

### You're Invited








The theme for Earth Science Week 2025, *"Energy Resources for Our Future,"* invites you to explore the complex decisions we face in powering our homes, businesses, transportation, and communities. These choices have significant environmental, social, and economic impacts, making it essential to understand the resources that provide our energy and how different energy sources work.



Celebrate Earth Science Week (ESW) and discover how earth science informs our energy choices and promotes sustainable energy solutions now and in the future.

Visit the ESW website ([www.earthsciweek.org](http://www.earthsciweek.org)) to access all ESW resources, and check out the 2025 ESW webpage ([www.earthsciweek.org/resources/2025](http://www.earthsciweek.org/resources/2025)) for more information, resources, and learning activities related to this poster and the theme, *"Energy Resources for Our Future."*

### Types of Energy Sources

-  **Biomass:** Organic materials such as wood, crop residues, seaweed, and animal wastes.
-  **Coal:** A combustible, sedimentary rock fossil fuel\* made mostly of carbon.
-  **Geothermal:** Heat from inside the Earth.
-  **Hydropower:** Energy generated from the force of moving water.
-  **Natural Gas:** A colorless, odorless fossil fuel\* that is a mixture of methane and other gases.
-  **Petroleum:** A liquid fossil fuel\* also known as oil.
-  **Propane:** A fossil fuel\* gas derived from oil and natural gas.
-  **Solar:** Radiant energy produced by the sun.
-  **Uranium:** A naturally occurring, radioactive element that is easily fissioned in the generation of nuclear energy.
-  **Wind:** Air in motion caused by the uneven heating of the Earth's surface.

*\* Fossil fuels are formed from the remains of plants and animals that died hundreds of millions of years ago. Over time, these remains were buried by sediment. Heat and pressure transformed the organic materials into fossil fuels.*

Learn more from NEED's Energy Infobooks, linked on the [2025 ESW website](http://2025.earthsciweek.org).

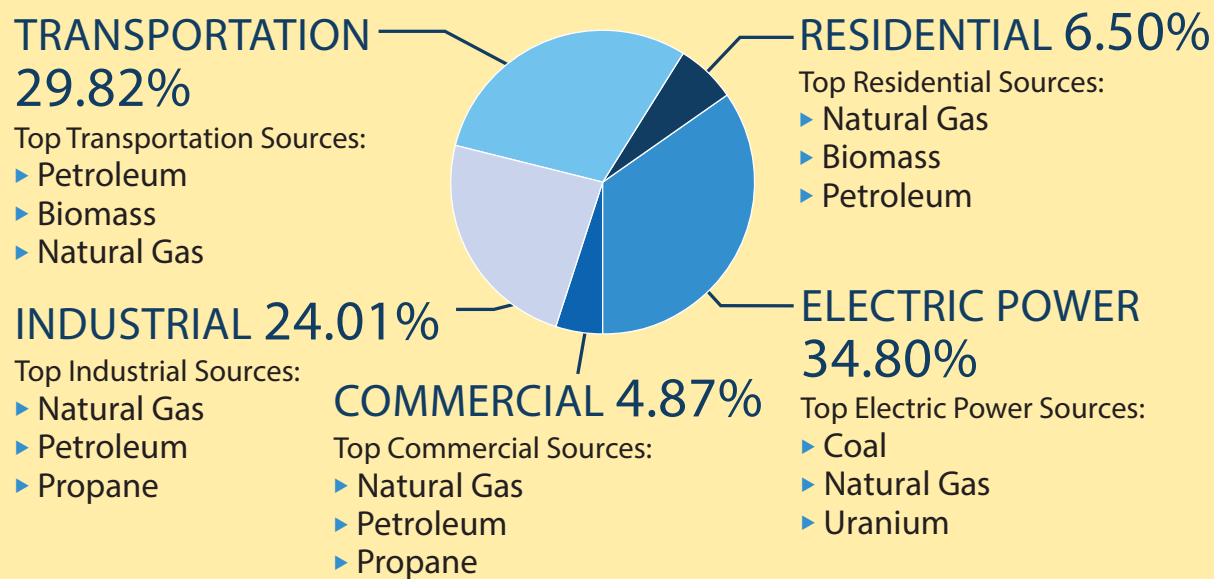
### Learning Activities

- Discuss what makes an energy source renewable or nonrenewable. Then, have students categorize the types of energy sources shown on the poster front into renewable and nonrenewable energy sources.
- For each energy source on the poster front, explore how it is converted into usable energy, including electricity and/or fuel that powers vehicles. To further the discussion, ask students to name the forms of energy and energy transformations involved with using each energy source.
- Investigate the types of energy sources used in your local community, and explore how these energy sources interact with Earth's systems.
- Research and analyze the progress toward Target 7.2 of SDG 7, which focuses on increasing the share of renewable energy in the global energy mix. Consider other targets, too, such as Target 7.3, which focuses on energy efficiency.
- Play Energy Bingo Games developed by The NEED Project: [www.need.org/resources/energy-bingo-games/](http://www.need.org/resources/energy-bingo-games/)

### Energy Use

Energy resources are consumed across various sectors, including electricity generation, transportation, industrial processes, and residential heating or cooling. In the United States, electricity accounts for approximately 35% of total energy use. This electricity is primarily generated from nonrenewable resources such as natural gas, coal, and uranium and renewable sources such as wind, hydro- and solar power. Another significant portion of the energy that people use (about 30%) is consumed for transportation. Much of the fuel powering transportation today comes from petroleum in the form of gasoline and diesel, which are fossil fuels.

### U.S. Energy Consumption by Sector, 2024



The residential, commercial, and industrial sectors use electricity. This graph depicts their energy source consumption outside of electricity, also known as primary consumption.

Data: Energy Information Administration. \*Total may not equal 100% due to independent rounding.

### Innovative Energy Sources

Innovative energy sources are crucial to shaping our future, and Earth Science Week 2025 is an excellent time to explore these and other advancements.

- Ocean thermal energy conversion** harnesses the temperature difference between warm surface water and cold deep water to generate renewable electricity, with Hawaii hosting the world's largest operational facility.
- Piezoelectric energy** captures kinetic energy from movement, like the pressure from dancers in a club to power lights and music. This innovative approach is also being explored in high-traffic public areas to generate sustainable power.
- Thermoelectric energy**, used in NASA's radioisotope thermoelectric generators, converts heat from decaying plutonium into electricity, powering long-duration space missions.



### Affordable and Clean Energy



SDG 7, specifically Target 7.2, focuses on increasing the share of renewable energy in the global energy mix. Understanding and exploring sustainable energy resources, such as solar, wind, and geothermal energy, is essential for meeting this target and addressing the growing need for clean, reliable energy.

### The Role of Minerals in Energy Systems

Minerals such as lithium, cobalt, and nickel play a crucial role in energy storage, particularly in batteries that power electric vehicles and store renewable energy. Because these minerals are essential components of energy storage systems, people might assume they are energy sources themselves. However, most minerals cannot be used to generate energy on their own.

Instead, they serve as raw materials used to create technologies that produce, store, or facilitate the use

of energy. Lithium-ion batteries, for example, store electrical energy for later use, but lithium itself does not produce energy — it enables the storage and controlled release of electricity when needed.



### Earth Science Week Sponsors



### Find Out More

Explore the Earth Science Week 2025 Toolkit and website for instructional resources, classroom activities, webinars, and ways to get involved. Have a great Earth Science Week!

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### Get Involved

We encourage you to participate in Earth Science Week by attending, planning, and/or hosting events; entering the Earth Science Week contests; and more! Visit [www.earthsciweek.org](http://www.earthsciweek.org) to:

- Enter ESW contests
- Watch the ESW webinar series
- Browse a collection of online resources
- Participate in focus days
- Plan an ESW event

## [www.earthsciweek.org/resources/2025](http://www.earthsciweek.org/resources/2025)

Start preparing for next year's Earth Science Week, October 11–17, 2026

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### Acknowledgements

AGI is grateful to the National Energy Education Development (NEED) Project for their collaboration and resources, including the icons featured on this poster and throughout ESW 2025 materials. Special thanks to Emily Hawbaker/NEED for her valuable contributions and support in developing this poster. Earth Science Week Poster produced by AGI. Poster ©2025 American Geosciences Institute. Poster content: Lauren Brase/AGI with other Earth Science Week Staff: Ed Robeck, Lindsay Mossa, Sequoyah McGee. Design: Brenna Tobler/AGI. Printed in the USA by Mount Royal Printing.