

The Kansas Economy and Powering the Future of Kansas

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KU INSTITUTE FOR
POLICY &
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The University of Kansas

Overview

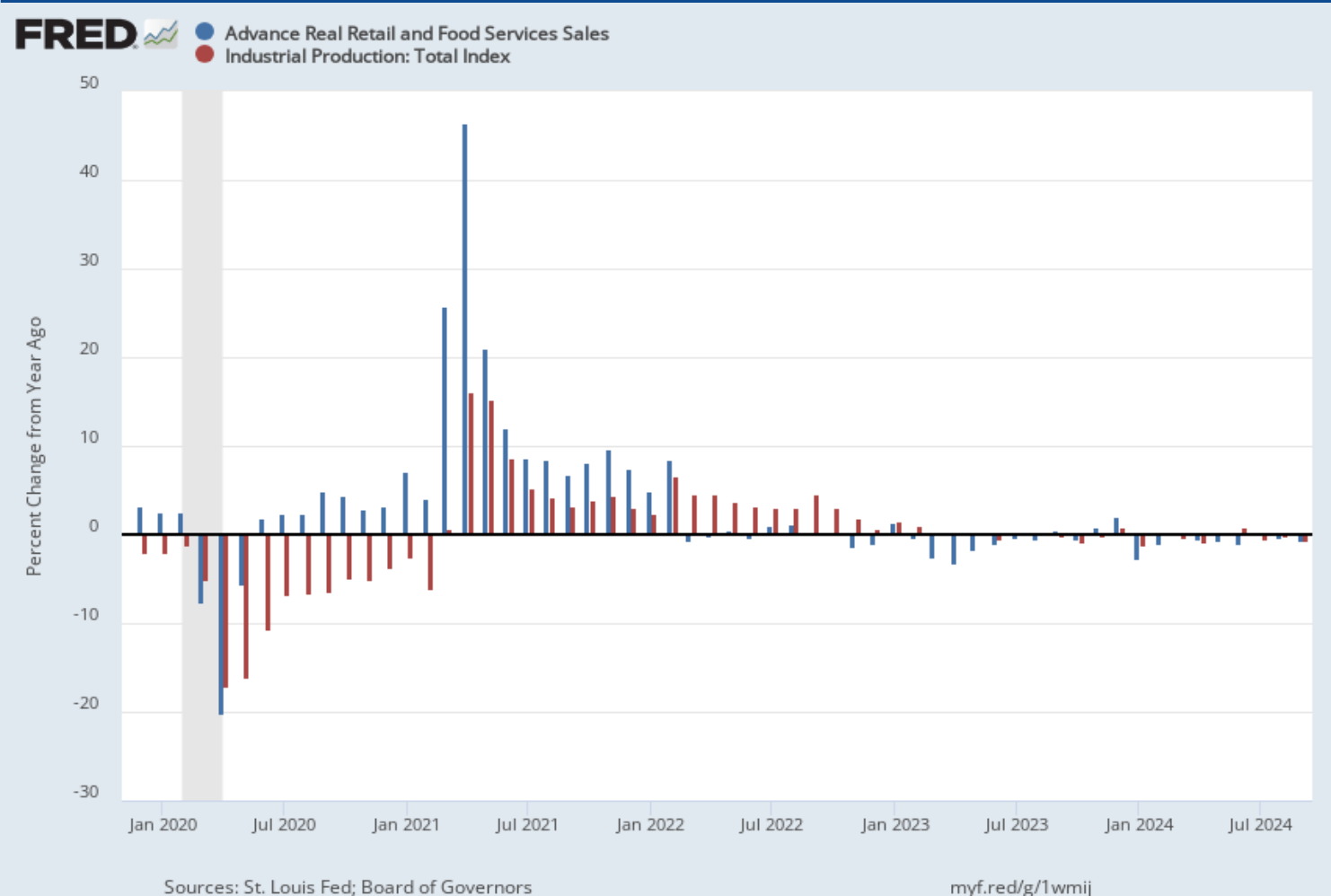
- Update on the Kansas Economy
- Employment Situation
- Inflation
- Powering the Future of Kansas

The Stock Market is Rising Steadily



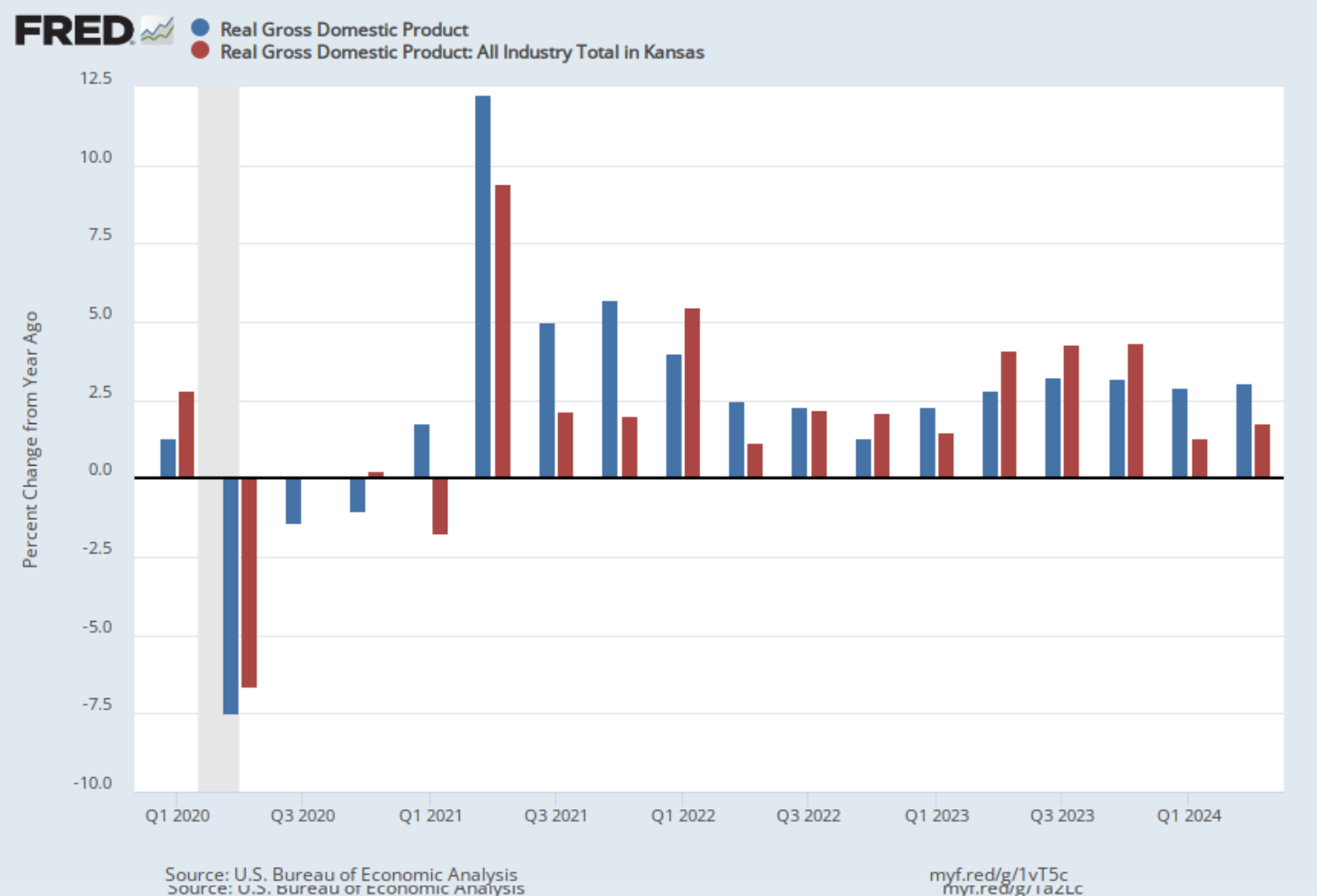
- Dow Jones Industrial Average is up 27% from a year ago.
- NASDAQ is up 37%.
- The market increased in response to the drop in interest rates last month.

Industrial Production & Retail Sales in September



- Compared to a year ago, retail sales were down 0.65% in August.
- Compared to a year ago, industrial production was down 0.64%
- Sales and production have been down or flat for about a year.

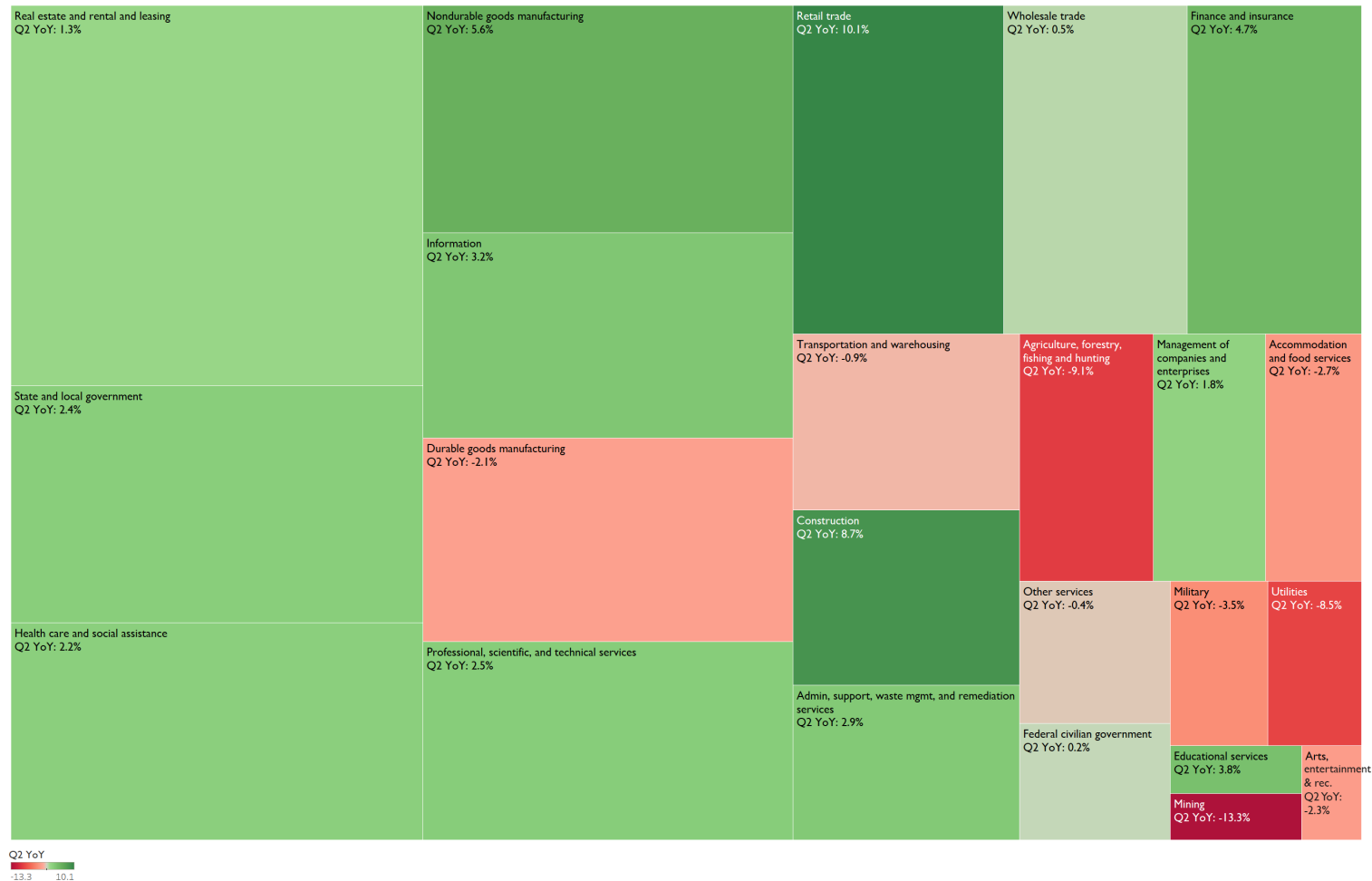
US & Kansas Gross Domestic Product



- US Gross Domestic Product was up 3.03% in Q2 compared to a year ago.
- Kansas Gross State Product was up 1.79% in Q2 compared to a year ago.
- Growth remains strong this past year.

Kansas GDP by Sector

Kansas GDP by Sector, Q2 2024

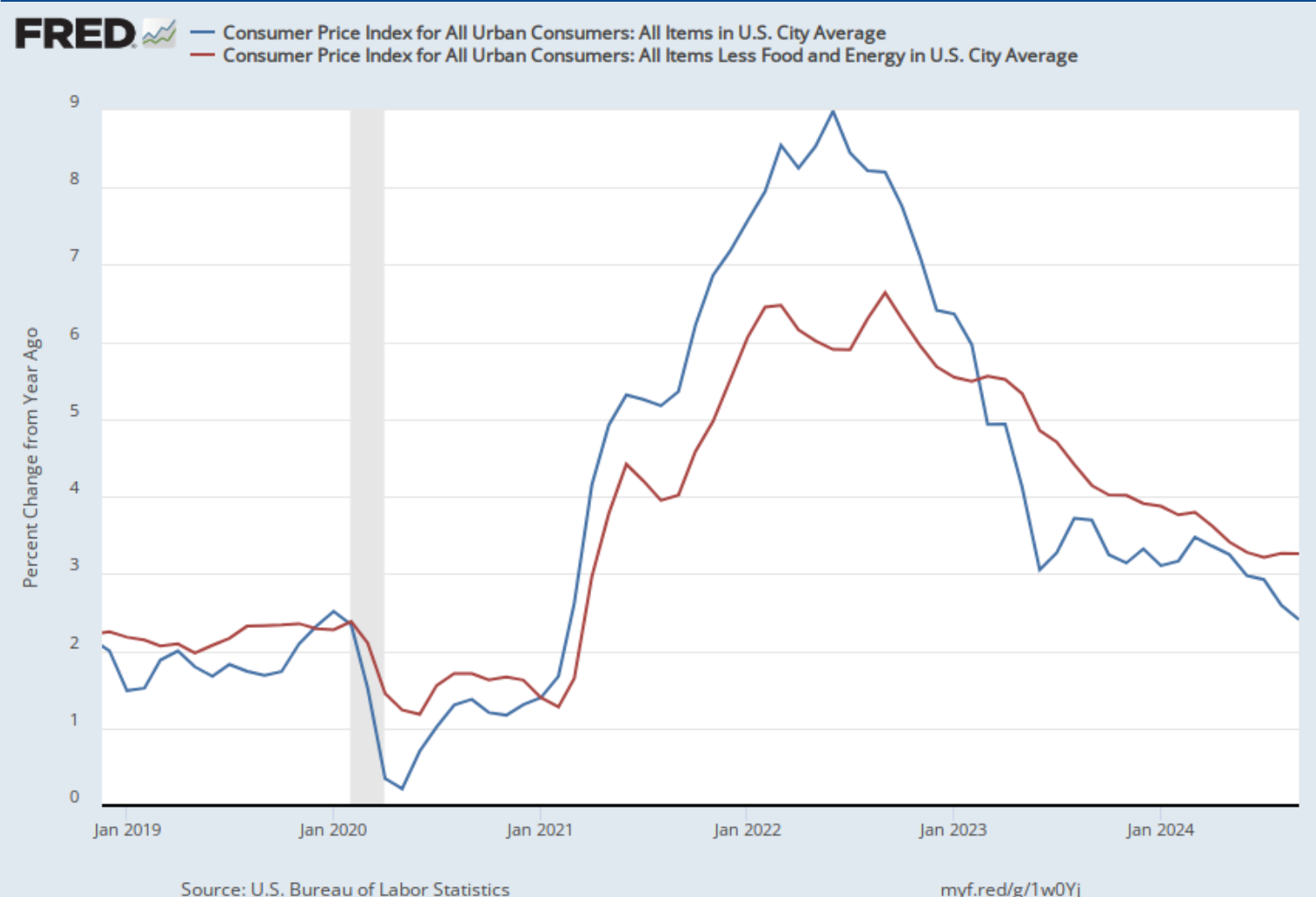


- Largest gains in retail & construction.
 - Retail up 10% in Q2.
 - Construction up 8.7%
- Mining, including oil and gas extraction, down 13.3% YoY in Q2.
- Majority of sectors saw modest gains.

Inflation is Decreasing

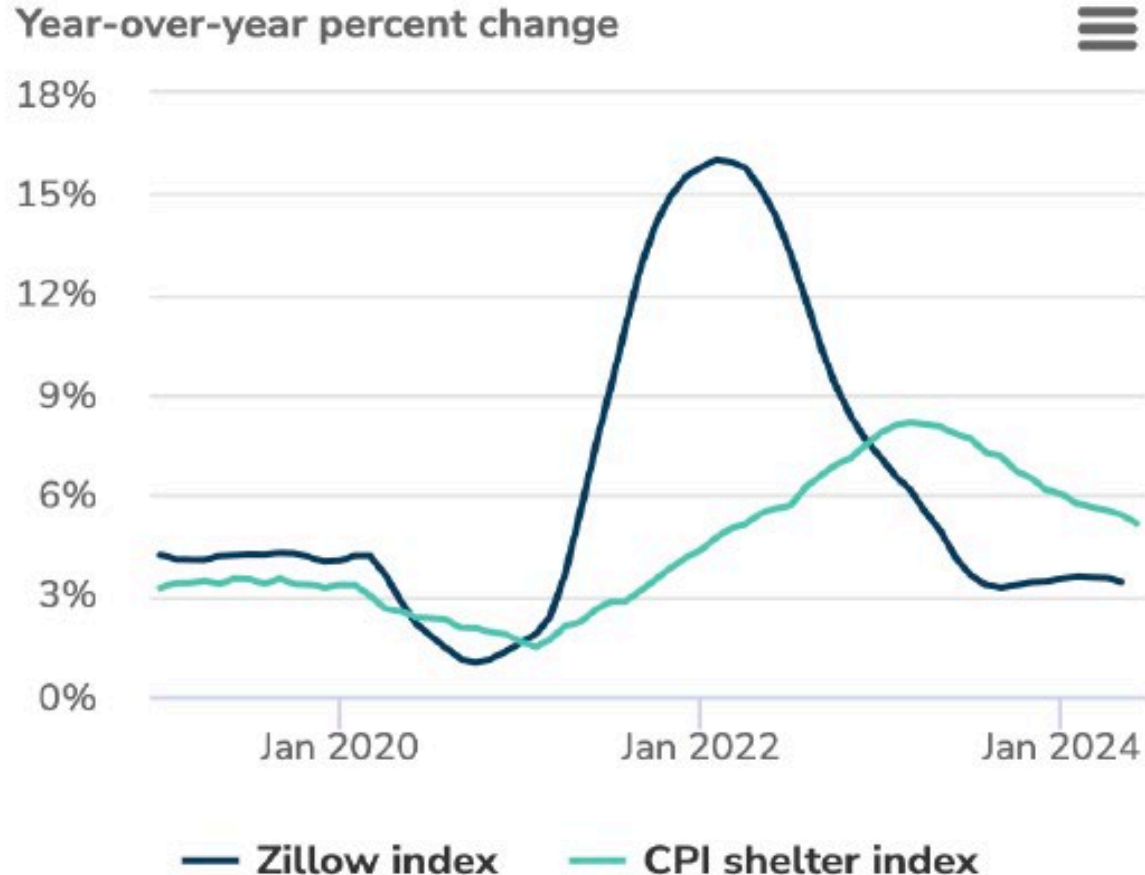
With No Recession in Sight

Inflation has Decreased to Nearly Pre-Pandemic Levels



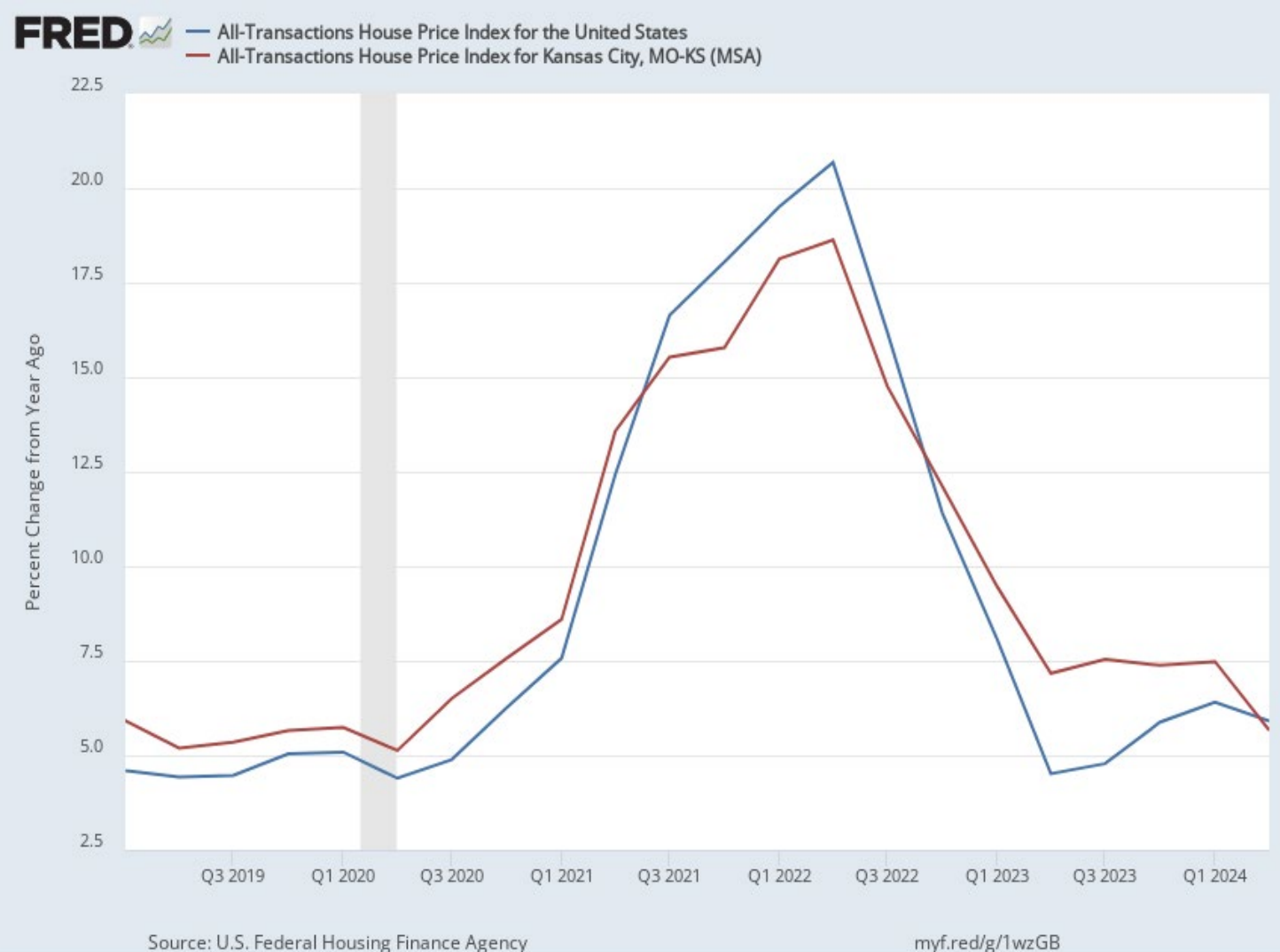
- CPI growth peaked at 8.9% in June of 2022.
 - Increased 2.4% in the last year.
 - Core inflation is up 3.3%.
- Fed has brought inflation down without a recession.

CPI Inflation is Being Driven by Previous Rent Inflation



- Market rents are measured by Zillow Observed Rent Index.
- Contract Rents are measured by the CPI Shelter Index.
- In future quarters, CPI Shelter Index is expected to fall.
- Housing costs are 36% of CPI and contributing to inflation rates.

Housing Market has Stabilized



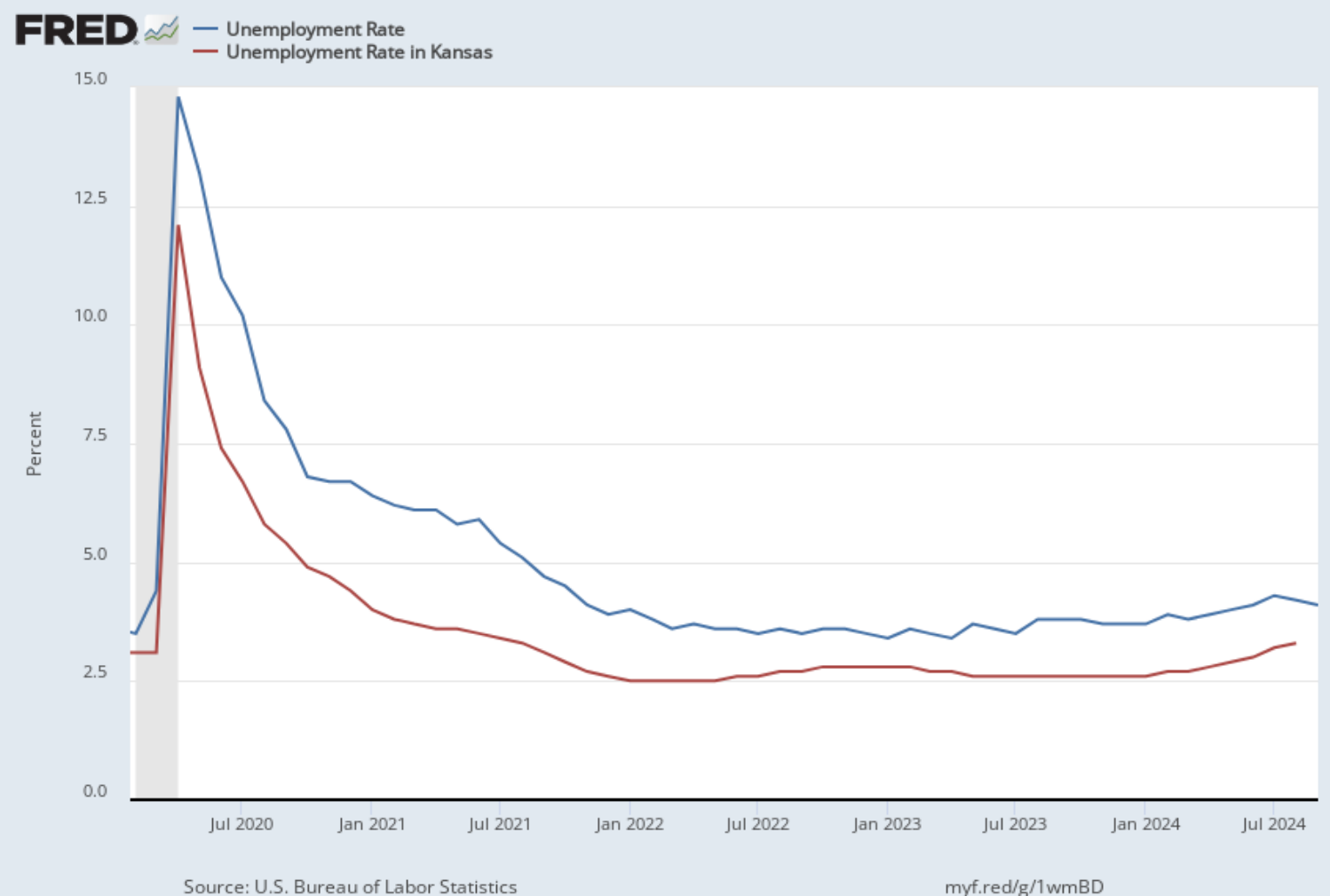
- US housing prices are up 5.9% in Q2 2024 compared to the previous year (were up 21% in Q2 2022).
- Kansas housing prices are up 5.7% (17% in Q2 2022).
- The decrease in interest rates may contribute to increased housing sales.



The Labor Market Remains Strong

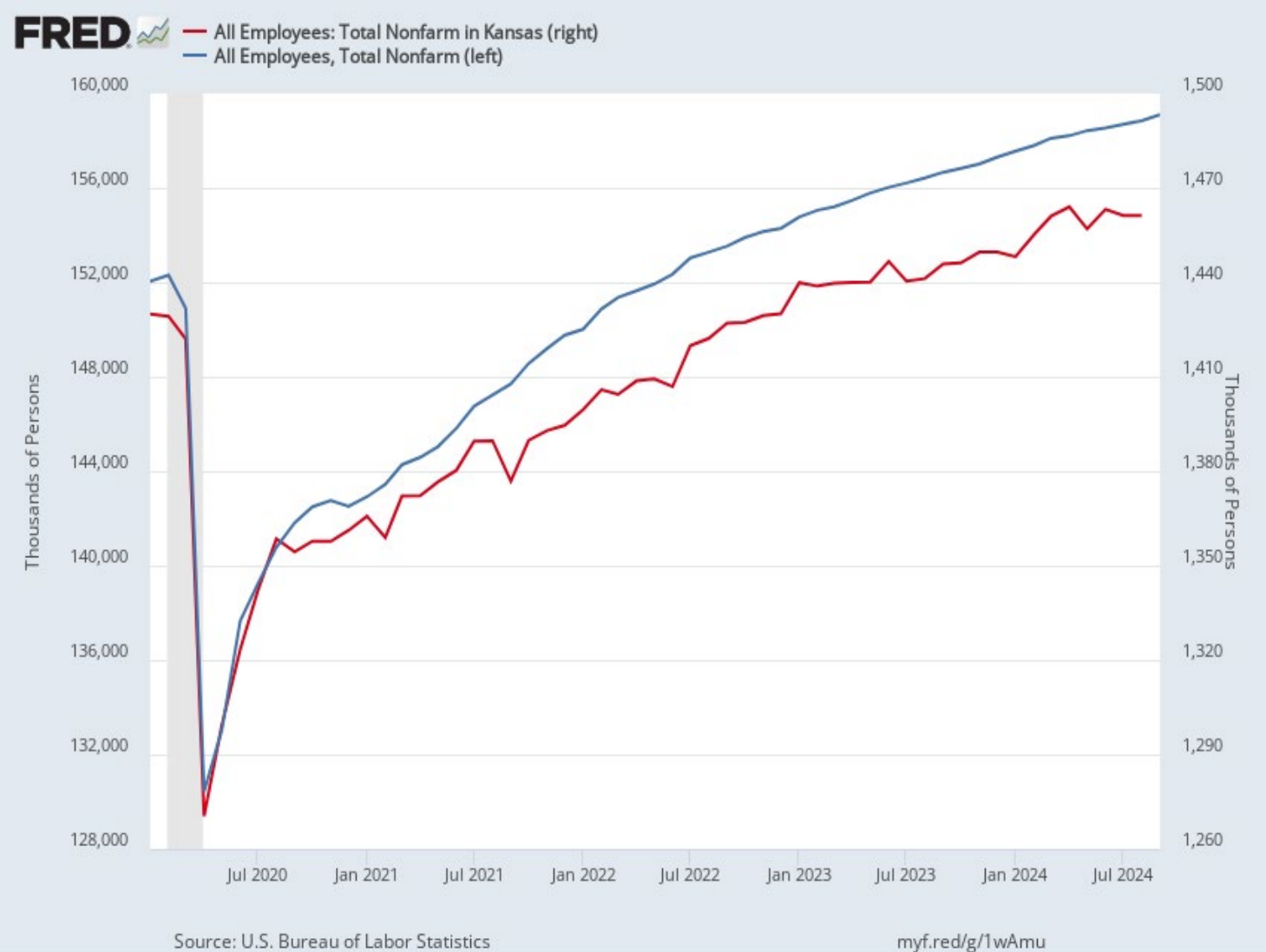
Some Signs of Softening

Unemployment in August/September 2024



- Unemployment fell to 4.1% in September.
- Kansas unemployment rose slightly to 3.3% in August.
- Kansas remains at full employment.

Kansas Employment has Leveled Off



- Employment grew rapidly in the first six months of the year in Kansas but has since leveled off.
- 1.4% growth in the past year.
- Employment continues to increase in the U.S.
- 1.6% growth in the past year.

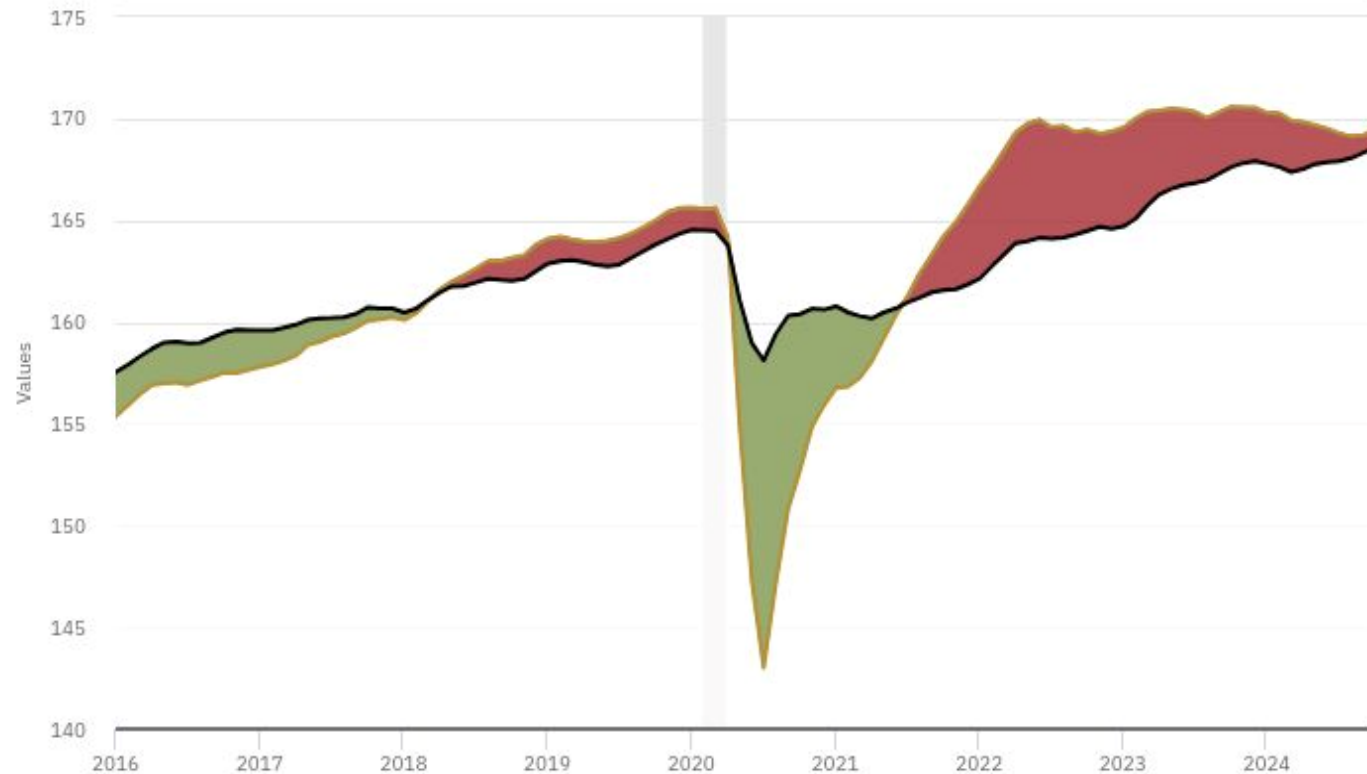
Employee Quits are Down Below Pre-pandemic Levels



- Quit rates have fallen below pre-pandemic levels.
- More evidence that the national labor market is softening.

Nationally, Labor Supply Exceeds Labor Demand

US Labor Demand vs. Supply

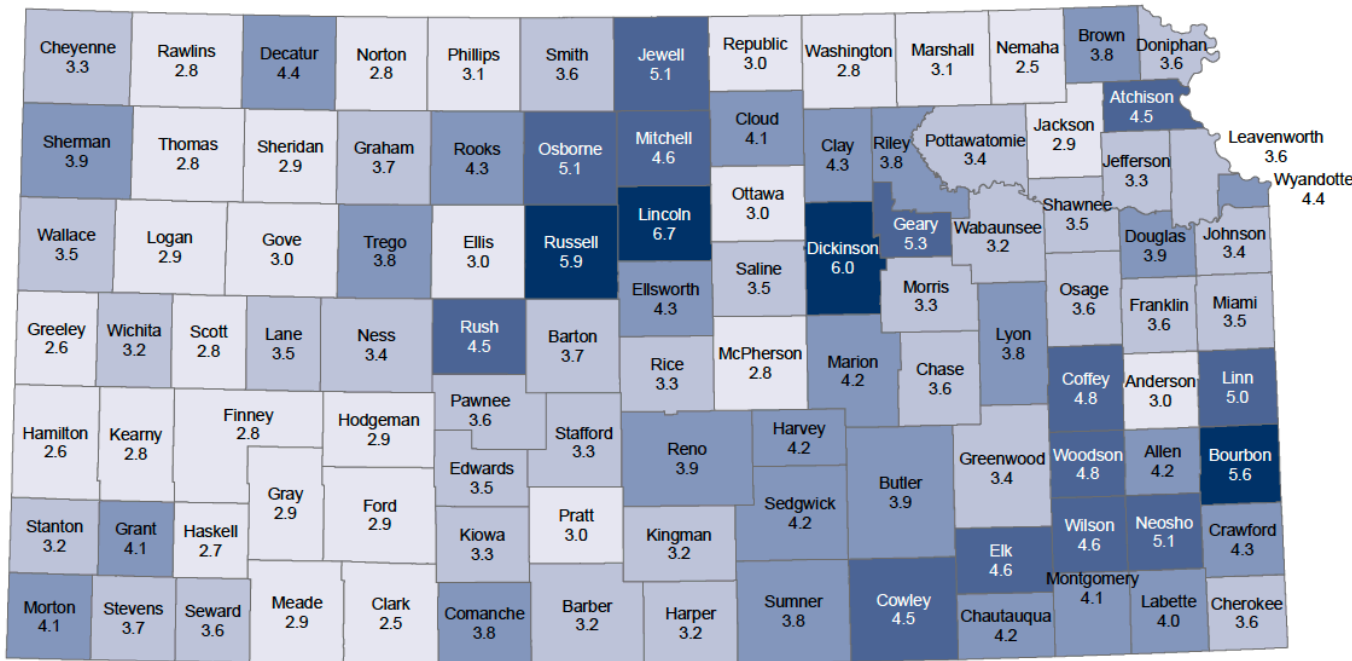


Note: Because JOLTs data are not for the latest month the vacancy level is assumed to be equal to the level for the prior month.
Source: BLS Current Population Survey, Job Openings and Labor Turnover Survey (JOLTs), Haver Analytics; FRBA calculations.

- The convergence of Labor Supply and Labor Demand provides more evidence that the Labor Market is cooling.
- The Labor Market is stronger in Kansas than in the US.

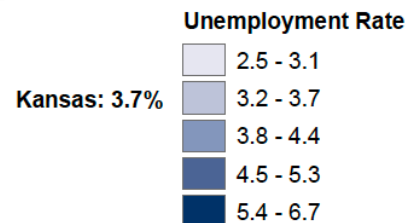
August Kansas Unemployment Rate 3.7%

Unemployment Rate in Kansas, by County
August 2024



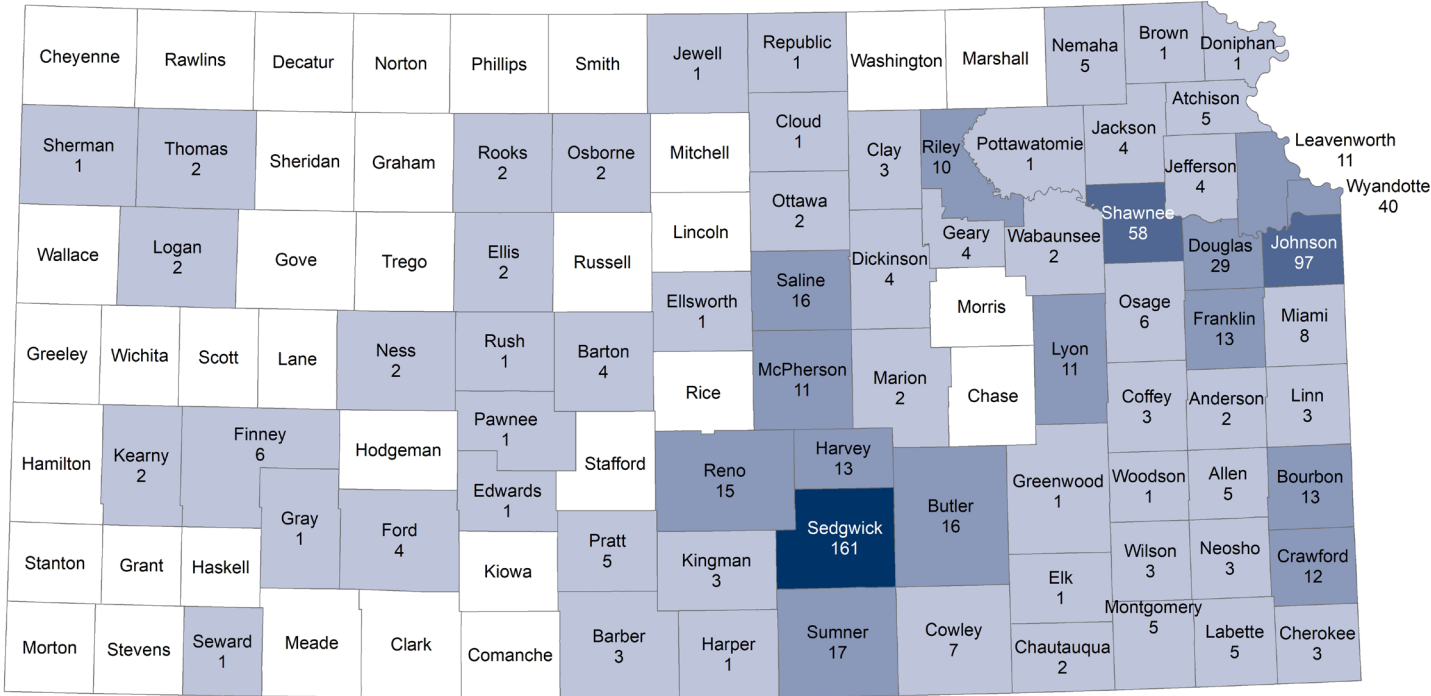
- Kansas unemployment has increased 0.5% compared to last year.
- Sedgwick County unemployment is 4.2%.
- Unemployment is above 5% in Bourbon, Dickinson, Lincoln, and Russell counties.

Source: Institute for Policy & Social Research, The University of Kansas; data from Kansas Department of Labor.



Initial Claims by County – September

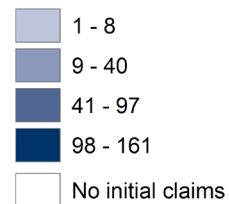
Initial Jobless Claims in Kansas, by County
Week Ending September 28, 2024



- Week ending Sept. 28th:
 - 97 Claims in Johnson County
 - 161 in Sedgwick County
 - 58 in Shawnee County
 - 40 in Wyandotte County
 - 29 in Douglas County

689 total initial claims in Kansas

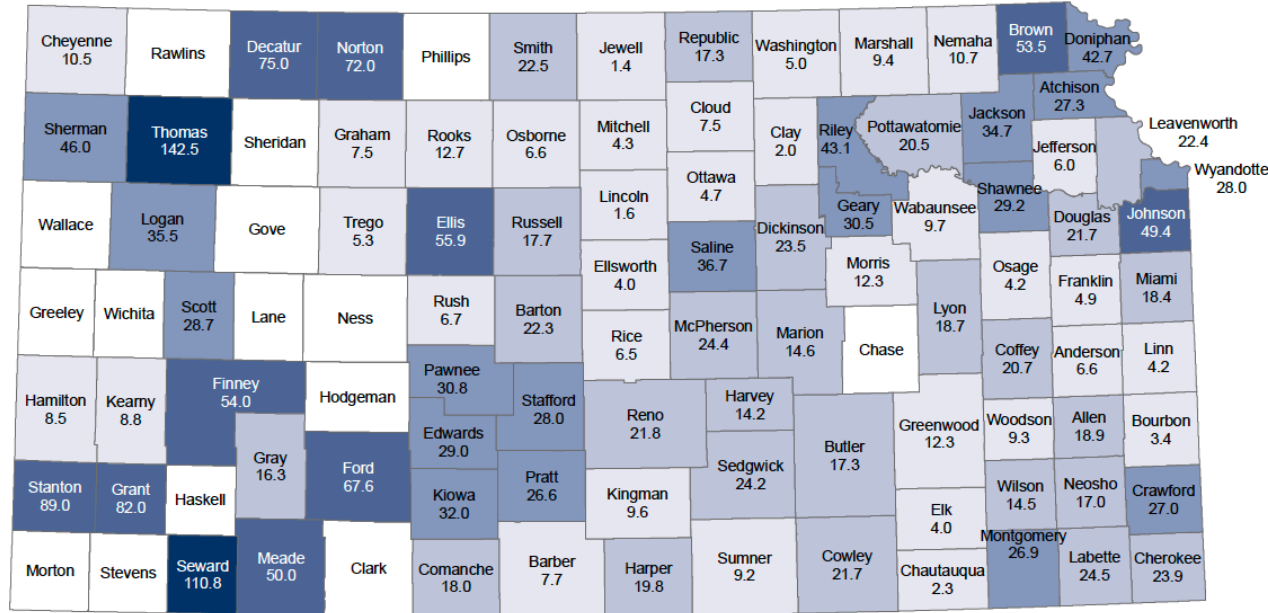
Initial Claims



Source: Institute for Policy & Social Research, The University of Kansas; data from Kansas Department of Labor, Labor Market Information Services.

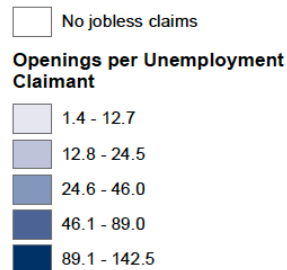
Job Openings Outnumber Unemployment Claims

Job Openings per Initial Jobless Claim in Kansas, by County



Source: Institute for Policy & Social Research, The University of Kansas; data from Kansas Department of Labor, Labor Market Information Services.

Job openings advertised online in September 2024. Initial unemployment claims from week ending September 7th through week ending September 28th.

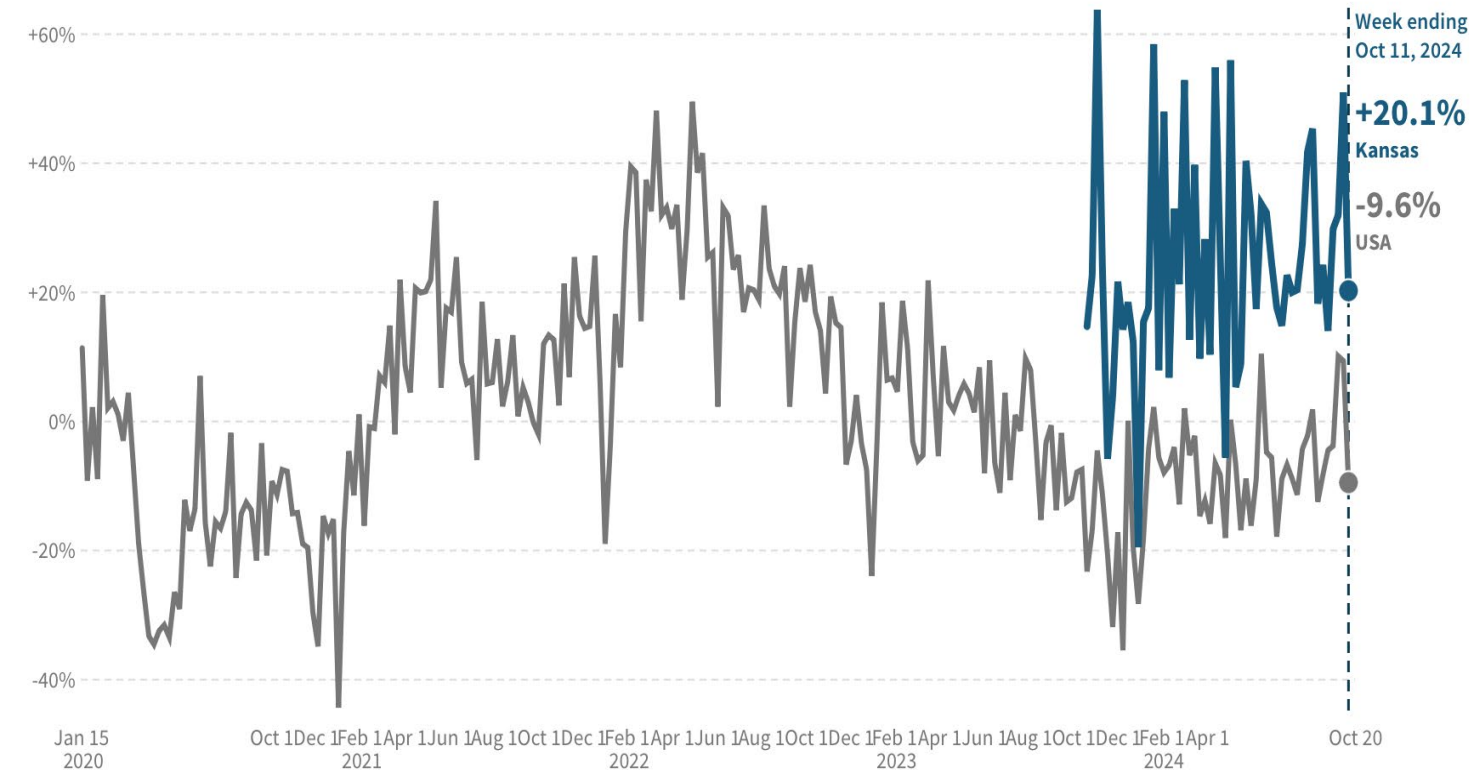


- In all counties with unemployment claims, job openings outnumber claims.
- Six largest Kansas counties have 22-49 openings per claim.
- **Kansas needs workers.**

Job Postings Have Increased

In **Kansas**, as of October 11, 2024, total job postings increased by **20.1%** compared to January 2020.

DOWNLOAD CHART 



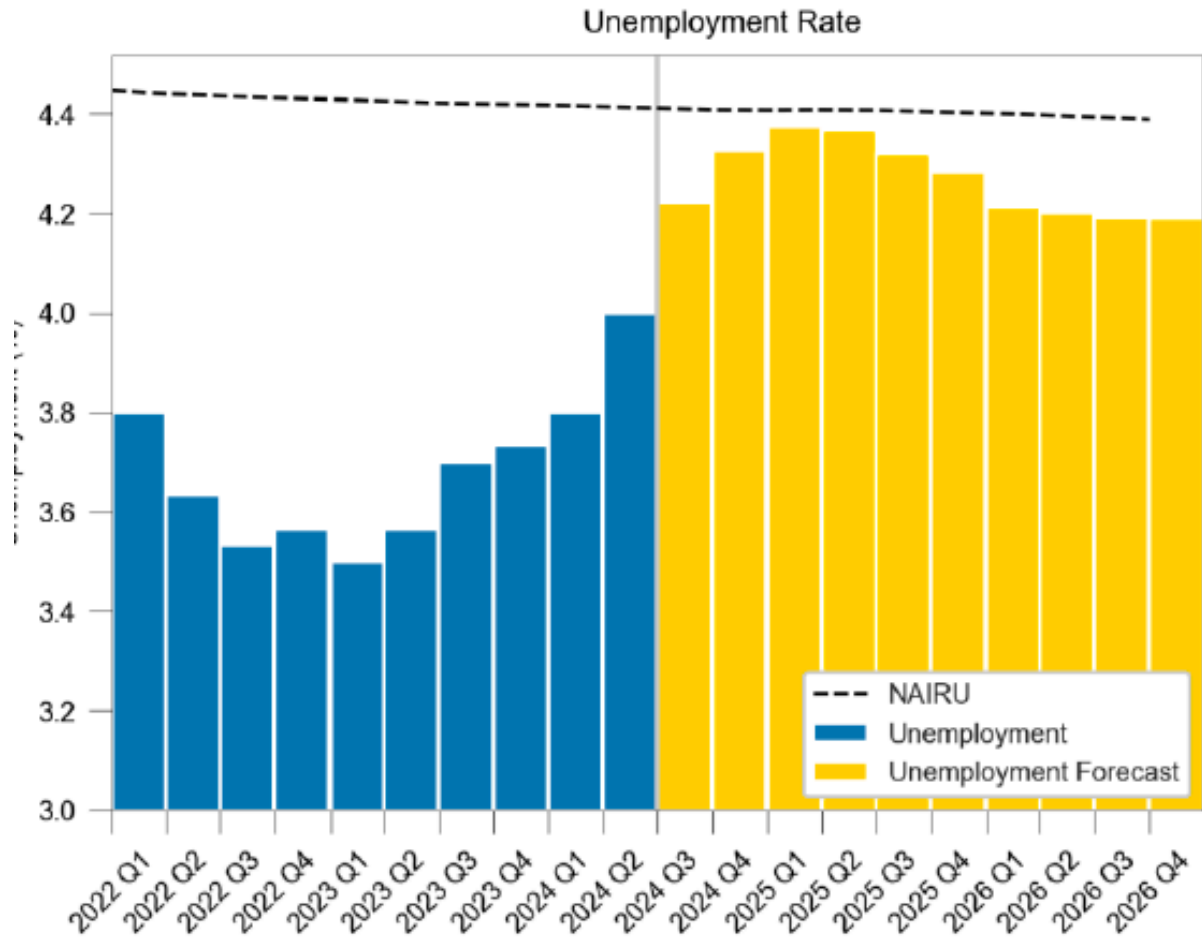
data source: **Lightcast**

- Job postings are up 20% in Kansas compared to the start of the pandemic.
- In the US, job postings are down 9.6%.
- Job postings are noisy.
- The Kansas labor market is stronger than the national labor market.

Economic Forecast

The Fed Has Engineered a Soft
Landing

Unemployment is Expected to Increase Somewhat

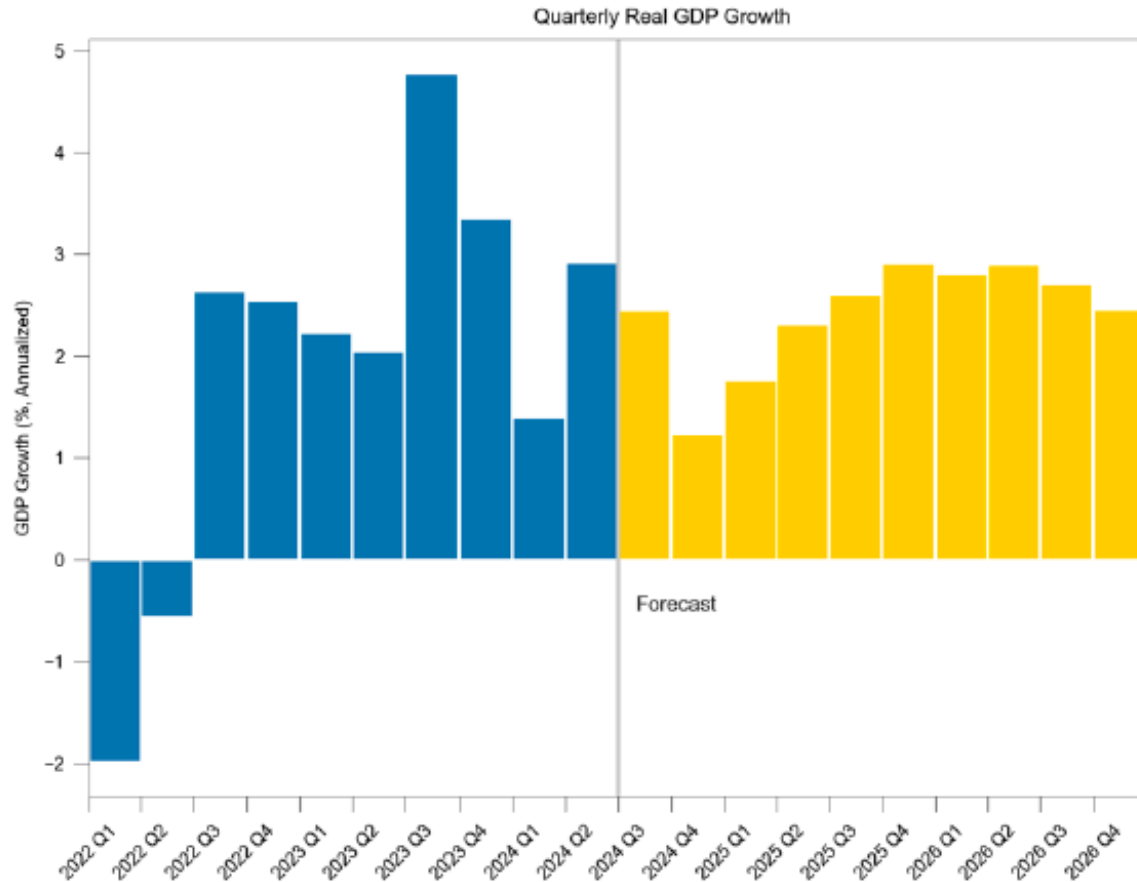


Source: Bureau of Labor Statistics, Federal Reserve Board, and UCLA Anderson Forecast

The labor market is slowing, and unemployment is expected to increase in 2025.

However, it is expected to remain below recessionary levels.

Growth is Expected to Cool in 2025

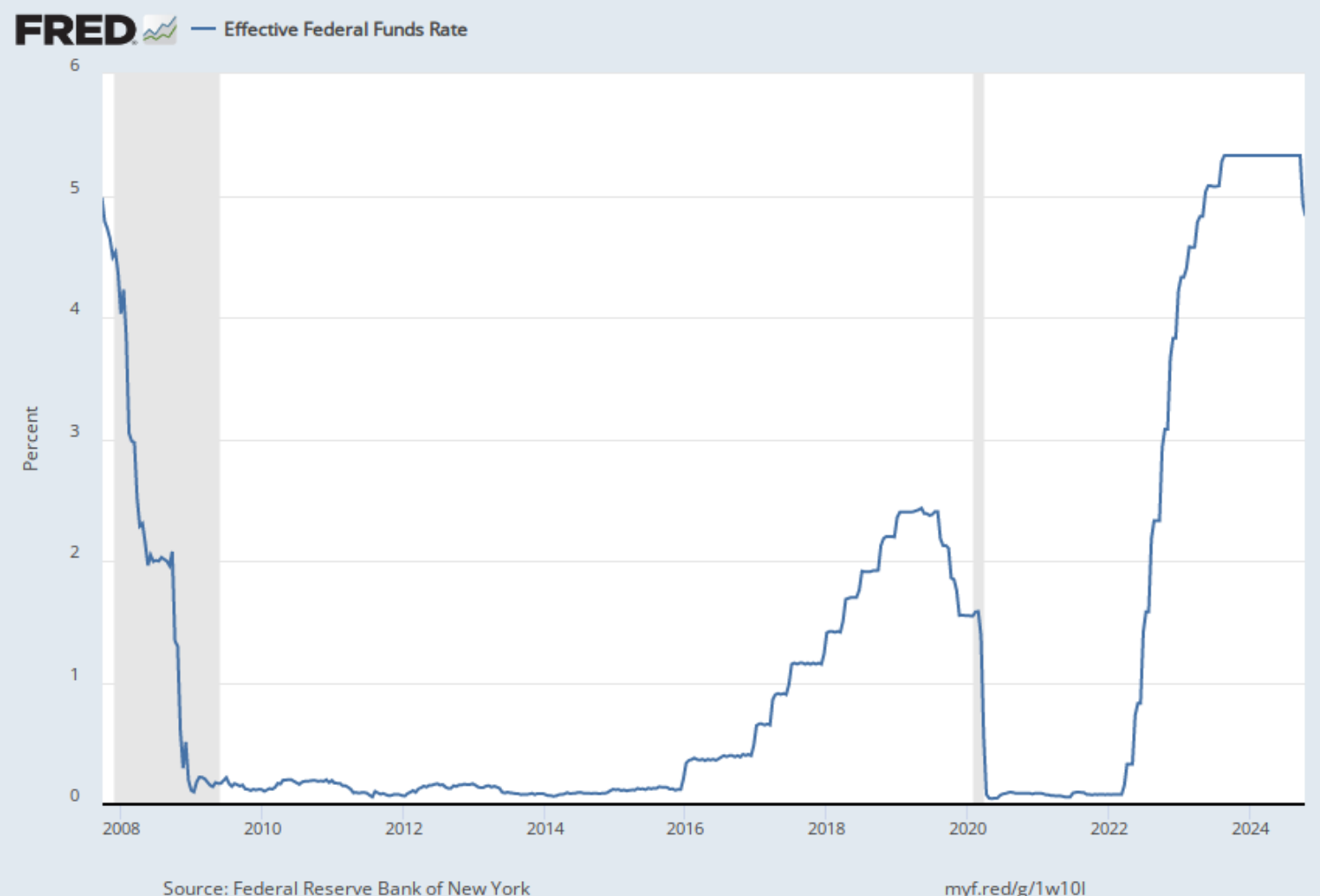


Source: Bureau of Economic Analysis and UCLA Anderson Forecast

Growth will cool in the first half of 2025 and then rebound in the second half.

No expectation of a recession.

The Fed Cut Interest Rates in September



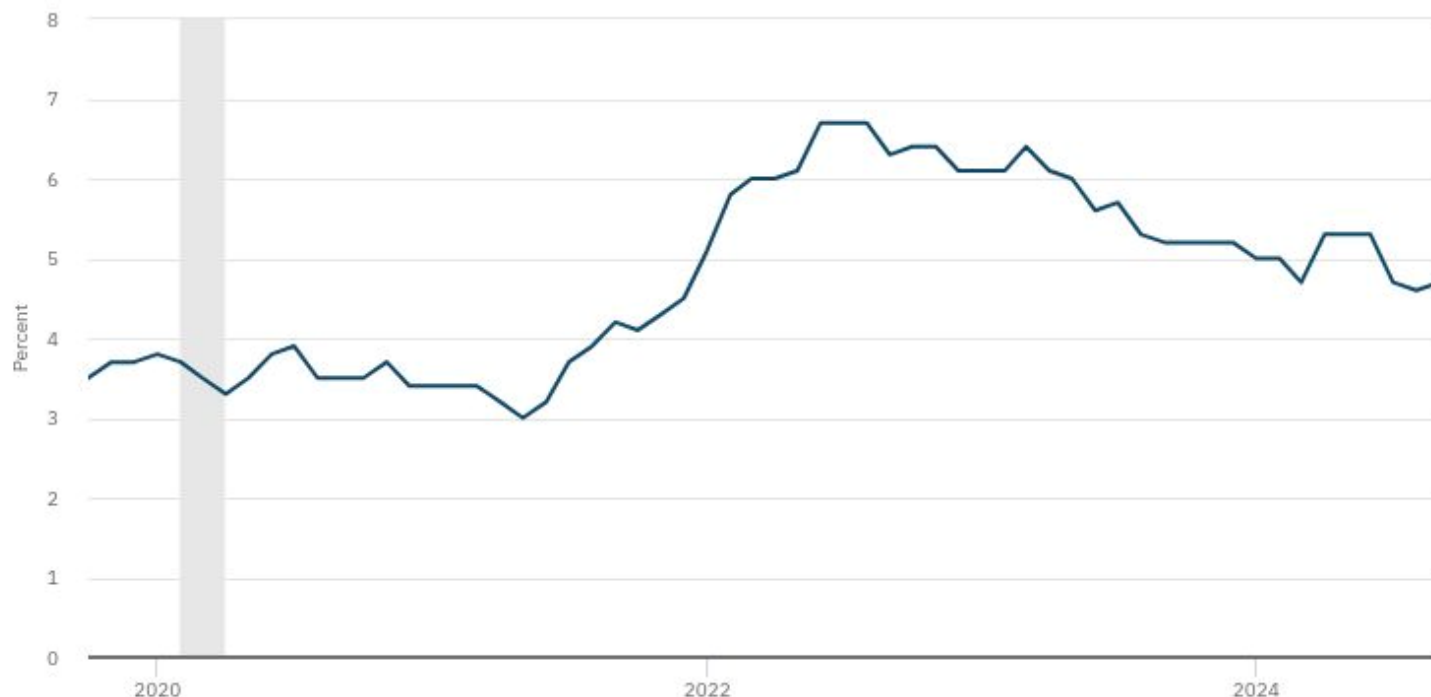
The Fed cut interest rates by 50 Basis points in September.

Rates are still high compared to recent history.

Wage Growth has Stabilized and is Now Higher than Inflation

Wage Growth Tracker

three-month moving average of median wage growth, hourly data



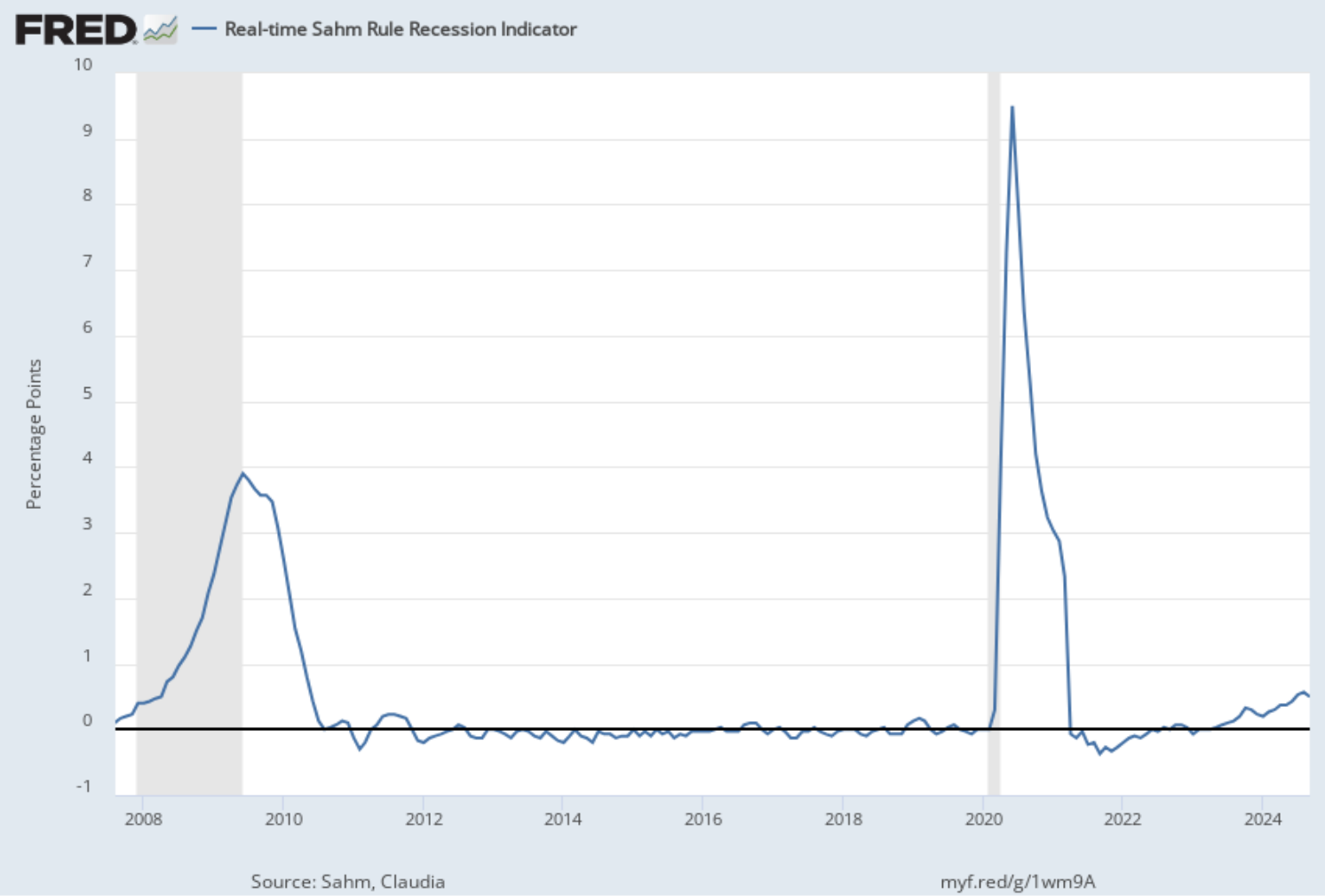
Sources: Current Population Survey, Bureau of Labor Statistics and author's calculations.

Wages grew quickly in 2021 and 2022.

However, wage growth has moderated near the 5% level (now at 4.7%).

This reduces inflationary pressure in the economy.

The Sahm Index is Creeping Up, Indicative of a Softer Labor Market



Interest rates were cut because the labor market was softening.

The aggressive rate cut may reverse the increase in the Sahm Index.

Overall, the Economy is Strong

- Inflation has moderated enough for the Fed to cut interest rates.
- The job market is slowing down but remains strong.
- The forecast is for slower growth in the next six months followed by a rebound.
- The Fed appears to have engineered a soft landing.

Powering the Future of Kansas

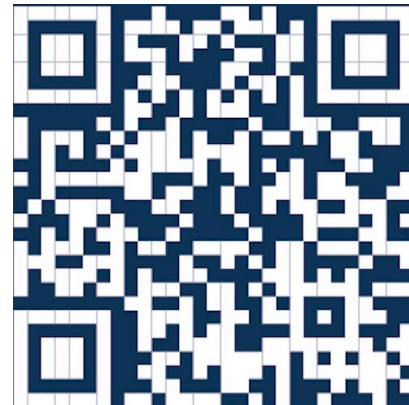
Kansas is an Energy State

Kansas Statistical Abstract

The *Kansas Statistical Abstract* 2023 contains chapters on energy and the climate.

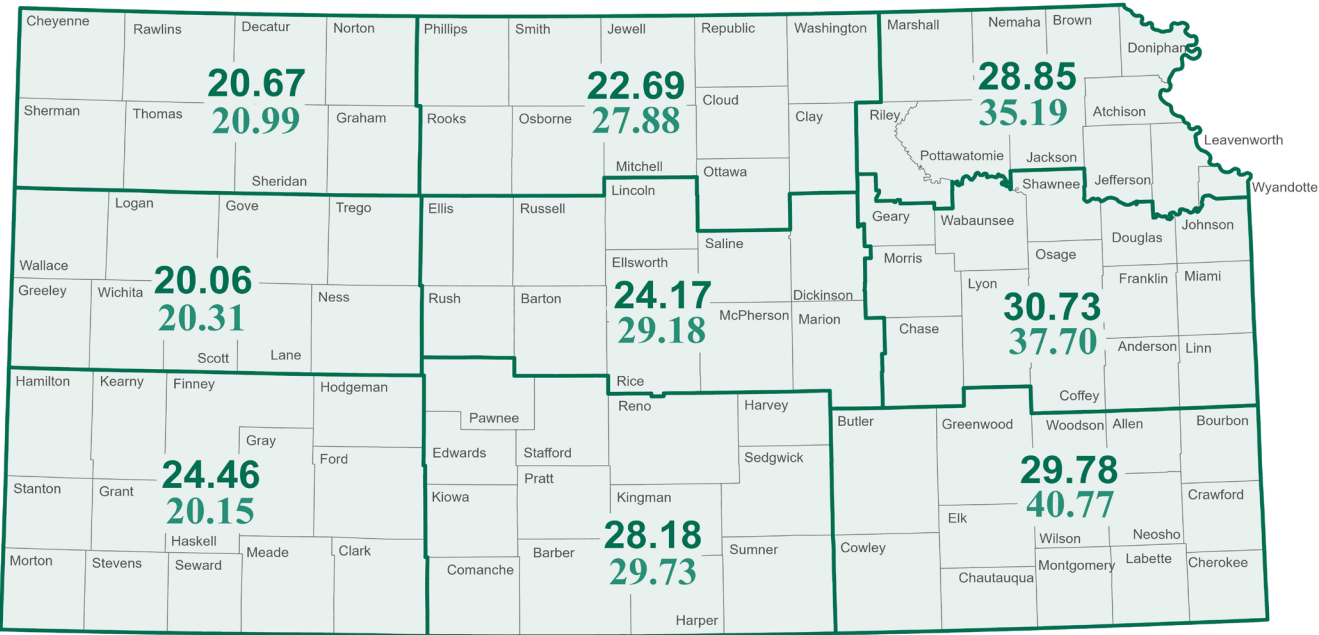
Find it at: <https://ksdata.ku.edu/ksdata/ksah/>

Or with the QR Code:



Rainfall was Lower in Eastern Kansas in 2023

Precipitation in Kansas by Region
2023 Total and 1991-2020 Average



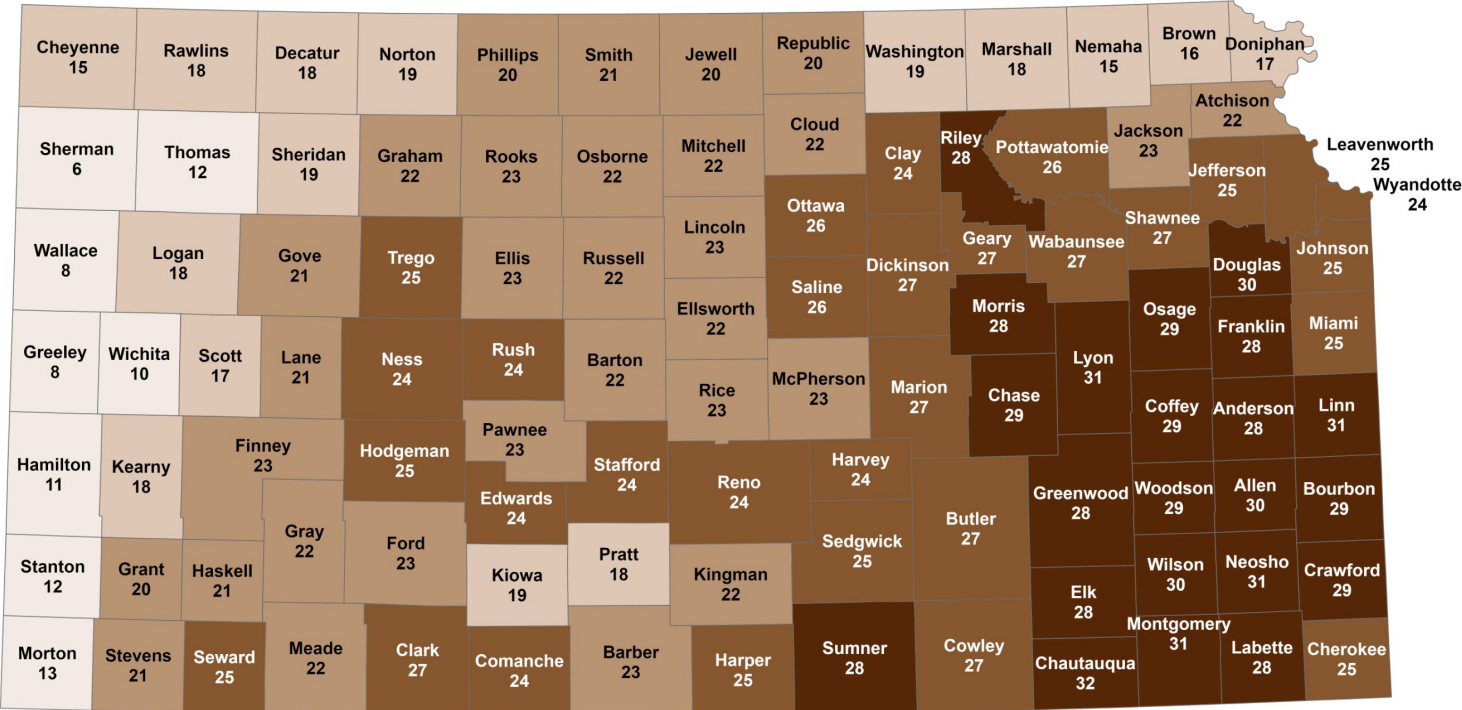
Source: Institute for Policy & Social Research, The University of Kansas; data from National Oceanic and Atmospheric Administration.
Precipitation in inches.

State: **25.61** 2023 Total (top)
29.00 Average (bottom)

- In our area, rainfall was 7” lower than 1990-2020 averages.
- In the state, rainfall was lower by 4”.

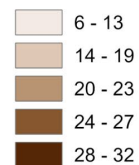
Several Counties Experienced Extreme Heat in 2023

Days with Extreme Heat in Kansas, by County, 2023



- Extreme heat defined as maximum daily temperature of 100 degrees Fahrenheit or higher.
- Most counties experienced three or more weeks.

Number of Days

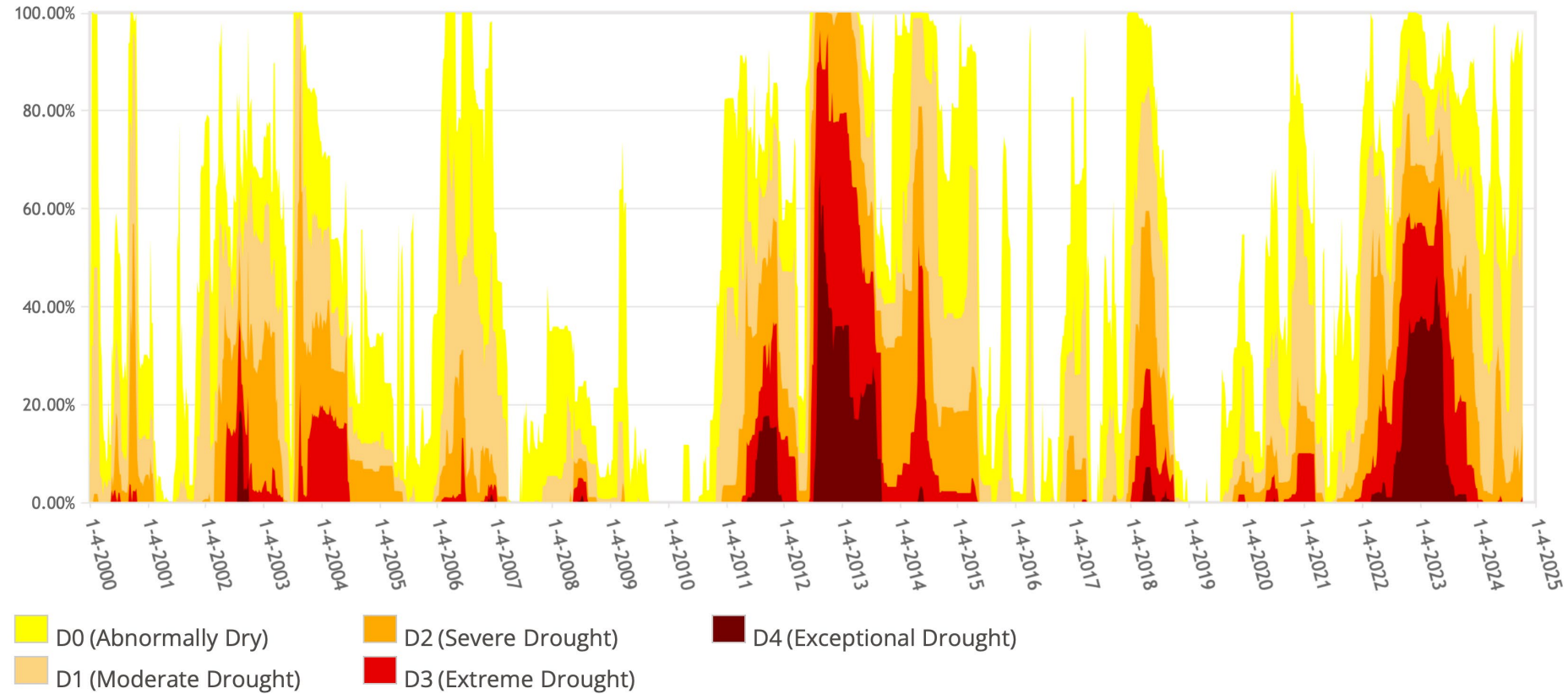


Source: Institute for Policy & Social Research, The University of Kansas; data from the Centers for Disease Control and Prevention, National Environmental Public Health Tracking Network.

Extreme heat defined as maximum daily temperature of 100 degrees Fahrenheit or higher.

Droughts in Kansas—the Past 24 Years

Kansas Percent Area in U.S. Drought Monitor Categories

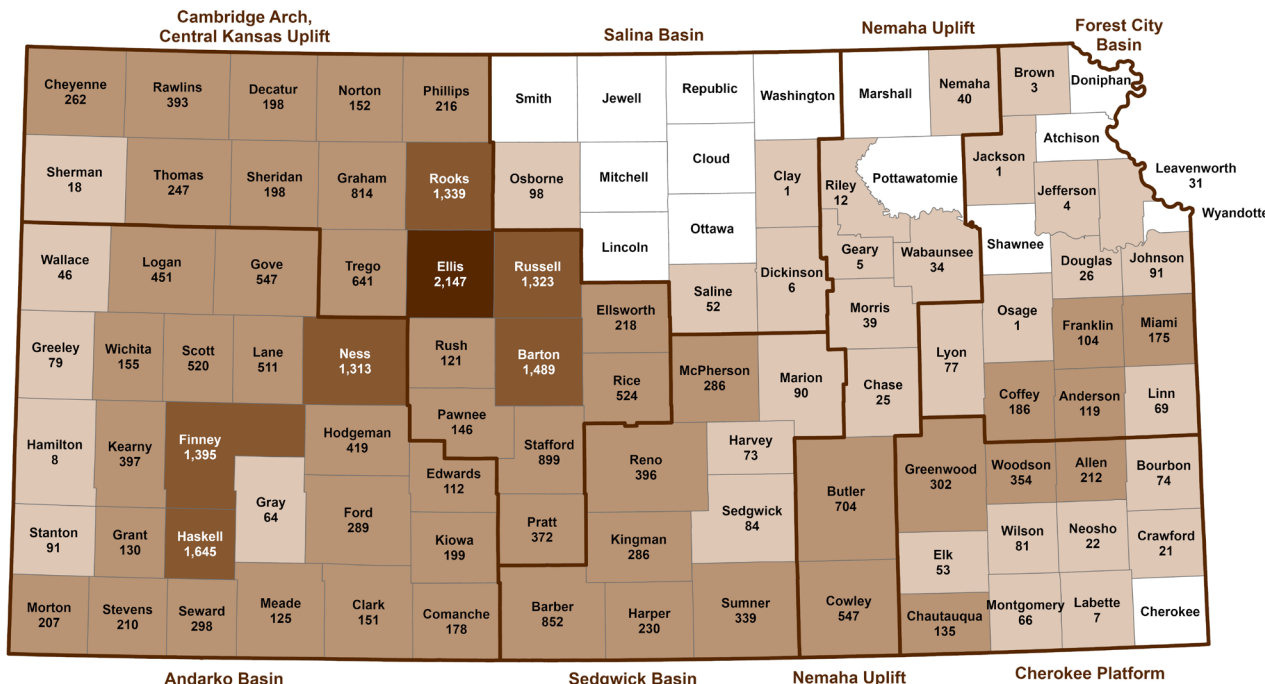


Since 2011, exceptional droughts are more frequent and cover larger areas of the state.

From the U.S. Drought Monitor website, <https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx>, 10-22-2024

Historically, Kansas has been an Oil and Gas State

Oil Production in Kansas, by County, 2023

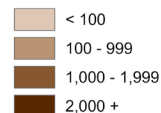


- Kansas produced 27,671,730 barrels of oil in 2023 or ~76,000 barrels per day. This is 1% of total oil production in the U.S.
- The U.S. produced 12.9 million barrels per day in 2023.
- This was a U.S. and global record for oil production.

Source: Institute for Policy & Social Research, The University of Kansas; data from Kansas Geological Survey.

Production indicated only for counties reporting drilling activity.

Production in Thousands of Barrels

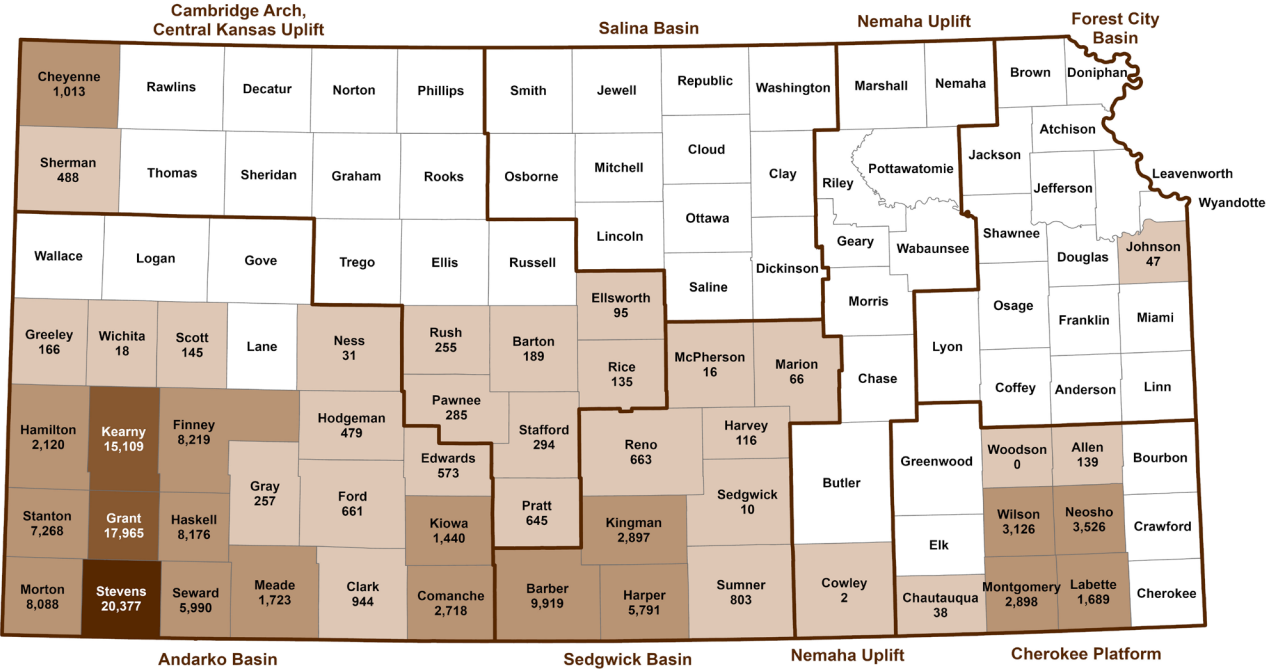


State: 27,671

Historically, Kansas has been an Oil and Gas State

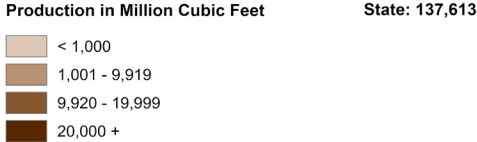
- Kansas produced 137 billion cubic feet of gas in 2023.
- Kansas ranks 14th in the nation in natural gas production.
- Kansas has 16 natural gas underground storage fields that can hold 283 billion cubic feet of natural gas, equal to about 3% of U.S. storage capacity.

Gas Production in Kansas, by County, 2023



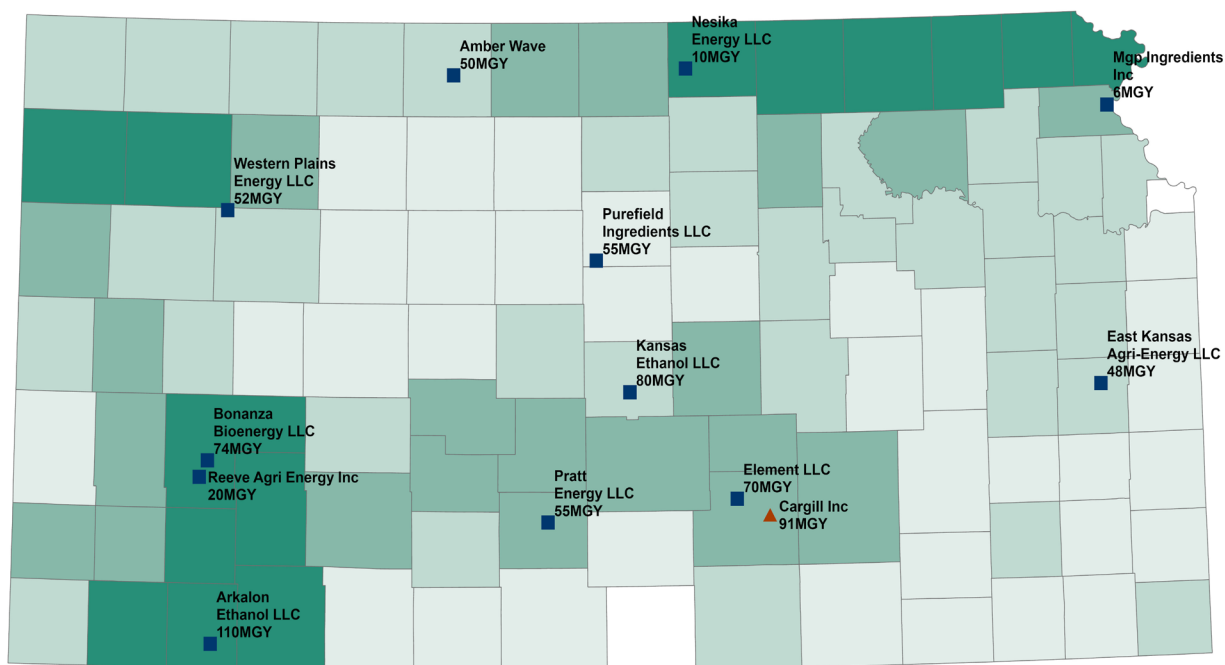
Source: Institute for Policy & Social Research, The University of Kansas; data from Kansas Geological Survey.

Production indicated only for counties reporting drilling activity.



Kansas also Produces Corn and Ethanol

Ethanol and Biodiesel Plants and Corn Production in Kansas



Source: Institute for Policy & Social Research, The University of Kansas; data from the U.S. Department of Agriculture, 2022 Agricultural Census, U.S. Energy Information Administration.

MGY - millions of gallons per year of permitted capacity

■ Ethanol Plants (2023)
▲ Biodiesel Plants (2023)

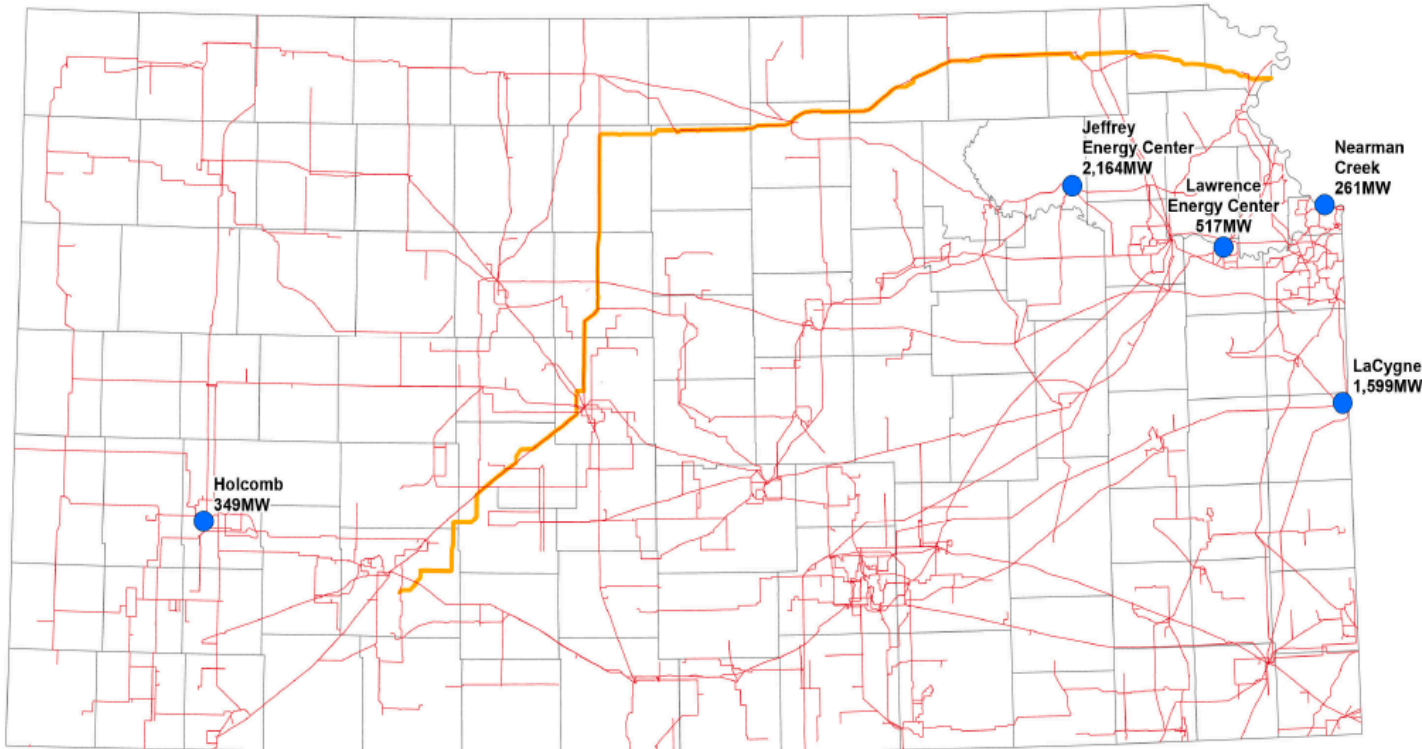
Corn Production (bushels; 2022)

- 121,985 - 2,090,545
- 2,090,546 - 4,713,340
- 4,713,341 - 9,685,180
- 9,685,181 - 22,363,100
- Withheld to avoid disclosing data for individual operations.

- Kansas has the capacity to produce 630 million gallons of ethanol per year.
- Kansas ranks 8th in the nation in ethanol production.

Transmission Lines are Required to Connect Power to the Grid

Coal Plants and Electrical Transmission Lines in Kansas



- To move electricity, we require transmission lines
- Blue—coal-fired power plants.
- Red—Existing transmission lines
- Gold—proposed Grainbelt Express

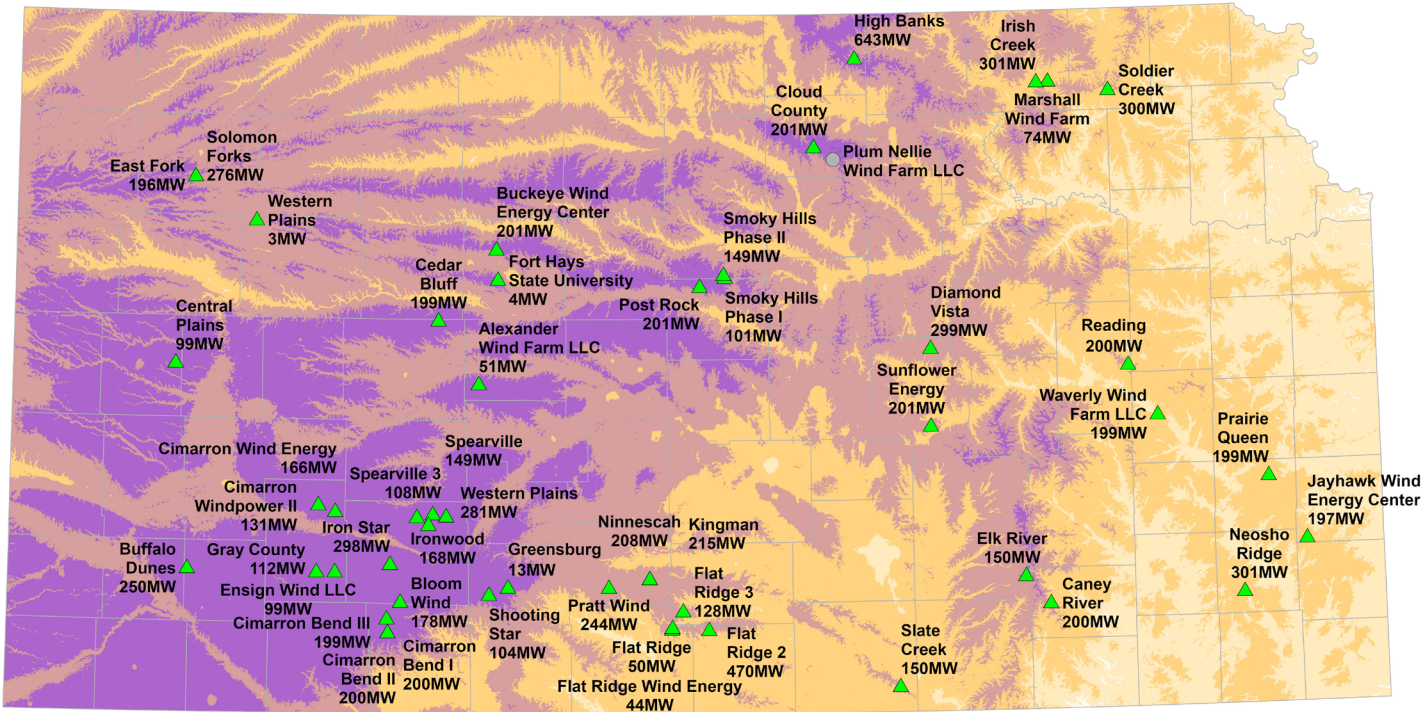
Source: Institute for Policy & Social Research, The University of Kansas; data from the U.S. Energy Information Administration, U.S. Department of Homeland Security, and Invenery Transmission.

MW - megawatts

Coal Plants in Kansas (2023) Electric Transmission Lines (2023)
● existing — Grain Belt Express (proposed route in Kansas, rev. Nov 2022)

Kansas has Tremendous Wind Potential

Wind Farms and Wind Resource Potential in Kansas



Source: Institute for Policy & Social Research, The University of Kansas; data from the National Renewable Energy Laboratory with wind farm data from the U.S. Energy Information Administration.

MW - megawatts

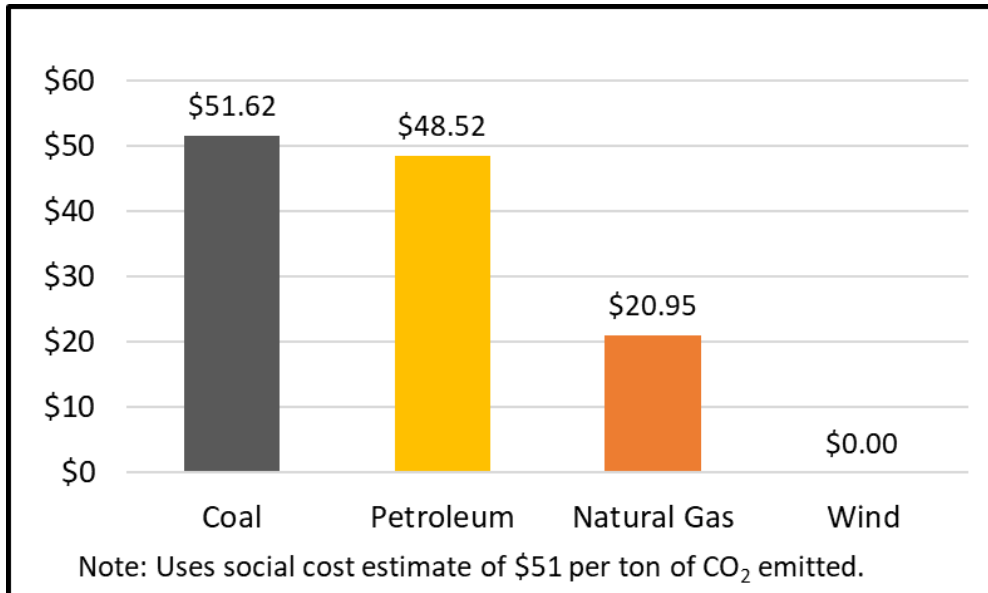
- Wind energy accounted for 46% of Kansas electricity generation.
- Kansas has the 3rd highest share of wind power after Iowa and South Dakota.
- Kansas ranks 4th in the amount of installed wind generating capacity.

IPSR Estimates: Total Economic Benefit of High Banks Wind Project

- High Banks Wind Farm in Washington & Republic Counties has a 650 MW generating capacity.
- Using present value calculations (4% discount rate) to adjust and then add up the previous findings.
- Total state level impact: ~**\$185 million** employment income, ~**\$145 million** property income
 - **Total benefit over time: \$330 million** for the state
- Total impact on two county area: ~**\$92 million** employment income, ~**\$109 million** in property income
 - **\$201 million** or 60% of that benefit will accrue to Washington and Republic Counties.

Costs of Carbon Emission

Social Cost of Carbon Emissions per MWh by Generation Source



Source: U.S. Energy Information Administration. <https://www.eia.gov/tools/faqs/faq.php?id=74&t=11> and calculations of authors.

Note that social costs are calculated using a value of \$51/ton.

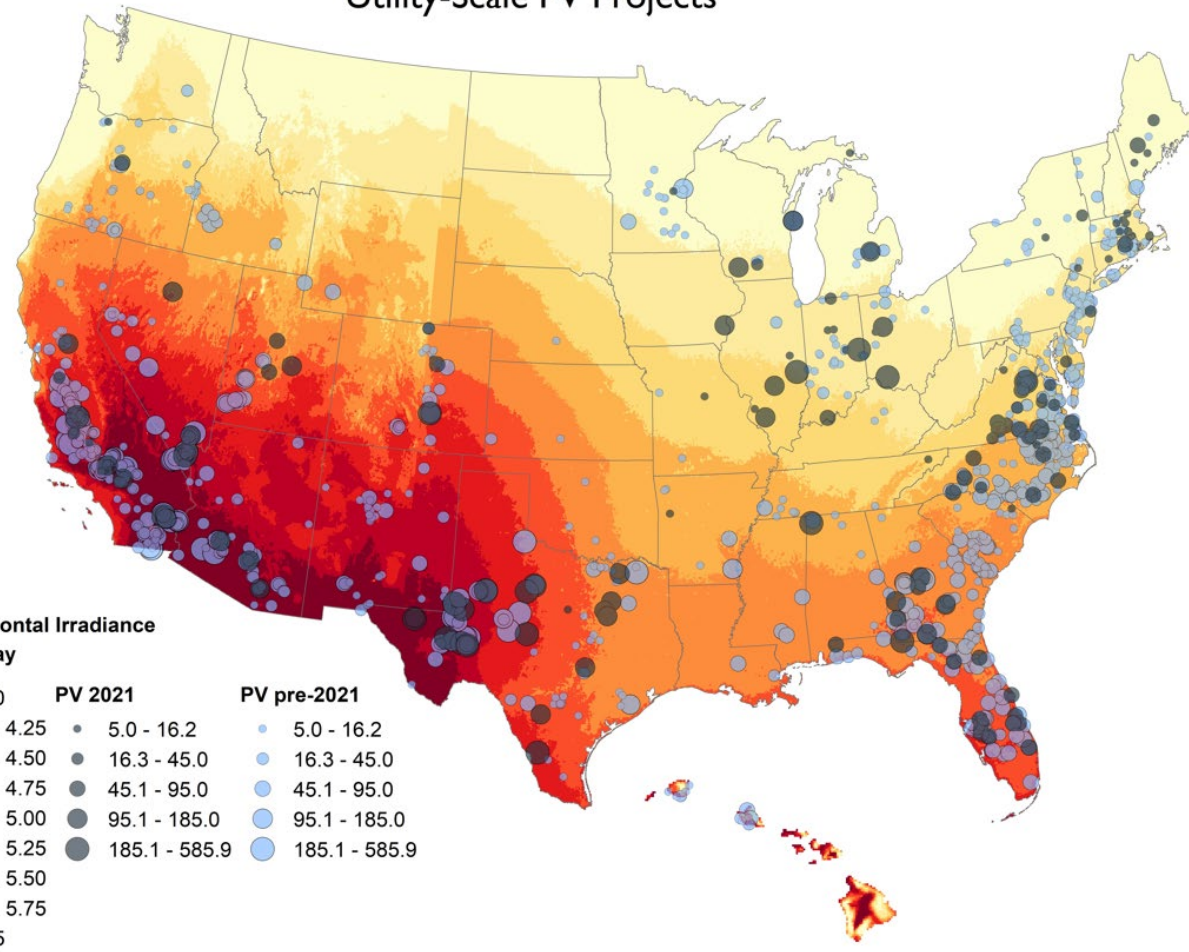
- EIA estimates and calculations using Biden administration estimate of carbon cost (\$51 per metric ton emitted).
- Coal costs \$51.62 per megawatt hour produced.
 - Natural Gas: \$20.95 per MWh
 - Petroleum: \$48.52 per MWh

Costs of Carbon Emission

- Based on SPP generation trends, we assume all electricity generation replaced by the project will be from coal.
- High Banks will produce 2,801,000 MWh * \$51.62/MWh (coal emissions valued at \$51/ton) = **\$144,600,000** per year.
- Over 30 years, adjusting for present value, this is **\$2.5 billion**.
- Using higher estimate of carbon cost (\$185/ton from a recent article in *Nature*): **\$524,500,000** per year.
- Trump administration figure of \$5/ton: **\$14,175,000** per year.

Potential for Solar Development in Kansas

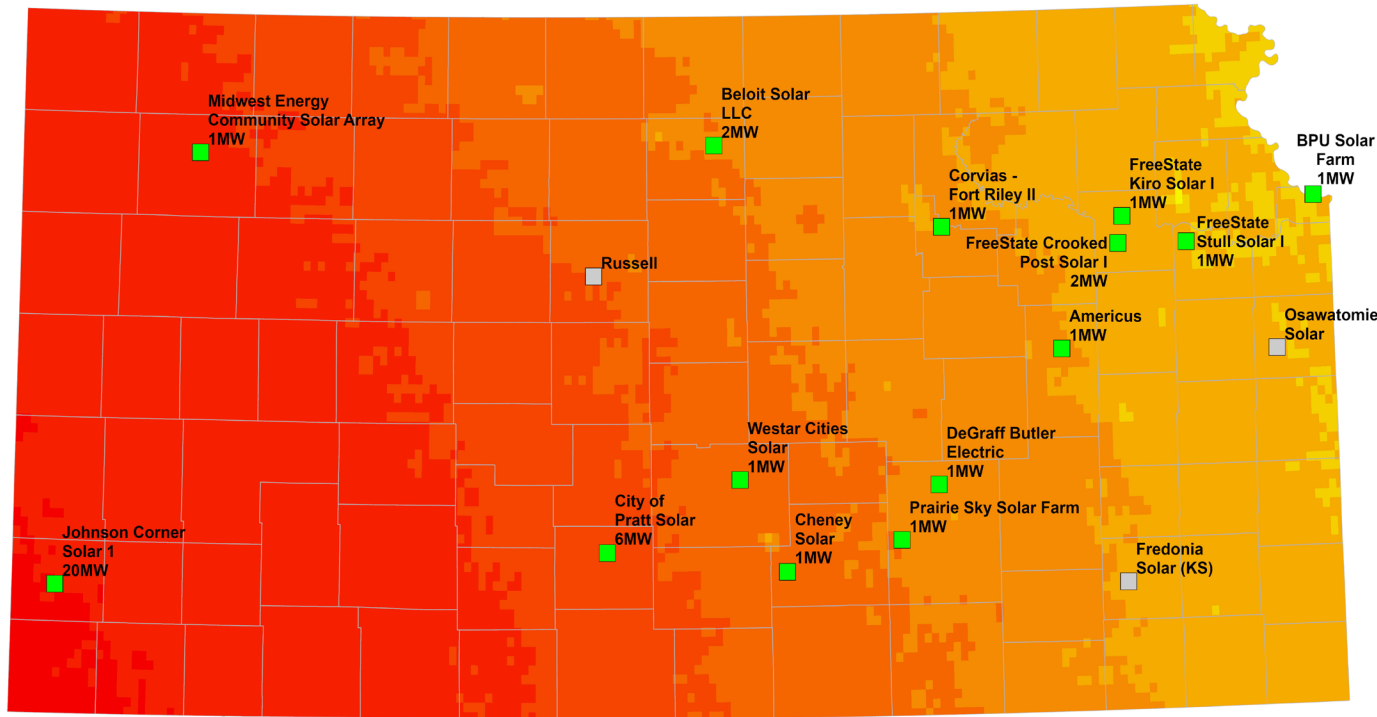
Utility-Scale PV Projects



- Intense solar development has and is taking place in California, the Southwest, and along the East Coast (where many states have solar quality similar to, or not as good as, Kansas).
- Solar development in Kansas and central states is probably hindered by distance to population centers, competing investments in wind farms, limitations on power transmission, and state policy.
- In addition to the West Gardner facility, solar developments have been proposed for northern Douglas County, KS and for Desoto, KS near the Panasonic Battery site.

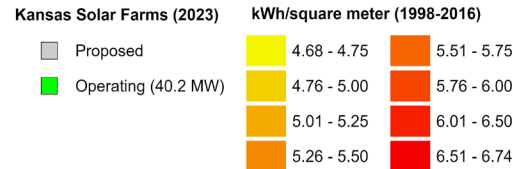
Kansas has Untapped Solar Potential

Solar Farms and Direct Normal Solar Resource in Kansas



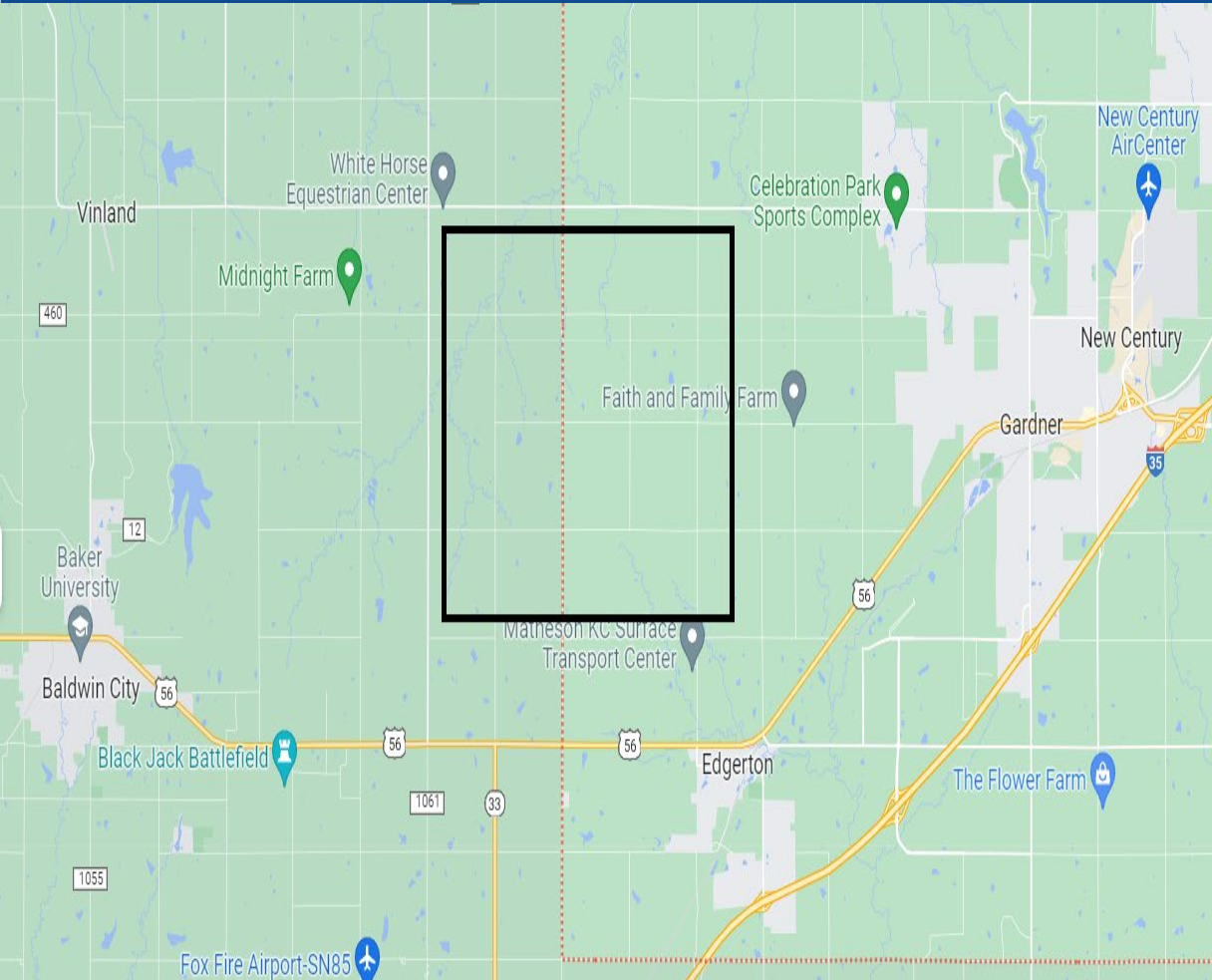
Source: Institute for Policy & Social Research, The University of Kansas; data from the National Renewable Energy Laboratory with solar farm data from the U.S. Energy Information Administration.

MW - megawatts



- Southwest Kansas has ideal solar potential, but only one solar facility.
- The cost of solar power has dropped significantly over time.

IPSR Estimates: Summary of Economic Impact—West Gardner Facility



Using present value calculations (4% discount rate) to adjust and then add up the previous findings:

- Total state level impact: ~**\$111 million** labor income, ~**\$200 million** value added.
- Total impact on two county area: ~**\$72 million** labor income, ~**\$150 million** in value added.

Costs of Carbon Emissions

- Based on regional generation trends, we assume all electricity generation replaced by the project will be from coal.
- $680,056 \text{ MWh} * \$52.17/\text{MWh}$ (coal emissions valued at \$51/ton) = **\$35,500,000** per year.
- Over 30 years, adjusting for present value, this is **\$613 million**.
- Using higher estimate of carbon cost (\$185/ton from a recent article in *Nature*): **\$127,345,000** per year.
- Trump administration figure on \$5/ton: **\$3,442,000** per year.

Regional Health Savings

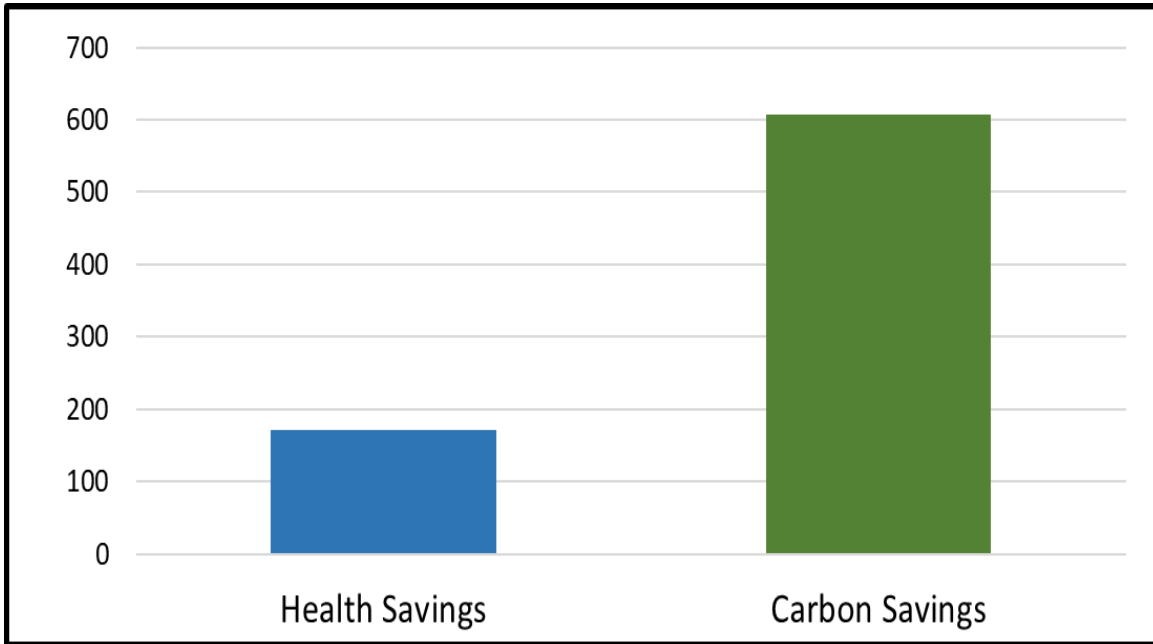
- Replacing coal creates regional savings in human health costs.
- According to EPA estimates: a decrease in 1 MWh of coal power generation results in \$14.60 health savings throughout the central region.
- 680,056 MWh * \$14.60/MWh = **\$9,925,000** per year.
- Over 30 years, adjusting for present value, this is **\$172 million** in decreased health costs.

Region	Low Estimate (\$ per MWh)	High Estimate (\$ per MWh)
Central (includes Kansas)	14.60	30.20
Rocky Mountain	10.02	20.70
Midwest	28.86	59.90
Texas	10.24	21.30

Note: values originally in 2019 dollars. Adjusted to 2023 dollars using CPI-U for medical care, Midwest Region

Pollution Avoidance Savings

Present value of pollution savings over the life of the project (in 2023 \$ million)



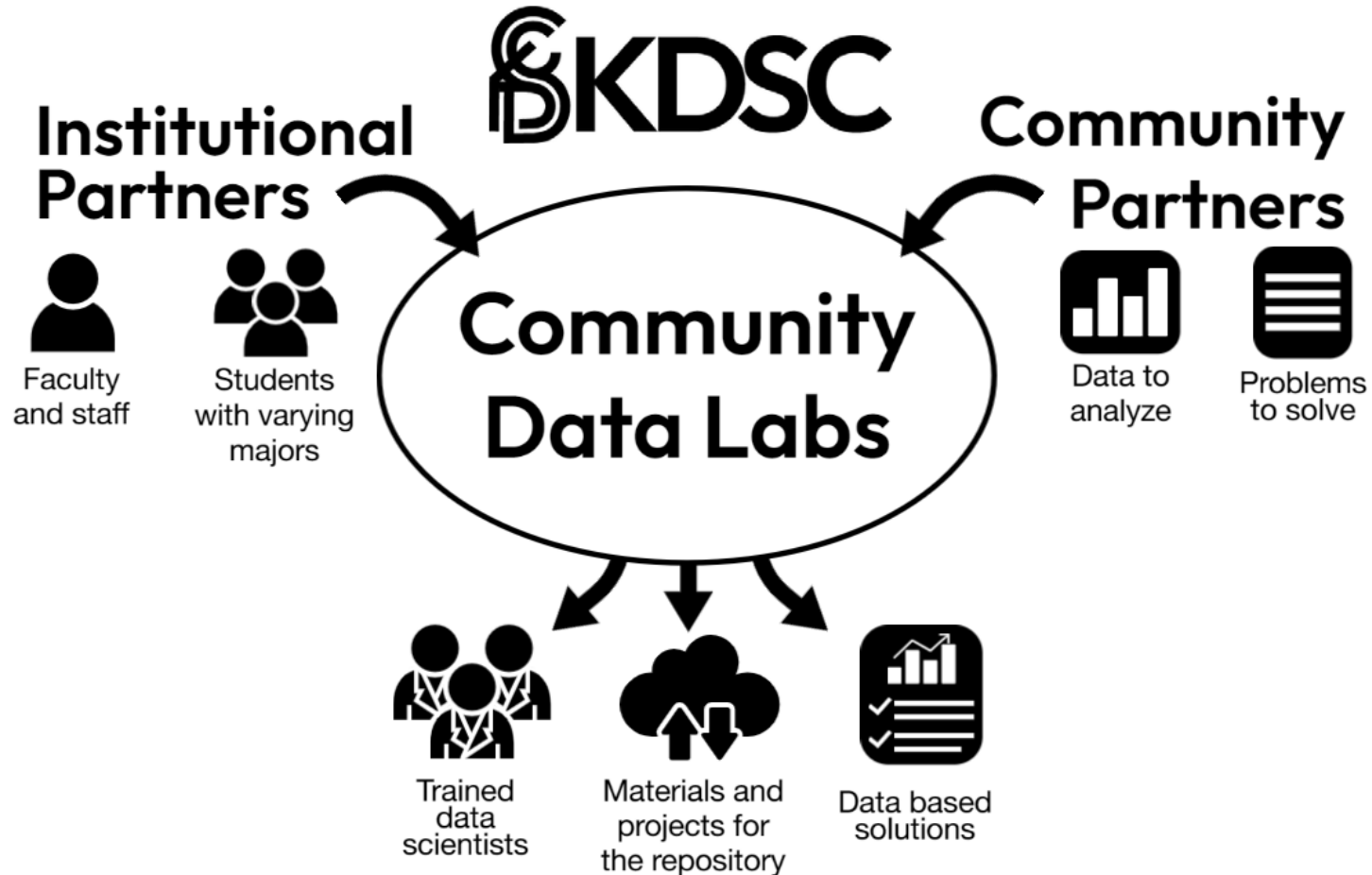
- The benefits of switching generation from coal to solar:
 - \$613 million present value of carbon savings over life of the project
 - \$172 million health savings present value

Kansas Data Science Consortium (KDSC)

Primary Consortium	Funded KDSC Education Partners	Other KDSC Education Partners	Other KDSC Education Partners
University of Kansas	Baker University	Newman College	McPherson College
Kansas State University	Johnson County Community College	Friends University	Benedictine University
Wichita State University	Butler Community College	Tabor College	Bethel College
	Donnelly College	Bethany College	

- Connects organizations who have datasets and real-world questions with groups of students and faculty mentors working to provide data-driven solutions
- Funded by the National Science Foundation through the ARISE EPSCoR project

Kansas Data Science Consortium is looking for partners with data projects!



- NSF-EPSCoR funded project housed in IPSR.
- Contact: William Duncan (williamduncan@ku.edu)



How Can We Power the Future of Kansas?

Thank You!

Thank You *Mahalo*
Kiitos
Tack
Grazie **Thanks**
Toda
Obrigado
Takk **Gracias**
Danke **Merci**