

Overview

Among the many conveniences of modern life, there are few things we take for granted more than turning on the lights. As a consequence, Americans are voracious consumers of electricity. The average American uses five times as much power as someone in China and twice as much as someone in Britain. Just air conditioning the average home uses three times as much power as what the average person in India uses in an entire year.

Where does all this electricity come from?

Electricity is abundant and cheap in part because of our plentiful resources of coal and natural gas, which together account for about two-thirds of the fuel used by power plants. The United States holds 27% of the world's known coal reserves—or enough coal at current rates of consumption to last 249 years. According to the Department of Energy, we also hold the world's largest reserves of shale gas—enough to last the country for 127 years.

Sources of electricity generation in 2011

• Coal:	42%
• Natural gas:	25%
• Nuclear:	19%
• Hydroelectric:	7%
• Wind, biomass, solar, etc.:	5%

What's the argument for “clean” energy?

While some may disagree on the climate effects of burning so much coal, no one disputes that emissions from coal—sulfur dioxide (SO₂) and nitrogen oxide (NO_x) in particular—are toxic. SO₂ and NO_x are the principal ingredients of “acid rain,” which causes smog and haze, erodes buildings, destroys trees and leads to asthma and other illnesses in humans. In 2010, coal-burning plants produced 5.1 million tons of SO₂ and 2 million tons of NO_x, a lot less than in 1990 but still a challenge.

The electric power industry has gradually been switching to less carbon-intensive fuel in addition to renewable resources such as wind and water. Natural gas use, for example, has more than doubled since 1990, and America is now the world's second largest producer (after China) of renewable energy.

Will there be a windmill in my neighborhood?

The federal government estimates that 17% of our electricity will come from renewable sources in 2035, up from 10% in 2010. But renewable energy is still relatively expensive and many places in America aren't very windy or near a dam. Natural gas is enjoying a renaissance as a source of power, thanks to major discoveries of shale gas. Nuclear holds tremendous potential as well, provided that enough new plants are licensed—which is currently a lengthy process.

Key Facts

- Per capita electricity use in kilowatt hours (kWh), 2011:
 - America: **13,246**
 - United Kingdom: **5,516**
 - China: **3,298**
 - India: **684**
- Kilowatt hours needed to air condition the average U.S. home: **2,000 per year**
- Electricity consumption, 2012:
 - Residential & Commercial: **10.2%**
 - Industrial (e.g., steel): **21.6%**
 - Transportation: **30.0%**
 - Electric Power: **40.3%**
- Domestic coal production, 2011: **1,095.6 million tons**
- Natural gas production, 2012: **24 trillion cubic feet**

Other Resources

- U.S. Energy Information Administration – [Energy Explained](#)
- U.S. Energy Information Administration – [Monthly Energy Review](#) and [Annual Energy Review](#)
- World Bank Databook – [Electric Power Consumption](#)
- Environmental Protection Agency – [Quarterly Emissions Tracking](#)
- Environmental Protection Agency and Department of Energy – [Energy Star Program](#)
- Edison Electric Institute – [History of the Electric Industry](#)

Links to Other Resources

- U.S. Department of Energy, Energy Information Administration – Energy Explained
<http://www.eia.doe.gov/energyexplained/index.cfm>
- U.S. Energy Information Administration – Monthly Energy Review
<http://www.eia.doe.gov/totalenergy/data/monthly/>
- U.S. Energy Information Administration – Annual Energy Review
<http://www.eia.gov/emeu/aer/contents.html>
- World Bank Databook – Electric Power Consumption
<http://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC>
- Environmental Protection Agency – Quarterly Emissions Tracking
<http://www.epa.gov/airmarkets/images/ARP1990to2010.pdf>
- Environmental Protection Agency and Department of Energy – Energy Star Program
<http://www.energystar.gov/>
- Edison Electric Institute – History of the Electric Industry
<http://www.eei.org/whoweare/AboutIndustry/Pages/History.aspx>