Global energy-use patterns

Energy supports transport, production, heating, cooling and other services. To explain a pattern, connect who uses energy, how much they use and which sources supply it.

1. DEVELOPMENT CHANGES ENERGY DEMAND

More infrastructure
Factories, roads, buildings

→

More activity
Production and transport

→

More energy services
Heat, power and motion

Industrialization commonly increases energy demand as manufacturing, freight and household services expand. Developing economies have often increased fossil-fuel use to meet these needs. This is a broad historical pattern, not a requirement that every country must follow an identical fuel pathway.

2. ENERGY USE IS UNEVENLY DISTRIBUTED

Countries differ in population, industrial activity, income, energy access and climate. Higher-income, industrialized economies often use more energy per person, while a populous country can have high total use even with lower use per person. National averages also hide differences between households and regions.

Avoid treating a development category as a complete explanation: identify the actual activity, infrastructure or physical condition creating demand.

3. FOSSIL FUELS REMAIN CENTRAL; GROWTH CAN SHIFT

Coal, oil and natural gas together are the most widely used energy sources globally. But the source with the largest existing share need not supply the largest increase. In the IEA's assessment of 2025, solar PV supplied the largest contribution to growth in total energy demand, while demand for all three fossil fuels still rose. A growing renewable contribution does not automatically mean fossil-fuel consumption is falling.

Core patterns: College Board, ENG-3.B.1 through ENG-3.B.4.
Energy services and sectors: US EIA, Use of Energy Explained.
Dated example: IEA, Global Energy Review 2026, data for 2025.

Scope: College Board AP Environmental Science CED, Topic 6.2, p. 121.

Compare total and per-person use

Always identify the population, time interval and energy measure before comparing countries. The examples below are fictional and use the same annual energy accounting method.

1. PER CAPITA MEANS PER PERSON

Per-capita energy use = total energy use / population

Country	Population	Annual energy	Per person / year
A	20 million	1,000 million GJ	50 GJ
B	5 million	500 million GJ	100 GJ

A uses twice as much energy in total, but B uses twice as much per person. For A: 1,000 million GJ divided by 20 million people = 50 GJ per person per year. The rankings answer different questions.

2. CALCULATE CHANGE USING THE STARTING VALUE

If annual energy use rises from 500 to 650 million GJ, the increase is 150 million GJ. Compare that increase with the original 500, not the final 650.

Percent increase = (650 - 500) / 500 x 100 = 30%

3. READ THE DENOMINATOR AND THE UNITS

A country rising from 100 to 120 units grows by 20%; another rising from 1,000 to 1,100 grows by only 10%, but adds more energy. Likewise, a fuel share rising from 20% to 25% gains 5 percentage points, or 25% relative to its starting share. Distinguish the amount used, growth rate and share of a total. GJ means gigajoule: one billion joules.

Mathematical scope: College Board Topic 6.2, suggested skill 6.C.
All country values and arithmetic examples on this page are illustrative.
Real-world distinction between growth rates and shares: IEA, Global Trends.

Scope: College Board AP Environmental Science CED, Topic 6.2, p. 121.

Explain why energy choices differ

Availability, prices and government rules affect which sources people use and how they use them. A useful explanation links a specific factor to a change in supply or demand.

1. THREE DRIVERS OF ENERGY CHOICE

Availability	Local fuels, rivers, sunlight and wind shape supply options. Import links, power lines and existing plants also affect which resources can reach users.
Price	Fuel costs, construction, operation and delivery influence electricity prices. Higher prices can encourage reduced use or substitution where alternatives are accessible.
Government rules	Efficiency requirements can reduce energy needed for a service. Pollution limits and rules for utility prices can alter costs and influence the sources suppliers choose.

2. A DATED SNAPSHOT: GLOBAL DEMAND IN 2025

+1.3%

Total energy demand

About +3%

Electricity demand

3. EXTENSION: MATCH THE CLAIM TO THE MEASURE

These IEA estimates compare 2025 with 2024; they are growth rates, not shares of energy supply. Electricity is only part of total energy use. Direct fuel use in vehicles, buildings and industry matters too. Primary energy measures inputs before conversion, while final energy measures energy delivered to users. Keep these accounting boundaries consistent, and never add power-station fuel inputs to the electricity they produce as if they were separate new energy supplies.

Availability, price and regulation: College Board, ENG-3.B.5.
Electricity costs and regulation: US EIA, Prices and Factors Affecting Prices.
2025 growth estimates: IEA, Global Energy Review 2026, Global Trends.

Scope: College Board AP Environmental Science CED, Topic 6.2, p. 121.