Power Mix Forecast

Use source data to predict changes in electricity consumption.

ES.6.a "Analyze and interpret data on the origins and availability of renewable and nonrenewable forms of energy to predict consumption trends."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one fact about renewable energy and one fact about nonrenewable energy that could affect availability. Circle coal's 2015 and 2025 shares in the table, then number the sentence that explains why a source's share does not show its total use.

Where Harbor County Gets Its Power

1 At Harbor County's grid office, planners track where the electricity used by homes and businesses comes from. Solar panels convert sunlight into electricity, and wind turbines use moving air. Sunlight and wind are replenished naturally, but their output changes with weather. The table shows the utility's estimated source shares of electricity consumed, not the total amount used.

2 Natural gas and coal formed from ancient organic matter over millions of years. Burning them releases stored energy, but their deposits are finite. Coal-fired power stations serving the county are scheduled to retire, while gas plants can fill gaps when wind or sunlight is scarce. Compare earlier and later shares to see how the county's consumption mix changed.

SHARE OF HARBOR COUNTY ELECTRICITY CONSUMED BY SOURCE (%)

Year	Solar	Wind	Natural gas	Coal
2015	5	10	45	40
2020	12	18	45	25
2025	22	28	40	10

3 A rising percentage does not always mean more electricity from a source in absolute terms. If total electricity use grows, even a shrinking share can represent steady or increasing use. Future source shares depend on weather, fuel supplies, power plant retirements, and demand. Use the table to make a conditional prediction, not a claim that past patterns must continue.

2 ANSWER WITH EVIDENCE

Use the passage

1. What percentage of electricity consumed came from solar and wind combined in 2015 and in 2025? How many percentage points did their combined share gain?

2. Which nonrenewable source lost the most share from 2015 to 2025? What change described in the passage could help explain that trend?

3. If wind gains the same number of percentage points from 2025 to 2030 as it did from 2020 to 2025, what would its 2030 share be? Name one reason this prediction might not hold.

4. Could natural gas's share fall while the county consumes the same amount of gas-generated electricity? Explain using the distinction between a share and total use.

3 YOUR TURN

Your own words

Suppose Harbor County adds rooftop solar, but 2030 has unusually cloudy weather. Predict a 2030 consumption share for each of the four sources that totals 100%, then explain how source availability and the table's trends support your prediction.

Power Mix Forecast

PART 1 · READ AND MARK

Underline one fact about renewable energy and one fact about nonrenewable energy that could affect availability. Circle coal's 2015 and 2025 shares in the table, then number the sentence that explains why a source's share does not show its total use. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What percentage of electricity consumed came from solar and wind combined in 2015 and in 2025? How many percentage points did their combined share gain?	**Solar and wind supplied 15% in 2015 and 50% in 2025, a gain of 35 percentage points.**
2	Which nonrenewable source lost the most share from 2015 to 2025? What change described in the passage could help explain that trend?	**Coal fell from 40% to 10%, a drop of 30 percentage points. The planned retirement of coal-fired power stations could help explain the decline.**
3	If wind gains the same number of percentage points from 2025 to 2030 as it did from 2020 to 2025, what would its 2030 share be? Name one reason this prediction might not hold.	**Wind gained 10 percentage points, so its predicted 2030 share would be 38%. Different weather or demand could change the result.**
4	Could natural gas's share fall while the county consumes the same amount of gas-generated electricity? Explain using the distinction between a share and total use.	**Yes. If total electricity use rises, the same amount of gas-generated electricity could make up a smaller percentage of the total.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I predict 27% solar, 35% wind, 33% natural gas, and 5% coal in 2030. These shares total 100%. Rooftop panels could raise solar's share above its 2025 level, but cloudy weather could slow its growth. Wind's share could keep rising, though its output depends on moving air. Coal's share could fall as coal-fired stations retire, while gas plants continue to fill gaps.

Accept other plausible predictions that total 100% and connect the proposed changes to the data and source availability. Percentages describe shares of electricity consumed, not total amounts.