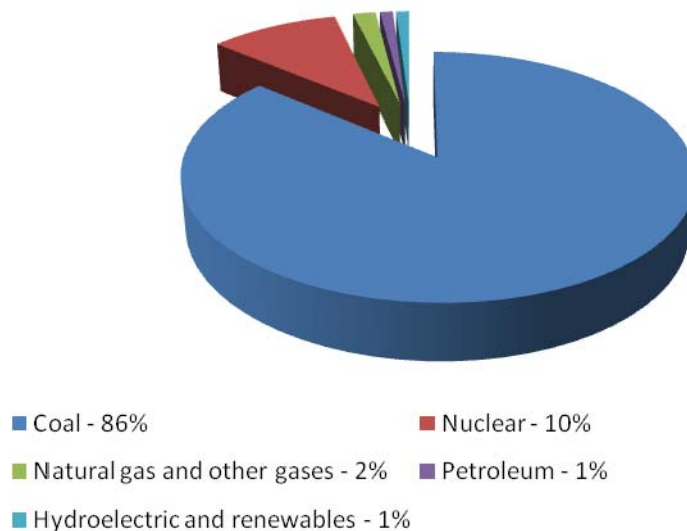
Coal, a nonrenewable fossil fuel, is used to generate 86 percent of the electricity in Ohio. Coal is burned to produce heat, which converts water into high-pressure steam. The steam turns the blades of a turbine that is connected to a generator. The generator spins and converts mechanical energy to electricity.

Natural gas, a nonrenewable fossil fuel, can either be burned to produce steam or to produce hot combustion gas that passes through the turbine blades. Approximately 2 percent of the electricity in Ohio is produced using natural gas and other gases.

Petroleum, a nonrenewable fossil fuel, is burned to create steam to turn the turbine blades. The most common form of petroleum used to make electricity is fuel oil, a type of oil that is refined from crude oil. Petroleum generates approximately 1 percent of Ohio electricity.

Nuclear power involves a process called fission in which the atoms of the element uranium split, releasing heat to turn water into steam and rotate the turbine blades. Nuclear power is nonrenewable and is used to generate about 10 percent of Ohio electricity.

Ohio Electric Generation by Fuel Source



In **hydropower** generation, flowing water is used to spin the turbine connected to the generator. Hydropower plants can use the current from a river or falling water that has accumulated in a dam to create the force needed to turn the turbine blades. Hydropower and the other renewable resources described below currently account for about 1 percent of electric generation in Ohio.

Windmills harness the force of the natural wind to turn the generator turbine.

Solar power uses photovoltaic cells to harness the energy of the sun to produce energy.

Geothermal energy involves the heat buried beneath the surface of the earth. This heat transforms water into steam, which is then tapped to be used at steam-turbine plants.

Biomass energy resources include wood, garbage, and crop waste such as corn and wheat that can be burned to heat water and create steam to turn the turbine blades.

Ohio's new alternative energy portfolio standard

Ohio law now contains an alternative energy portfolio standard that requires that 25 percent of electricity sold by Ohio's electric distribution utilities or electric services companies must be generated from alternative energy sources by 2025. At least half of this energy must come from renewable energy sources, such as solar, wind, biomass and hydro with a minimum of one-half percent coming from solar resources. One half of the renewable energy facilities must be located in Ohio.

In addition to the renewable sources requirement, the remainder of the alternative energy required to meet the standard may be generated from advanced energy resources, such as clean coal, nuclear, fuel cells, customer cogeneration, and solid waste.

The new law sets annual benchmarks, or incremental percentage requirements for renewable energy, through 2025. Each utility and electric services company is subject to compliance payments if the annual benchmarks are not met. Utilities and electric services companies may purchase renewable energy credits to meet the renewable portion of the standard.

Snapshot of Existing Renewable Energy Facilities in Ohio

Wind

- Four 1.8 megawatt (MW) wind turbines in Bowling Green operated by the municipal utility
- 225 kilowatt (kW) wind turbine at the Great Lakes Science Center in Cleveland

Solar

- 783 kW solar photovoltaic array on seven acres at the Ohio Air National Guard 180th Fighter Wing headquarters in Toledo (facility will eventually generate more than 1 MW).
- 159 kW and 60 kW solar photovoltaic arrays located at the Adam Joseph Lewis Center for Environmental Studies at Oberlin College
- 42 solar panels at the Cleveland Indians Progressive Field provide 8.4 kW of solar power

Hydro

- 130 MW hydroelectric capacity statewide, plus a 42 MW hydroelectric plant located in West Virginia on the Ohio River as a joint venture of American Municipal Power-Ohio

Other

- 17 landfill gas projects of which seven generate electricity for a total capacity of 37 MW
- Biomass generation using waste residue to generate heat and power onsite in the wood manufacturing and paper industries

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