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GREEN POWER
Leadership Award Winner **2012**



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2020 WPS SolarWise for Schools



WPS Community Foundation

By The Numbers America Uses Energy

Part 1



Presentation Details:
This presentation
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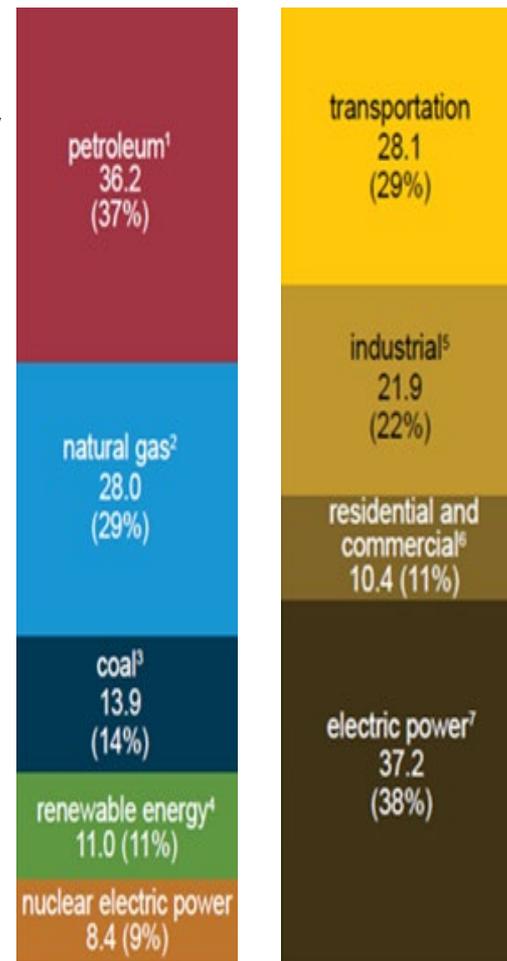
The Energy Economy

Energy Sources

- Petroleum 36.2 (37%)
- Natural Gas 28.0 (29%)
- Coal 13.9 (14%)
- Renewable Energy 11.0 (11%)
- Nuclear Electric Power 8.4 (9%)

Energy Sectors

- Transportation 28.1 (29%)
- Industrial 21.9 (22%)
- Residential and Commercial 10.4 (11%)
- Electric Power 37.2 (38%)



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Question 1

1. The energy consumed in America is provided by the five energy resources below. Match each energy resource to the percentage of energy it provides to the American economy.

- | | | |
|------|-------|-----------------------------|
| 37 % | _____ | Coal (a.) |
| 32 % | _____ | Natural Gas (b.) |
| 11 % | _____ | Nuclear Electric Power (c.) |
| 11 % | _____ | Renewable Energy (d.) |
| 8 % | _____ | Petroleum (e.) |

Question 1 Answer 1

1. The energy consumed in America is provided by the five energy resources below. Match each energy resource to the percentage of energy it provides to the American economy.

37 % **Petroleum (e.)**

Question 1 Answer 2

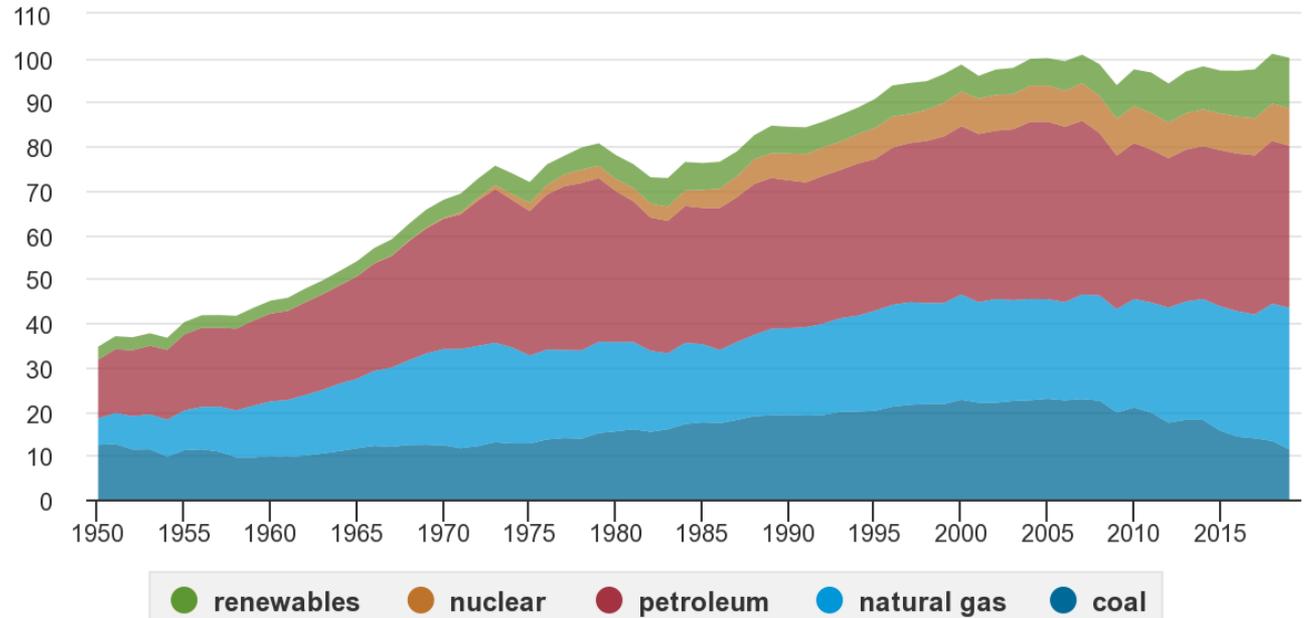
1. The energy consumed in America is provided by the five energy resources below. Match each energy resource to the percentage of energy it provides to the American economy.

37 % **Petroleum (e.)**
32 % **Natural Gas (b.)**

U.S. Primary Energy Consumption by Major Energy Source, 1950-2019

U.S. primary energy consumption by major sources, 1950-2019

quadrillion British thermal units



Note: Petroleum is petroleum products excluding biofuels, which are included in renewables.

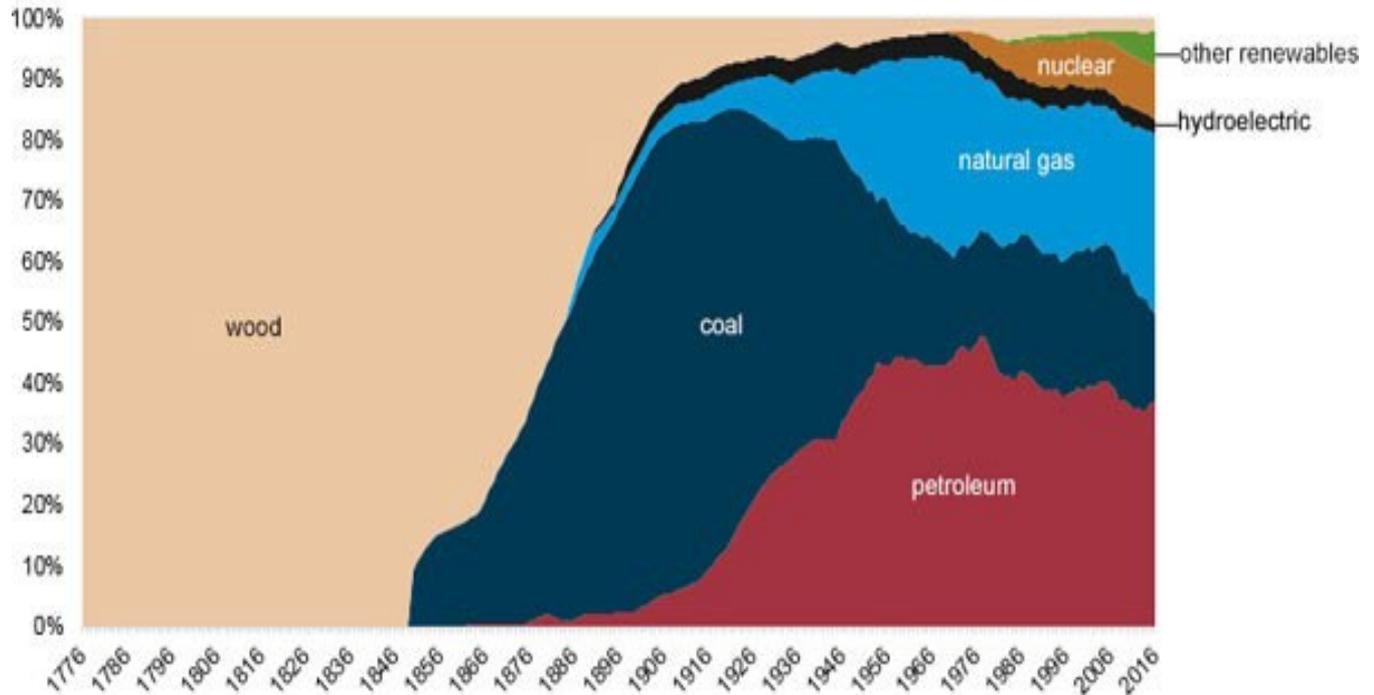
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3, April 2020, preliminary data for 2019



Share of total U.S. energy consumption by end-use sectors, 1776-2016

(1)

Share of U.S. energy consumption by major sources, 1776–2016

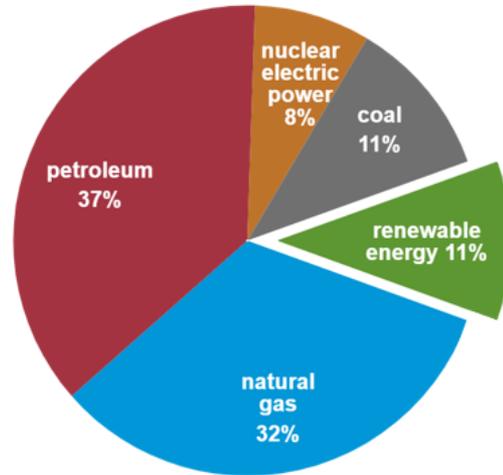


U.S primary energy consumption by energy source, 2019

U.S. primary energy consumption by energy source, 2019

total = 100.2 quadrillion
British thermal units (Btu)

total = 11.4 quadrillion Btu



Note: Sum of components may not equal 100% because of independent rounding.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 1.3 and 10.1, April 2020, preliminary data



Note: Sum of components may not equal 100% because of independent rounding.

Source: U.S. Energy Information Administration, *Month Energy Review*, Table 1.3 and 10.1, April 2020, preliminary data.

Question 1 All Answers

1. The energy consumed in America is provided by the five energy resources below. Match each energy resource to the percentage of energy it provides to the American economy.

- 37 %** **Petroleum (e.)**
- 32 %** **Natural Gas (b.)**
- 11 %** **Coal (a.)**
- 11 %** **Renewable Energy (d.)**
- 8 %** **Nuclear Electric Power (c.)**

Question 2

2. Put these energy resources in order according to their appearance in American history.

- | | | |
|-----|-------|---|
| # 1 | _____ | Coal (a.) |
| # 2 | _____ | Biomass (b.) |
| # 3 | _____ | Hydroelectric (c.) |
| # 4 | _____ | Natural gas (d.) |
| # 5 | _____ | Nuclear power (e.) |
| # 6 | _____ | Other renewables not including hydroelectric (f.) |
| # 7 | _____ | Petroleum (g.) |

Question 2 Answer 1

2. Put these energy resources in order according to their appearance in American history.

1 Biomass (b.)

Question 2 Answer 2

2. Put these energy resources in order according to their appearance in American history.

1 Biomass (b.)

2 Coal (a.)

Question 2 Answer 3

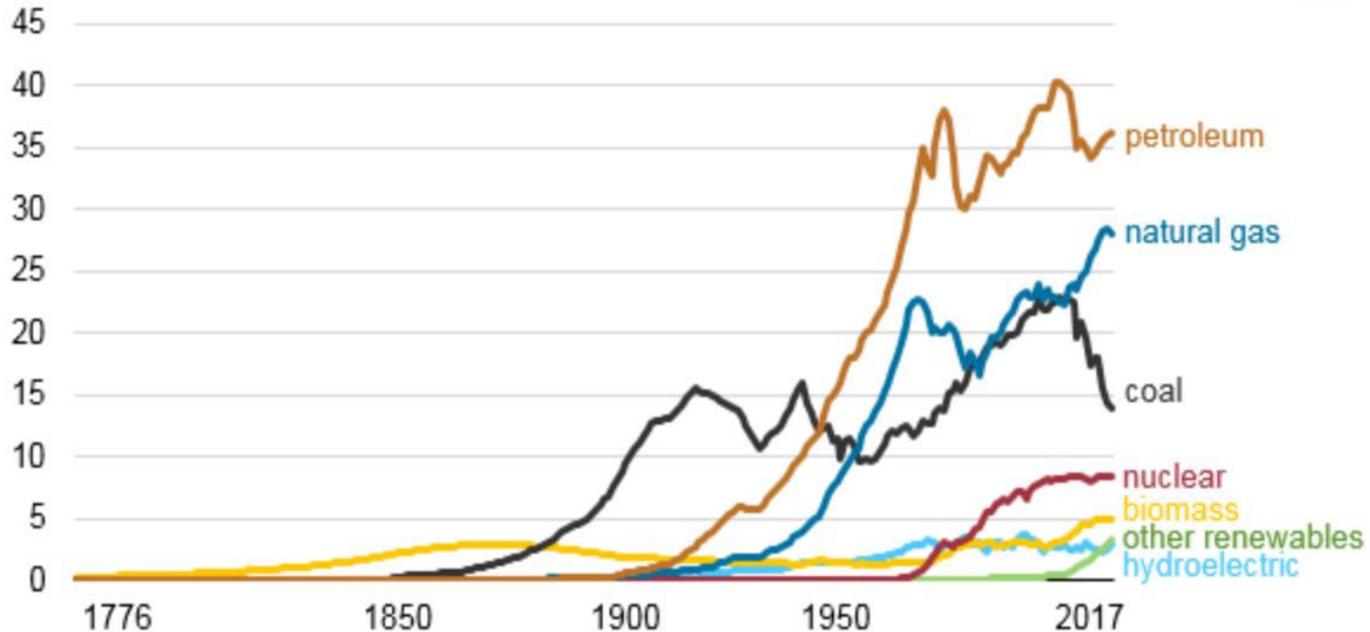
2. Put these energy resources in order according to their appearance in American history.

- # 1 **Biomass (b.)**
- # 2 **Coal (a.)**
- # 3 **Petroleum (g.)**

Energy consumption in the United States (1776-2017)

Energy consumption in the United States (1776-2017)

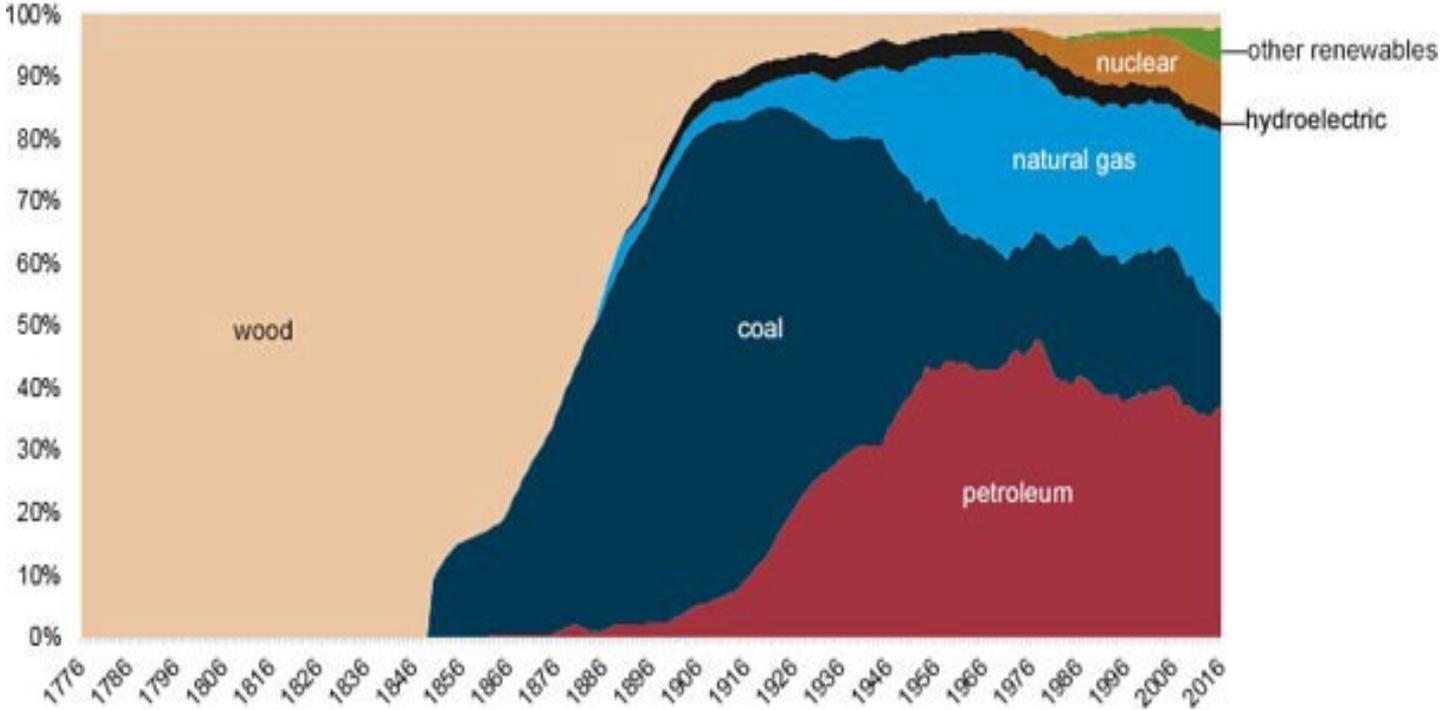
quadrillion British thermal units



Source: U.S. Energy Information Administration, [Monthly Energy Review](#)

Share of total U.S. energy consumption by end-use sectors, 1776-2016 (2)

Share of U.S. energy consumption by major sources, 1776–2016



Question 2 All Answers

2. Put these energy resources in order according to their appearance in American history.

- # 1 Biomass (b.)
- # 2 Coal (a.)
- # 3 Petroleum (g.)
- # 4 Natural gas (d.)
- # 5 Hydroelectric (c.)
- # 6 Other renewables not including hydroelectric (f.)
- # 7 Nuclear power (e.)

Question 3

3. Match the end use sectors below, to the percentage of energy they consume in the American energy economy.

32 %	_____	Commercial (a.)
28 %	_____	Industrial (b.)
21 %	_____	Residential (c.)
18 %	_____	Transportation (d.)

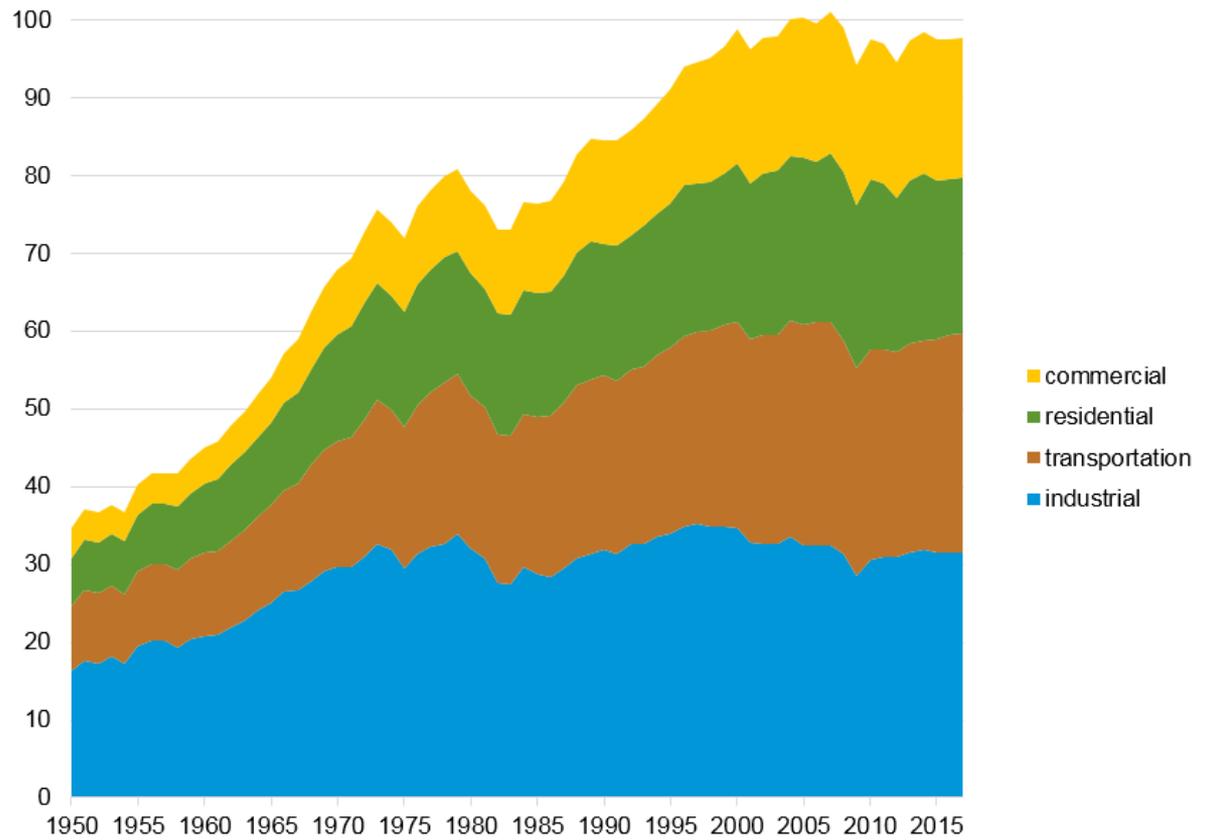
Question 3 Answer 1

3. Match the end use sectors below, to the percentage of energy they consume in the American energy economy.

32 % Industrial (b.)

U.S. Total Energy Consumption by End-Use Sector, 1950-2017

U.S. total energy consumption by end-use sector, 1950–2017
quadrillion British thermal units

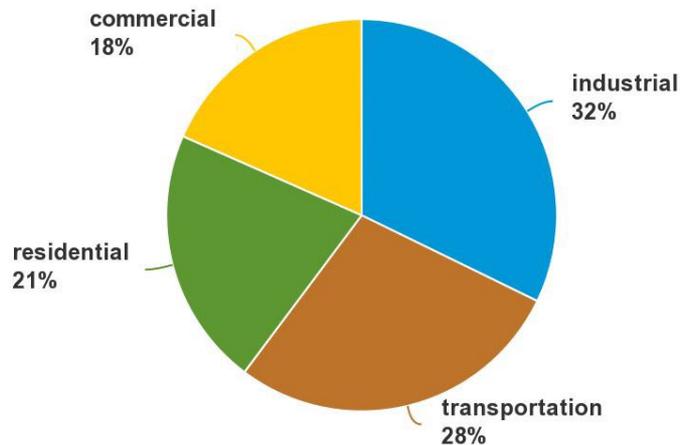


Note: Total energy consumption includes primary energy and electrical energy.
Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 2.1, April 2018

Share of total U.S. energy consumption by end-use sectors, 2018

Share of total U.S. energy consumption by end-use sectors, 2018

Total = 101.3 quadrillion British thermal units



Note: Sum of individual percentages may not equal 100 because of independent rounding.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 2.1, April 2019, preliminary data



Question 3 All Answers

3. Match the end use sectors below, to the percentage of energy they consume in the American energy economy.

32 %	Industrial (b.)
28 %	Transportation (d.)
21 %	Residential (c.)
18 %	Commercial (a.)

Question 4

4. America's transportation sector is powered by the four energy resources, below. Match each resource to the percent of the transportation economic sector it powers.

91 %	_____	Electricity** (a.)
5 %	_____	Natural Gas (b.)
3 %	_____	Petroleum (c.)
< 1 %	_____	Renewable Energy (d.)

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Question 4 Answer 1

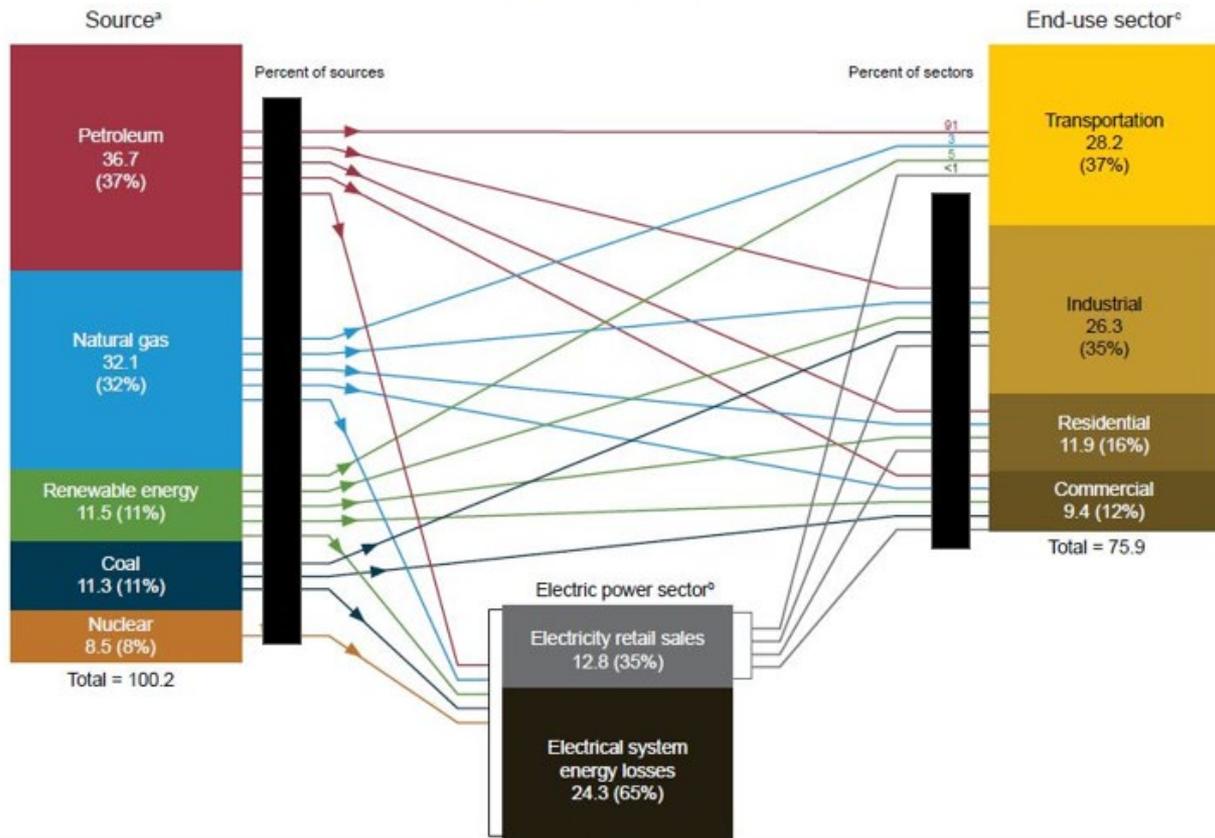
4. America's transportation sector is powered by the four energy resources, below. Match each resource to the percent of the transportation economic sector it powers.

91 % **Petroleum (c.)**

Transportation Sector

U.S. energy consumption by source and sector, 2019

(Quadrillion Btu)



Question 4 All Answers

4. America's transportation sector is powered by the four energy resources, below. Match each resource to the percent of the transportation economic sector it powers.

- 91 %** **Petroleum (c.)**
- 5 %** **Renewable Energy (d.)**
- 3 %** **Natural Gas (b.)**
- < 1 %** **Electricity** (a.)**

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Question 5

5. America's industrial sector is powered by the five energy resources, below. Match each resource to the percent of the industrial economic sector it powers.

40 %	_____	Coal (a.)
34 %	_____	Electricity** (b.)
12 %	_____	Natural Gas (c.)
9 %	_____	Renewable Energy (d.)
4 %	_____	Petroleum (e.)

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

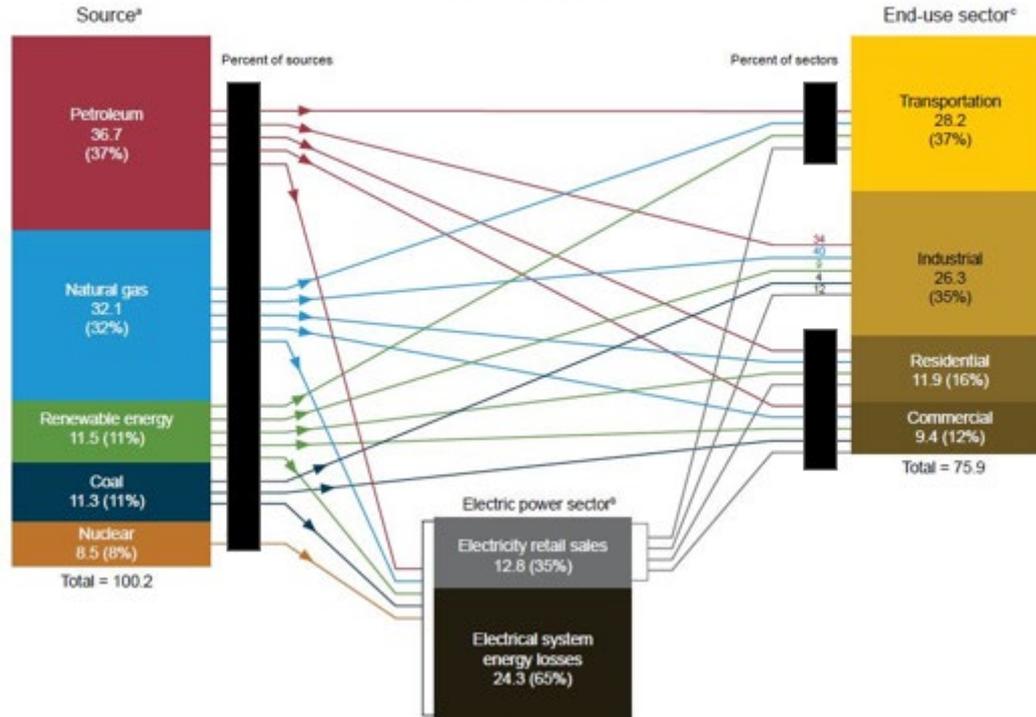
Question 5 Answer 1

5. America's industrial sector is powered by the five energy resources, below. Match each resource to the percent of the industrial economic sector it powers.

40 % Natural Gas (c.)

Industrial Sector

U.S. energy consumption by source and sector, 2019
(Quadrillion Btu)



Question 5 All Answers

5. America's industrial sector is powered by the five energy resources, below. Match each resource to the percent of the industrial economic sector it powers.

- 40 %** **Natural Gas (c.)**
- 34 %** **Petroleum (e.)**
- 12 %** **Electricity** (b.)**
- 9 %** **Renewable Energy (d.)**
- 4 %** **Coal (a.)**

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Question 6

6. America's residential sector is powered by the four energy resources, below. Match each resource to the percent of the residential economic sector it powers.

- | | | |
|------|-------|-----------------------|
| 44 % | _____ | Electricity** (a.) |
| 41 % | _____ | Natural Gas (b.) |
| 8 % | _____ | Renewable Energy (c.) |
| 7 % | _____ | Petroleum (d.) |

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

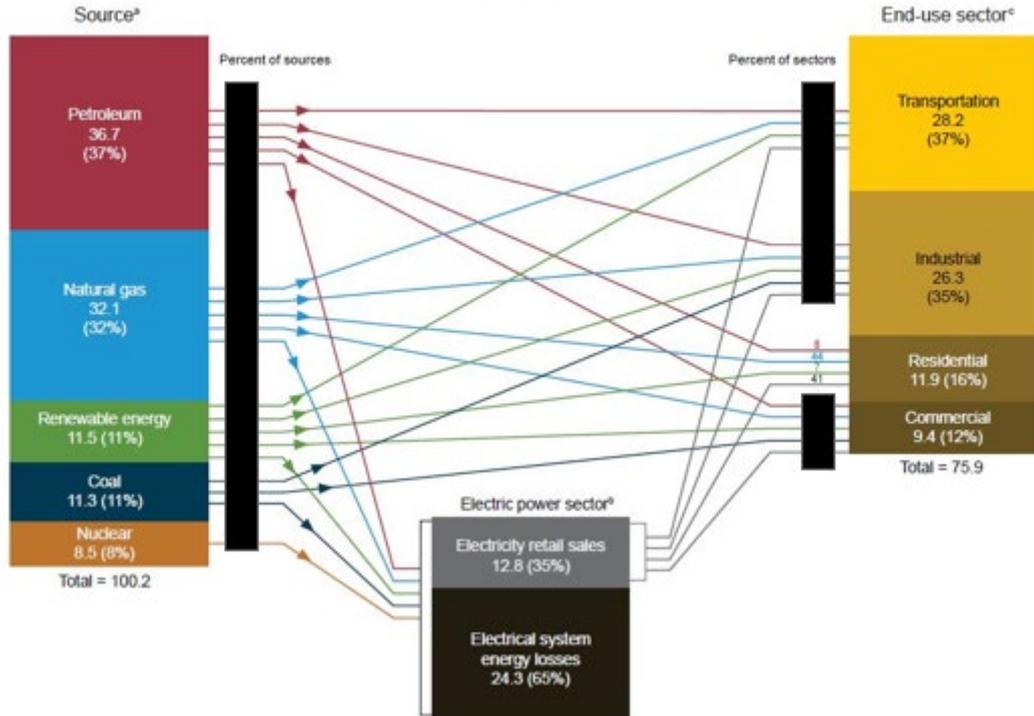
Question 6 Answer 1

6. America's residential sector is powered by the four energy resources, below. Match each resource to the percent of the residential economic sector it powers.

44 % **Natural Gas (b.)**

Residential Sector

U.S. energy consumption by source and sector, 2019
(Quadrillion Btu)



Question 6 All Answers

6. America's residential sector is powered by the four energy resources, below. Match each resource to the percent of the residential economic sector it powers.

- 44 % Natural Gas (b.)**
- 41 % Electricity** (a.)**
- 8 % Petroleum (c.)**
- 7 % Renewable Energy (d.)**

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Question 7

7. America's commercial sector is powered by the five energy resources, below. Match each resource to the percent of the commercial economic sector it powers.

49 %	_____	Electricity** (a.)
39 %	_____	Coal (b.)
9 %	_____	Natural Gas (c.)
3 %	_____	Renewable Energy (d.)
< 1 %	_____	Petroleum (e.)

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Question 7 Answer 1

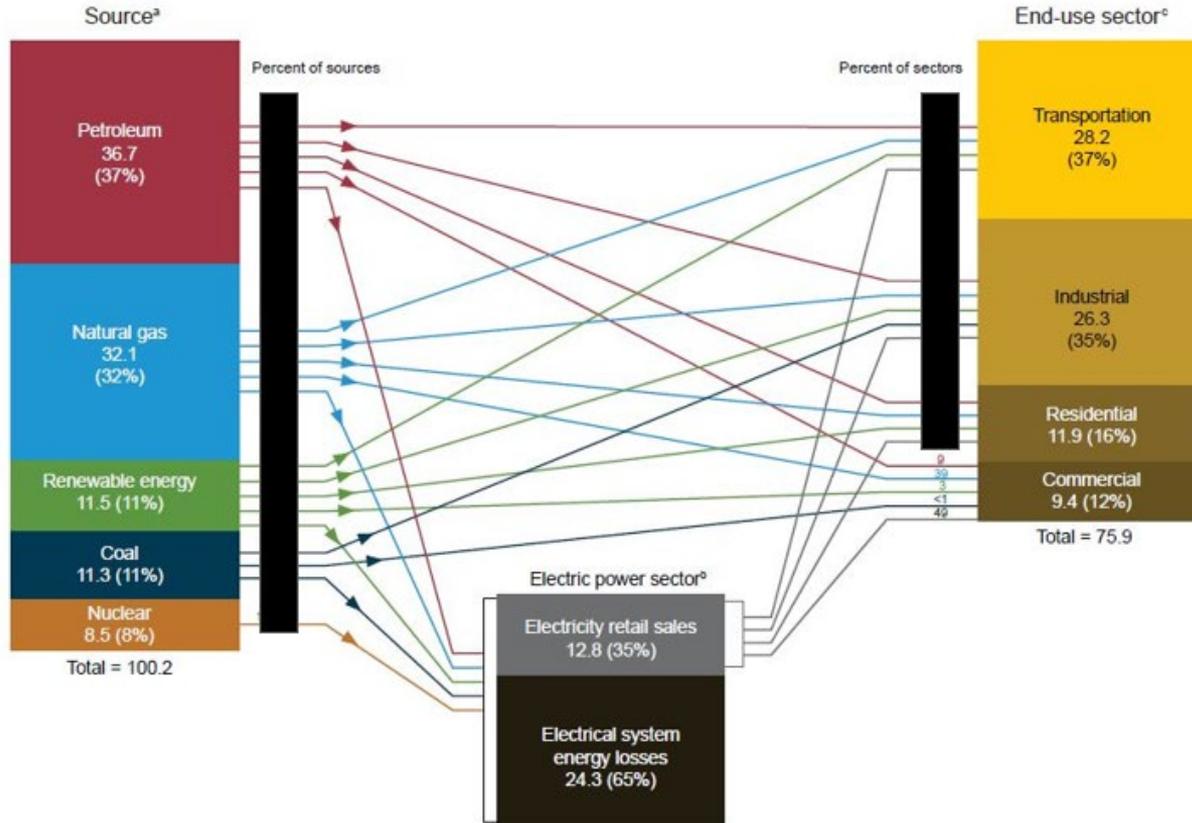
7. America's commercial sector is powered by the five energy resources, below. Match each resource to the percent of the commercial economic sector it powers.

49 % Electricity (a.)**

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Commercial Sector

U.S. energy consumption by source and sector, 2019
(Quadrillion Btu)



Question 7 All Answers

7. America's commercial sector is powered by the five energy resources, below. Match each resource to the percent of the commercial economic sector it powers.

- 49 %** **Electricity** (a.)**
- 39 %** **Natural Gas (c.)**
- 9 %** **Petroleum (e.)**
- 3 %** **Renewable Energy (d.)**
- < 1 %** **Coal (b.)**

**Electricity is a secondary energy source produced by converting primary sources of energy into electric power.

Question 8

8. America's electric power is generated by the following resources. Match each resource to its percent of generation.

38 %

23 %

20 %

17 %

1 %

Coal (a.)

Natural Gas (b.)

Nuclear Power (c.)

Renewable Energy (d.)

Petroleum (e.)

Question 8 Answer 1

8. America's electric power is generated by the following resources. Match each resource to its percent of generation.

38 % **Natural Gas (b.)**

Sources of U.S Electricity Generation

Sources of U.S. electricity generation, 2019.
Total equals 4.12 Trillion Kilowatthours.

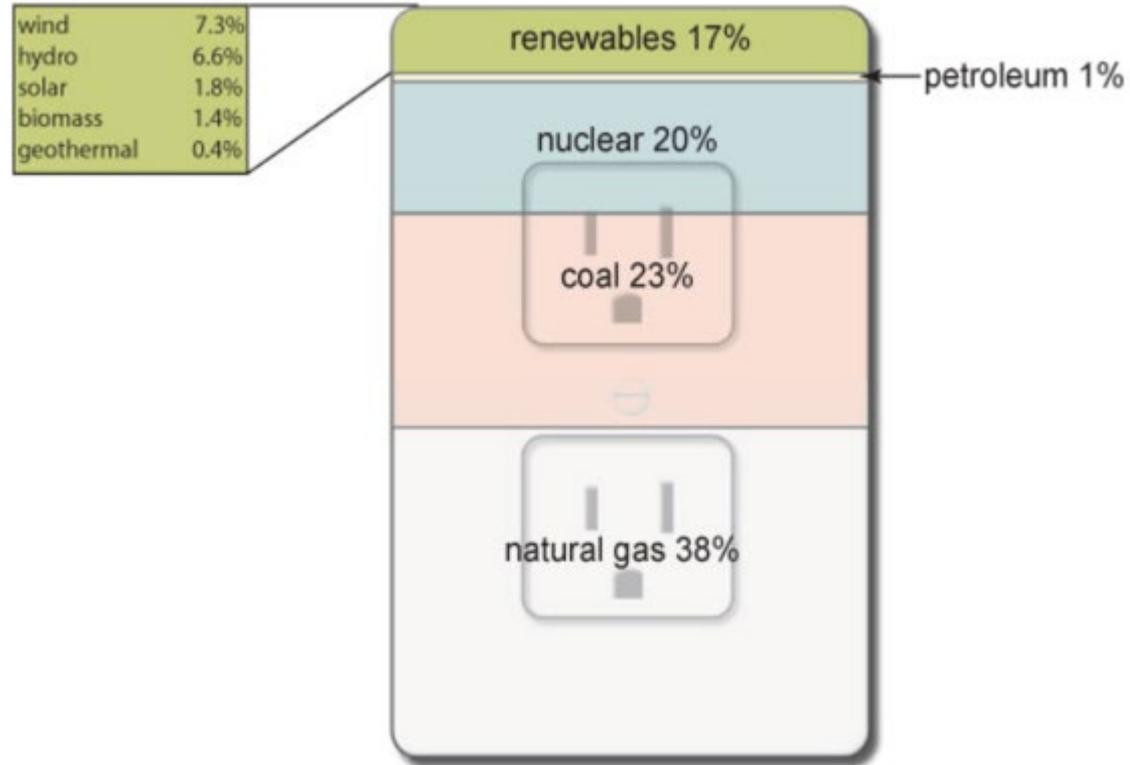
- Renewables 17%
- Petroleum 1%
- Nuclear 20%
- Coal 23%
- Natural Gas 38%

Renewables is broken down into five categories:

- Wind 7.3%
- Hydro 6.6%
- Solar 1.8%
- Biomass 1.4%
- Geothermal 0.4%

Note: Electricity generation from Utility-scale facilities. Sum of percentages may not equal 100% because of independent rounding. Source: U.S. Energy Information Administration, *Electric Power Monthly*, February 2020, preliminary data.

Sources of U.S. electricity generation, 2019 Total = 4.12 trillion kilowatthours



Note: Electricity generation from utility-scale facilities. Sum of percentages may not equal 100% because of independent rounding.

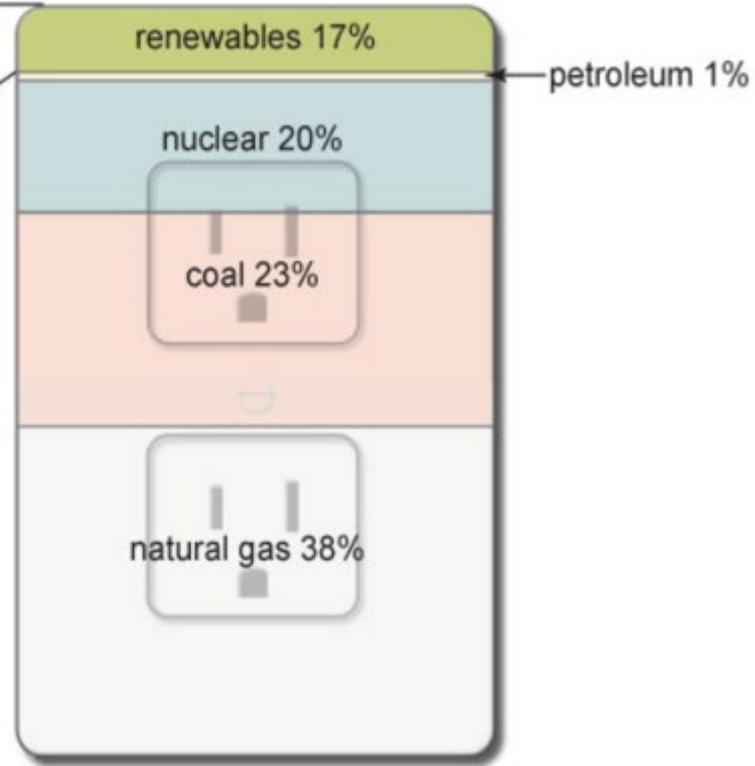
Source: U.S. Energy Information Administration, *Electric Power Monthly*, February 2020, preliminary data

U.S. Electricity Generation by Major Energy Source

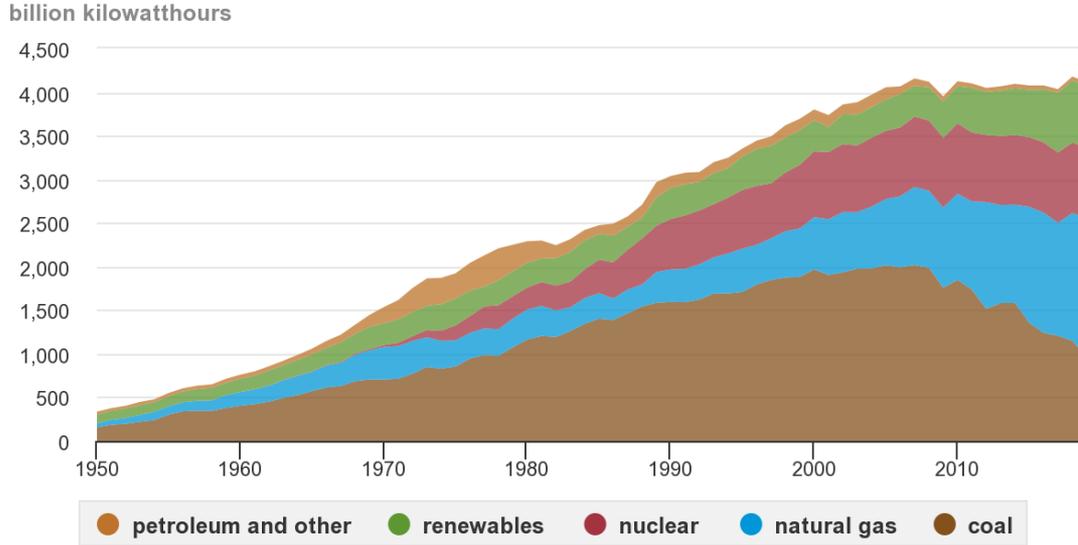
Sources of U.S. electricity generation, 2019

Total = 4.12 trillion kilowatthours

wind	7.3%
hydro	6.6%
solar	1.8%
biomass	1.4%
geothermal	0.4%



U.S. electricity generation by major energy source, 1950-2019



scale facilities. Sum of percentages may not equal 100% because of
 stration, *Electric Power Monthly*, February 2020, preliminary data

Note: Electricity generation from utility-scale facilities.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 7.2a, March 2020 and *Electric Power Monthly*, February 2020, preliminary data for 2019

Question 8 All Answers

8. America's electric power is generated by the following resources. Match each resource to its percent of generation.

- 38 %** **Natural Gas (b.)**
- 23 %** **Coal (a.)**
- 20 %** **Nuclear Power (c.)**
- 17 %** **Renewable Energy (d.)**
- 1 %** **Petroleum (e.)**

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