Electric Connections
GAME INSTRUCTIONS

Almost forty percent of the nation's energy is used to make electricity today. Experts predict that this figure will continue to increase. The U.S. is becoming more dependent on electricity to meet its energy needs as we depend on more technology. To meet the growing demand, many energy sources are used to generate electricity. Some energy sources produce a substantial amount of the electricity we consume, while others produce less than one percent.

Individual Instructions

Your task is to rank the ten sources of energy in order of their contribution to U.S. and Illinois electricity production. Place a number **one** by the source that provides the **largest amount** of electricity, a number two by the source that provides the second largest, down to a number ten by the one that provides the least amount of electricity. Use critical reasoning skills to determine the order.

Group Instructions

Starting at the top of the list, ask members to contribute any knowledge they have about each energy source. Brainstorm by asking group members questions such as:

- Is this source limited to a certain area of the country?
- Are there any problems or limitations associated with this source?
- Have you ever seen a power plant that uses this particular source of energy?

One person in the group should take notes. Once the group has gone through the list, it should divide the ten energy sources into three levels of importance: the top three most significant energy sources, the middle four moderately significant energy sources, and the bottom three least significant energy sources. The group should then rank the ten sources of energy in order of their contribution to U.S. electricity production, and Illinois electricity production.

SOURCES USED TO GENERATE ELECTRICITY

SOURCE	YOUR RANK	YOUR RANK	GROUP RANK	GROUP RANK
	U.S.	IL	U.S.	IL
BIOMASS				
COAL				
GEOTHERMAL				
HYDROPOWER				
NATURAL GAS				
PETROLEUM				
PROPANE				
SOLAR				
URANIUM				
WIND				

Electric Connections
U.S. ELECTRIC POWER GENERATION SOURCES

SOURCES USED TO GENERATE ELECTRICITY

SOURCE	STATISTICS		RANK	YOUR RANK	ERROR POINTS	GROUP RANK	ERROR POINTS
BIOMASS	In 2017, biomass produced 62.8 billion kilowatt-hours of electricity, 1.6 percent of the nation's total. Biomass electricity is usually the result of burning wood waste, landfill gas, and solid waste.	US					
		IL					
COAL	Over 91 percent of the nation's coal is consumed by electric utility companies to produce electricity. In 2017, coal produced 1,205.8 billion kilowatt-hours of electricity, which was 30.0 percent of the nation's electricity.	US					
		IL					
GEOTHERMAL	In 2017, geothermal power plants produced 15.9 billion kilowatt-hours of electricity, mostly from facilities in the western U.S. Geothermal energy produced 0.4 percent of the nation's electricity.	US					
		IL					
HYDROPOWER	7.3 percent of U.S. electricity is generated by 2,200 hydro plants nationwide. Hydro plants produced 293.8 billion kilowatt-hours of electricity in 2017. It is the leading renewable energy source used to provide electricity.	US					
		IL					
NATURAL GAS	Natural gas produced 1,296.4 billion kilowatt-hours of electricity in 2017, generating 32.2 percent of the nation's electricity. Natural gas is used by turbines to provide electricity during peak hours of demand.	US					
		IL					
PETROLEUM	Petroleum provided 0.5 percent of U.S. electricity, generating 21.4 billion kilowatt-hours of electric power in 2017.	US					
		IL					
PROPANE	There are no statistics available for propane's contribution to electricity generation. Very little propane is used to produce electricity.	US					
		IL					
SOLAR	Solar energy provided about 1.3 percent of U.S. electricity in 2017, amounting to 53.3 billion kilowatt-hours of electricity. Electricity was generated by solar thermal systems or photovoltaic arrays.	US					
		IL					
URANIUM	99 nuclear reactors provided the nation with 20.0 percent of its electrical energy needs in 2017. Nuclear energy produced 805.0 billion kilowatt-hours of electricity.	US					
		IL					
WIND	Wind energy produced 254.3 billion kilowatt-hours of electricity in 2017, providing 6.3 percent of the nation's electricity. Most of the wind-generated electricity is produced in Texas, Iowa, and Oklahoma.	US					
		IL					

ERROR POINTS TOTALS _____ _____

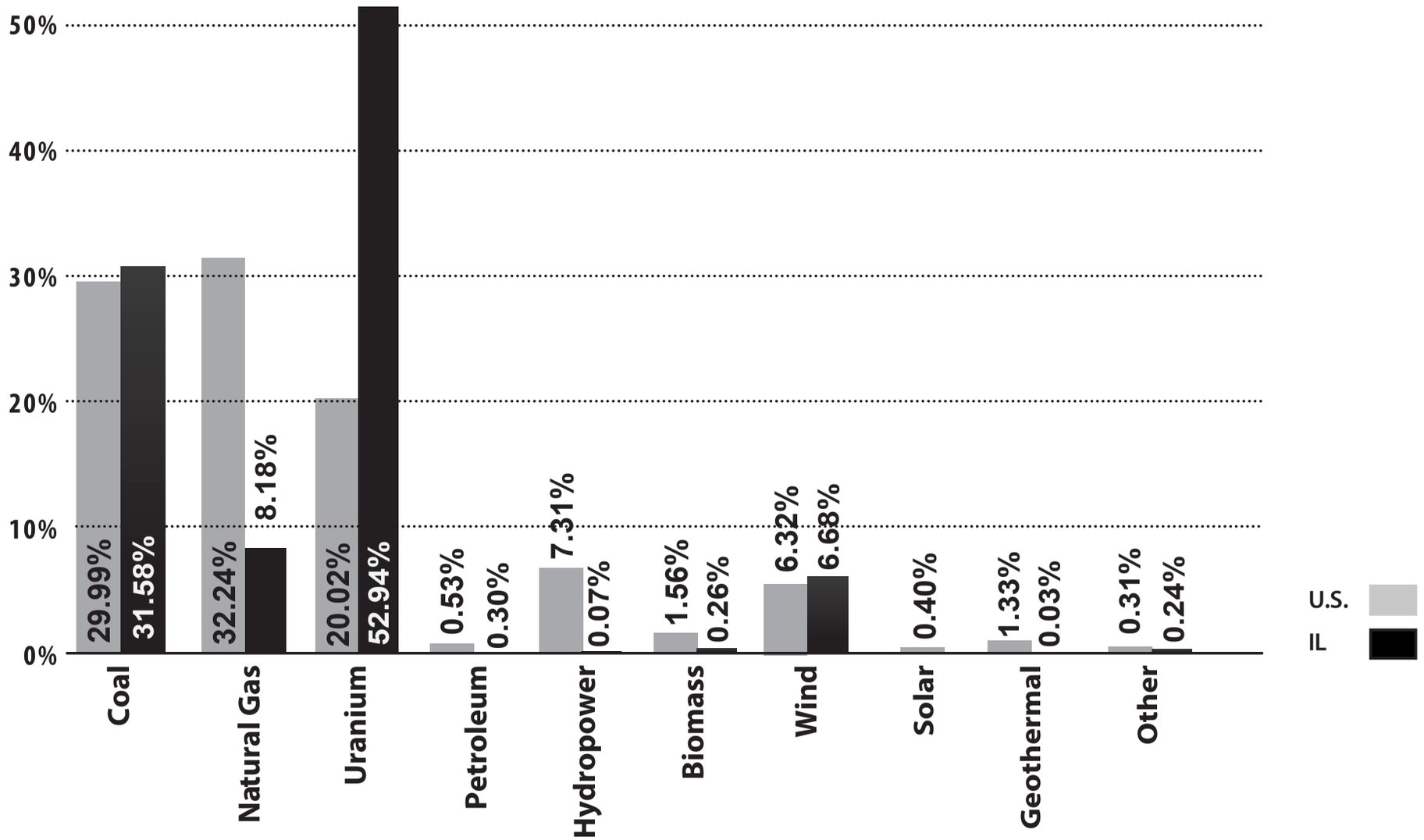
Error points are the absolute difference between your ranks and EIA's (disregard plus or minus signs).

Data: Energy Information Administration, Annual Energy Report

SCORING:

0-12 Excellent
13-18 Good
19-24 Average
25-30 Fair
31-36 Poor
37-42 Very Poor

Comparing U.S. and Illinois State Electricity Portfolios, 2017



Data: U.S. Energy Information Administration

*Totals do not equal 100% due to independent rounding.

**Other: non-biogenic waste, fossil fuel gases, purchased steam, waste heat, etc.