

# Earth-Conscious Living and Renewable Energy: Can the U.S. Compete on a Global Scale?

By Johane Hirschfield

Now, more than ever, Mother Earth needs our help. We all play a vital role in protecting our world for future generations, and we can start by conserving at home and in our daily lives. Earth-conscious living protects the environment and can help save you money. Continue reading for practical tips and guidelines to help you conserve valuable resources by reducing your household and personal energy usage!

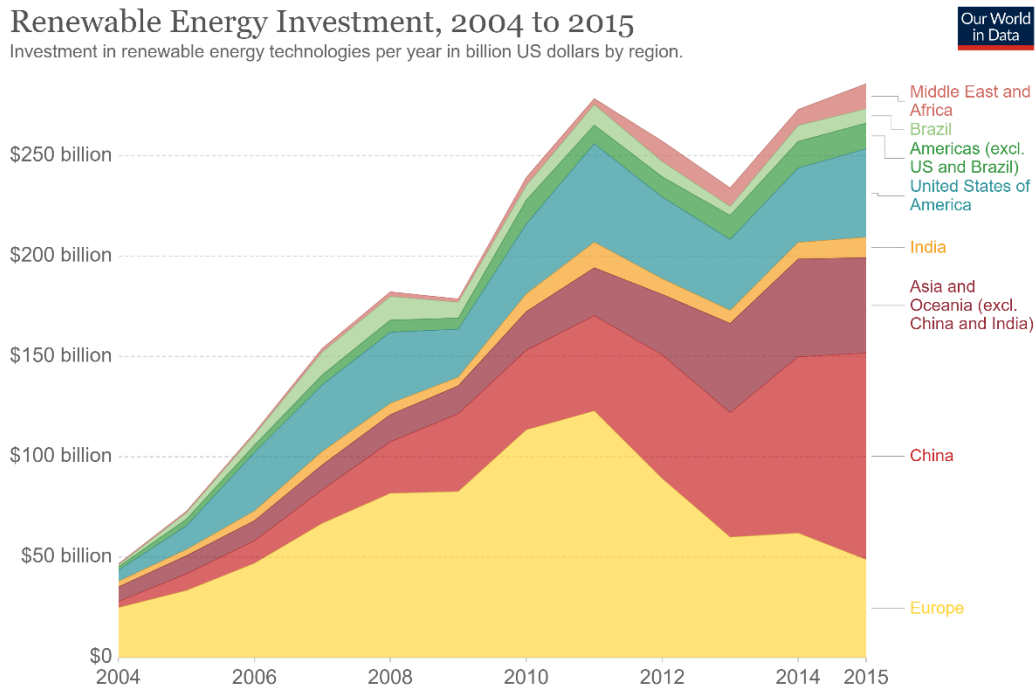
Our consumption of nonrenewable energy sources such as oil, natural gas, coal and petroleum has been steadily increasing for the last 30 years, but reserves have been rapidly declining. This is a non-sustainable trend for human-kind and we will have to start relying more on renewable resources like biomass, geothermal power, hydropower, wind power, solar power and nuclear power.

China and the United States have been consuming the most energy year over year since 2009. Driven by increased power generation, industrial demand and increased transport fuel as well as weather conditions – very hot summers, very cold winters – China and the United States have the most to gain in steadily weaning off nonrenewable energy to renewable energy. Conversely, Europe as a whole and Germany, in particular, has seen a decrease in energy consumption in the power and private sector.

How does the United States compare in its use of renewable resources?

## Renewable Energy Investment, 2004 to 2015

Investment in renewable energy technologies per year in billion US dollars by region.



Source: International Renewable Energy Agency, 2017

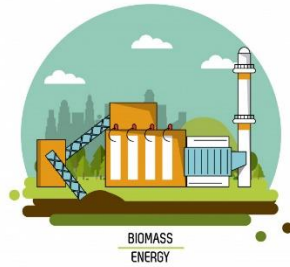
OurWorldInData.org/energy-production-and-changing-energy-sources/ • CC BY

Based on this chart, It's clear the United States is at the bottom of renewable energy investment. Countries like Canada, Brazil, Mexico, Columbia, Argentina, Venezuela, Chile, etc. are some of the

highest investors of renewable energy, while China, Europe and India are the lower end of investing. And, if you look at percent spent based on the Gross Domestic Product (GDP) by country, the United States is the lowest investor spending 0.2% compared to Chile which invests 1.4% of its GDP. If the United States is to remain competitive, it will need to step up its spending and interest in renewable energy options.

Let's take a look at those options.

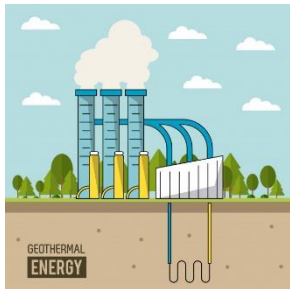
### **Biomass**



[\(image by Freepix.com-Jemastock\)](#)

Biomass is a renewable energy source composed of biological material from living or recently living organisms. Common examples are wood, waste, hydrogen gas, and alcohol fuels.

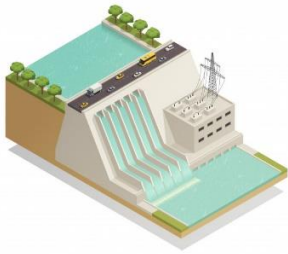
### **Geothermal Power**



[\(image by Freepix.com-Jemastock\)](#)

Geothermal energy is the heat from the earth. Resources of geothermal energy range from the shallow ground to hot water and hot rock found a few miles beneath the earth's surface and down even deeper closest to the earth's core. As a power source, this energy can be used directly for heating, cooling or electricity.

## **Hydropower**



(image by Freepix.com-Macrovector)

Hydropower facilities generate power derived from moving bodies of water such as streams, rivers and ocean tides. It is the largest source of renewable power generating 52% of the electricity used in the United States.

## **Wind Power**



(image by Freepix.com-Upklyak)

To convert wind power large wind turbines are set up in large fields to capture the wind's force. Wind turbines produce electricity and windmills are used for mechanical power. Wind pumps can pump water for drainage.

## **Solar Power**



(image by Freepix.com-Upklyak)

Solar cells in solar panels collect the sun's light and convert it into usable electricity through photovoltaic (PV) power. This heat source produces steam or mechanical power to run a generator that creates electricity. Solar power is used by power plants, to supplement home electricity, hand-held calculators, space satellites and more.

## **Energy-Saving Tips**

How can we do our part to conserve energy? Use these handy energy-saving tips to improve energy efficiency in your own home

- Change your light bulbs to LEDs.
- If possible, wash your clothes in cold water.
- Sealing cracks, gaps, leaks, and adding insulation can [save up to 10%](#) on home heating and cooling costs.
- Clean or replace all filters in your home regularly. Dirty filters make your system work harder and run longer than necessary.
- Use your microwave instead of your stove when cooking.
- To ensure your appliances are running efficiently, defrost your refrigerator and freezer before ice buildup becomes [1/4-inch thick](#).
- During warmer months, close blinds, shades and drapes on the sunny side of your home to help keep your home's temperature cooler and reduce the work for you AC. Open shades during cooler months to let the sun warm your home.
- Don't peek in the oven while baking! Every time you peek, the temperature [can drop 25 F](#), making your oven use more energy to bring the temperature back up.
- Use natural light when possible.
- Control your fixtures with a photocell or a timer to assure dusk-to-dawn only operation of your outdoor lights.
- Don't leave your computer on all day long. Only turn on your computer, monitor, printer and fax machine when you need them.
- Set your thermostat as high as comfortably possible in the summer and as low as possible in the winter. The smaller the difference between the indoor and outdoor temperatures, the lower your overall heating and cooling bill will be.
- Using your ceiling fan will allow you to [raise the thermostat setting about 4°F](#) with no reduction in comfort.



(image by Freepix.com-Kamontad123)

- Refrigerators and freezers actually operate most efficiently when full, so keep your refrigerator and freezer as full as possible. Be careful about overfilling them as this will reduce airflow and cause the appliance to work harder.
- Using dishwashers and clothes washers/dryers at night will keep the house cooler, reduce strain on the power grid during the peak usage hours of 4 PM and 6 PM and reduce the chance of an emergency!

- Turn off heated dry on your dishwasher and air dry instead.
- Set your refrigerator temperature to the manufacturer's recommendation to avoid excessive cooling and wasting energy.
- Don't leave bathroom or kitchen ventilation fans running longer than necessary. They replace inside air with outside.
- If your home has single-pane windows, consider replacing them with more energy efficient windows, or adding solar shades or tinting film.
- Adjust the thermostat only to the desired temperature. Your home won't heat or cool faster by cranking it up.



(image by Freepix.com-Vladdeep)

- Install a programmable thermostat that will automatically adjust the temperature according to your schedule.
- Turn off the lights when they're not in use. Lighting accounts for **about 12%** of a typical residential utility bill.
- Don't leave your mobile phone plugged in overnight. It only takes a couple of hours to charge.
- Turn off the oven a few minutes before cooking time runs out. Your food will continue to cook without using the extra electricity.
- Avoid placing appliances that give off heat, such as lamps or TVs, near a thermostat.

**Source from:** <https://www.directenergy.com/learning-center/energy-efficiency/25-energy-efficiency-tips>

## So, how much money can you save when you save energy?

### Lightbulbs



(image by Freepix.com-Macrovector)

Switch out your old incandescent lightbulbs for LED bulbs where you can. LEDs use 75 to 80 percent less energy than regular bulbs, and changing out just five bulbs will save you about \$35 a year. The average house has 30 to 60 light bulbs! Not only are they dimmable now, they last longer too, so you don't have to change them out as often. That becomes really convenient if you have high ceilings! The average savings cost: \$200 - \$400 per year.

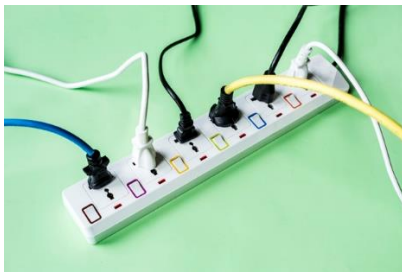
### Thermostat

An easy way to save money is installing a smart thermostat that can be controlled remotely. These smart thermostats run your heating and cooling system more efficiently and the thermostats can control more than one zone in your home at the same time. Savings potential: \$200 - \$800 a year.

### Light Switches

A WIFI-enabled light switch can save you some bucks. By installing this kind of switch and downloading an app, you can remotely control when you want lights on or off at different times of day. Most homeowners would install one switch inside and one out not only to save on electricity, but also for security when gone during the day or on vacation. \$40 - \$50 may not sound like much, but, it is a two-for-one: savings and security.

### Outlets



(image by Freepix.com-rawpixel.com)

Most appliances are plugged in even when not in use. Think: appliances and cell phones, for instance. Smart outlets reduce electricity waste by allowing a plugged-in appliance or cell phone to use electricity when it's needed. Savings can be \$150 - \$450 a year.

## Ceiling Fans

WiFi-enabled smart ceiling fans also help to save by linking up to smart thermostats and automatically adjust speed and direction based on the temperature in that room. These smart ceiling fans can be installed in many areas of your home and used year-round to circulate the warm or cool air. Typical savings can be \$140 - \$250 per year depending on the size of your home.

## Water Heater Sensor



(image by Freepix.com-volodymyr\_voro )

Typical electric water heaters warm water even when you're not home. Installing an occupancy sensor basically tells the water heater you're home, so it can start warming water. Hotels use a similar kind of sensor and it can save 30 % to 50% off hot water costs. For the homeowner, savings can be as high as \$300 for a family of four.

While there is initial upfront cost to some of these items. The long-term savings for a homeowner are significant year-over-year.

**Source from:** <https://www.usatoday.com/story/money/2019/01/24/energy-efficient-home-easy-upgrades-save-money/2642905002/>