

## Forms of Energy

All forms of energy fall under two categories:



### POTENTIAL

Stored energy and the energy of position (gravitational).

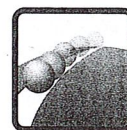


**CHEMICAL ENERGY** is the energy stored in the bonds of atoms and molecules. Gasoline and a piece of pizza are examples.

**NUCLEAR ENERGY** is the energy stored in the nucleus of an atom – the energy that holds the nucleus together. The energy in the nucleus of a plutonium atom is an example.

**ELASTIC ENERGY** is energy stored in objects by the application of force. Compressed springs and stretched rubber bands are examples.

**GRAVITATIONAL POTENTIAL ENERGY** is the energy of place or position. A child at the top of a slide is an example.



### KINETIC

The motion of waves, electrons, atoms, molecules, and substances.



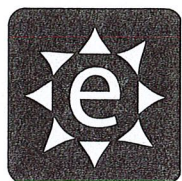
**RADIANT ENERGY** is electromagnetic energy that travels in transverse waves. Light and x-rays are examples.

**THERMAL ENERGY** is the internal energy that causes the vibration or movement of atoms and molecules in substances. Liquid water has more thermal energy than solid water (ice).

**MOTION ENERGY** is the energy present in the movement of a substance from one place to another. Wind and moving water are examples.

**SOUND ENERGY** is the movement of energy through substances in longitudinal waves. Echoes and music are examples.

**ELECTRICAL ENERGY** is the movement of electrons. Lightning and electricity are examples.



# Forms and Sources of Energy

In the United States we use a variety of resources to meet our energy needs. Use the information below to analyze how each energy source is stored and delivered.

- 1 Using the information from the *Forms of Energy* chart and the graphic below, determine how energy is stored or delivered in each of the sources of energy. Remember, if the source of energy must be burned, the energy is stored as chemical energy.

## NONRENEWABLE

Petroleum \_\_\_\_\_  
 Coal \_\_\_\_\_  
 Natural Gas \_\_\_\_\_  
 Uranium \_\_\_\_\_  
 Propane \_\_\_\_\_

## RENEWABLE

Biomass \_\_\_\_\_  
 Hydropower \_\_\_\_\_  
 Wind \_\_\_\_\_  
 Solar \_\_\_\_\_  
 Geothermal \_\_\_\_\_

- 2 Look at the U.S. Energy Consumption by Source graphic below and calculate the percentage of the nation's energy use that each form of energy provides.

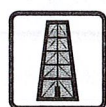
What percentage of the nation's energy is provided by each form of energy?

Chemical \_\_\_\_\_  
 Nuclear \_\_\_\_\_  
 Motion \_\_\_\_\_  
 Radiant \_\_\_\_\_  
 Thermal \_\_\_\_\_

What percentage of the nation's energy is provided by nonrenewables? \_\_\_\_\_  
 by renewables? \_\_\_\_\_

## U.S. Energy Consumption by Source, 2017

### NONRENEWABLE



**PETROLEUM 36.99%** \*  
*Uses: transportation, manufacturing - includes propane*



**NATURAL GAS 28.66%** \*  
*Uses: heating, manufacturing, electricity - includes propane*



**COAL 14.15%**  
*Uses: electricity, manufacturing*



**URANIUM 8.61%**  
*Uses: electricity*



**PROPANE**  
*Uses: heating, manufacturing*

\*Propane consumption figures are reported as part of petroleum and natural gas totals.

### RENEWABLE



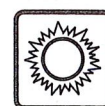
**BIOMASS 5.20%**  
*Uses: heating, electricity, transportation*



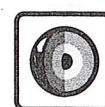
**HYDROPOWER 2.83%**  
*Uses: electricity*



**WIND 2.40%**  
*Uses: electricity*



**SOLAR 0.79%**  
*Uses: heating, electricity*



**GEOTHERMAL 0.21%**  
*Uses: heating, electricity*

\*\*Total does not add up to 100% due to independent rounding.  
 Data: Energy Information Administration