GULF COAST 2025 ENERGY OUTLOOK

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Outline

1. Introduction & Uncertainties
2. Oil & Gas Production
3. Mid-stream Constraints
4. Power Sector
5. Energy Manufacturing
6. Energy Exports
7. Employment
8. Conclusions

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Uncertainties

1. **Presidential Election**
2. Economic Outlook
3. Decarbonization Efforts: Balancing Cost Competitiveness and Emissions Reductions
4. A New Era of Electric Demand Growth?

1.1 Presidential Election

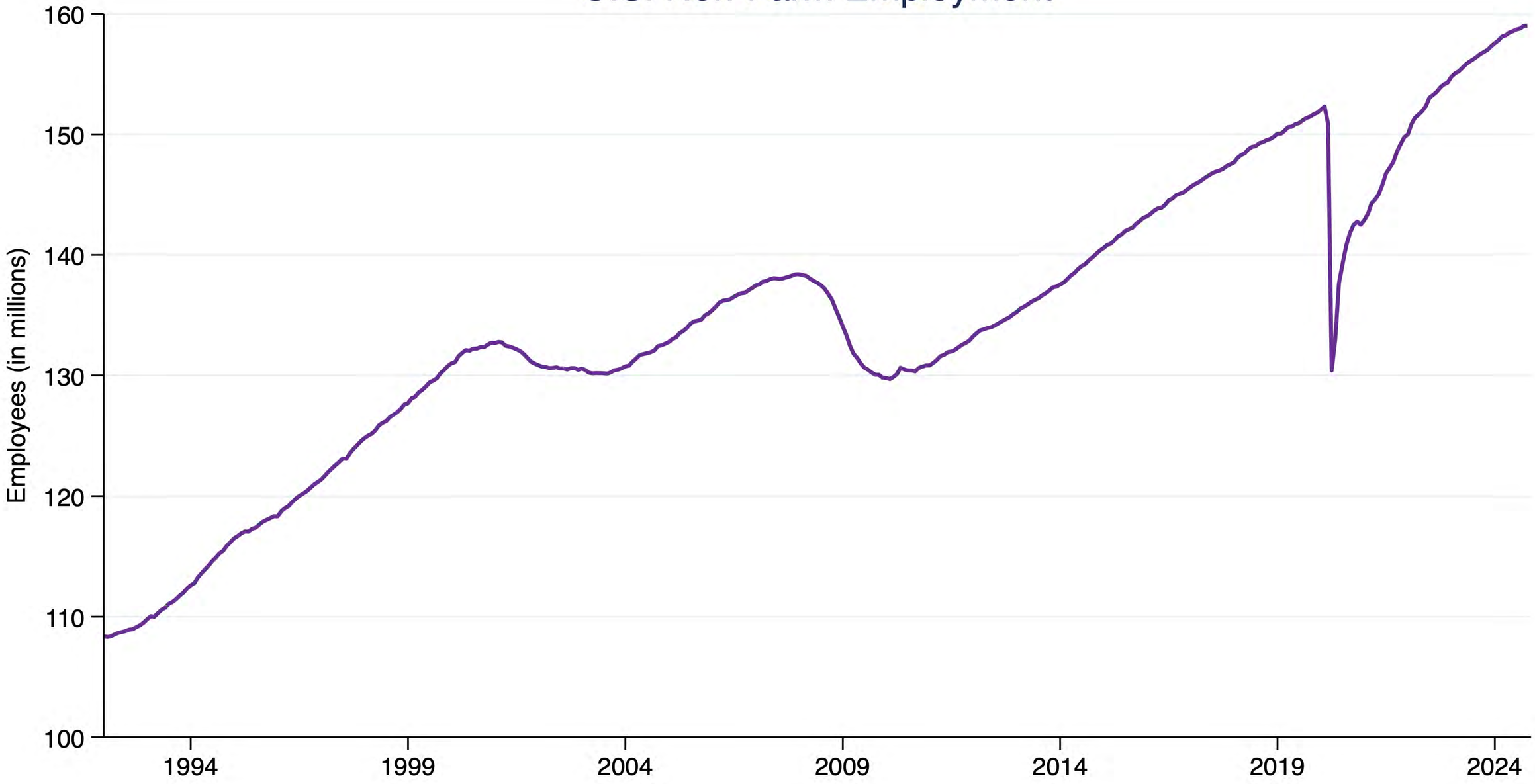
1. Will federal programs and subsidies under the IIJA and IRA continue?
2. International trade uncertainties?
3. The end of supply restrictive policies?

The results of the national elections occurred concurrently with the finalizing of the GCEO. As in all prior GCEOs, the current policy regime is assumed to continue until the policy changes. For example, this year's GCEO modeling assumes IIJA and IRA tax credits and subsidies will continue with the new administration. Further, GCEO assumes no major change to international trade policies.

Uncertainties

1. Presidential Election
2. **Economic Outlook**
3. Decarbonization Efforts: Balancing Cost Competitiveness and Emissions Reductions
4. A New Era of Electric Demand Growth?

U.S. Non-Farm Employment



Source: Bureau of Labor Statistics. Current Employment Statistics (CES). Retrieved from FRED.

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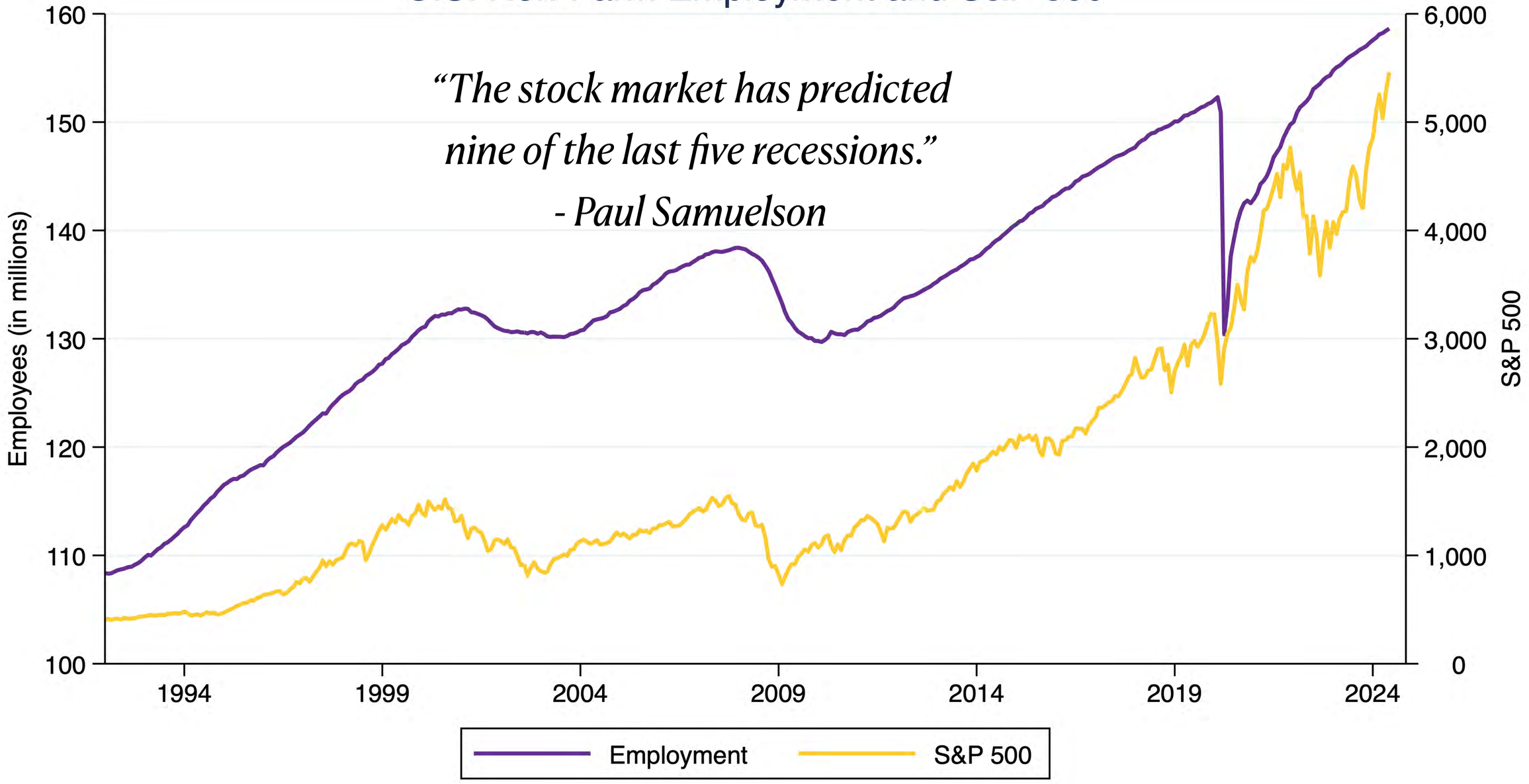
U.S. Non-Farm Employment and S&P 500



Source: Bureau of Labor Statistics. Current Employment Statistics (CES). Retrieved from FRED. S&P 500 from www.investing.com.

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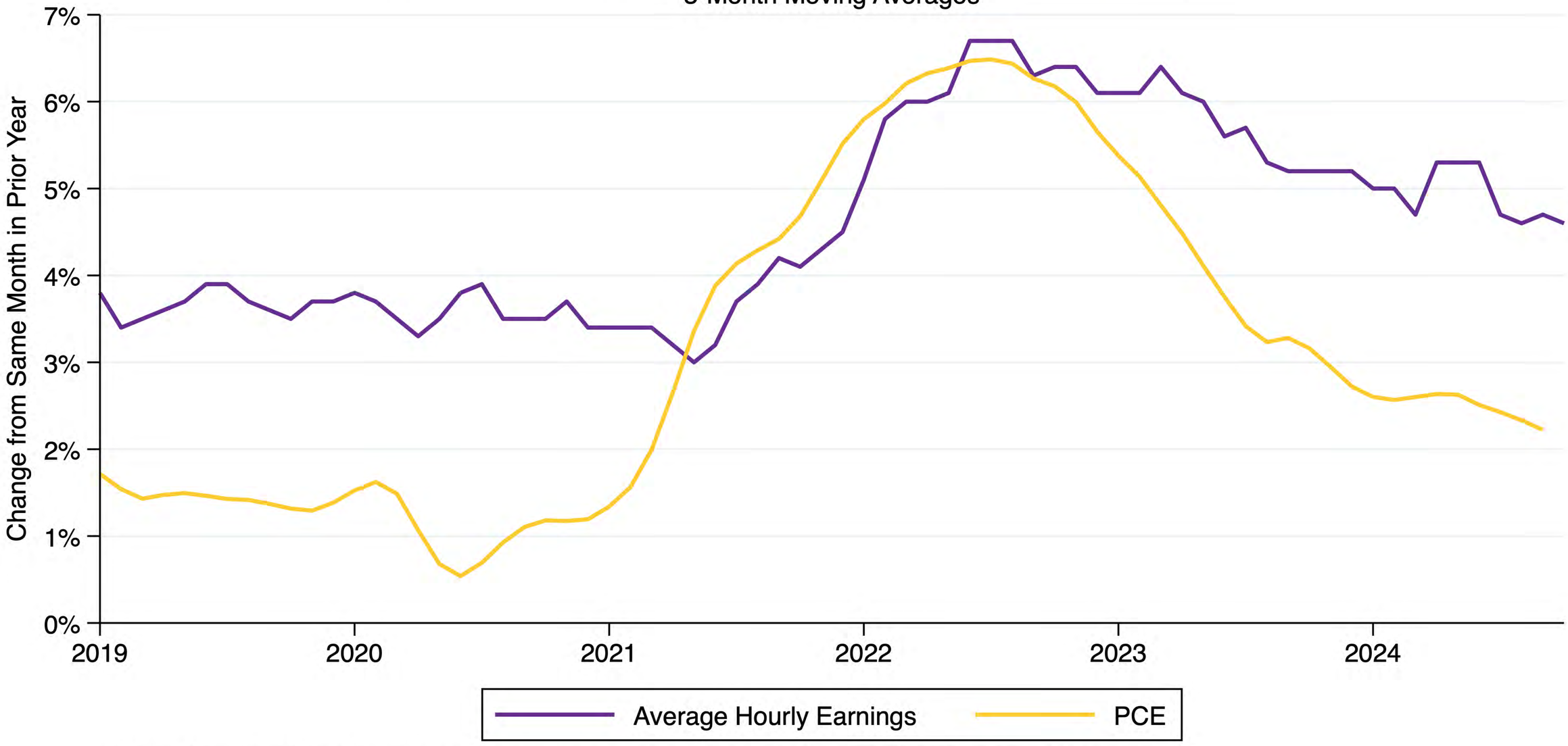
Personal Consumption Expenditures Index and Wage Growth

3-Month Moving Averages



Sources: Atlanta Fed Wage Growth Tracker (constructed using the Current Population Survey), retrieved from FRED.
Bureau of Labor Statistics, retrieved from FRED.

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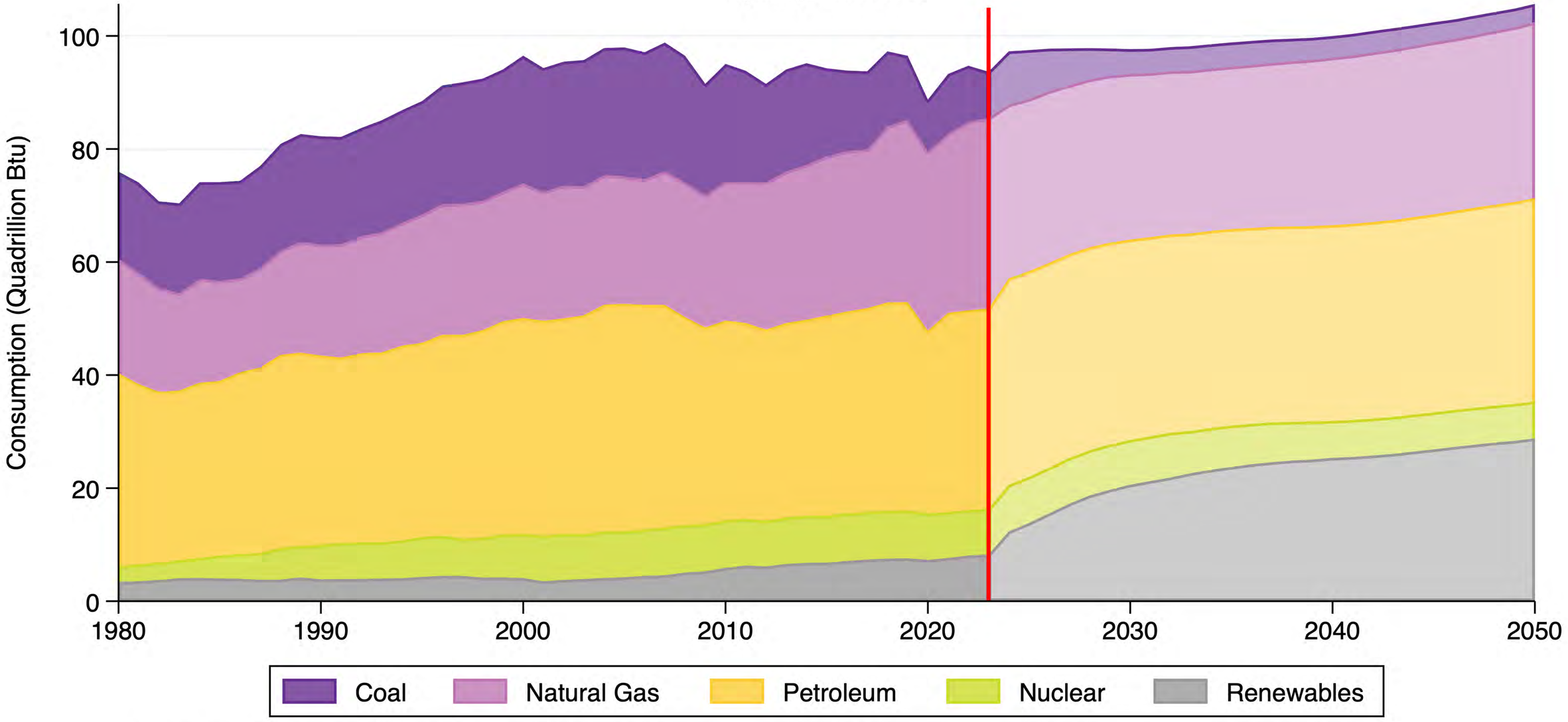
U.S. Primary Energy Consumption

By Major Sources



Source: Energy Information Administration.
Future trends are from Annual Energy Outlook 2023 reference scenario.

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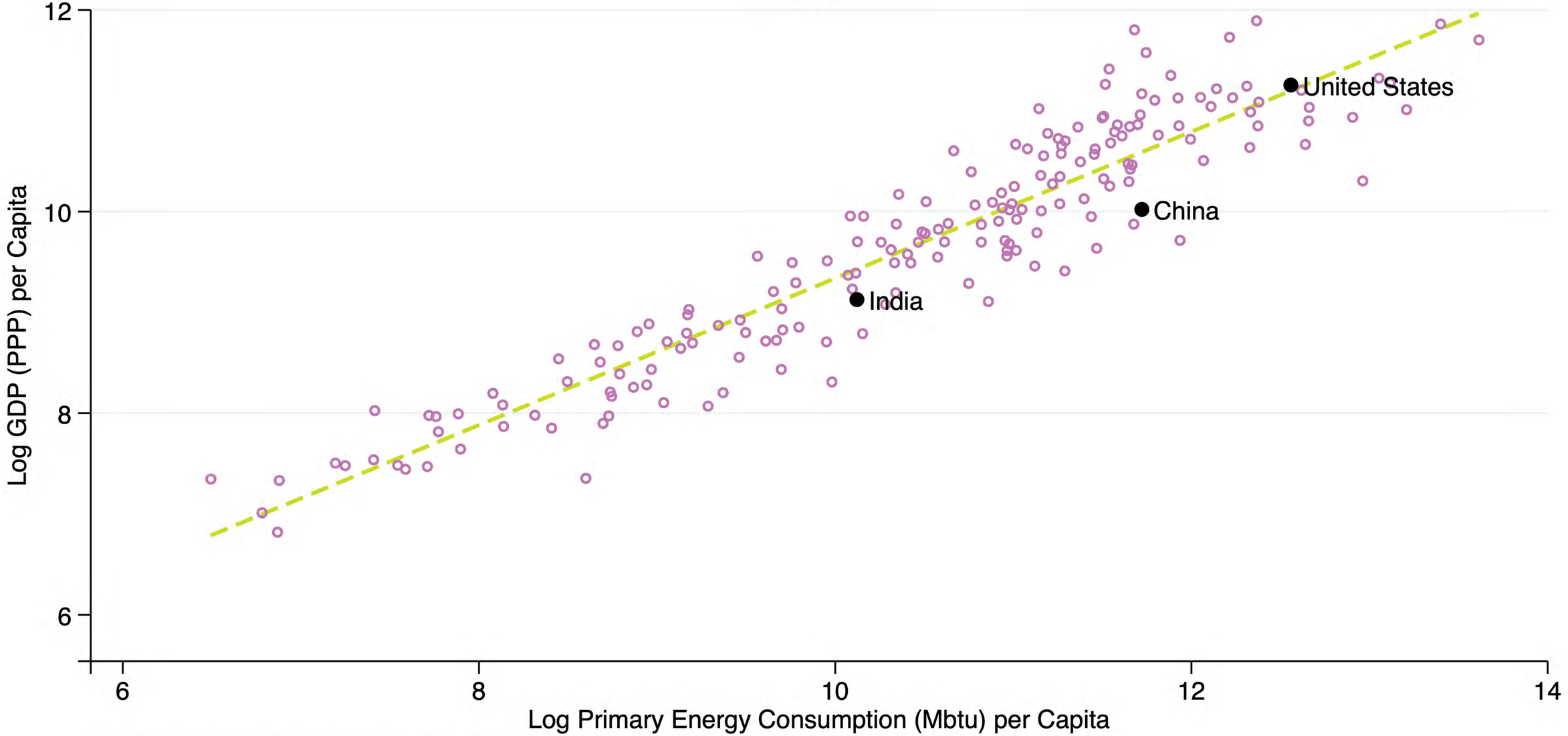
Primary Energy Consumption and GDP

2022



Sources: GDP and population data from the World Bank.
Emissions data from the Energy Information Administration.

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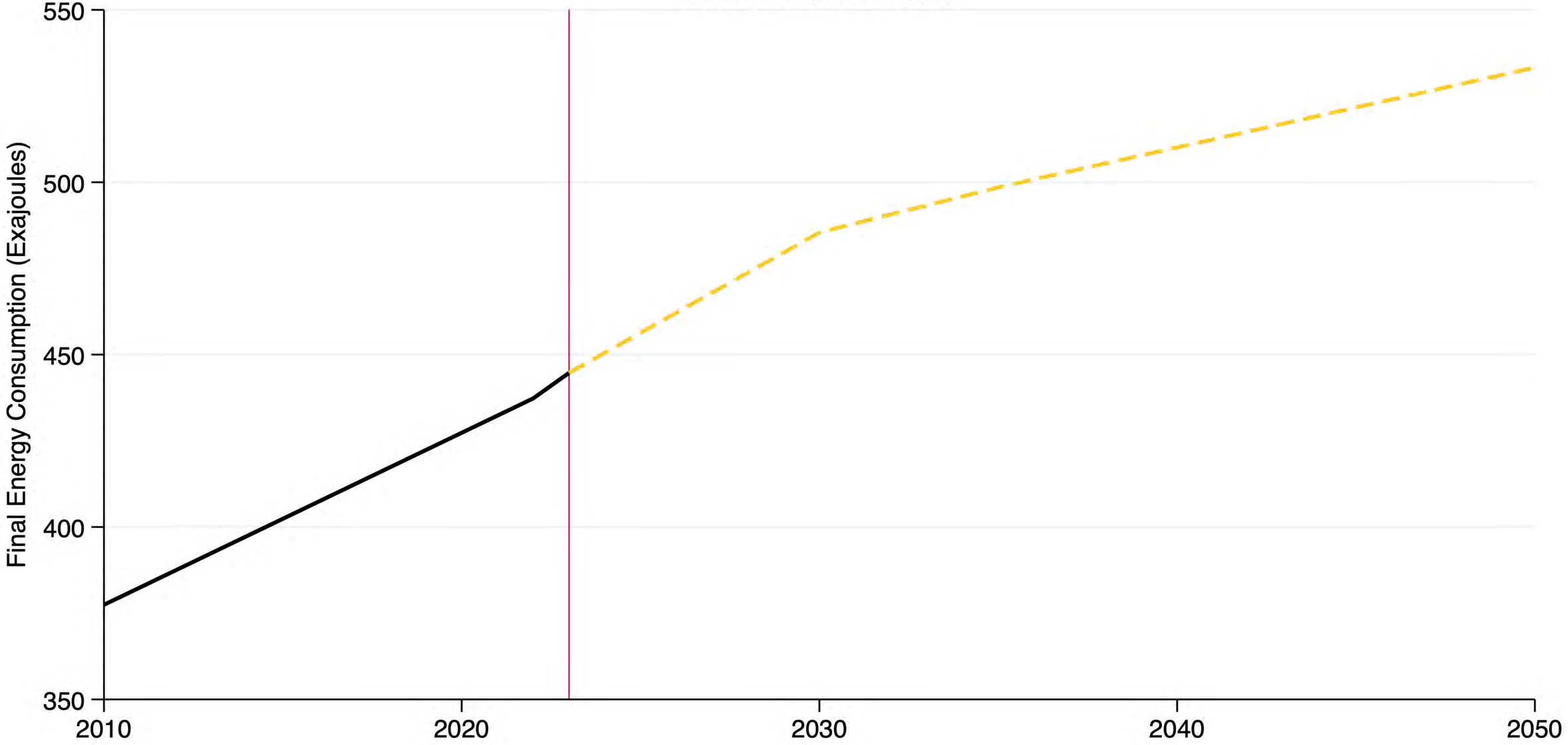
World Final Energy Consumption

Stated Policies Scenario



Source: International Energy Agency. World Energy Outlook 2024.

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1.2 Economic Outlook

This year's GCEO modeling assumes that wage growth will continue to outpace inflation, and demand for energy globally will continue to rise. GCEO, much like years past, anticipates that long-run energy demand growth will lead to increased U.S. energy exports, especially to the growing developing world.

Outline

1. Presidential Election
2. Economic Outlook
3. **Decarbonization Efforts: Balancing Cost Competitiveness and Emissions Reductions**
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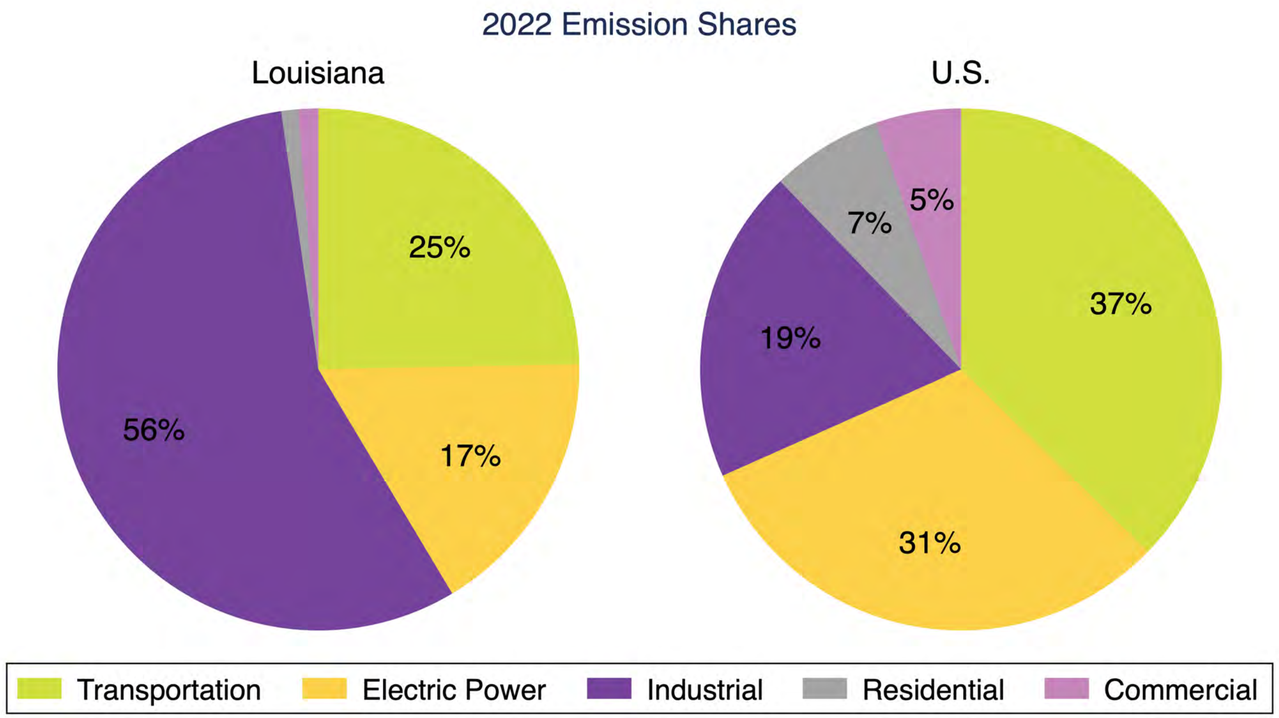
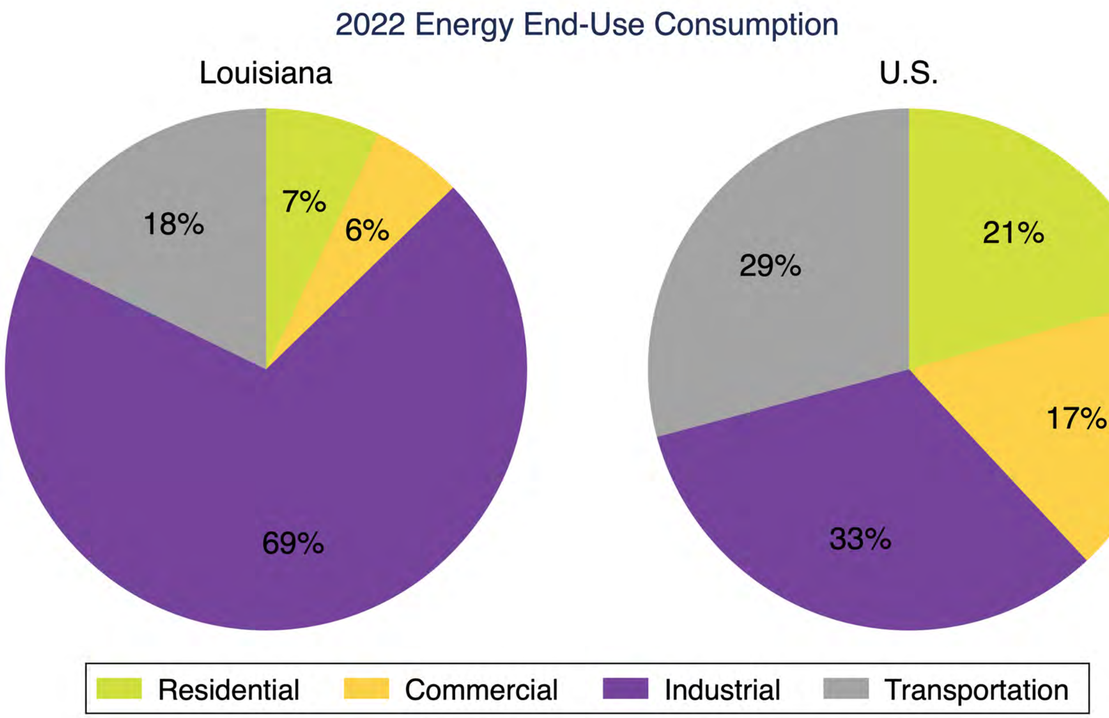


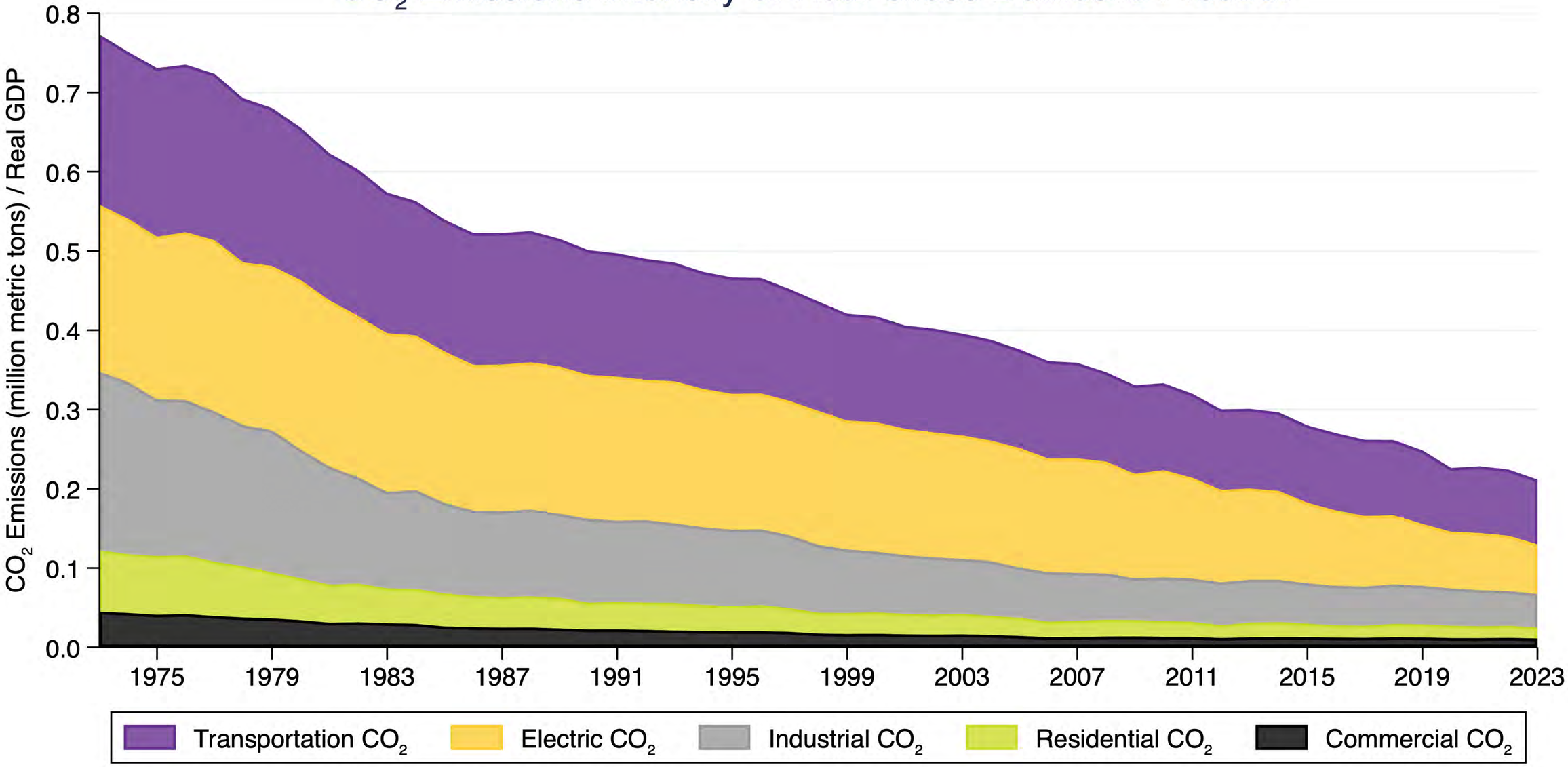


Source: Energy Information Administration, State Energy Data System.
Numbers may not sum to 100 due to rounding.

Industrial emissions comprise over half of Louisiana's GHG emissions, compared to ~19 percent nationally.

Industrial energy usage comprises ~69 percent of energy usage in Louisiana, compared to one third nationally.

CO_2 Emissions Intensity of Real Gross Domestic Product



Sources: Emissions data from the Energy Information Administration.
Real GDP from the Bureau of Economic Analysis and quoted in billions of chained 2017 dollars, not seasonally adjusted.

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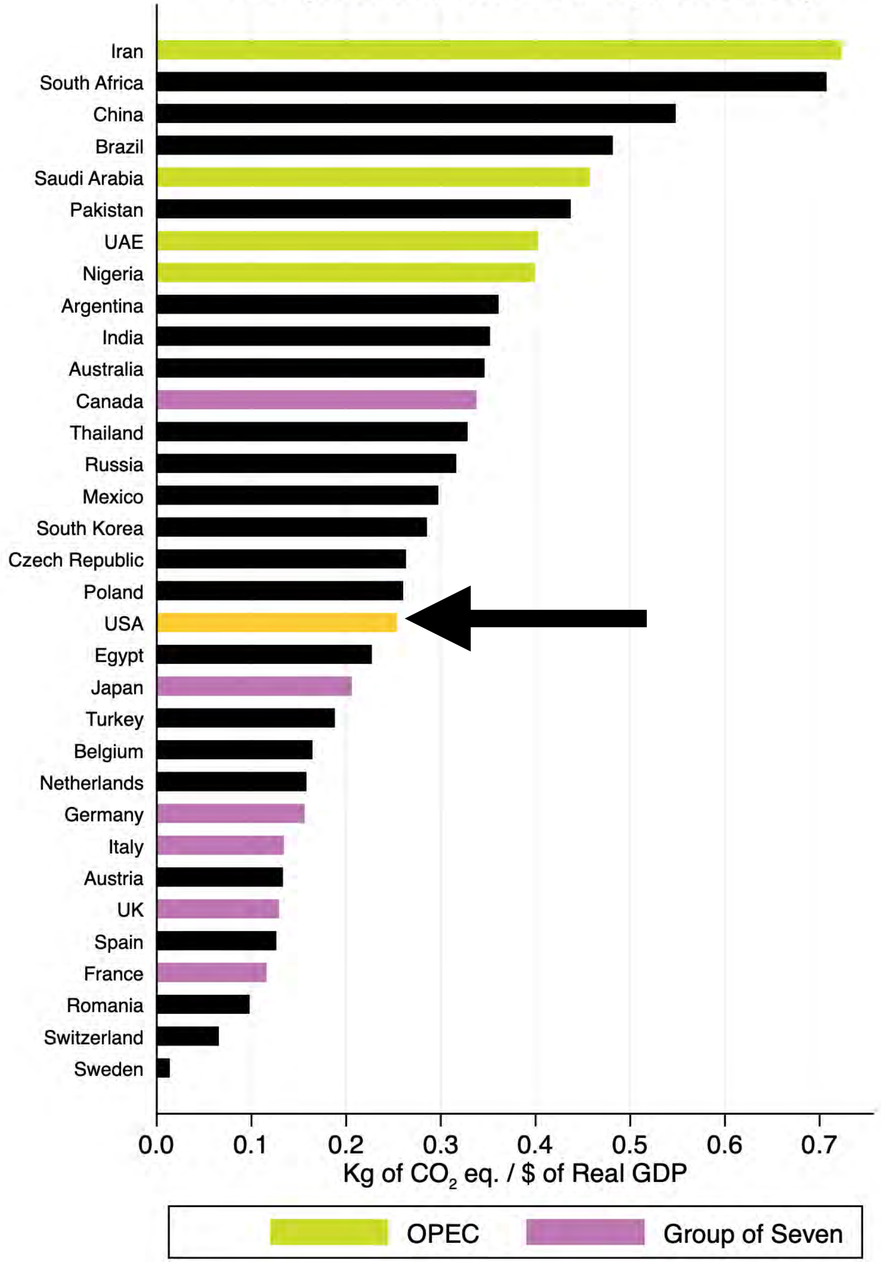
Emissions Intensity of GDP (2018-22 Average)

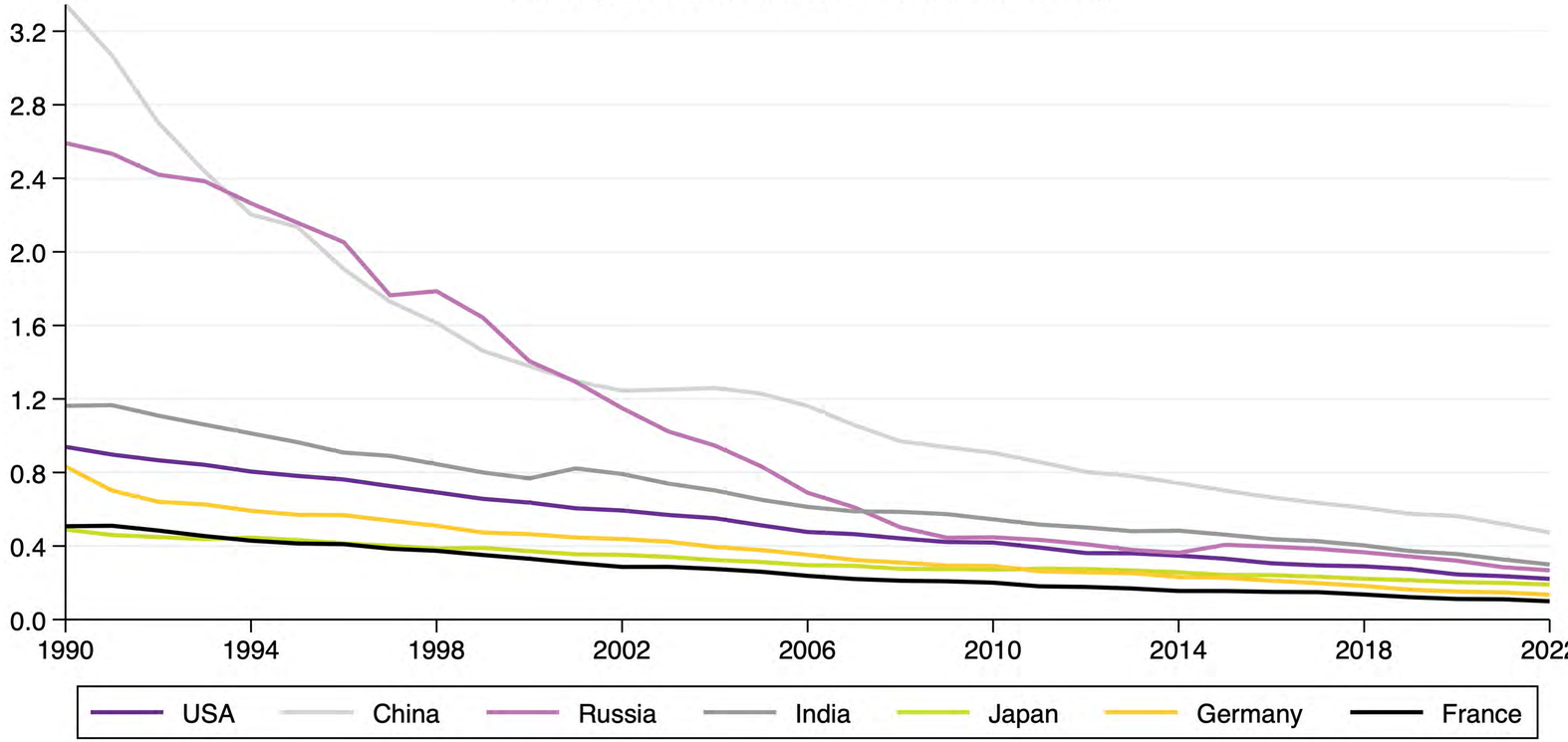
Including Land Use, Land-Use Change, and Forestry



Sources: GDP data from the World Bank and quoted in current PPP.
Emissions data from the International Monetary Fund.

Emissions Intensity of GDP

Including Land Use, Land-Use Change, and Forestry



Sources: GDP data from the World Bank and quoted in current PPP.
Emissions data from the International Monetary Fund.

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European Commission

4 NOVEMBER 2024

Carbon Border Adjustment Mechanism

CBAM definitive regime (from 2026)

EU importers of goods covered by CBAM will register with national authorities where they can also buy **CBAM certificates.** The price of the certificates will be calculated depending on the **weekly average auction price of EU ETS allowances** expressed in €/tonne of CO_2 emitted.

EU importers will **declare the emissions** embedded in their imports and **surrender** the corresponding number of certificates each year.

If importers can prove that a **carbon price has already been paid** during the production of the imported goods, the corresponding amount **can be deducted.**

S.3198 - Foreign Pollution Fee Act of 2023

118th Congress (2023-2024) | Get alerts

BILL Hide Overview ✕

Sponsor: Sen. Cassidy, Bill [R-LA] (Introduced 11/02/2023)

Committees: Senate - Finance

Latest Action: Senate - 11/02/2023 Read twice and referred to the Committee on Finance. (All Actions)

Tracker: Introduced > Passed Senate > Passed House > To President > Became Law

SEPTEMBER 9, 2024

VIDEO: CASSIDY OUTLINES PLAN TO COMBAT THE CHINESE COMMUNIST PARTY'S GROWING INFLUENCE IN THIRD EPISODE OF THE BILL ON THE HILL SERIES

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Risk or Opportunity?

Decarbonization will continue to challenge existing Gulf Coast energy manufacturing but will also create an opportunity for regional leadership in the development of the production capacity for liquid fuels, chemicals, plastics, fertilizers, and other products historically derived from fossil fuels with lower GHG emissions. Companies are actively considering the most efficient ways to achieve meaningful GHG emissions reductions given the subsidies that are currently available under the IRA. Over the forecast horizon, the GCEO sees decarbonization creating considerable regional capital investment opportunities. Longer-term effects of decarbonization on the region will be determined by the cost to achieve emissions reductions alongside the global market's willingness to pay a premium for less emission intensive products.

Uncertainties

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2. Economic Outlook
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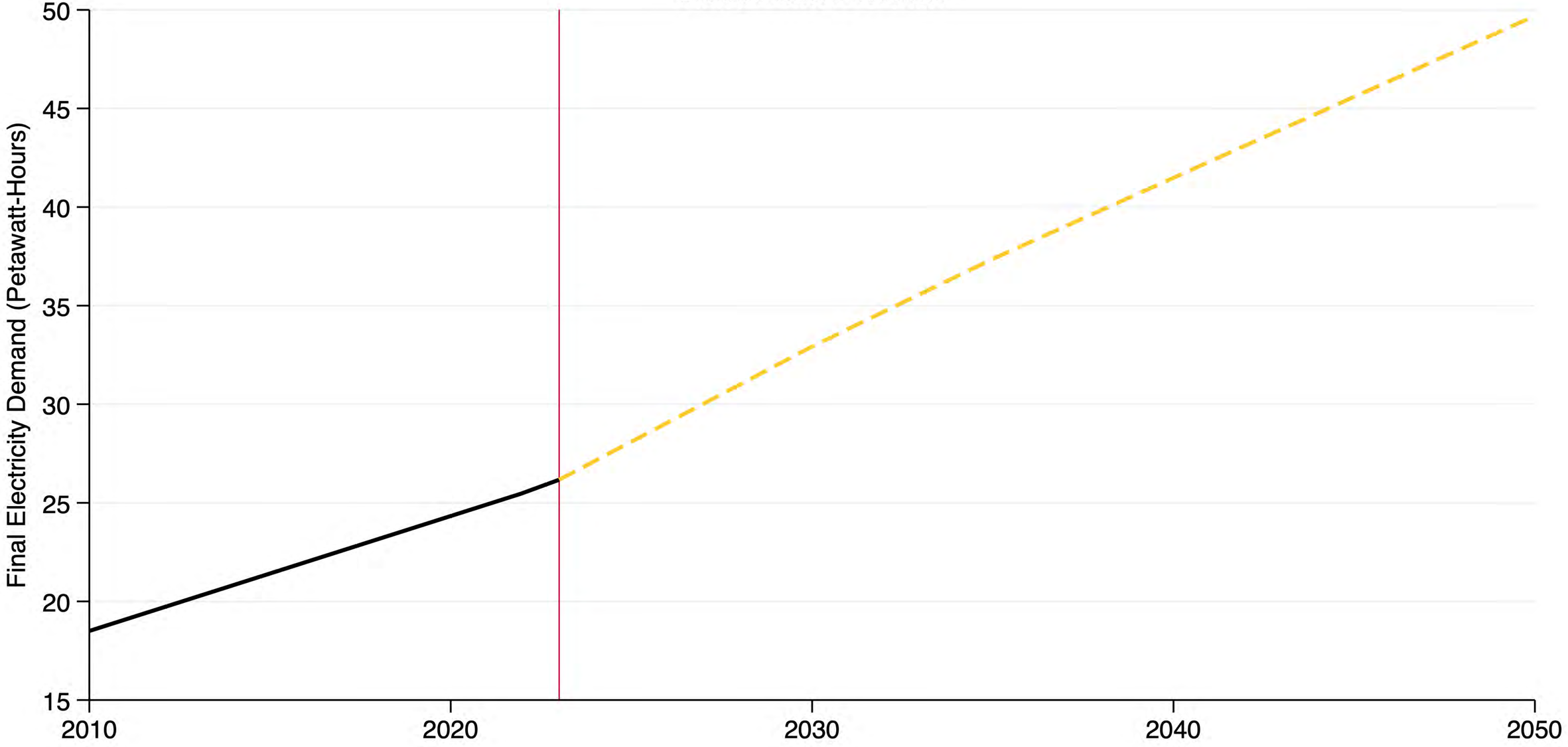
4. **A New Era of Electric Demand Growth?**

World Electricity Demand

Stated Policies Scenario



Source: International Energy Agency. World Energy Outlook 2024.

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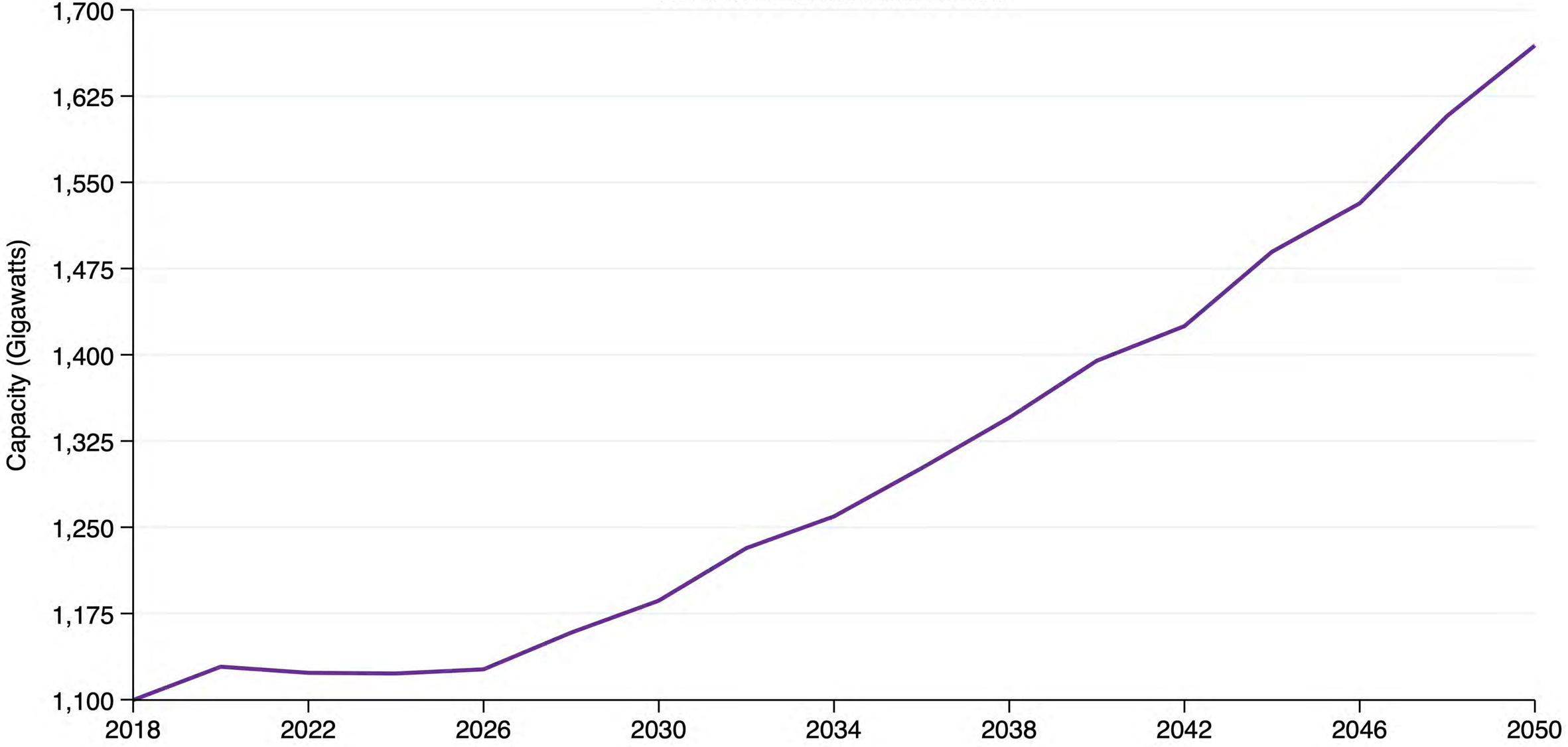
U.S. Total Electricity Generating Capacity

Reference Electrification Levels



Source: National Renewable Energy Laboratory. The average annualized growth rate is 1.3%.

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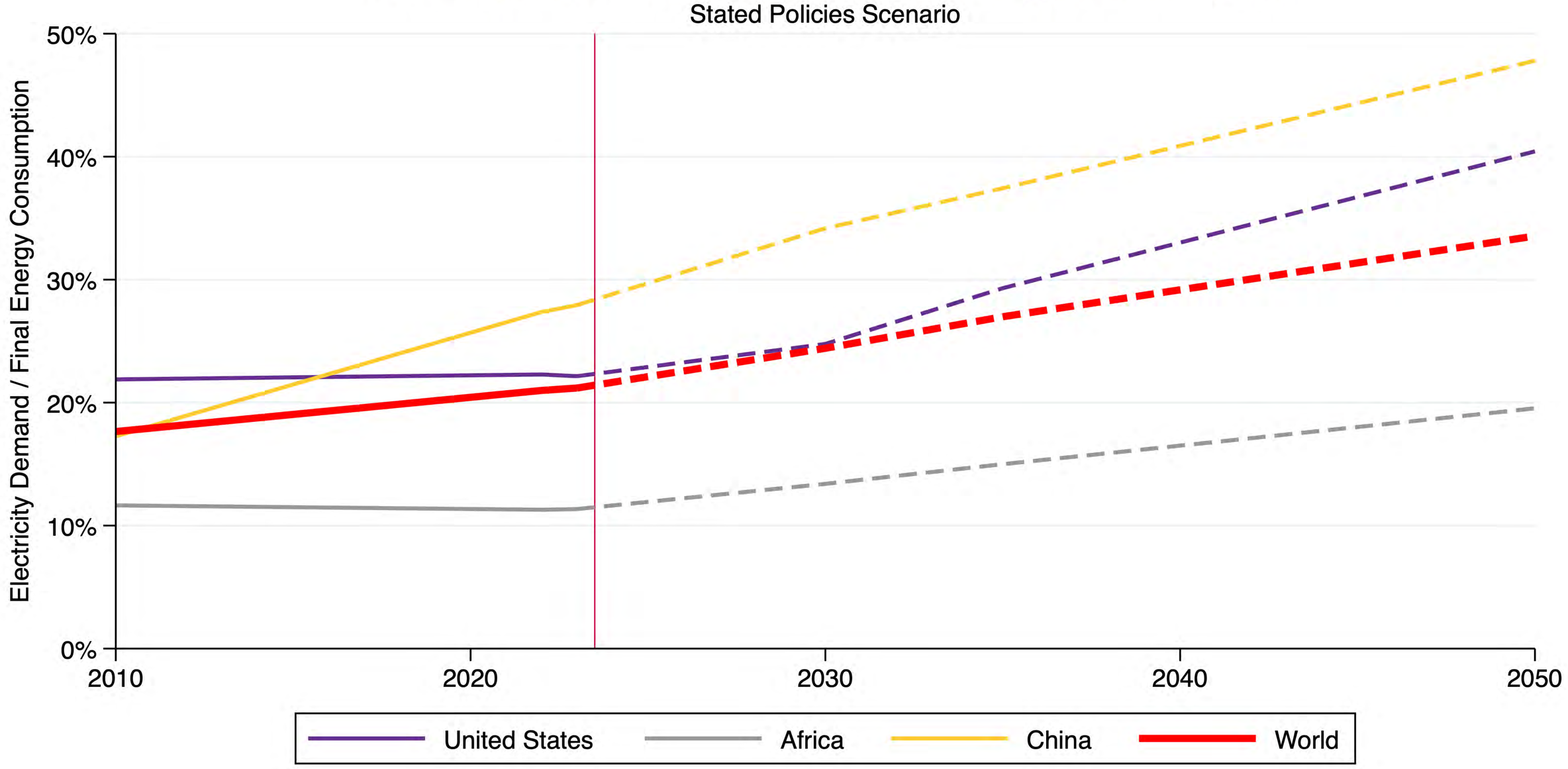
1.4 A New Era of Electric Demand Growth?

Theoretical Potential Impact on Electricity and Energy Usage		
	% Δ in Electricity (TWh)	*% Δ in Energy (quads)*
Electric Vehicles	29.5%	-9.0%
Heat Pumps	11.2%	-4.0%
Data Centers	5.9%	0.9%

Note: These are meant to be illustrative only, not a projection of future changes. Sources: EV scenario uses data from EIA, FHWA, and DoE. Heat pump scenario uses data from NREL's ResStock policy simulations. Data center scenario uses data from EPRI.

GCEO anticipates the share of energy in the U.S. economy from electricity to increase over the coming decade, but that much like years past, anticipates that long-run energy demand growth will lead to increased U.S. energy exports, especially to the growing developing world.

Electricity as a Percentage of Final Energy Consumption



Source: International Energy Agency. World Energy Outlook 2024.

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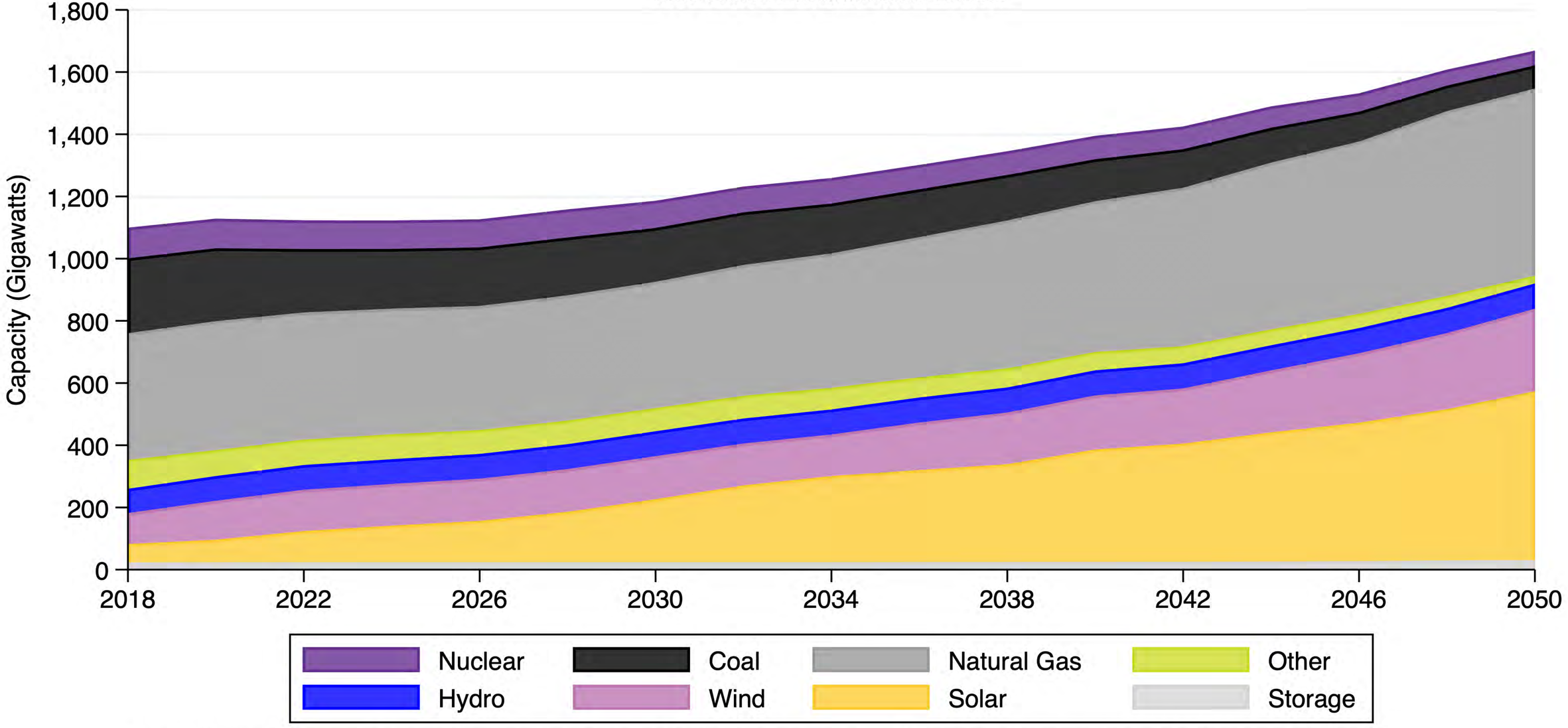
U.S. Electricity Generating Capacity by Source

Reference Electrification Levels



Source: National Renewable Energy Laboratory. Solar includes Utility-Scale Solar, Rooftop PV, and CSP. Wind includes both Offshore and Land-based. Natural Gas is combination of Combined Cycle and Combination Turbine. Other category includes Geothermal, Biopower and Oil & Gas Steam.

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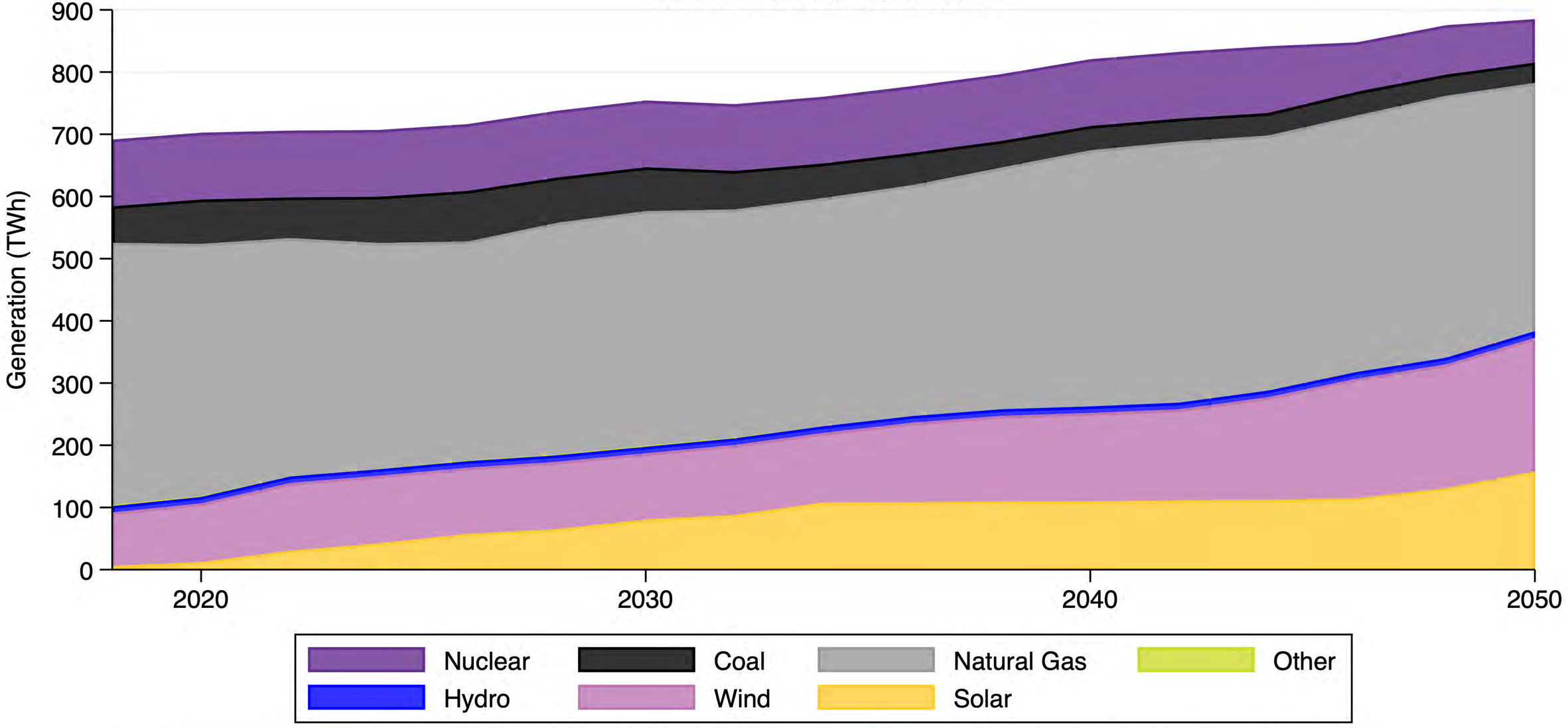
Gulf Coast Electricity Generation by Source

Reference Electrification Levels



Source: National Renewable Energy Laboratory. Solar includes Utility-Scale Solar, Rooftop PV, and CSP. Wind includes both Offshore and Land-based.
Natural Gas is combination of Combined Cycle and Combination Turbine. Other category includes Geothermal, Biopower, Oil & Gas Steam, Imports, Curtailment and Storage.

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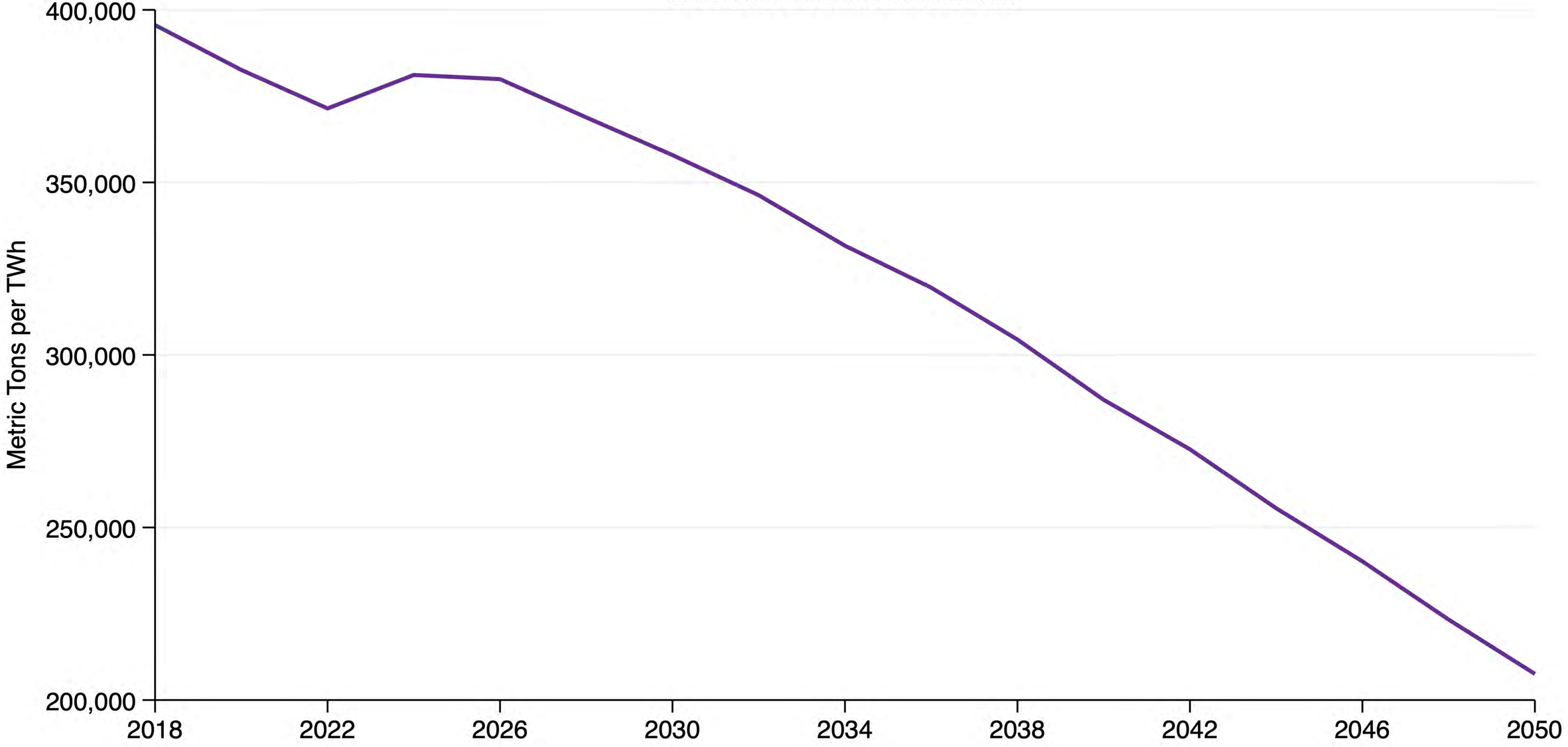
Carbon Intensity of U.S. Electricity Generation

Reference Electrification Levels



Source: National Renewable Energy Laboratory.

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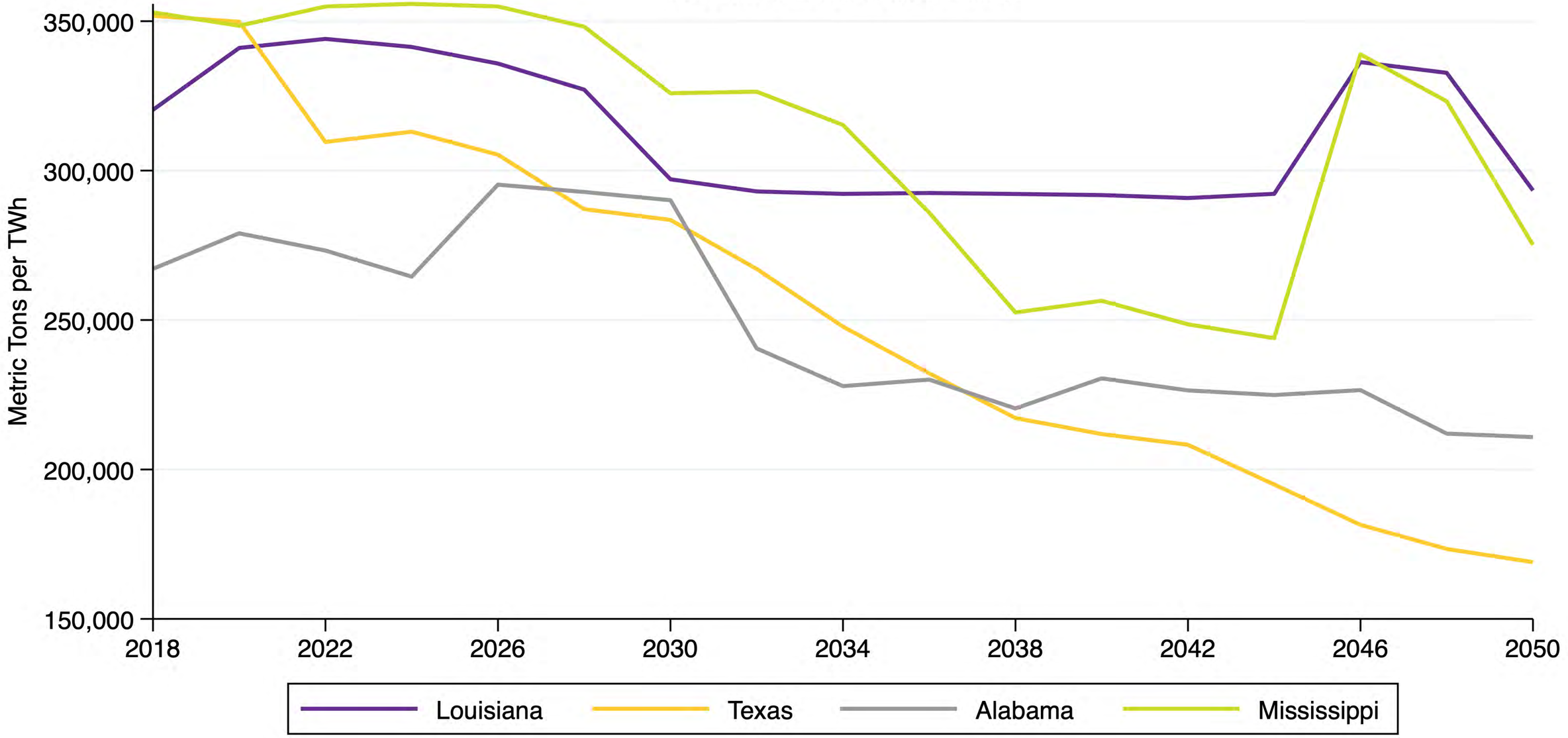
Gulf States Carbon Intensity of Electricity Generation

Reference Electrification Levels



Source: National Renewable Energy Laboratory.

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1.4 A New Era of Electric Demand Growth?

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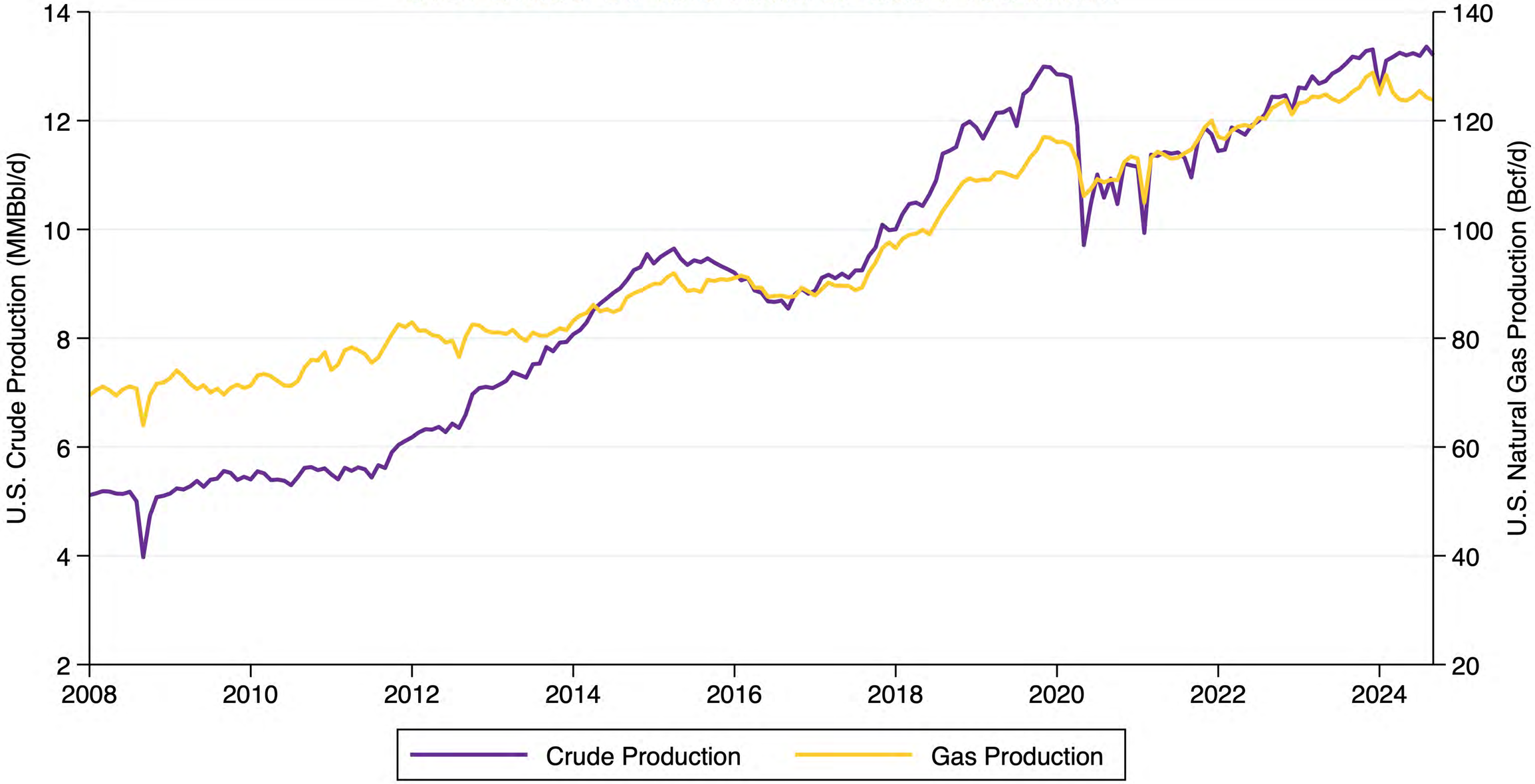
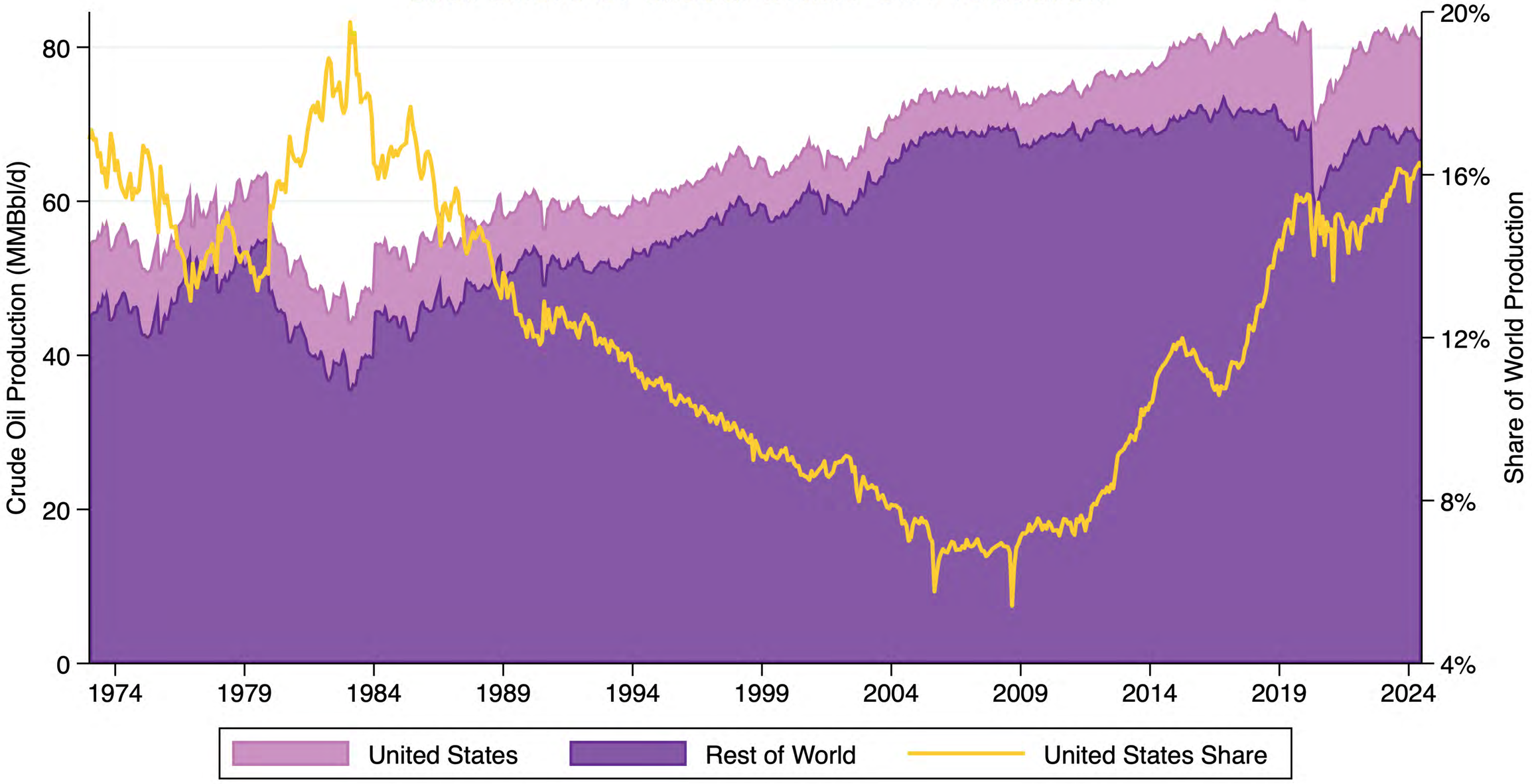
U.S. Crude Oil and Natural Gas Production



Source: Energy Information Administration.

U.S. Share of Global Crude Oil Production



Source: Energy Information Administration.

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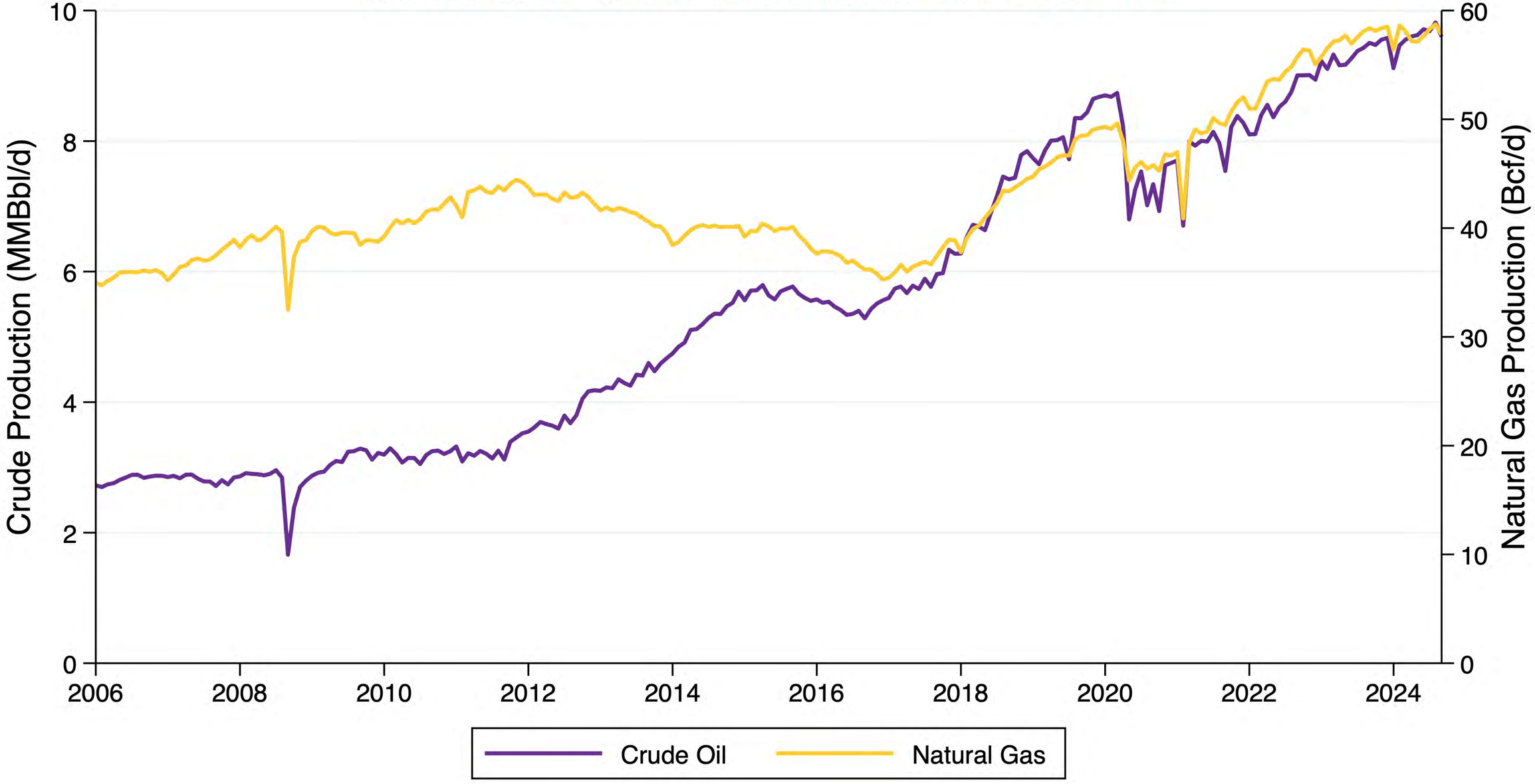
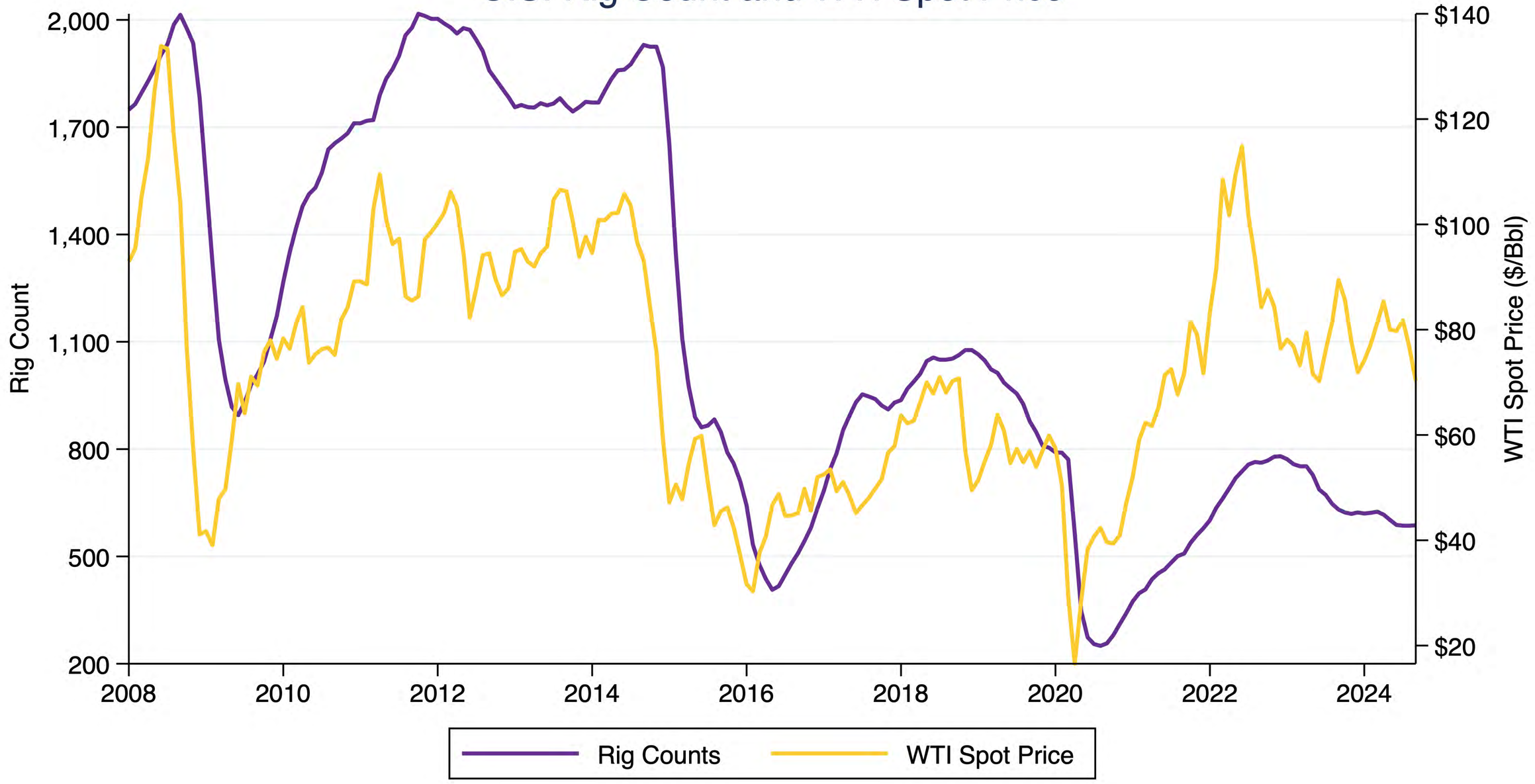
Gulf Coast Crude Oil and Natural Gas Production



Source: Energy Information Administration.

U.S. Rig Count and WTI Spot Price



Source: Energy Information Administration, Baker Hughes Rig Count Overview.

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U.S. Rig Count

Source: Baker Hughes Rig Count Overview.

Texas Rig Count

Source: Baker Hughes Rig Count Overview.

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Louisiana Rig Count

Source: Baker Hughes Rig Count Overview.

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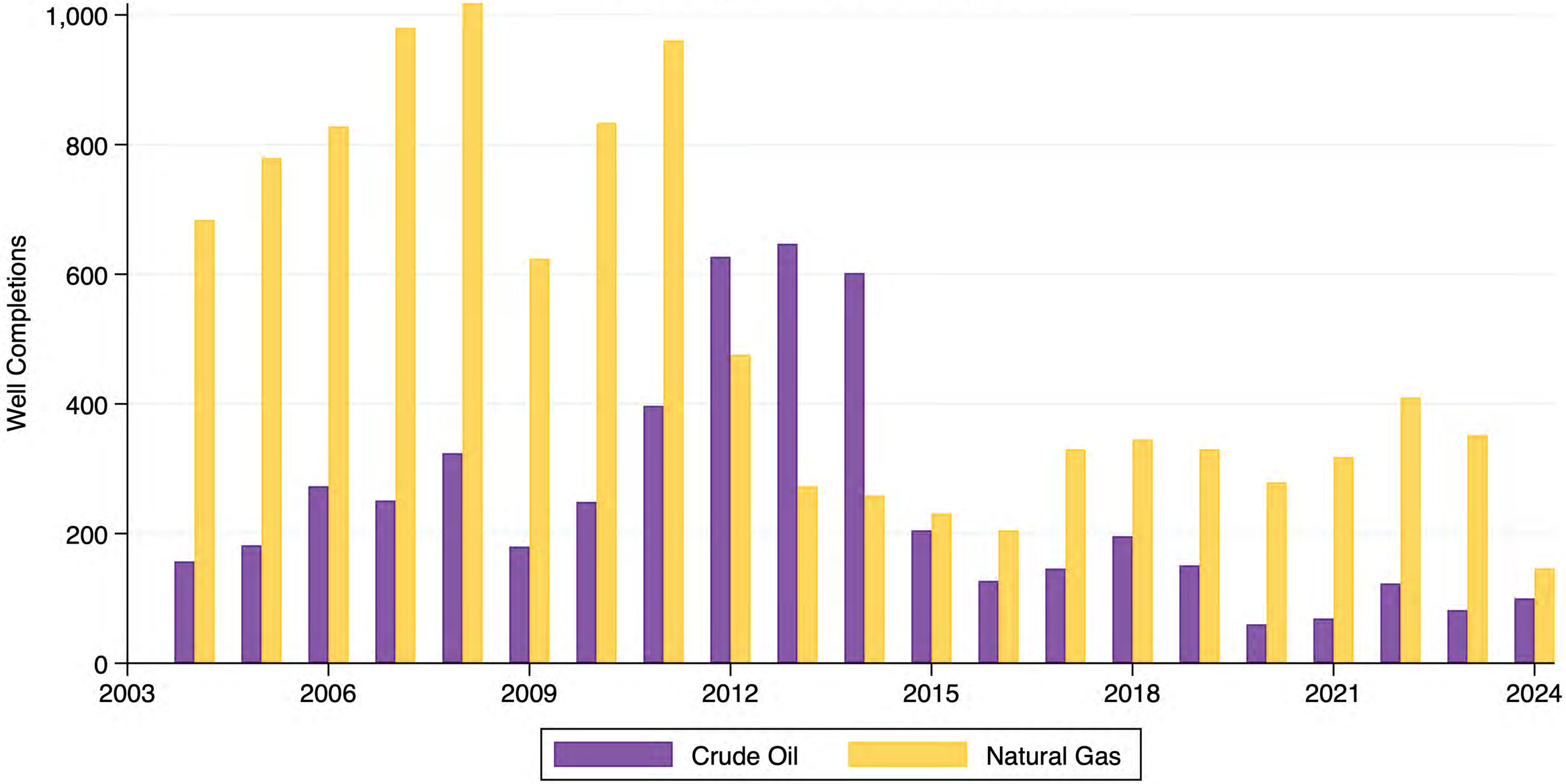
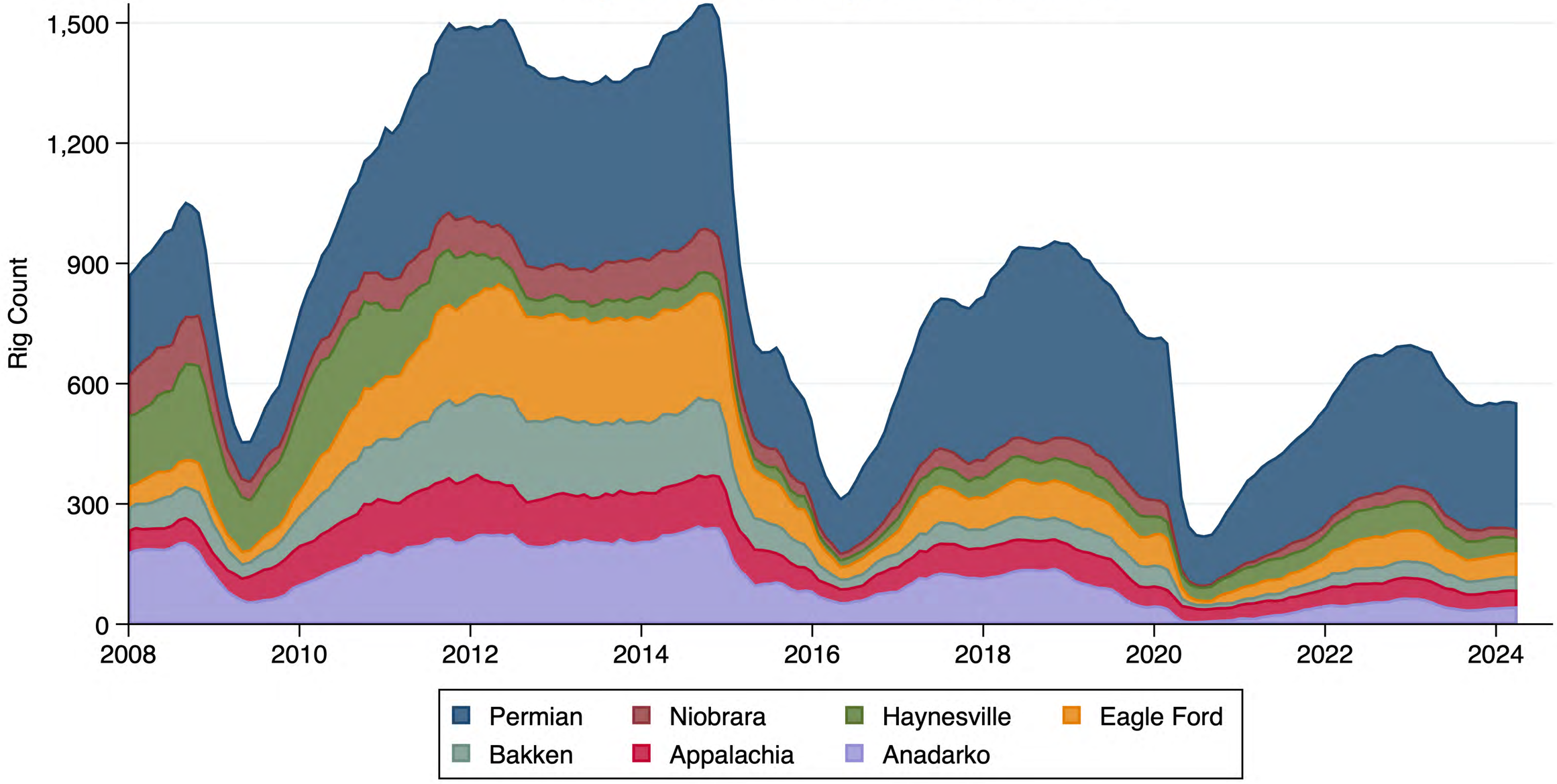
Louisiana Well Completions



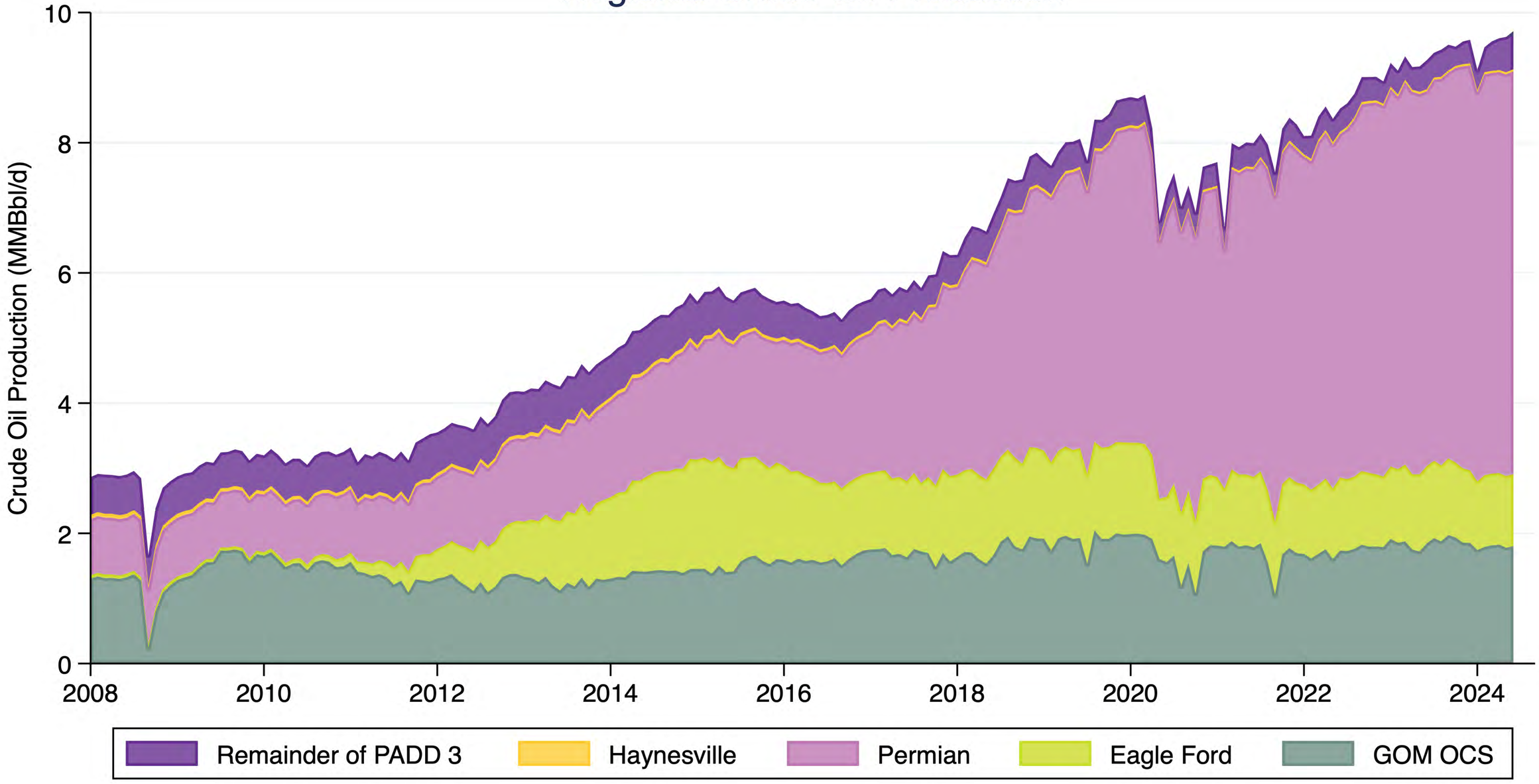
Source: Louisiana Department of Energy and Natural Resources. Strategic Online Natural Resources Information System.

Rig Counts in Major Shale Basins



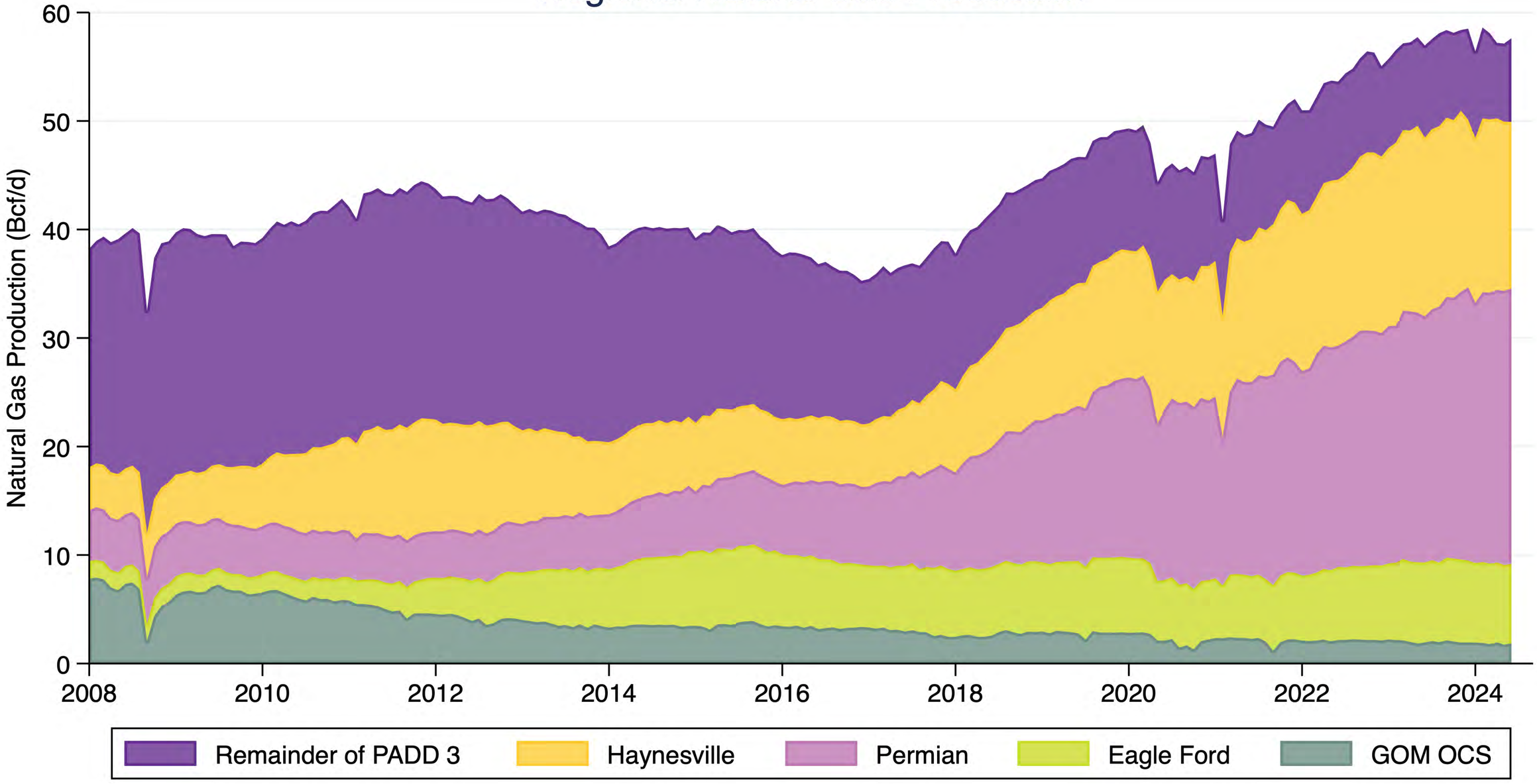
Source: Energy Information Administration.

Regional Crude Oil Production

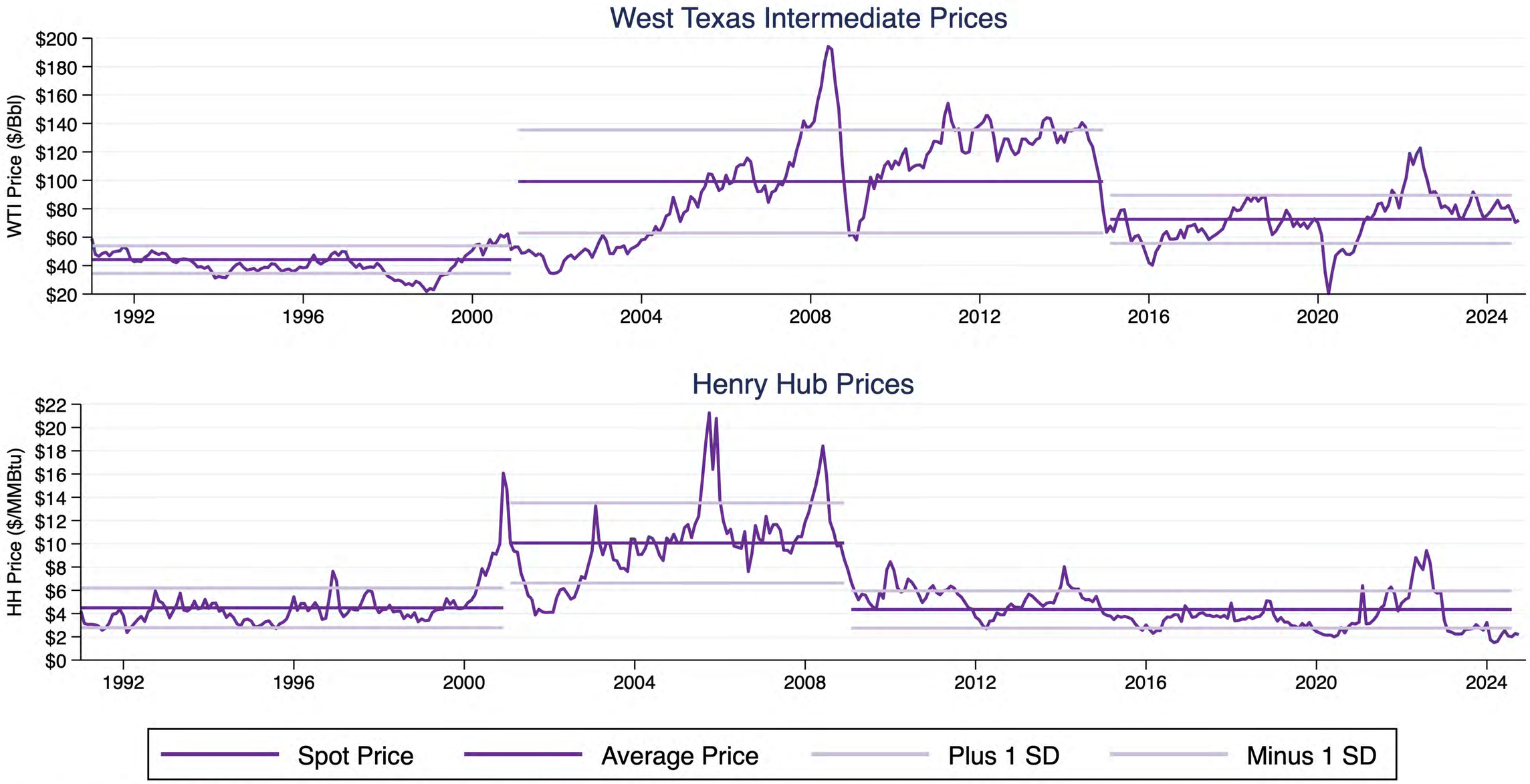


Source: Energy Information Administration.

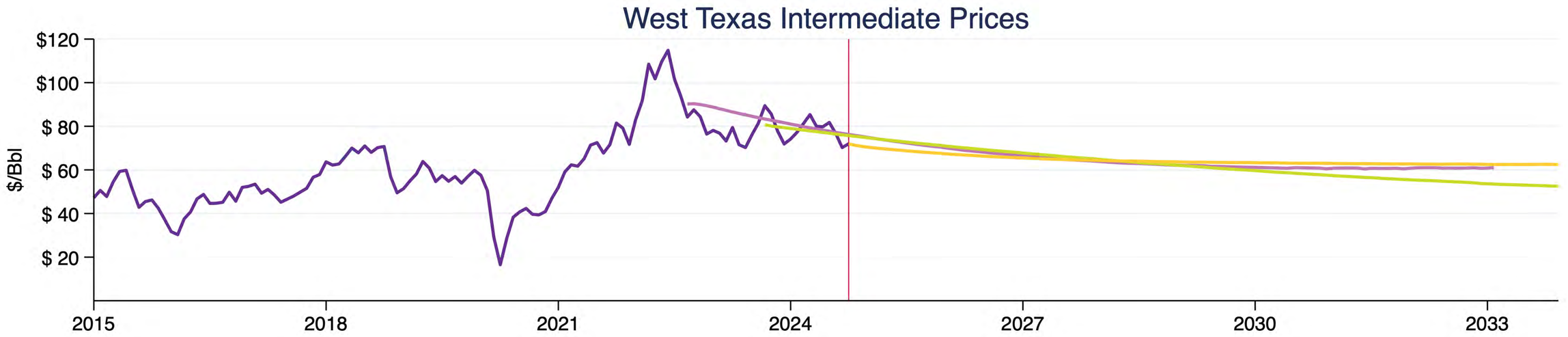
Regional Natural Gas Production

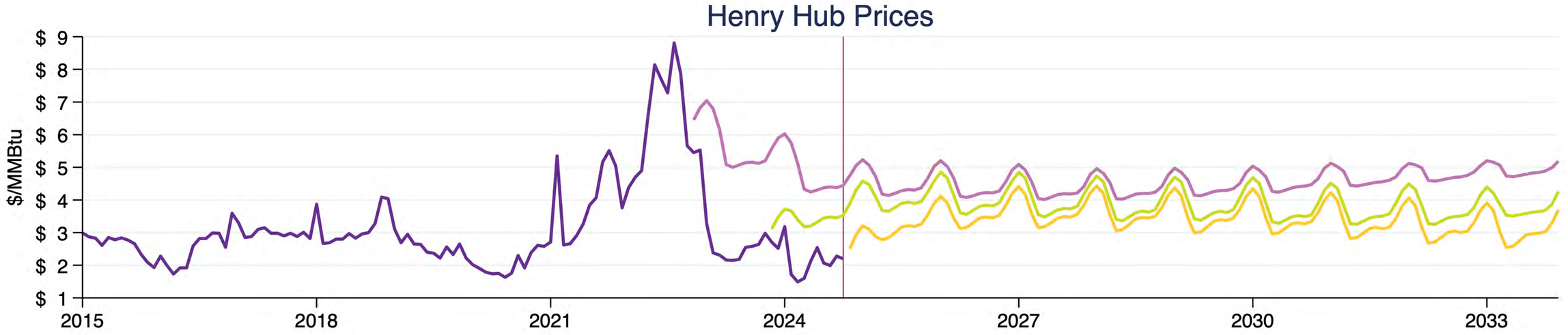


Source: Energy Information Administration.



Spot price adjusted to current Consumer Price Index.
Source: Energy Information Administration.





Spot price adjusted to current Consumer Price Index.
Sources: Energy Information Administration. S&P Global Market Intelligence.

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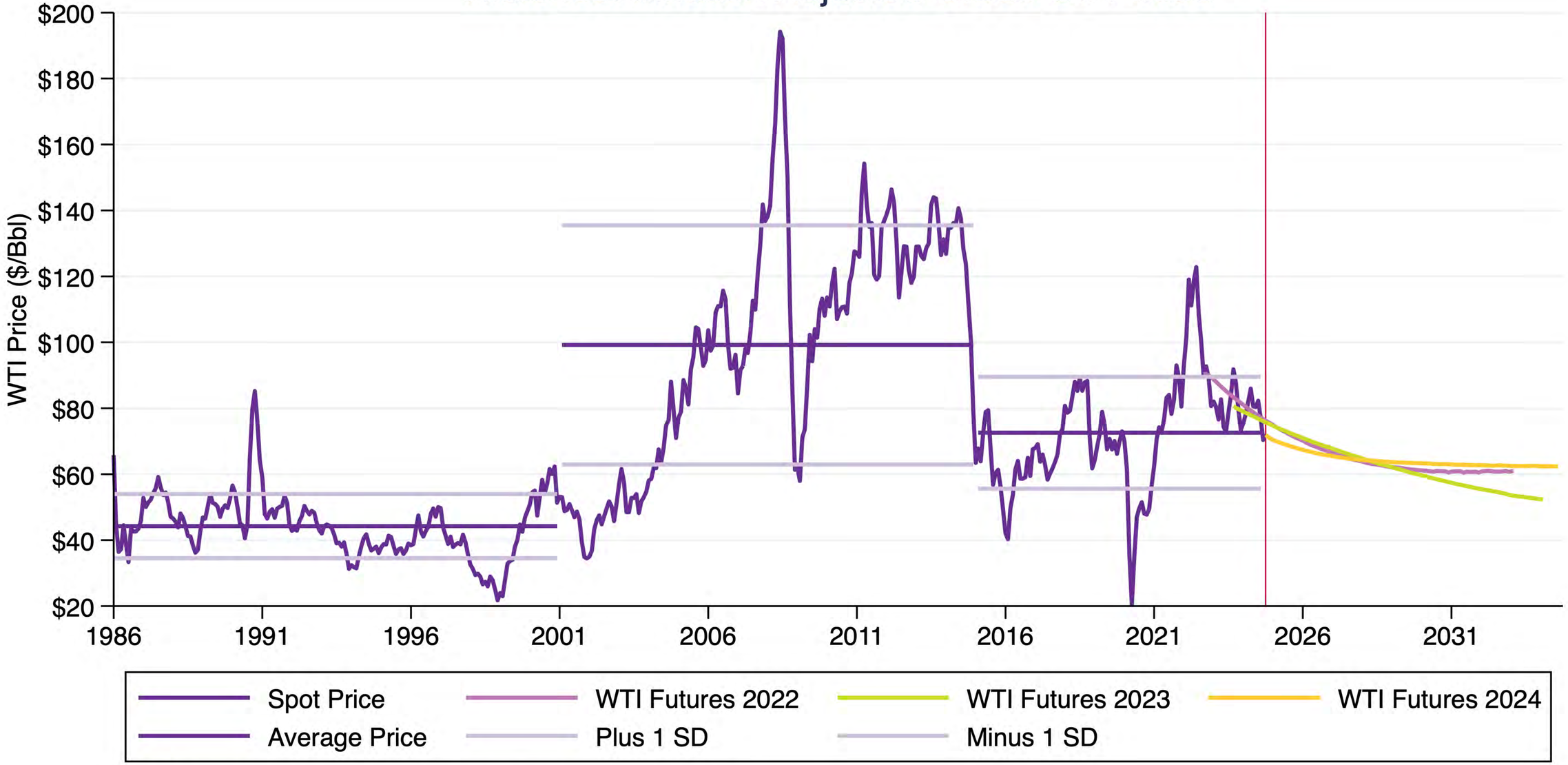
Historical Inflation Adjusted Crude Oil Prices



WTI Spot price adjusted to current Consumer Price Index.
Source: Energy Information Administration.

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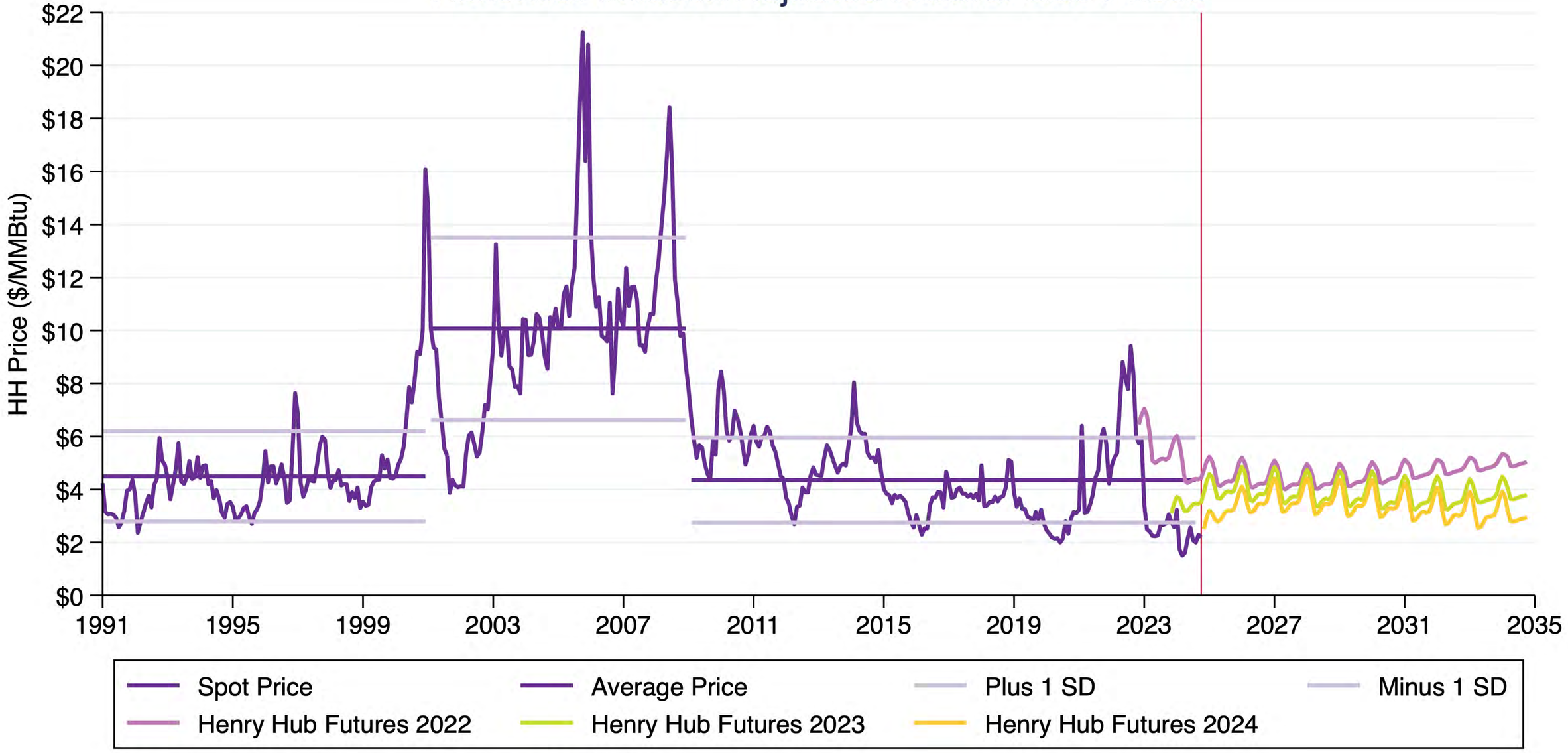
Historical Inflation Adjusted Natural Gas Prices



Spot price adjusted to current Consumer Price Index.
Source: Energy Information Administration.

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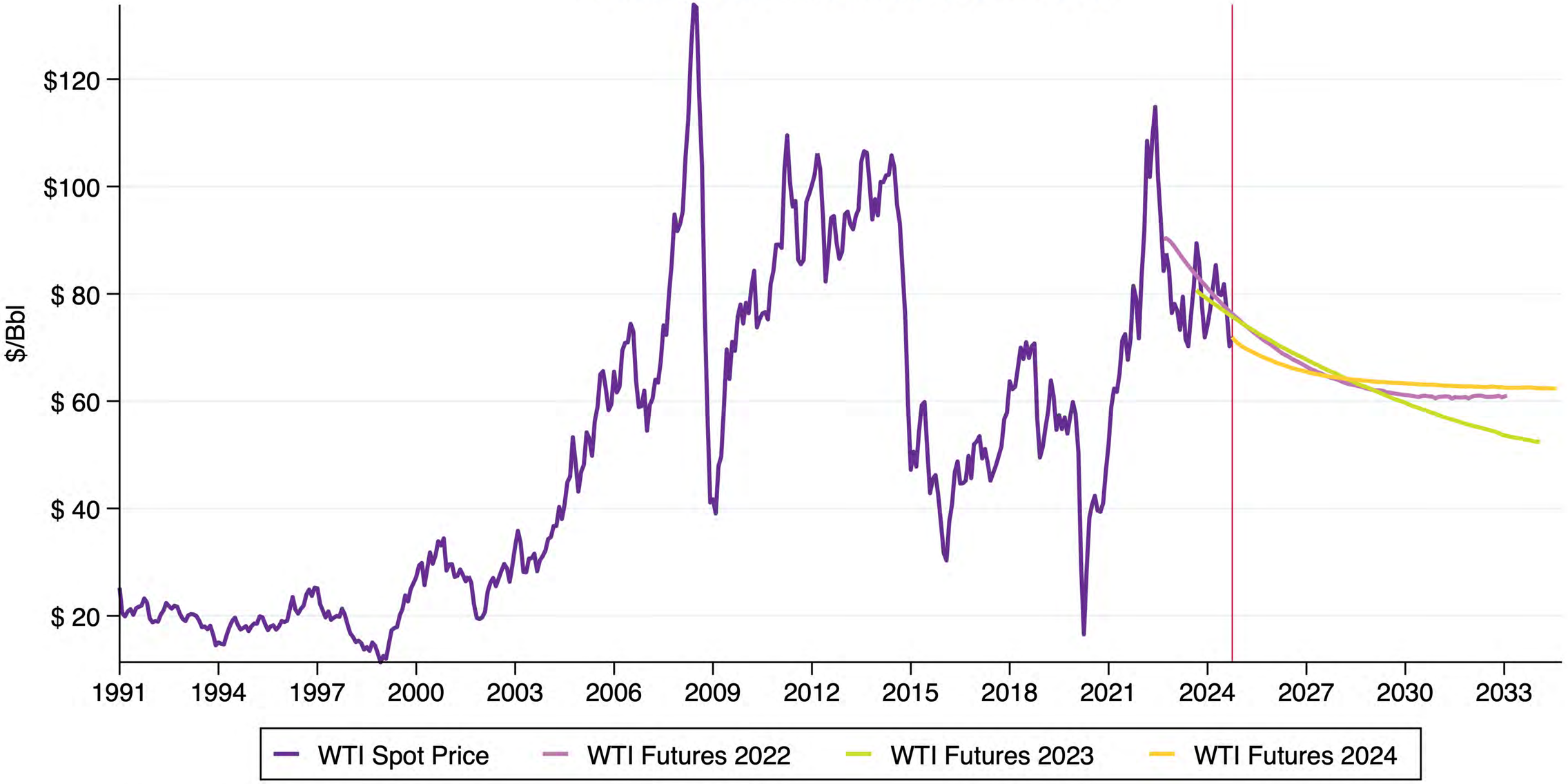
Haynesville Natural Gas Production

Source: Energy Information Administration.

West Texas Intermediate Prices



Source: S&P Global Market Intelligence.

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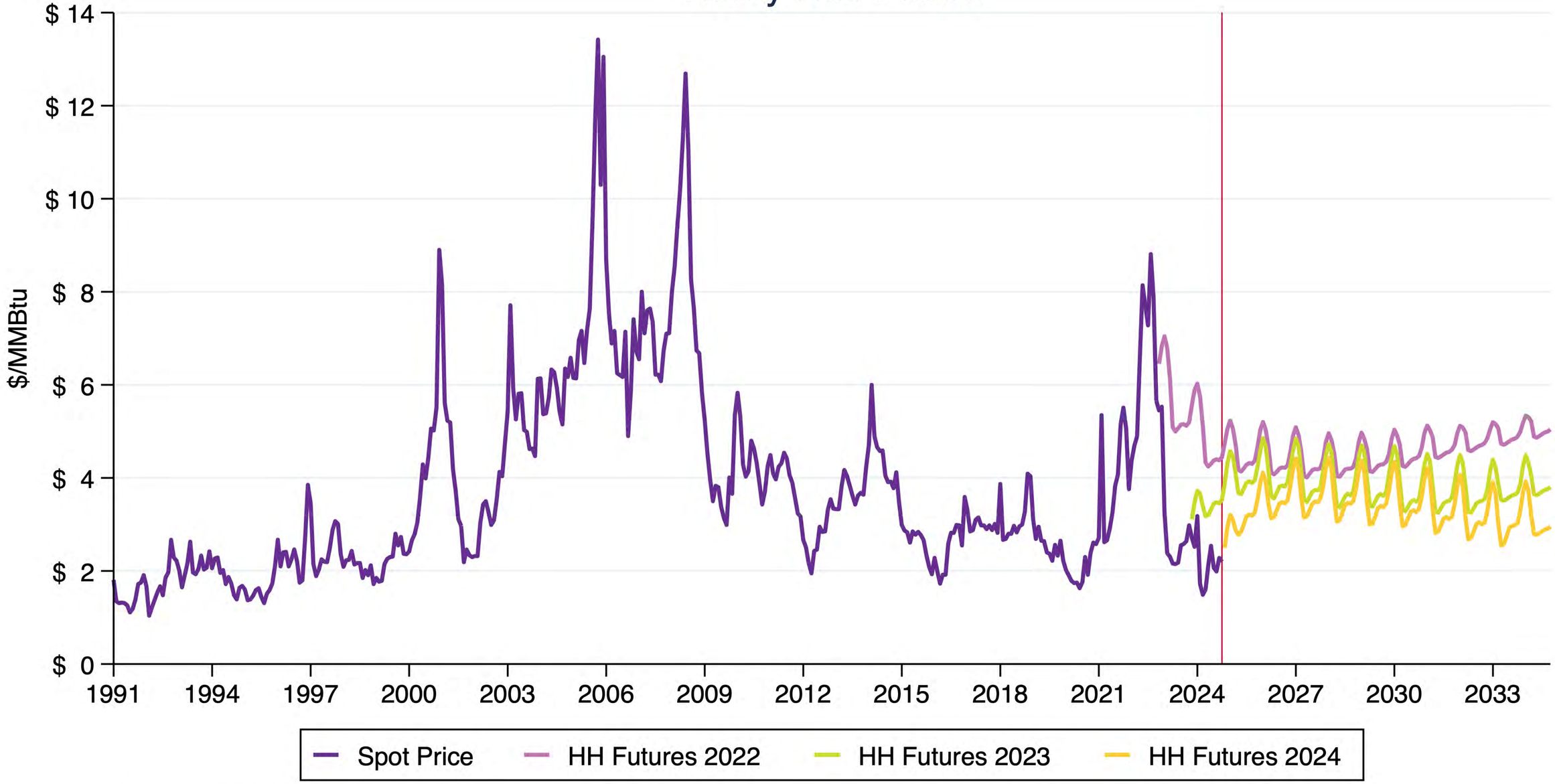
Henry Hub Prices



Source: S&P Global Market Intelligence.

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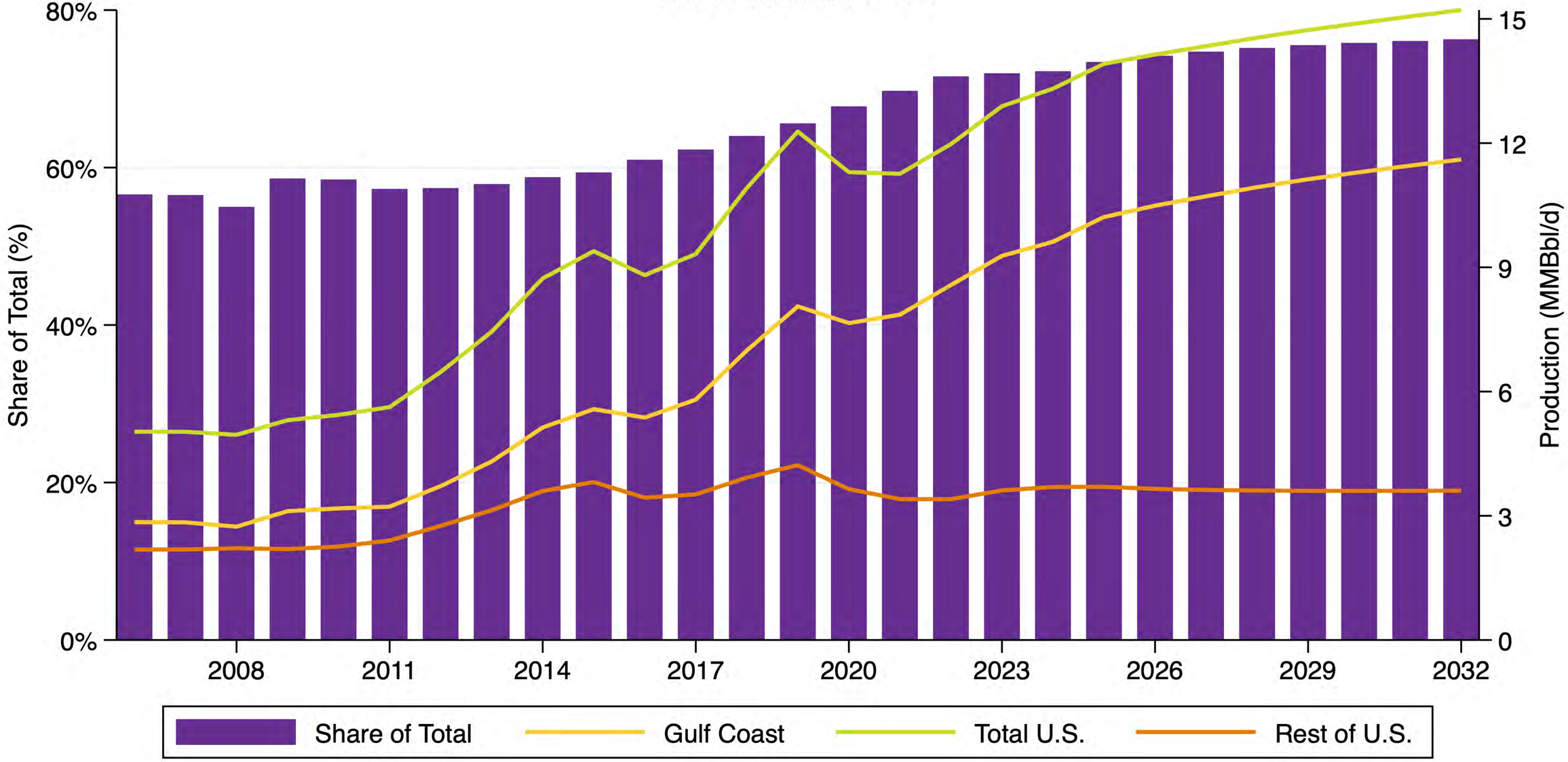
Crude Oil Production Forecast

Gulf Coast Share of U.S.



Source: Enverus. DrillingInfo Prodcast.

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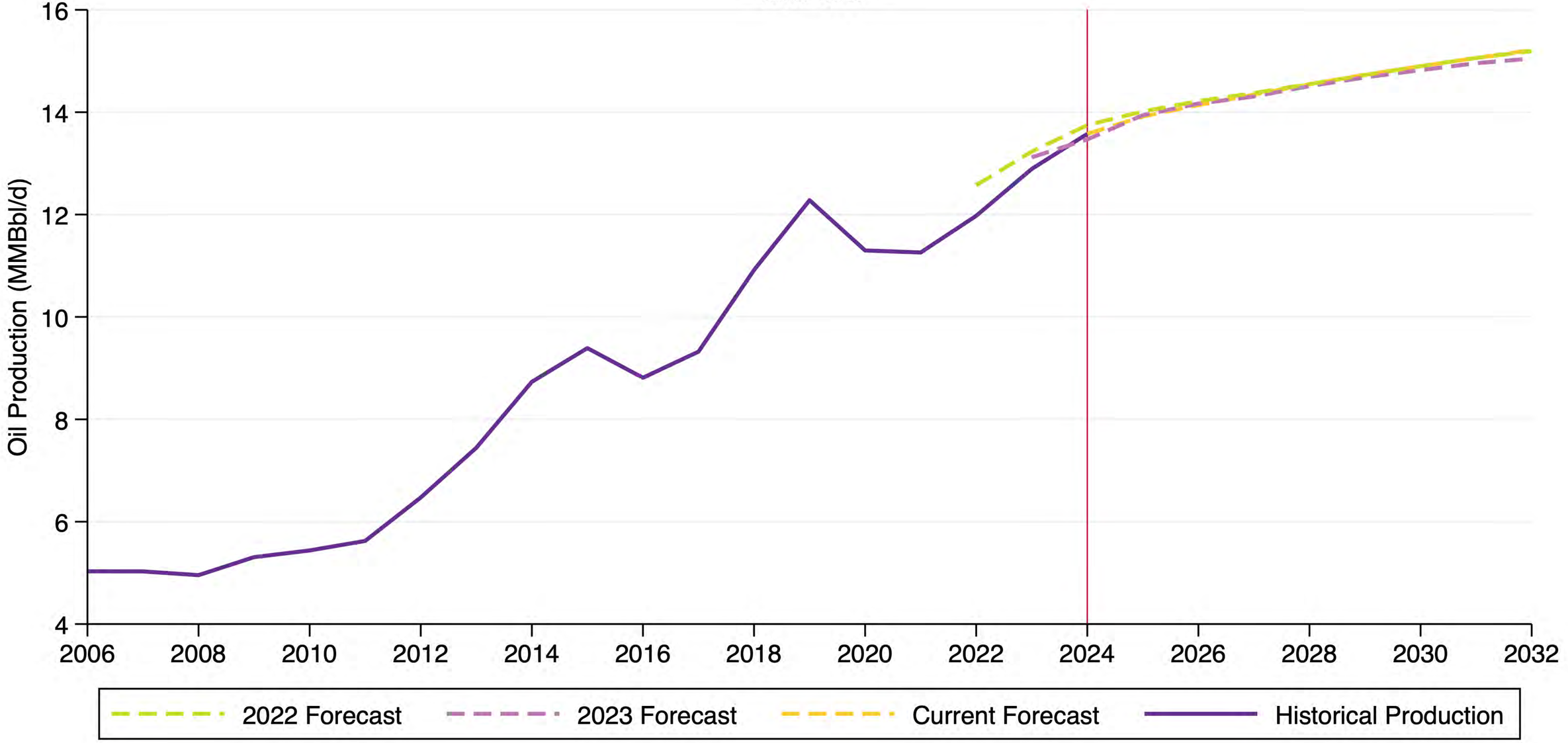
Crude Oil Production Forecast

Total U.S.



Source: Enverus. DrillingInfo Prodcast.

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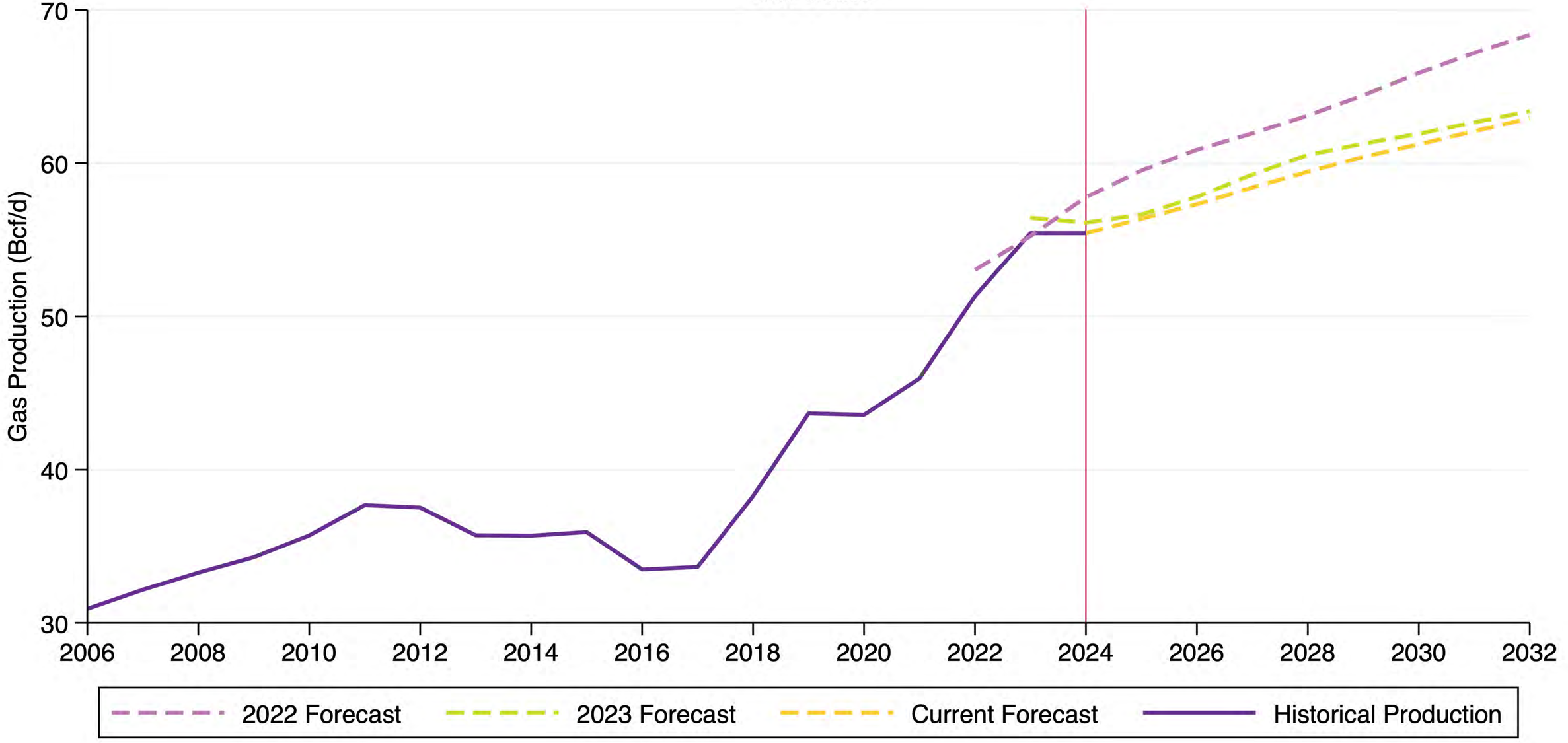
Natural Gas Production Forecast

Gulf Coast



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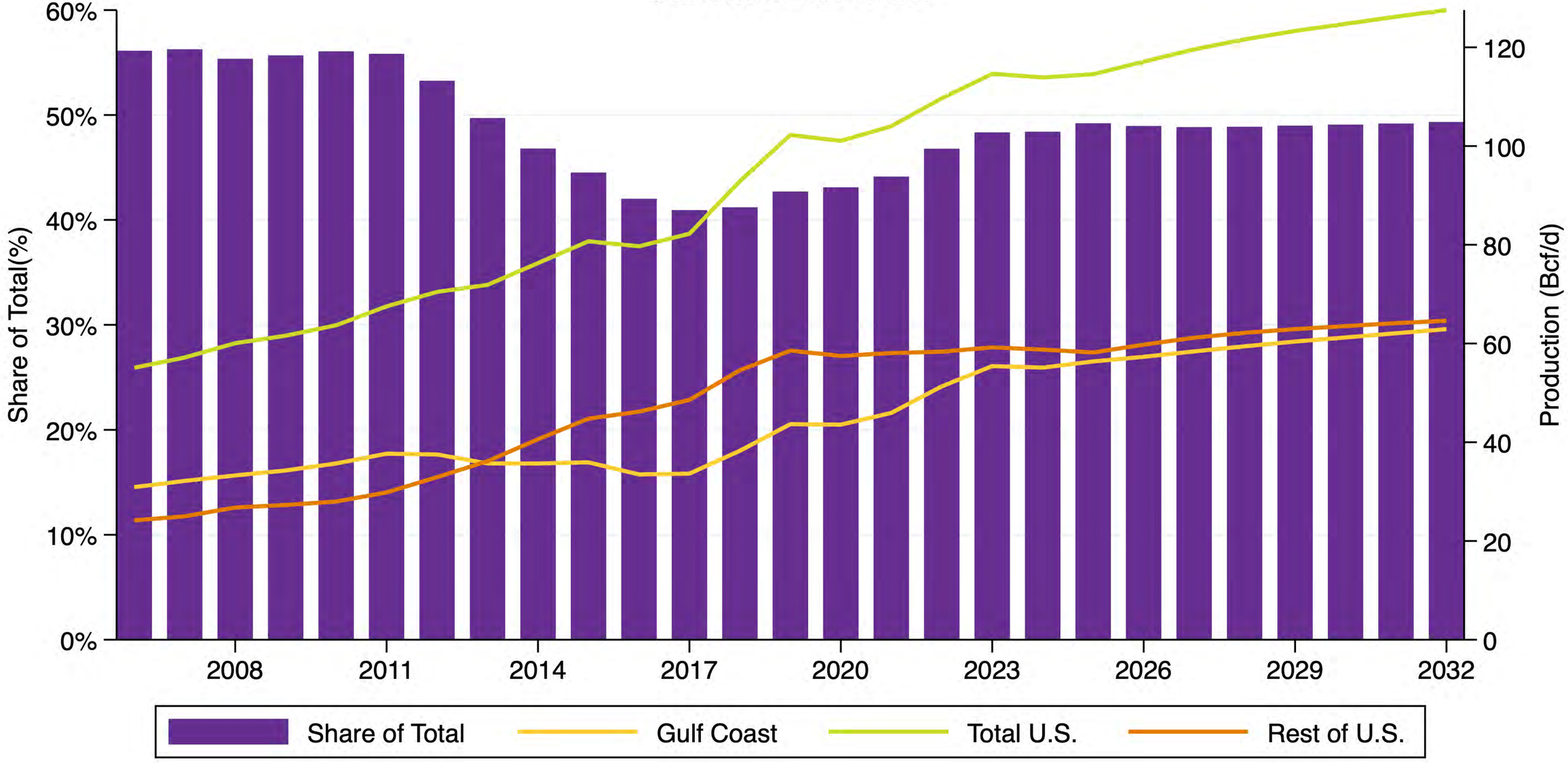
Natural Gas Production Forecast

Gulf Coast Share of U.S.



Source: Enverus. DrillingInfo Prodcast.

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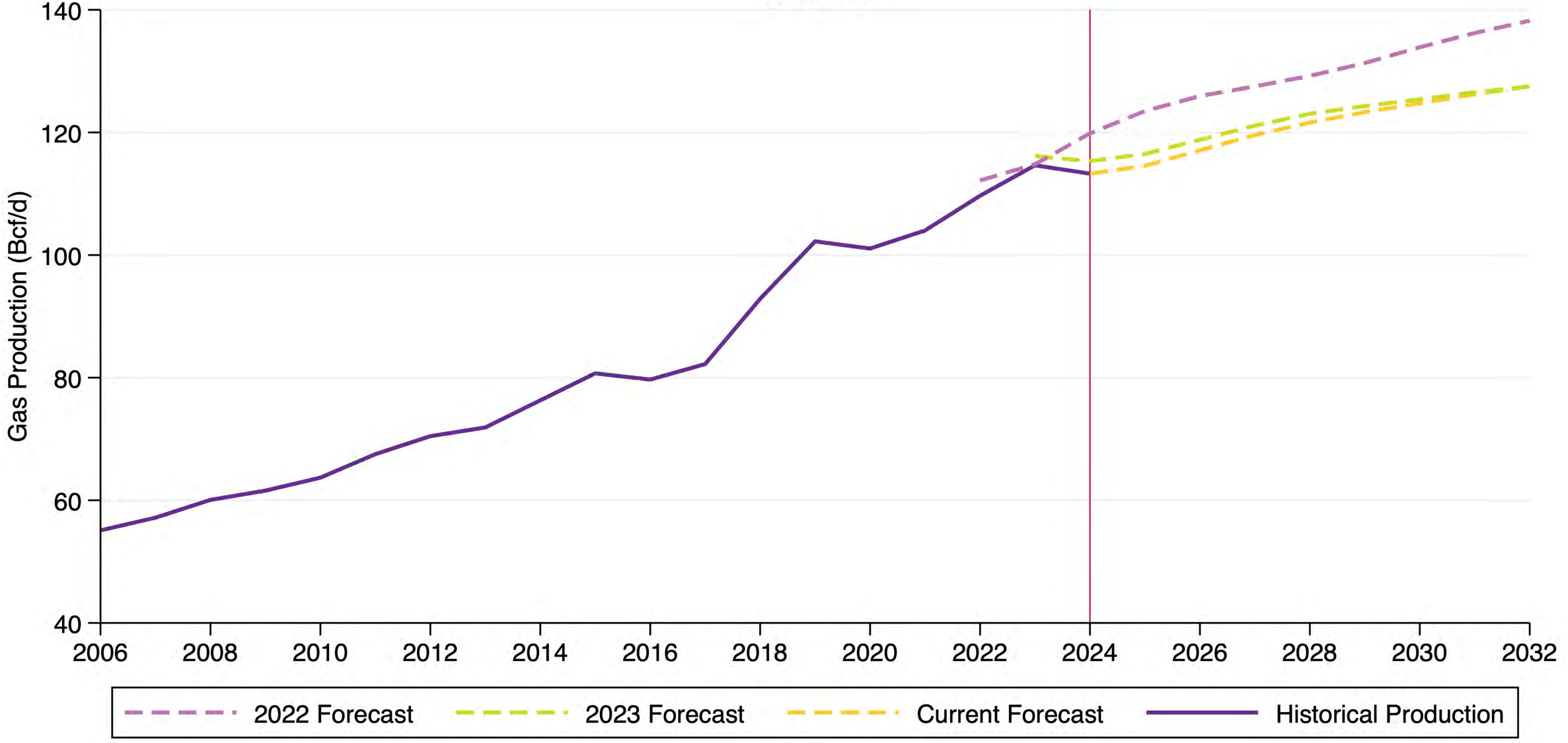
Natural Gas Production Forecast

Total U.S.



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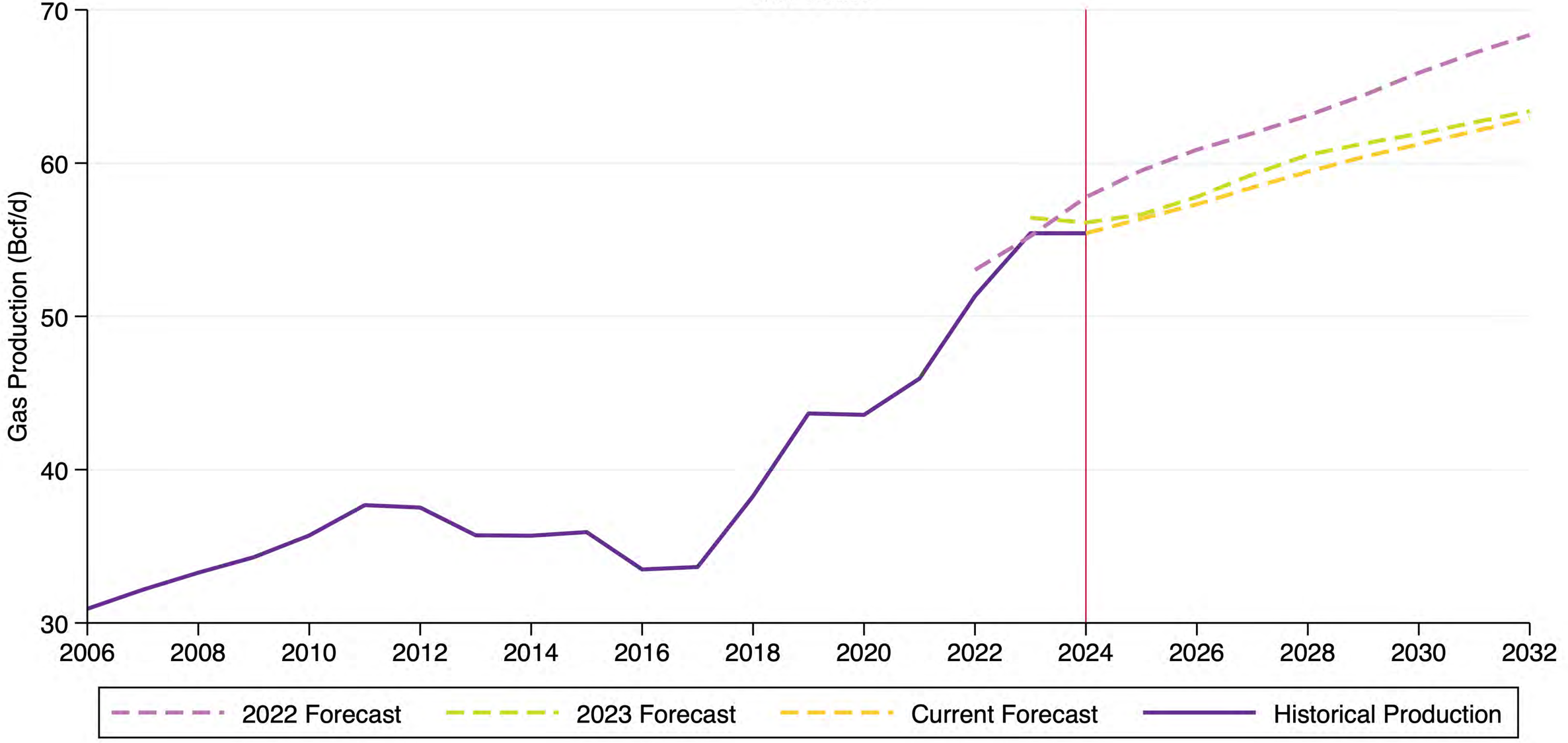
Natural Gas Production Forecast

Gulf Coast



Source: Enverus. DrillingInfo Prodcast.

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U.S. Value of Production

Historical and Forecast

Sources: Enverus and Energy Information Administration.

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ENVERUS

Gulf Coast Value of Production

Historical and Forecast

Sources: Enverus and Energy Information Administration.

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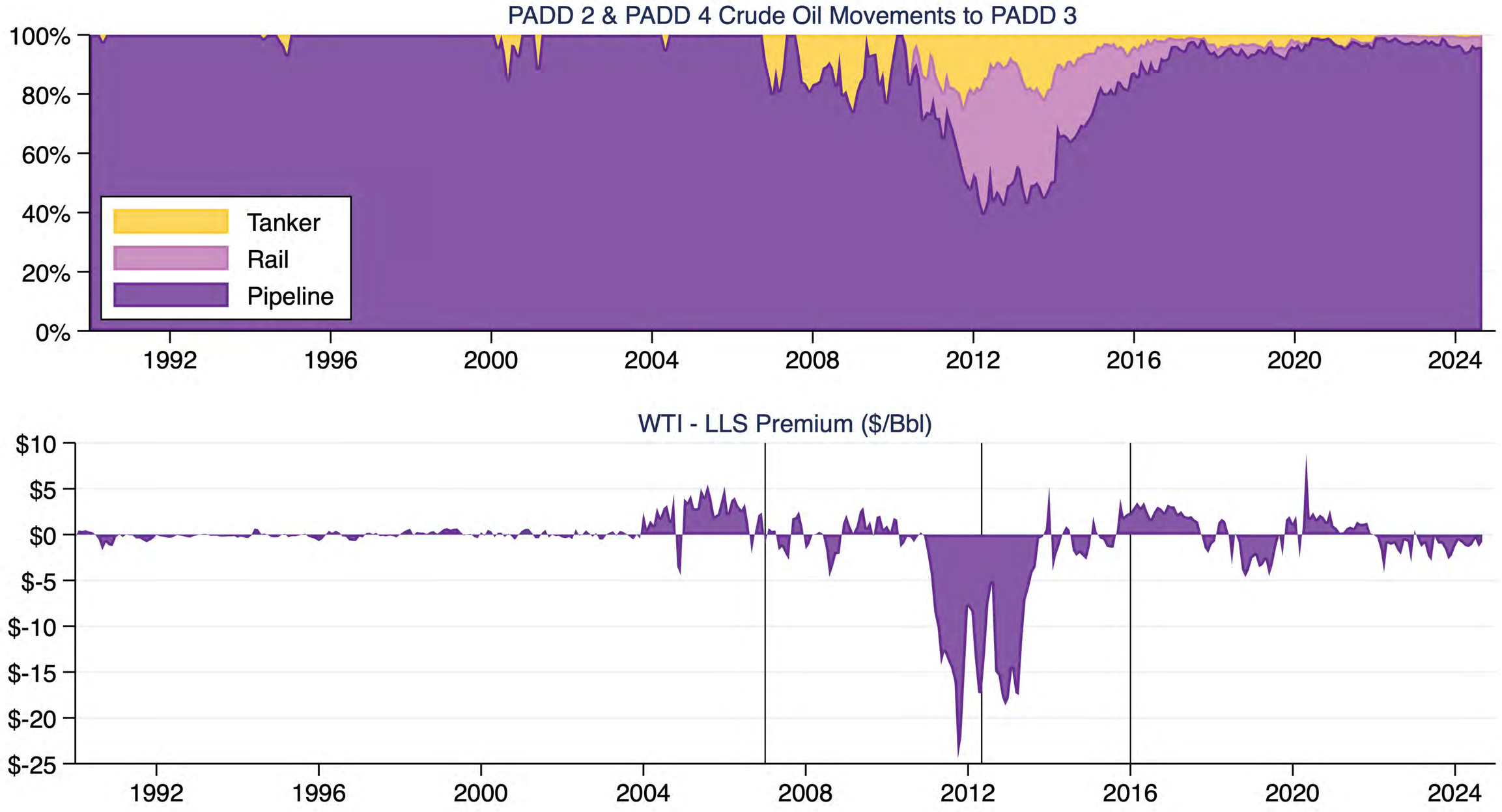

Source: Energy Information Administration.

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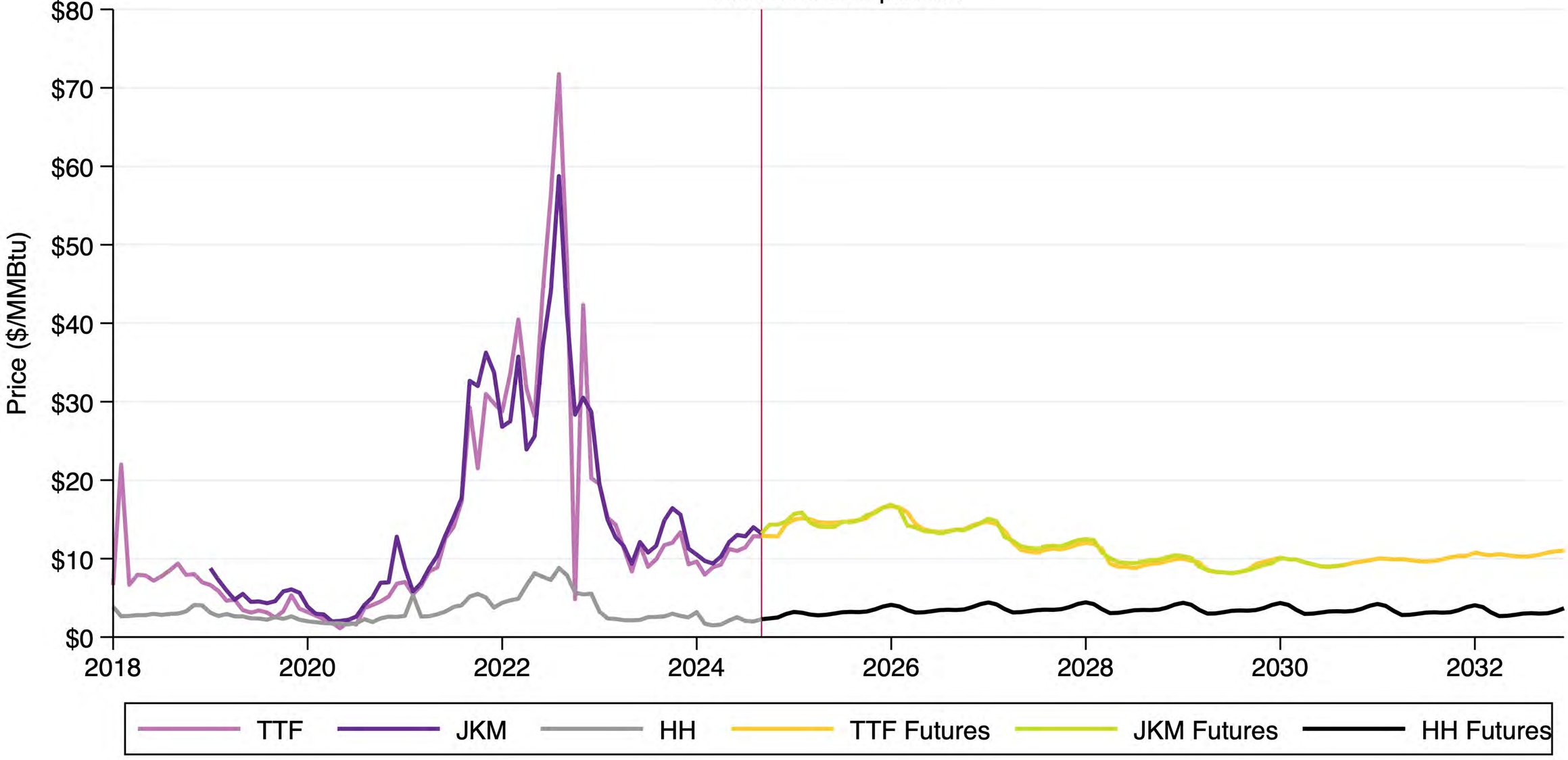
Natural Gas Prices

Historical Comparison



Source: Bloomberg.

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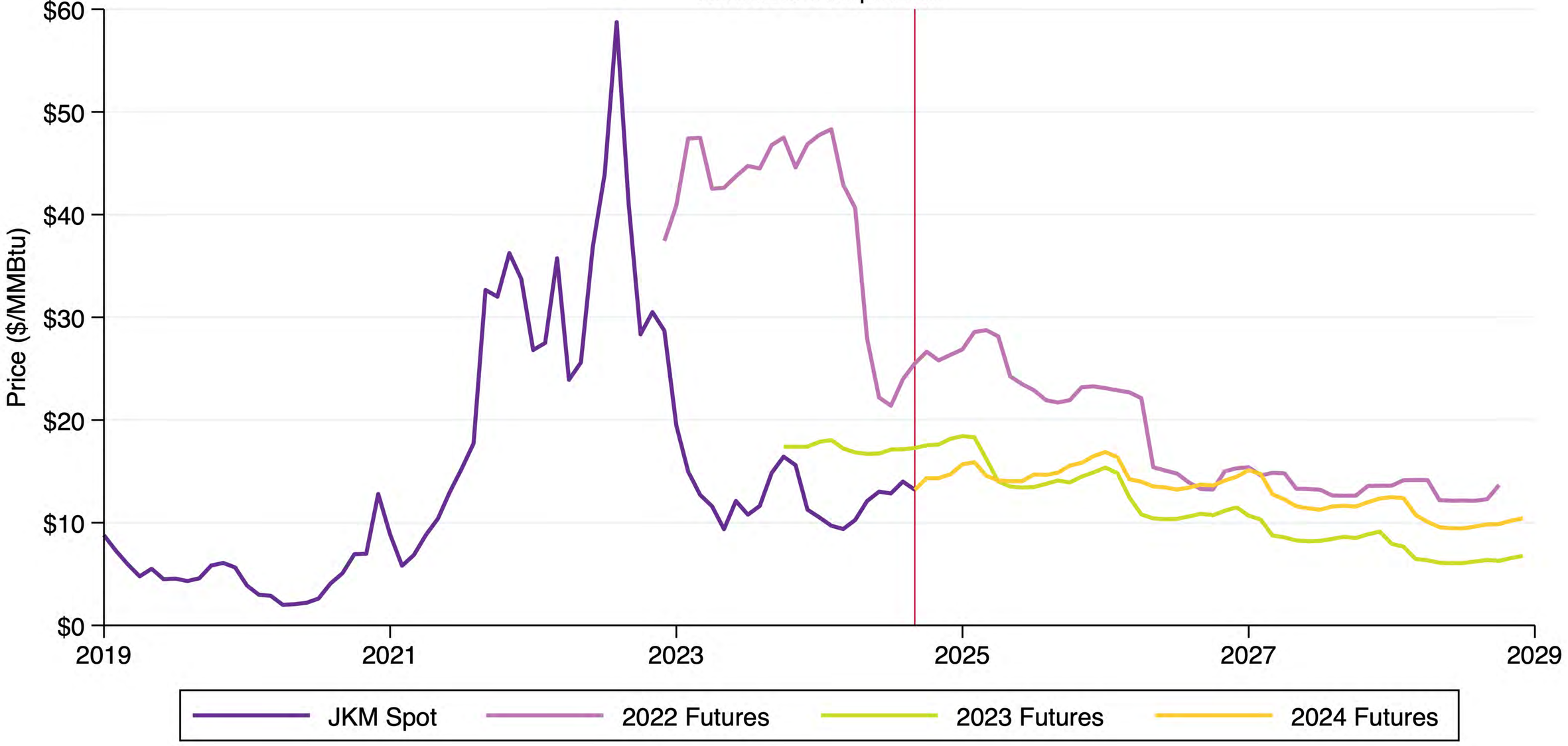
JKM Natural Gas Prices

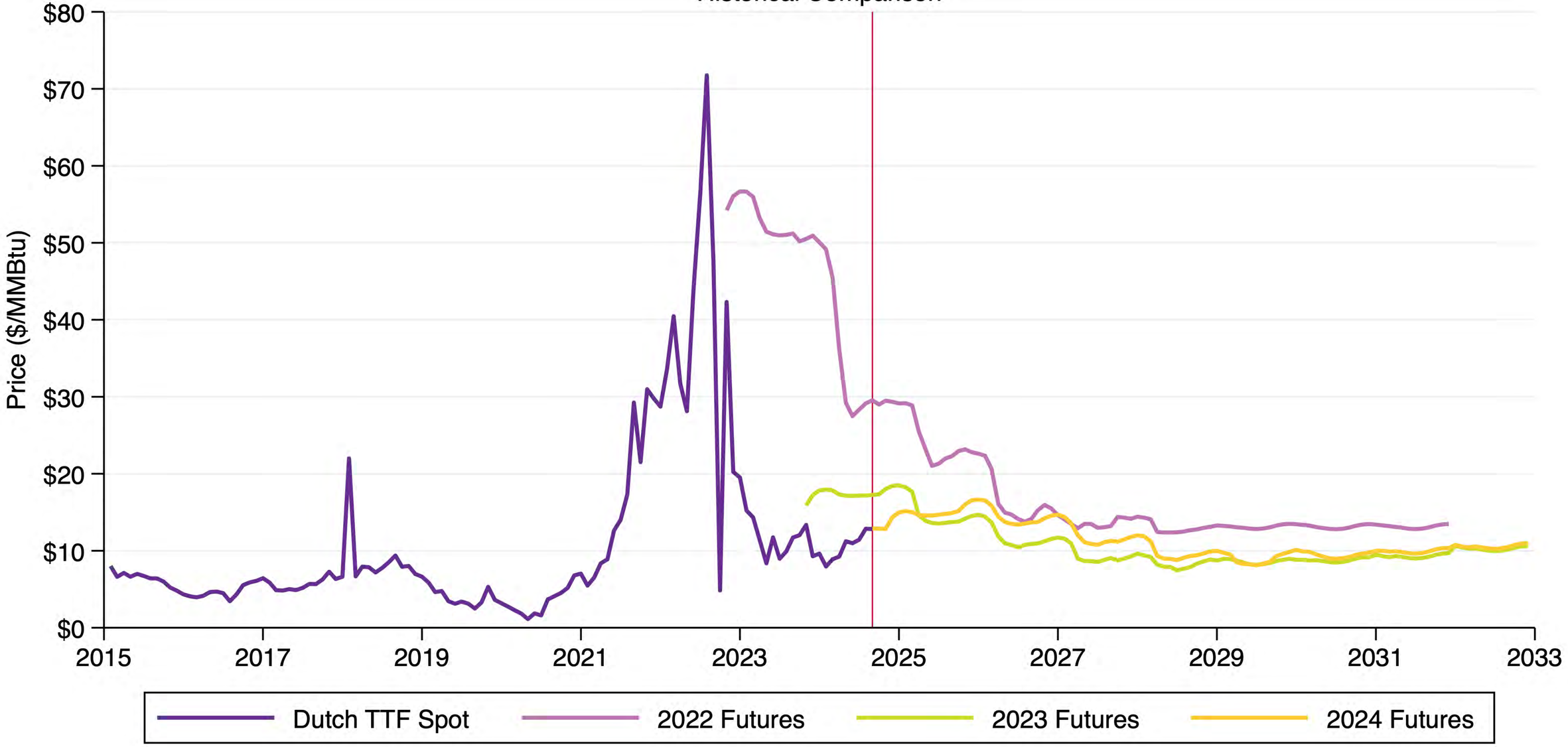
Historical Comparison



Source: Bloomberg.

Dutch TTF Natural Gas Price

Historical Comparison



Source: Bloomberg.

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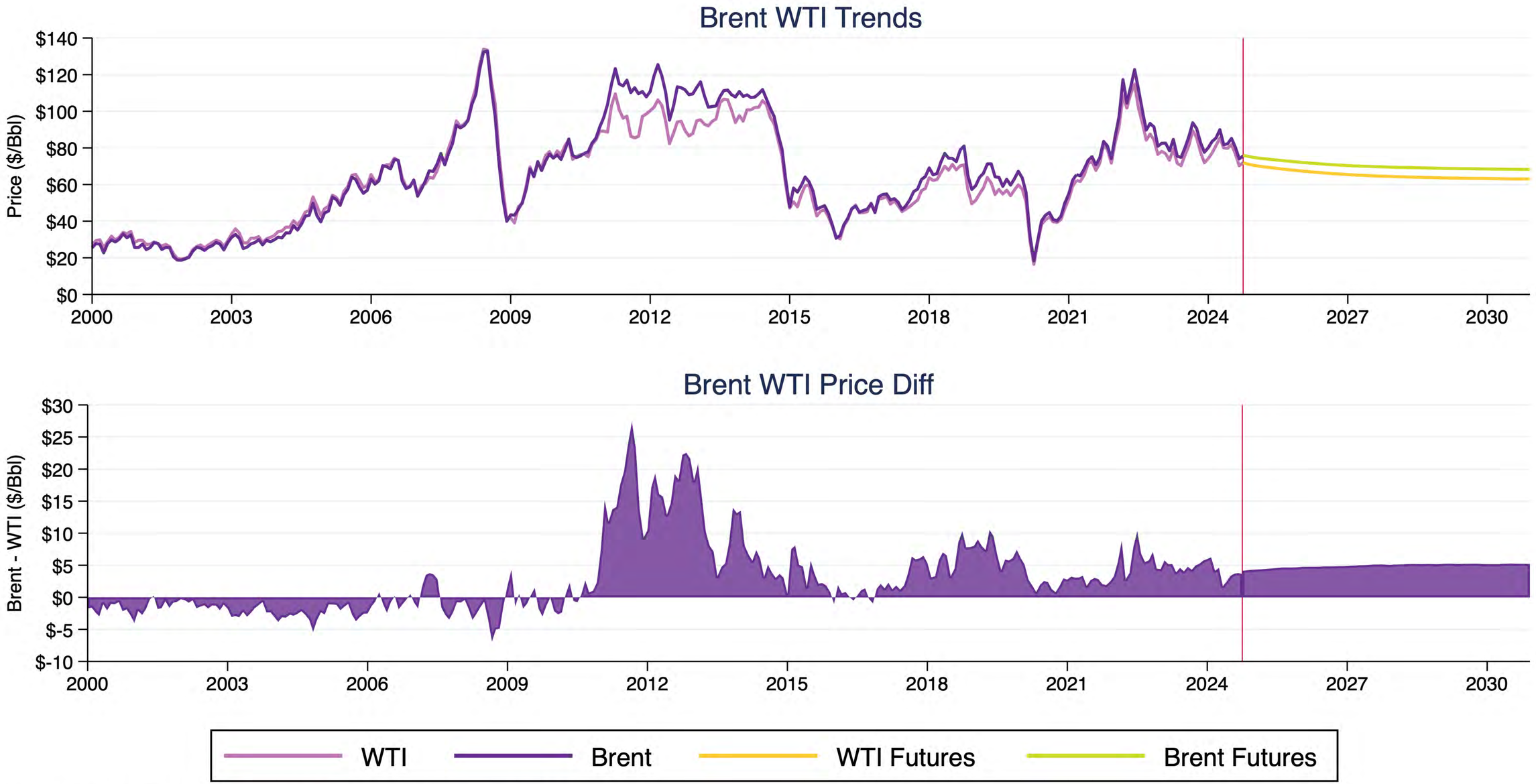

Spot price adjusted to current Consumer Price Index.
Sources: Energy Information Administration. S&P Global Market Intelligence.

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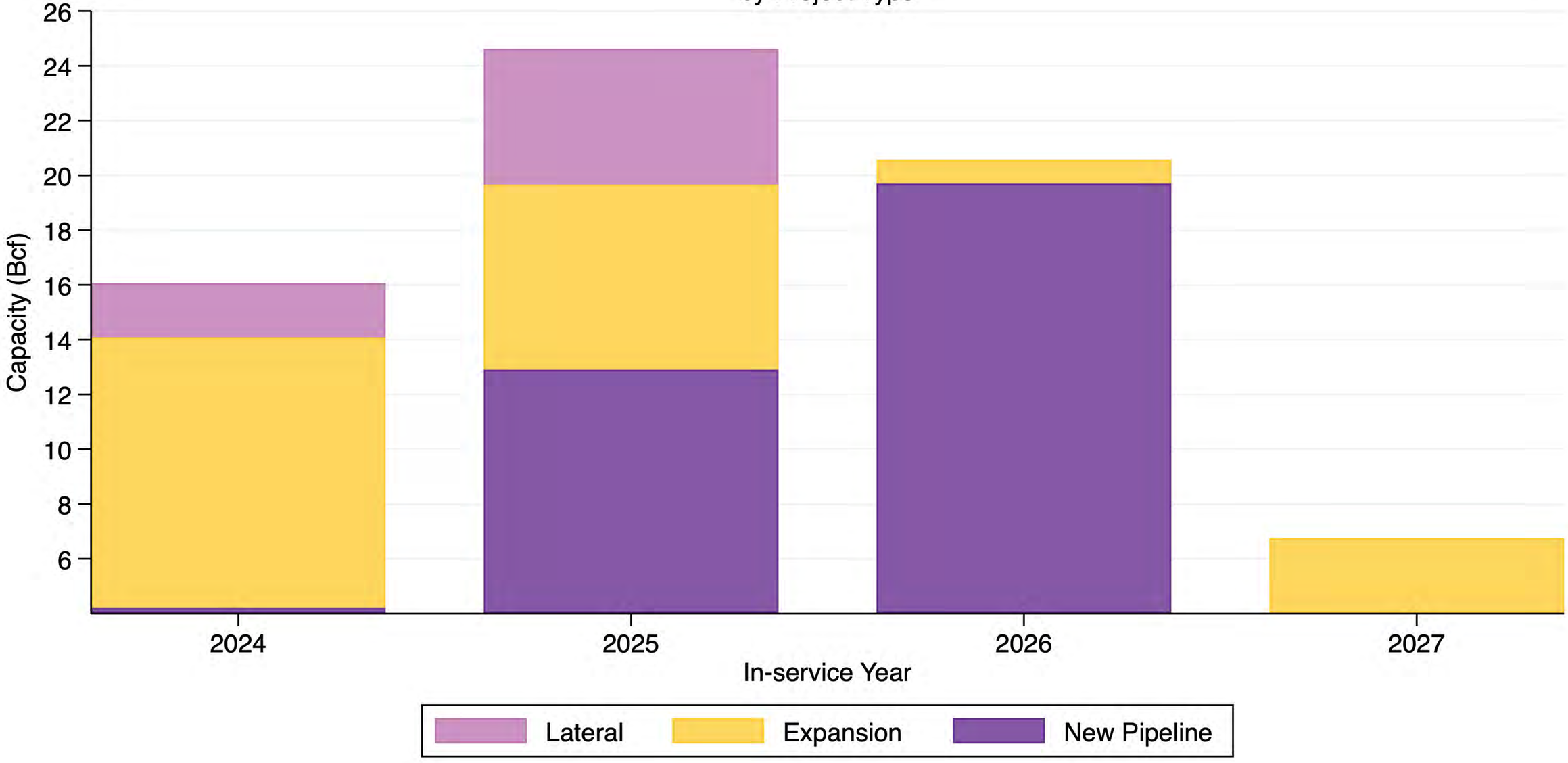
Natural Gas Pipeline Capacity Additions

by Project Type



Source: Energy Information Administration, Natural Gas Pipeline Projects.

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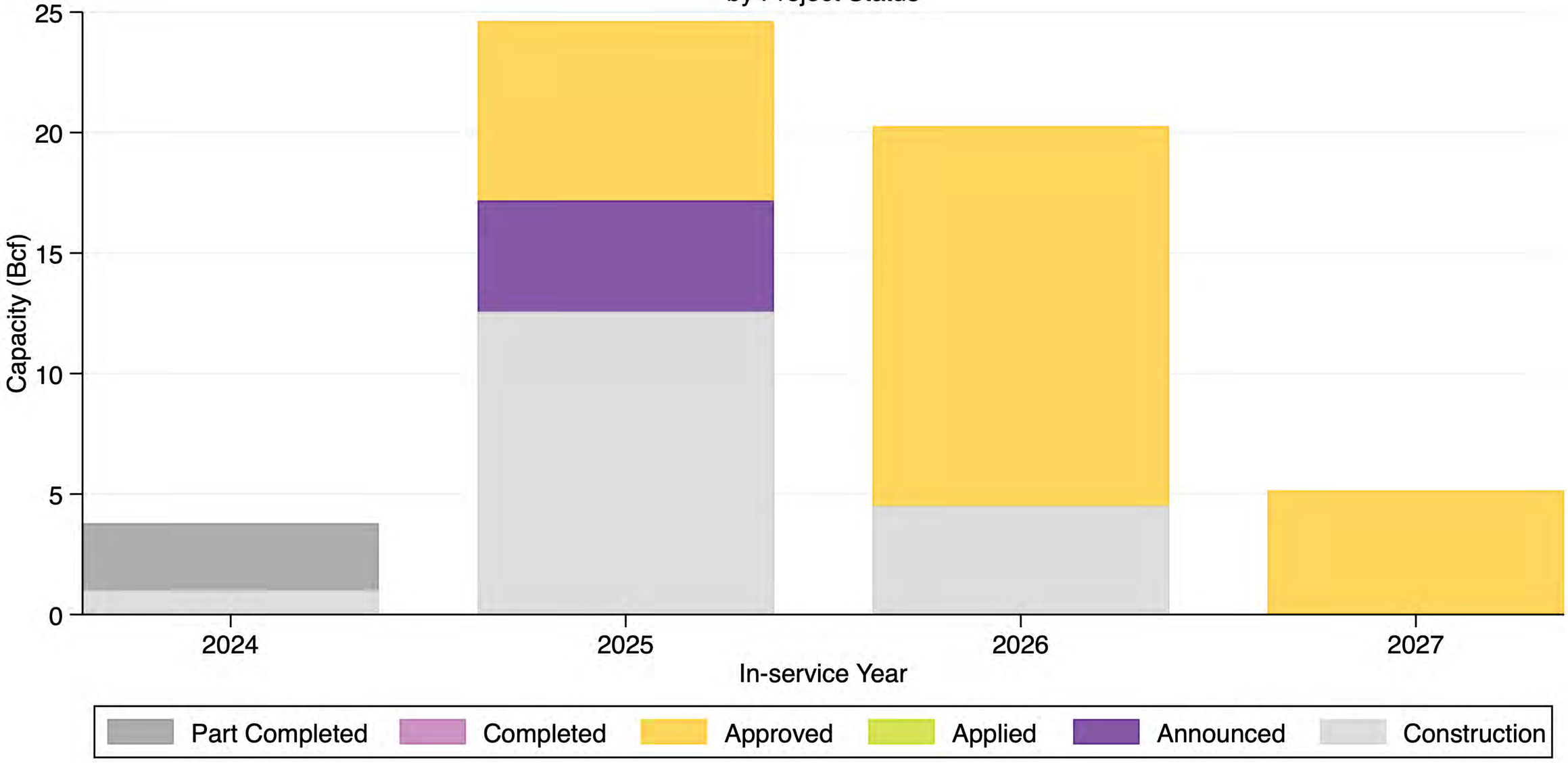
Natural Gas Pipeline Capacity Additions

by Project Status



Source: Energy Information Administration, Natural Gas Pipeline Projects.

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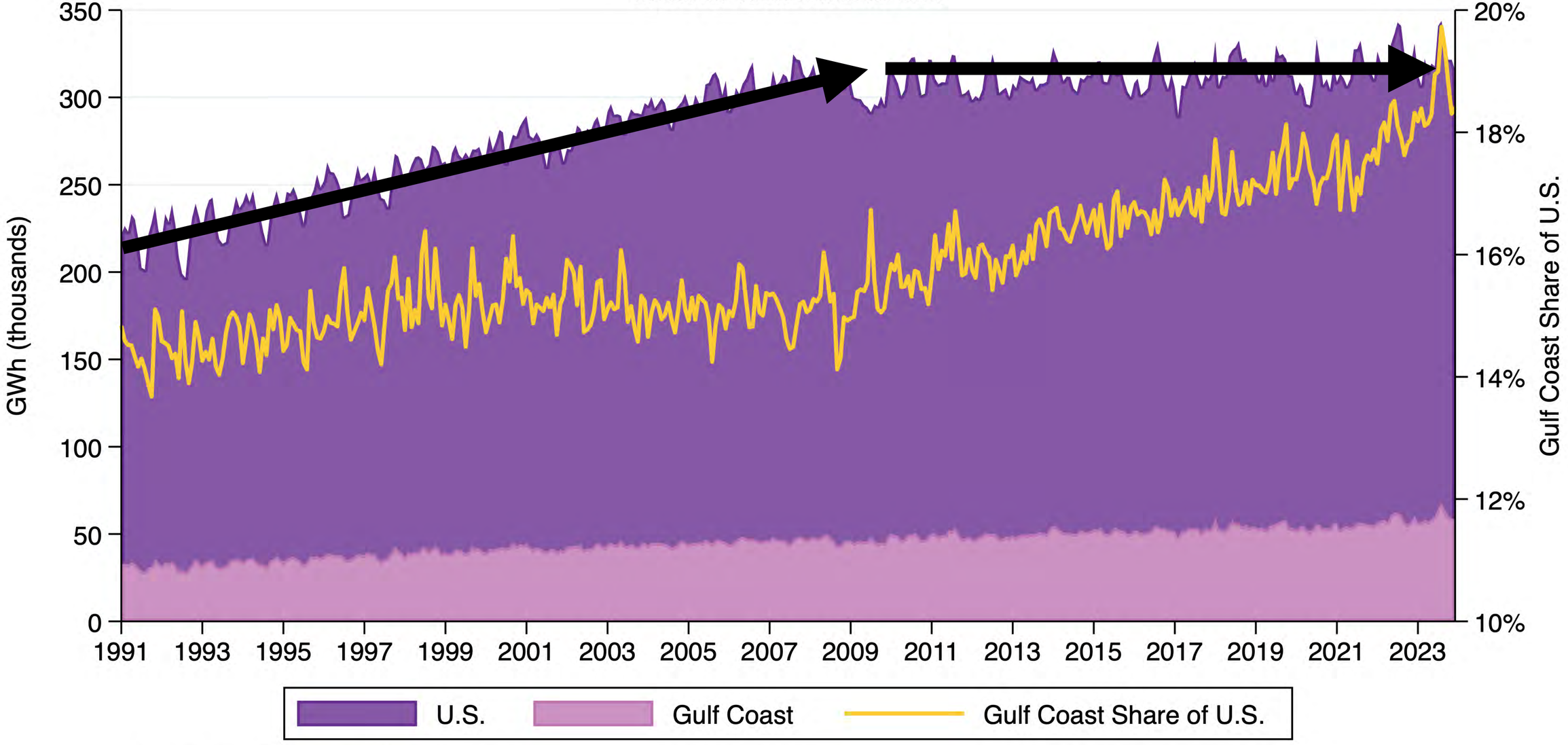
Gulf Coast Total Electricity Sales

Share of Total Sales in U.S.



Source: Energy Information Administration.
Only full year data available through 2023 is included.

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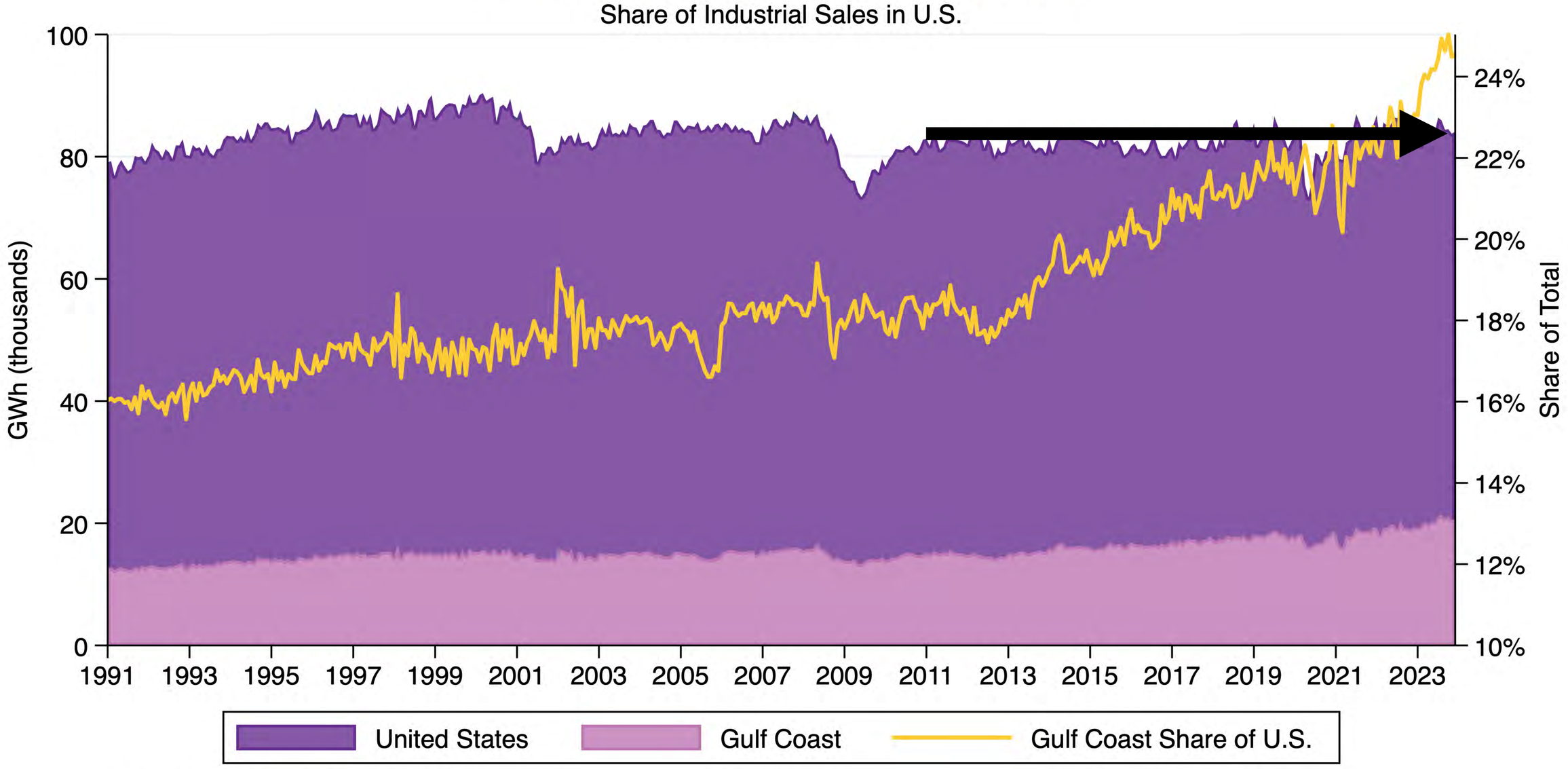
Gulf Coast Industrial Electricity Sales



Source: Energy Information Administration.
Only full year data available through 2023 is included.

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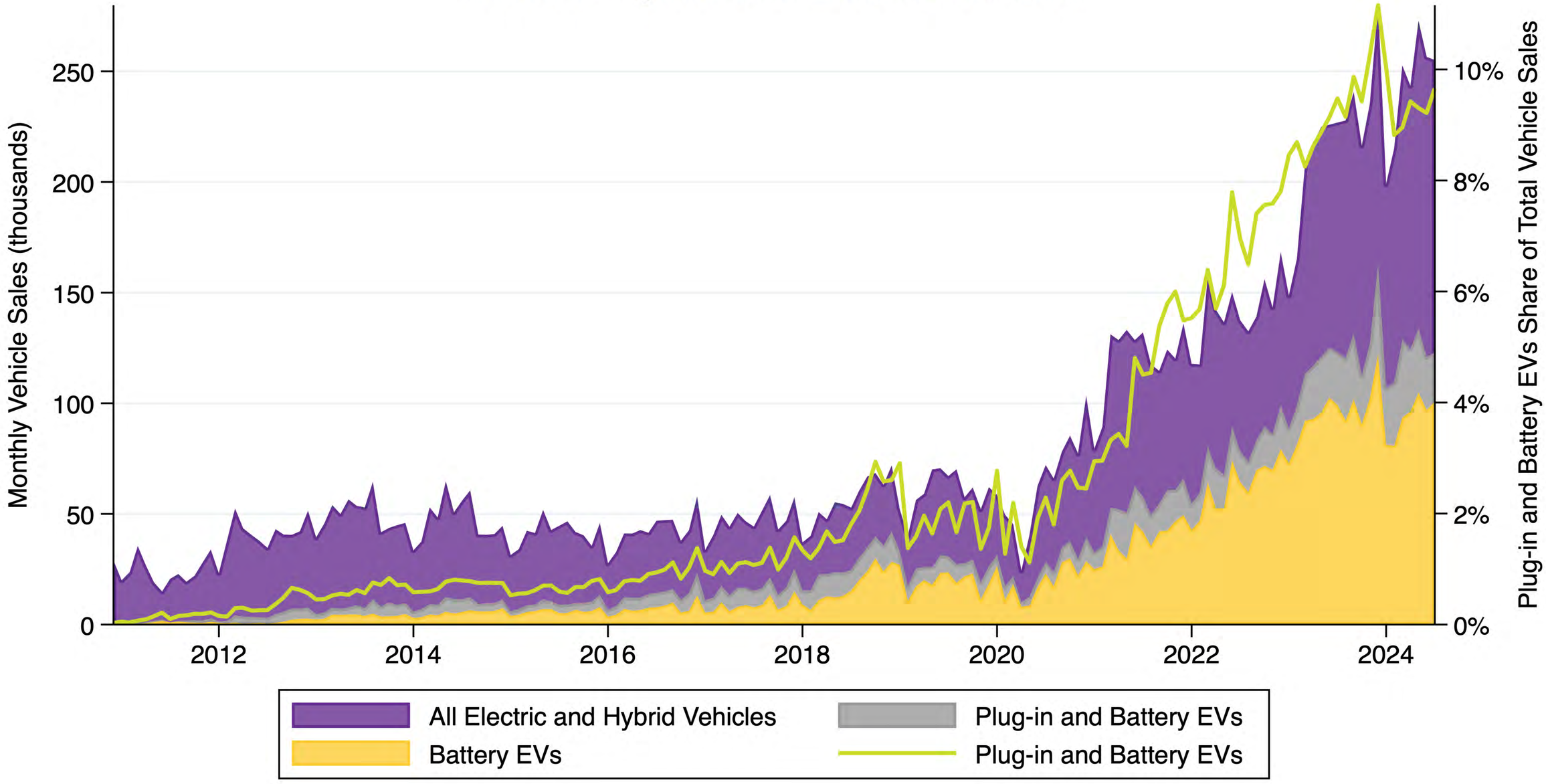
Sales of Hybrid and Electric Vehicles



Source: Argonne National Laboratory.

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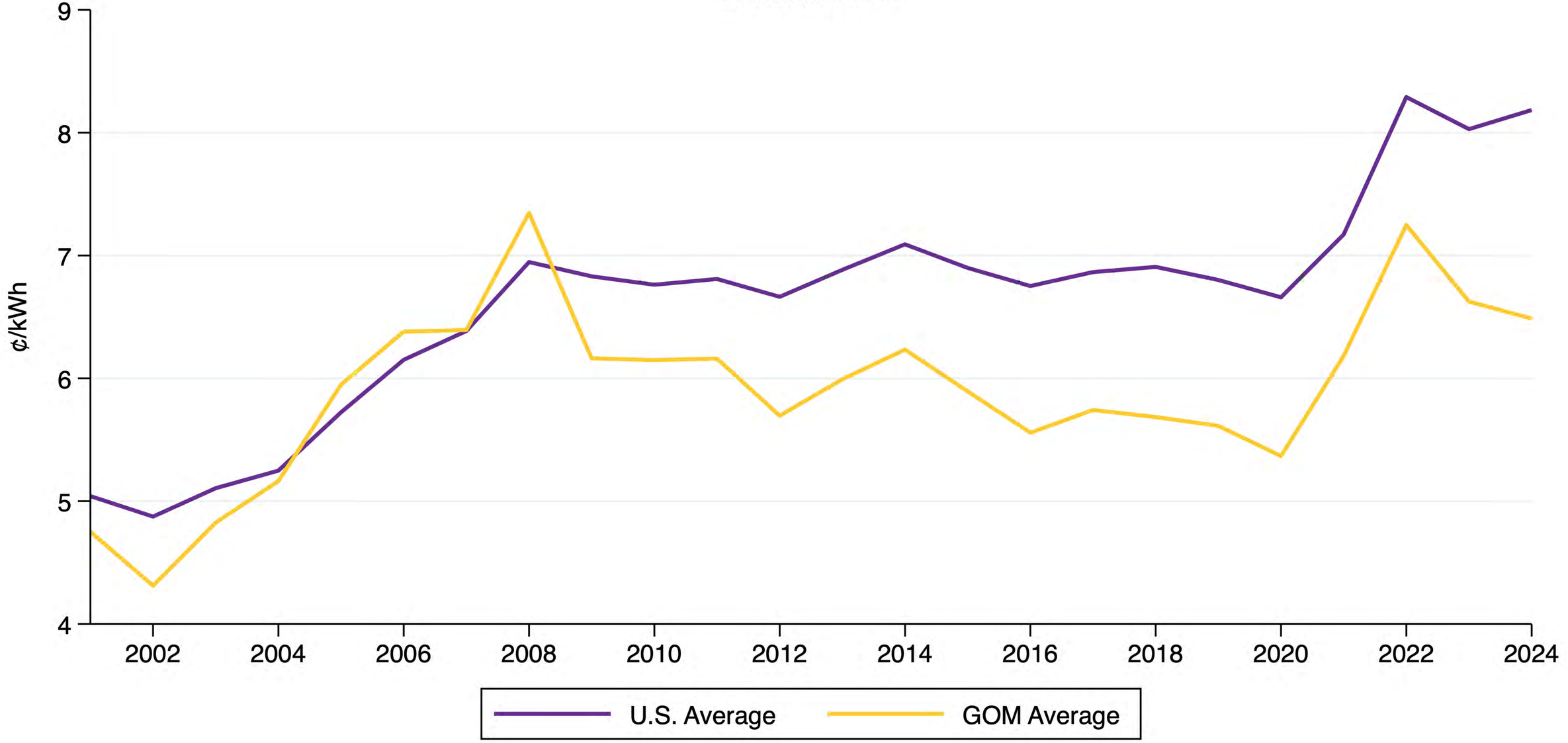
Electricity Rates

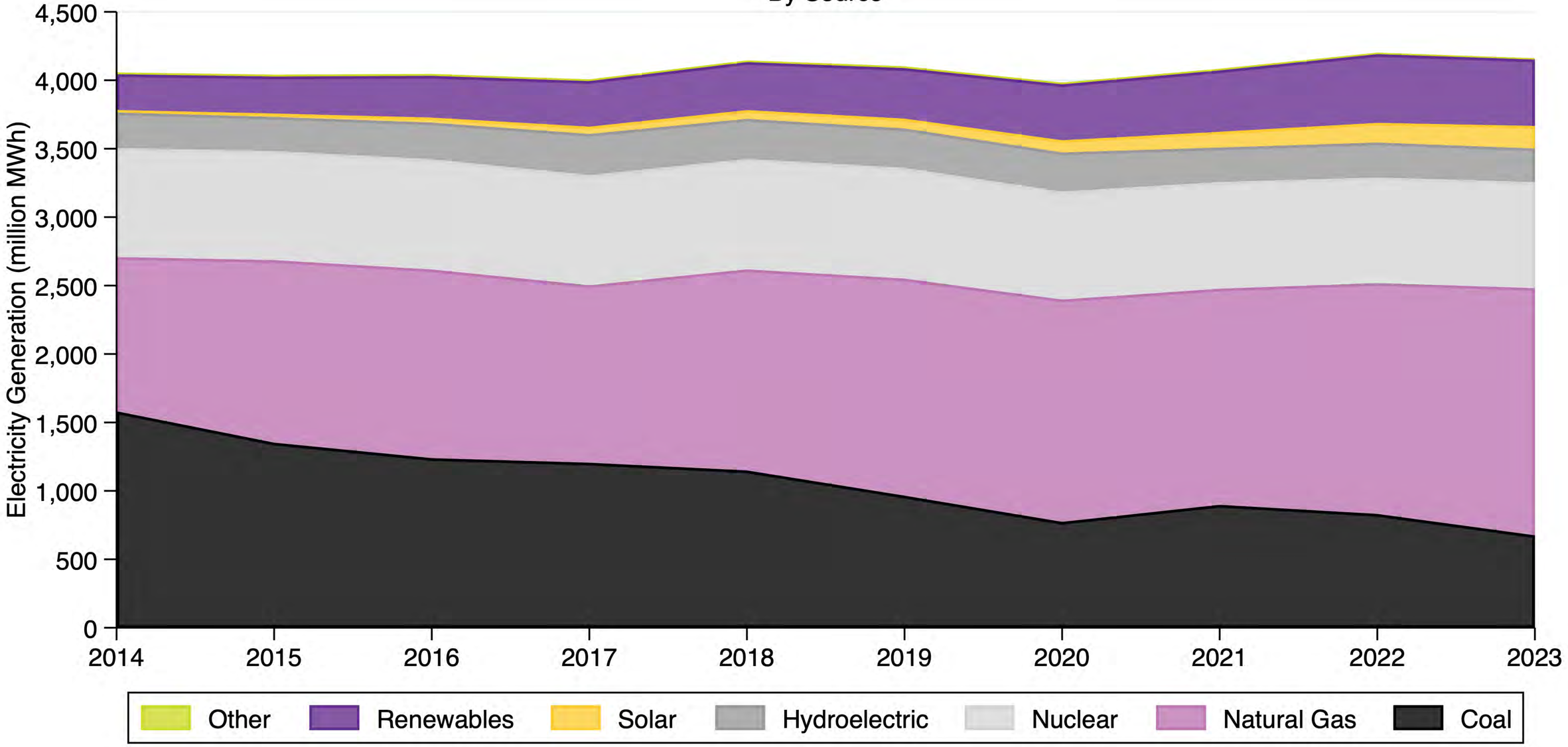
Industrial Sector



Source: Energy Information Administration.

Utility Scale Electricity Generation

By Source



Source: Energy Information Administration.

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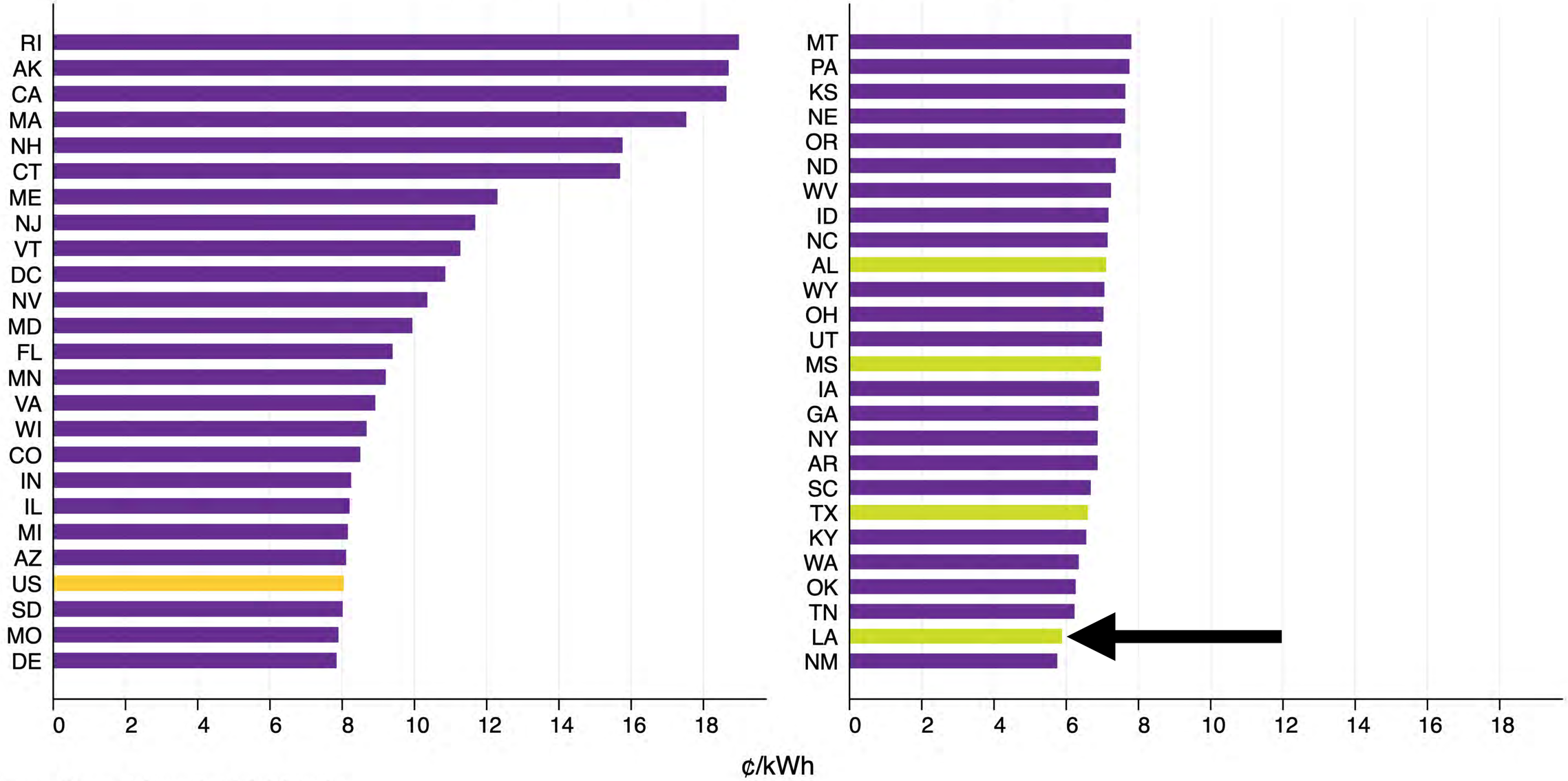
2023 Average Industrial Electricity Rates



Source: Energy Information Administration
Hawaii (35 ¢/kWh) is excluded from the figure.

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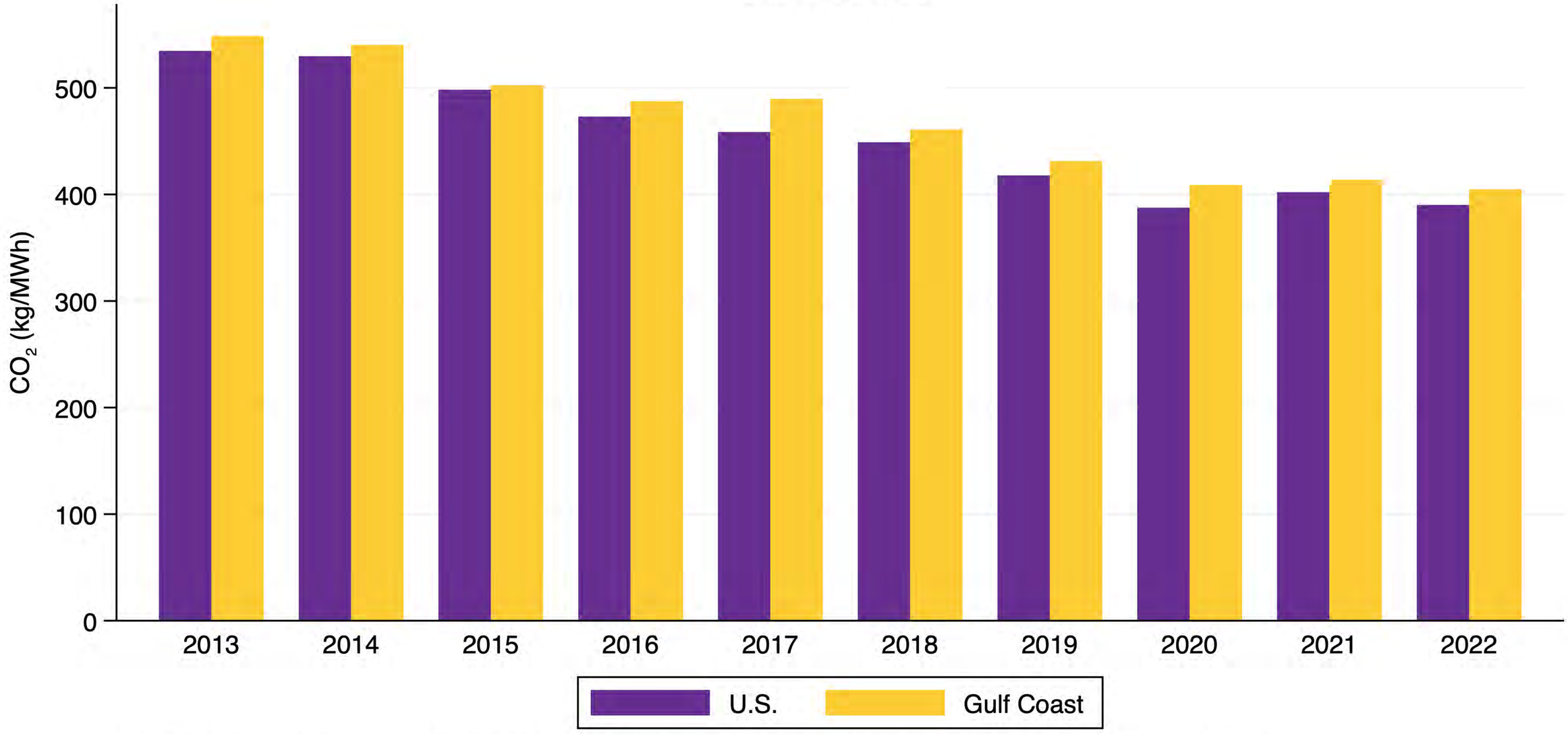
CO_2 Emissions per MWh of Generation

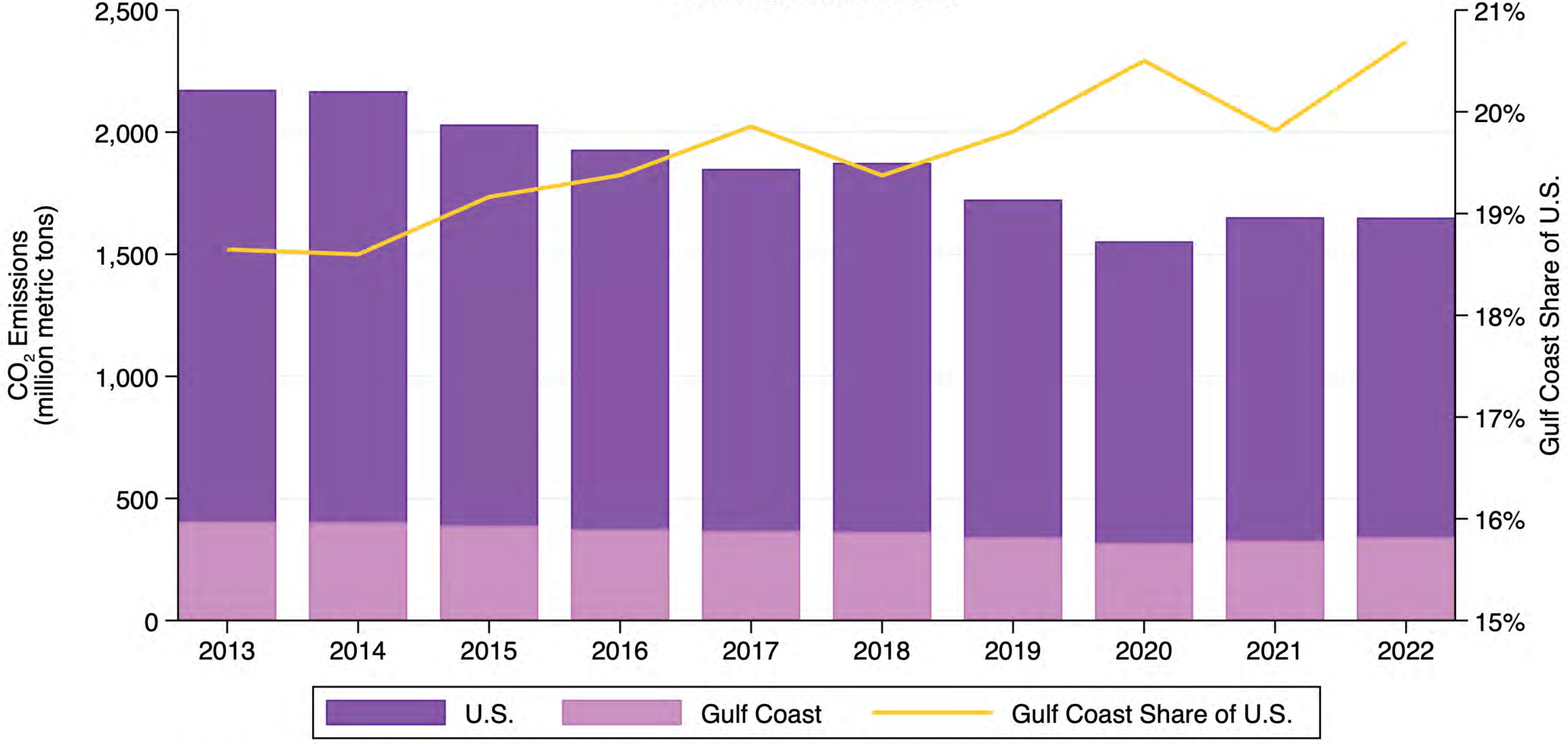
Gulf Coast & U.S.



Note: The emissions data presented include total emissions from both electricity generation and the production of useful thermal output.
Source: Energy Information Administration, Form EIA-923 Power Plant Operations Report, Form EIA-860 Annual Electric Generator Report.

CO_2 Emissions

Gulf Coast Share of U.S.



Note: The emissions data presented include total emissions from both electricity generation and the production of useful thermal output.
Source: Energy Information Administration, Form EIA-923 Power Plant Operations Report, Form EIA-860 Annual Electric Generator Report.

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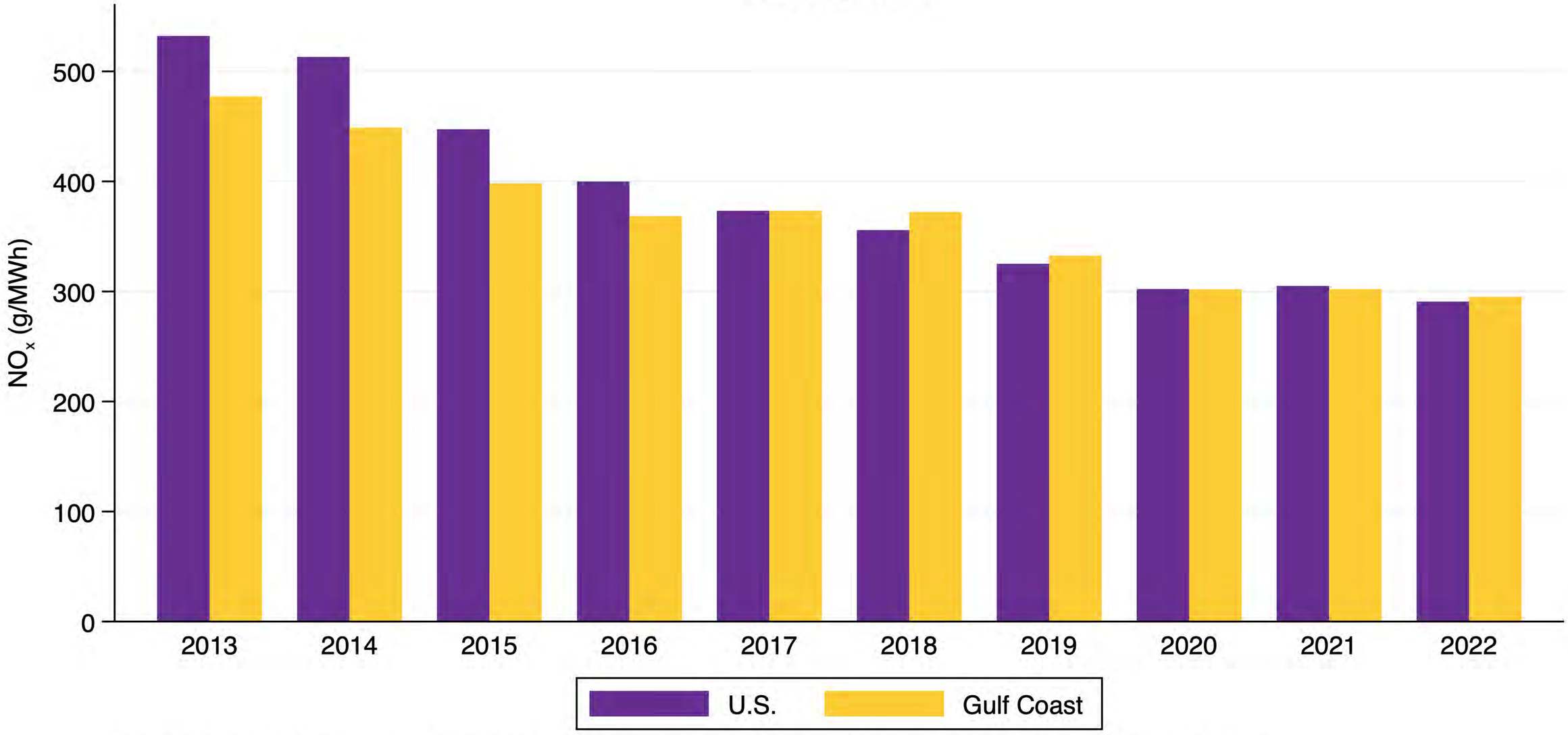
NO_x Emissions per MWh of Generation

Gulf Coast & U.S.



Note: The emissions data presented include total emissions from both electricity generation and the production of useful thermal output.
Source: Energy Information Administration, Form EIA-923 Power Plant Operations Report, Form EIA-860 Annual Electric Generator Report.

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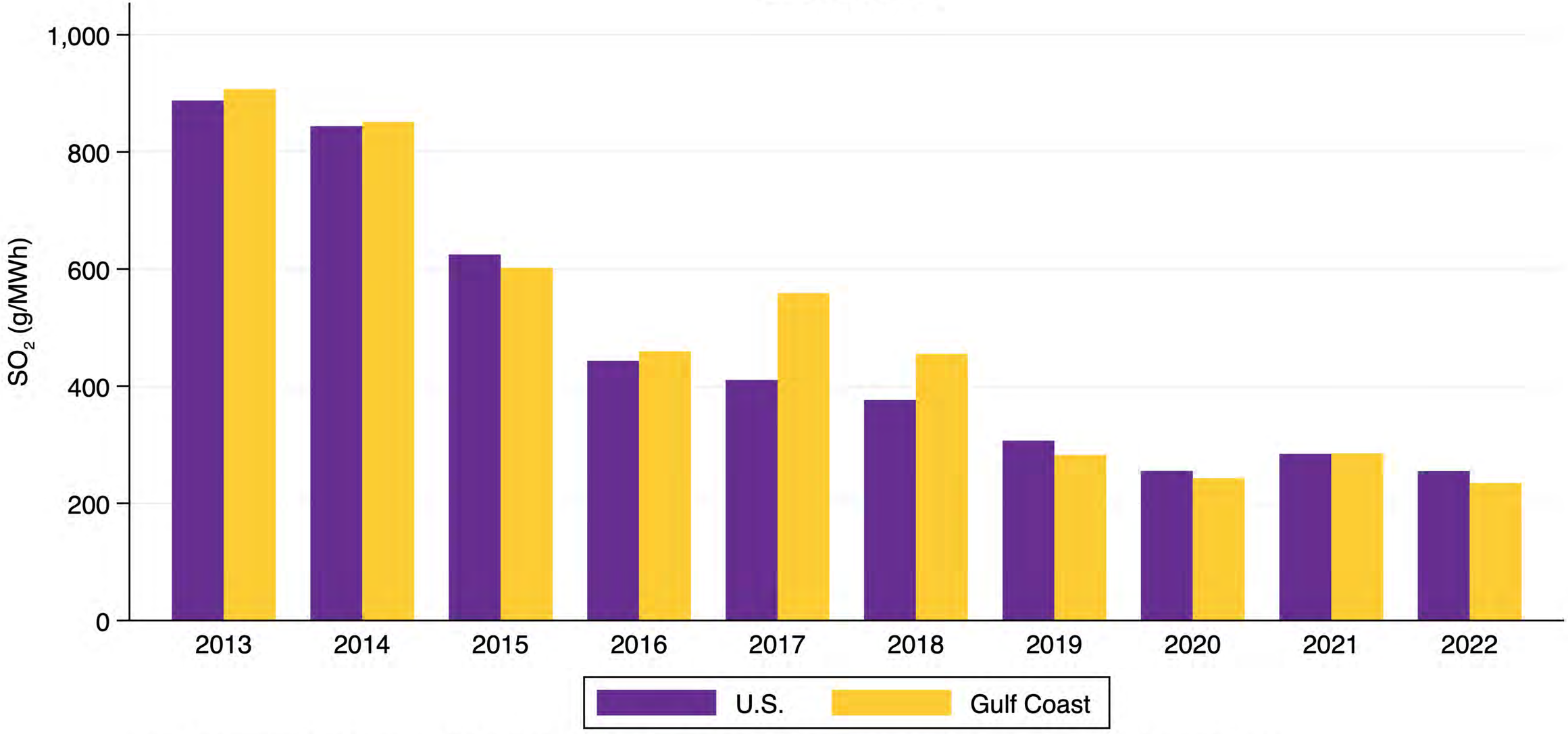
SO_2 Emissions per MWh of Generation

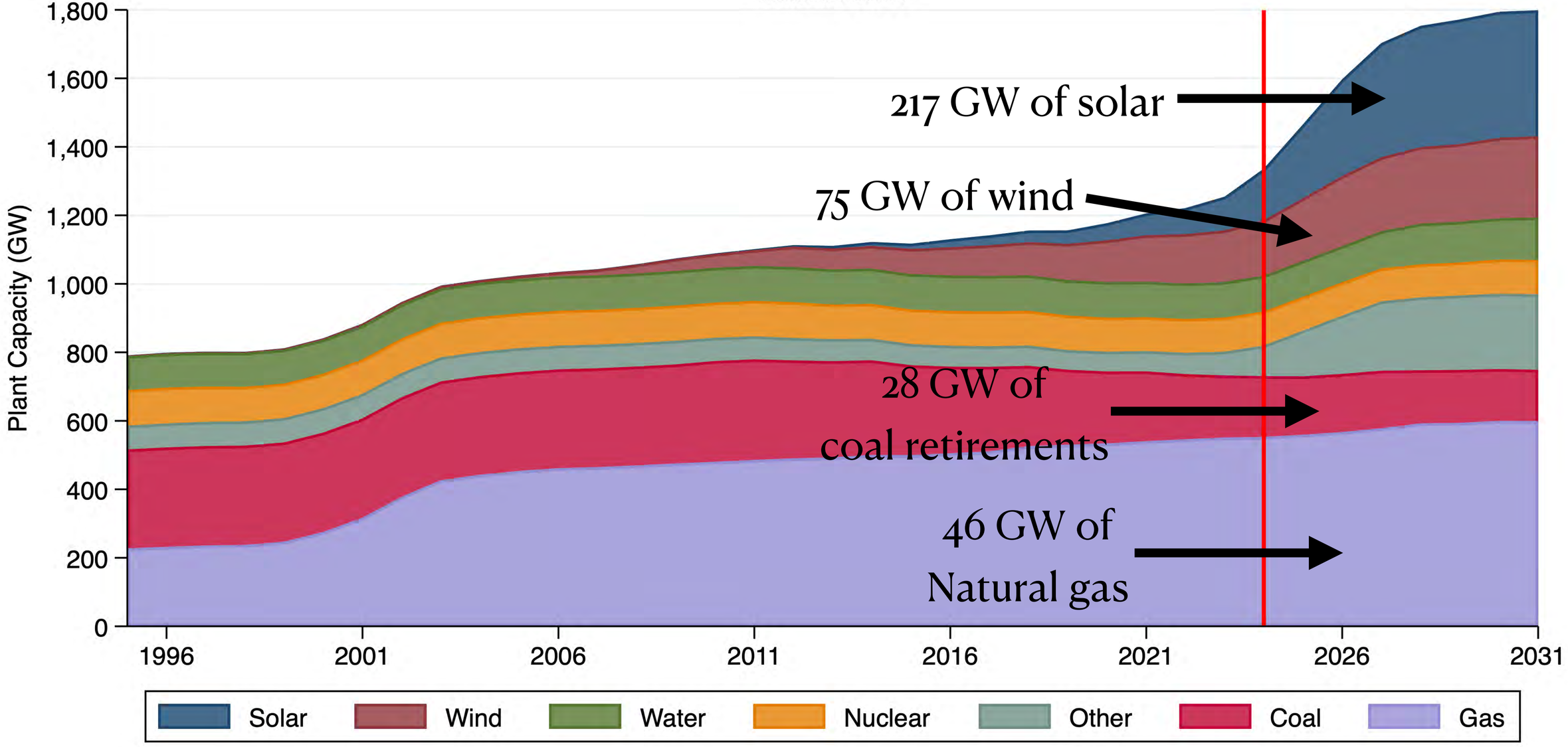
Gulf Coast & U.S.



Note: The emissions data presented include total emissions from both electricity generation and the production of useful thermal output.
Source: Energy Information Administration, Form EIA-923 Power Plant Operations Report, Form EIA-860 Annual Electric Generator Report.

Historical & Future Power Plant Capacity

United States



Source: S&P Global Market Intelligence.

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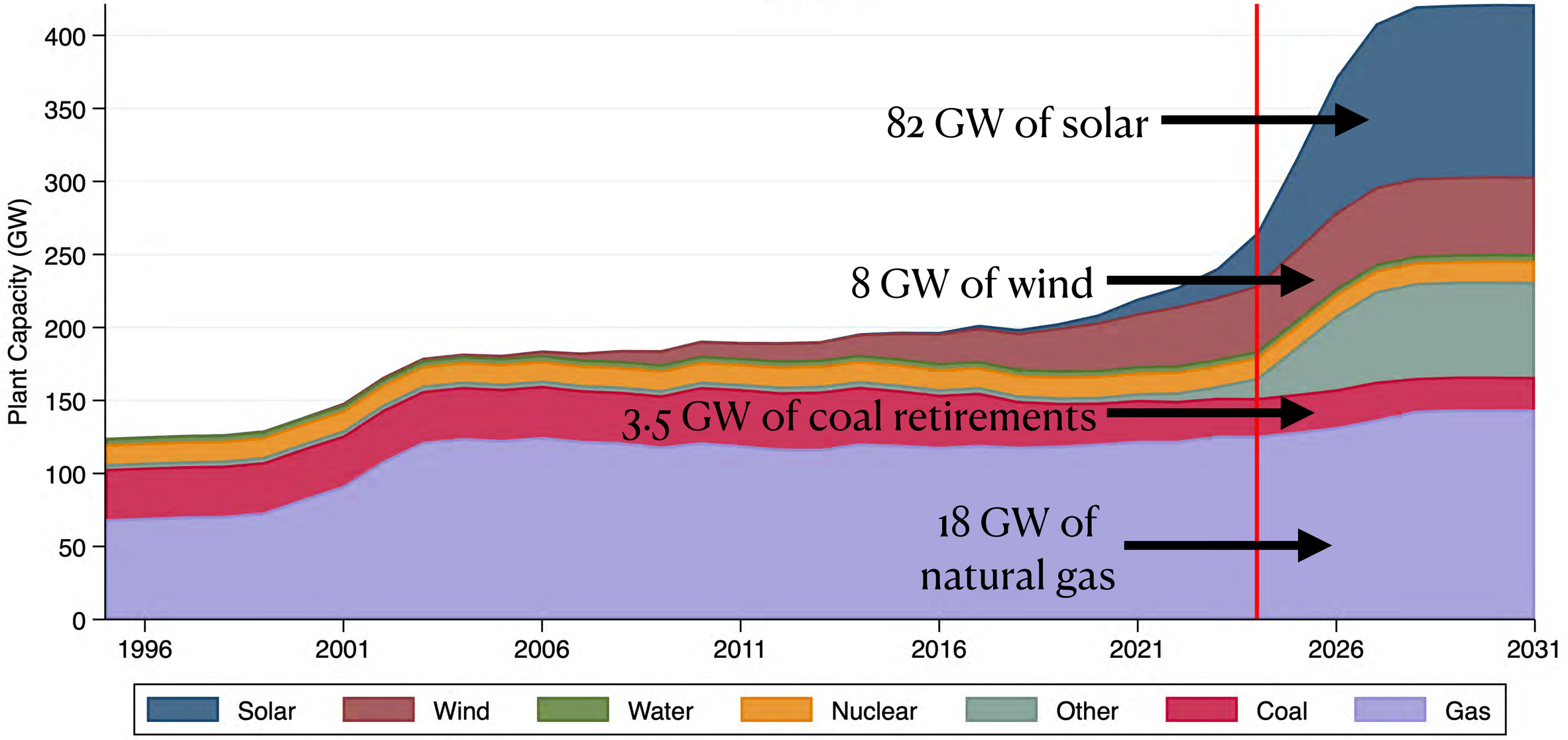
Historical & Future Power Plant Capacity

Gulf Coast



Source: S&P Global Market Intelligence.

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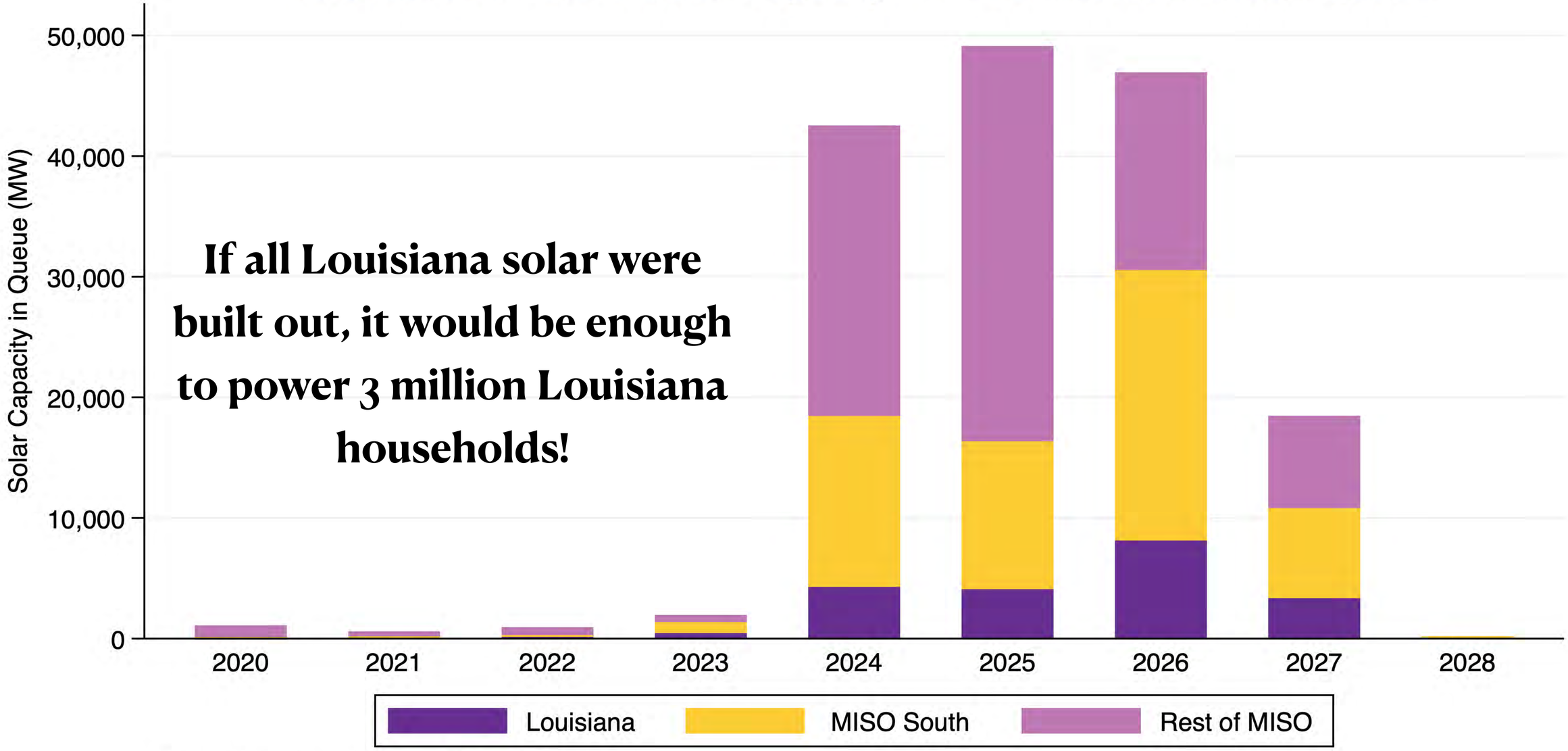
Historical and Future Solar Capacity in MISO Interconnection Queue



If all Louisiana solar were built out, it would be enough to power 3 million Louisiana households!

Source: Midcontinent Independent System Operator.
2024 includes both completed projects and projects in the interconnection queue.
Only projects which have reached a Generator Interconnection Agreement are included.

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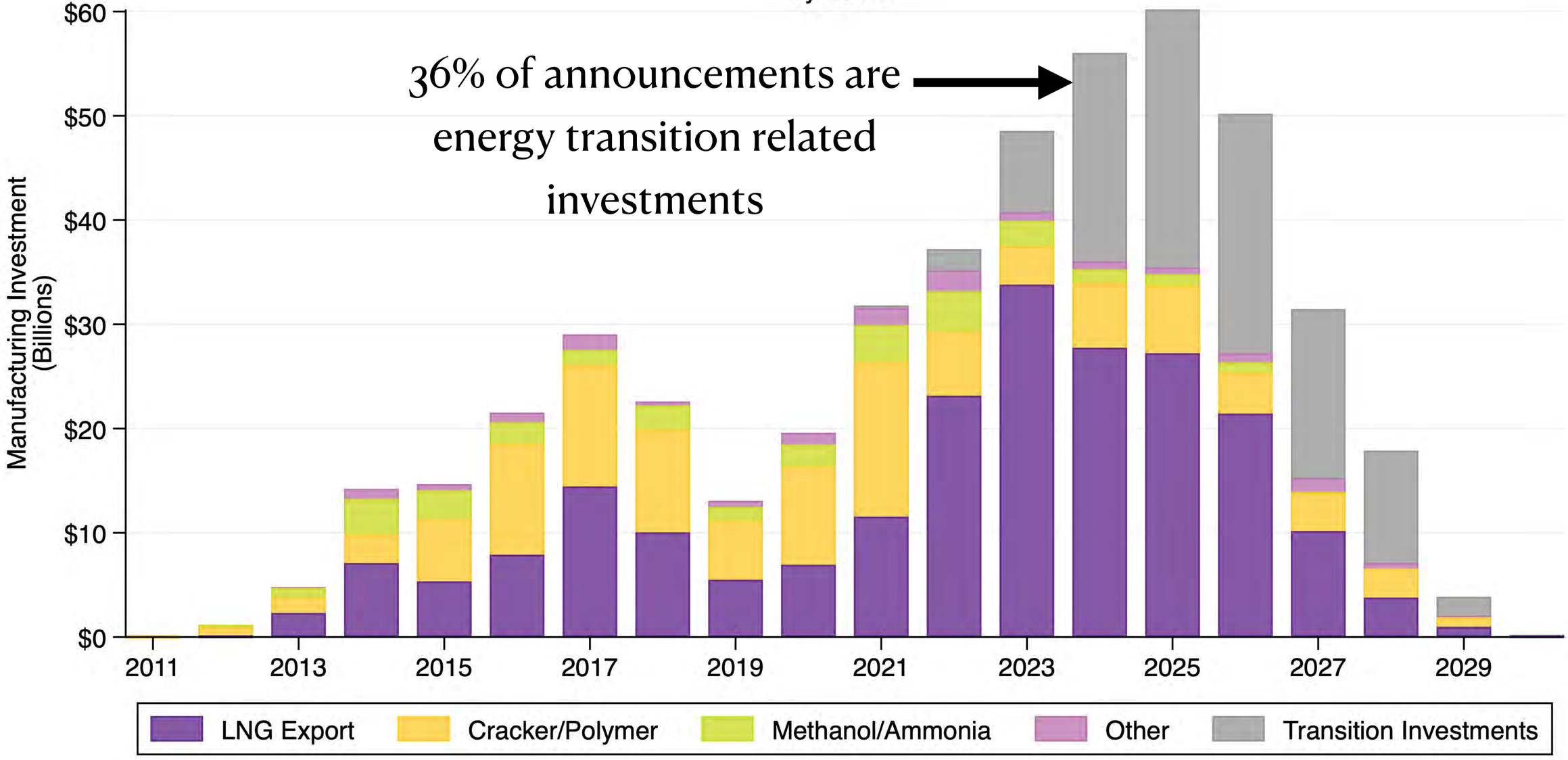
Gulf Coast Energy Manufacturing Investments

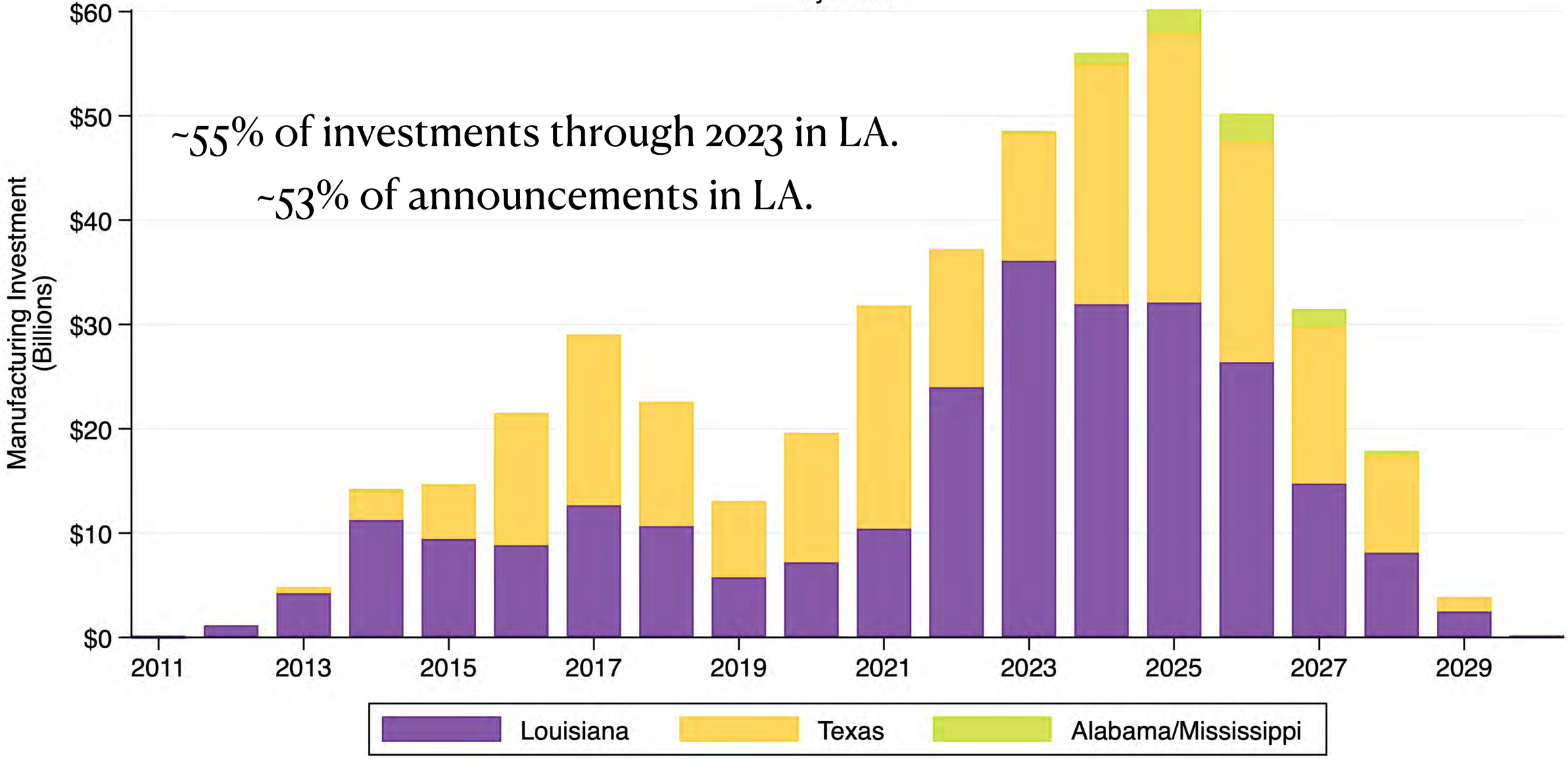
by Sector



Source: Authors' construct.

Gulf Coast Energy Manufacturing Investments

by State



Source: Authors' construct.

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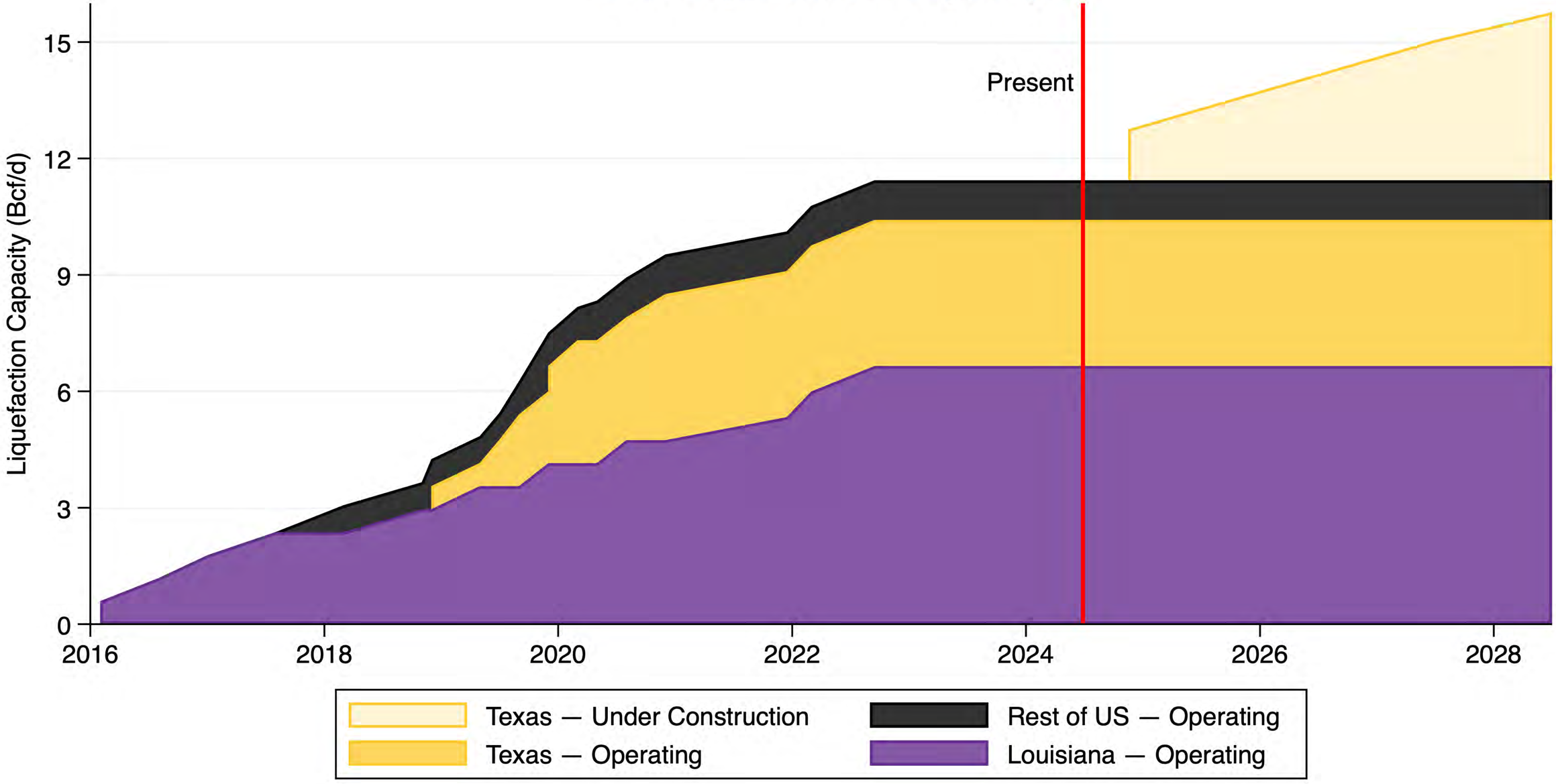
U.S. Liquefaction Capacity



Source: Energy Information Administration.

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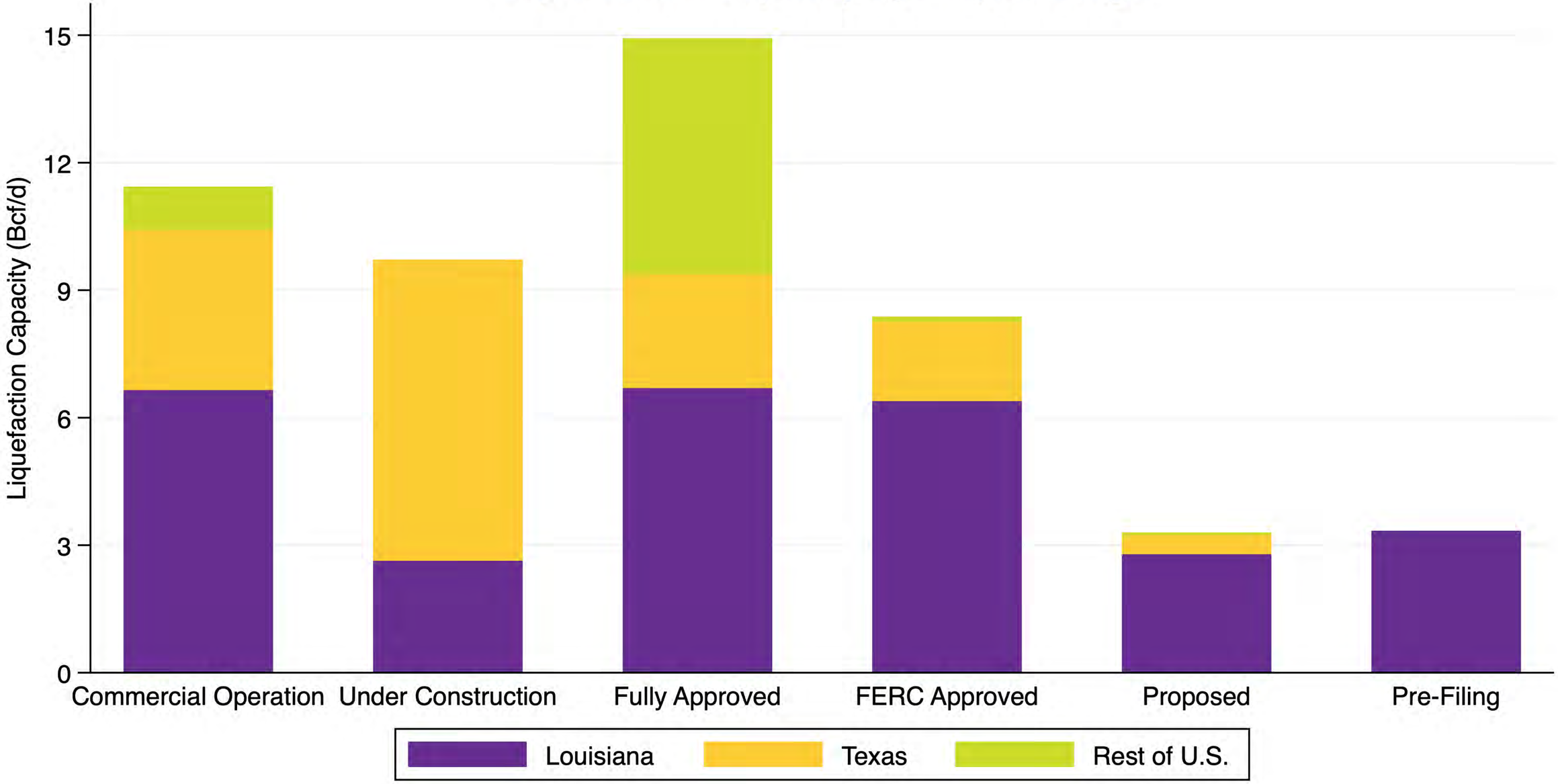
Liquefaction Capacity by Project Stage



Sources: Energy Information Administration and the Federal Energy Regulatory Commission.

Gulf Coast Manufacturing

- Between 2011 and 2023, there was approximately $258 billion of investment in refining, chemicals, hydrocarbon export, and transition energy in the Gulf Coast region.
- Approximately $142 billion, or 55%, is within Louisiana.
- Currently, there are an additional $220 billion in announcements, approximately 53% of which are in Louisiana.

Year	Texas				Louisiana				Other GOM				Total GOM			
	LNG	Non-LNG	Transition	Total	LNG	Non-LNG	Transition	Total	LNG	Non-LNG	Transition	Total	LNG	Non-LNG	Transition	Total
	(million $)															
2024	9,346	5,514	8,164	23,024	17,516	2,626	11,799	31,941	889	-	29	918	27,751	8,289	19,991	56,032
2025	11,505	4,941	9,389	25,835	13,501	3,261	15,335	32,097	2,226	-	55	2,281	27,232	8,203	24,779	60,213
2026	10,122	1,763	9,239	21,124	8,683	4,035	13,668	26,387	2,634	-	55	2,689	21,439	5,799	22,962	50,200
2027	4,226	1,363	9,483	15,073	4,320	3,738	6,687	14,745	1,624	-	30	1,654	10,171	5,101	16,200	31,472
2028	352	559	8,375	9,285	2,962	2,785	2,375	8,122	471	-	3	474	3,785	3,343	10,753	17,881
2029	-	118	1,242	1,360	966	908	600	2,474	33	-	-	33	999	1,026	1,842	3,866
2030	-	8	30	38	70	66	41	178	-	-	-	-	70	74	71	216
Total	**$ 35,551**	**$ 14,267**	**$ 45,921**	**$ 95,739**	**$ 48,019**	**$ 17,419**	**$ 50,505**	**$ 115,943**	**$ 7,878**	**$ -**	**$ 172**	**$ 8,050**	**$ 91,447**	**$ 31,835**	**$ 96,598**	**$ 219,880**

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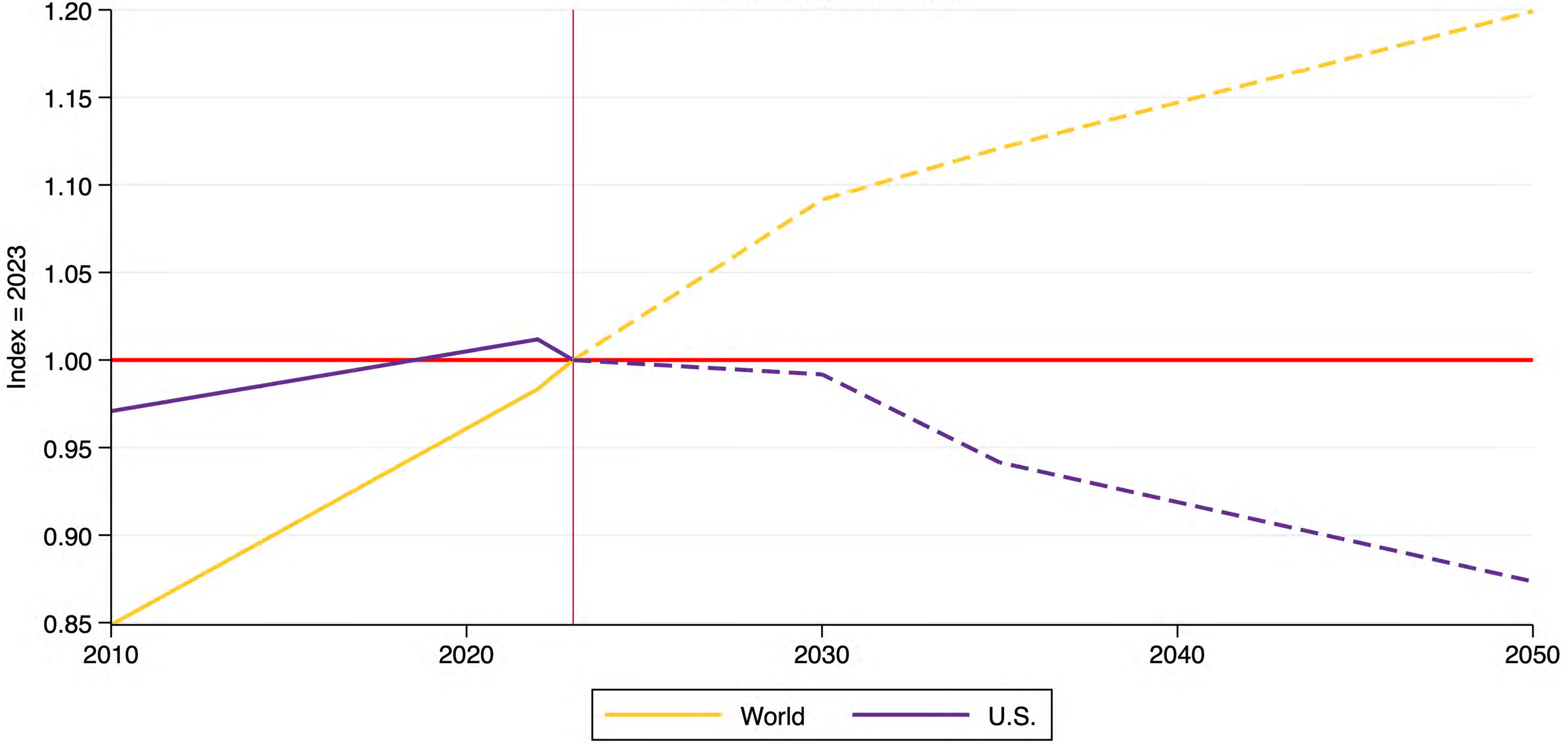
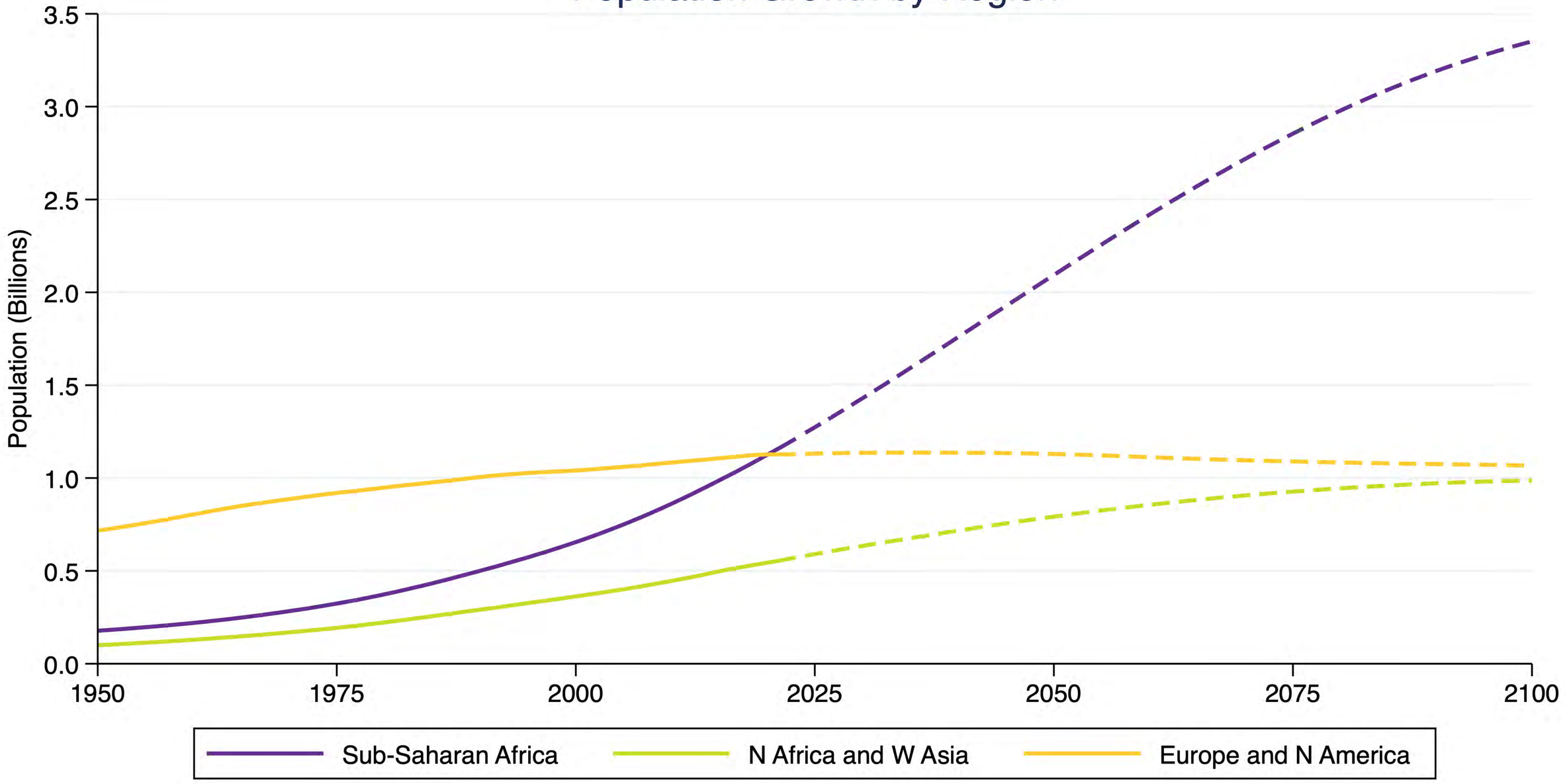
Final Energy Consumption, U.S. and World

Stated Policies Scenario



Source: International Energy Agency. World Energy Outlook 2024.

Population Growth by Region



Source: United Nations. World Population Prospects 2024.

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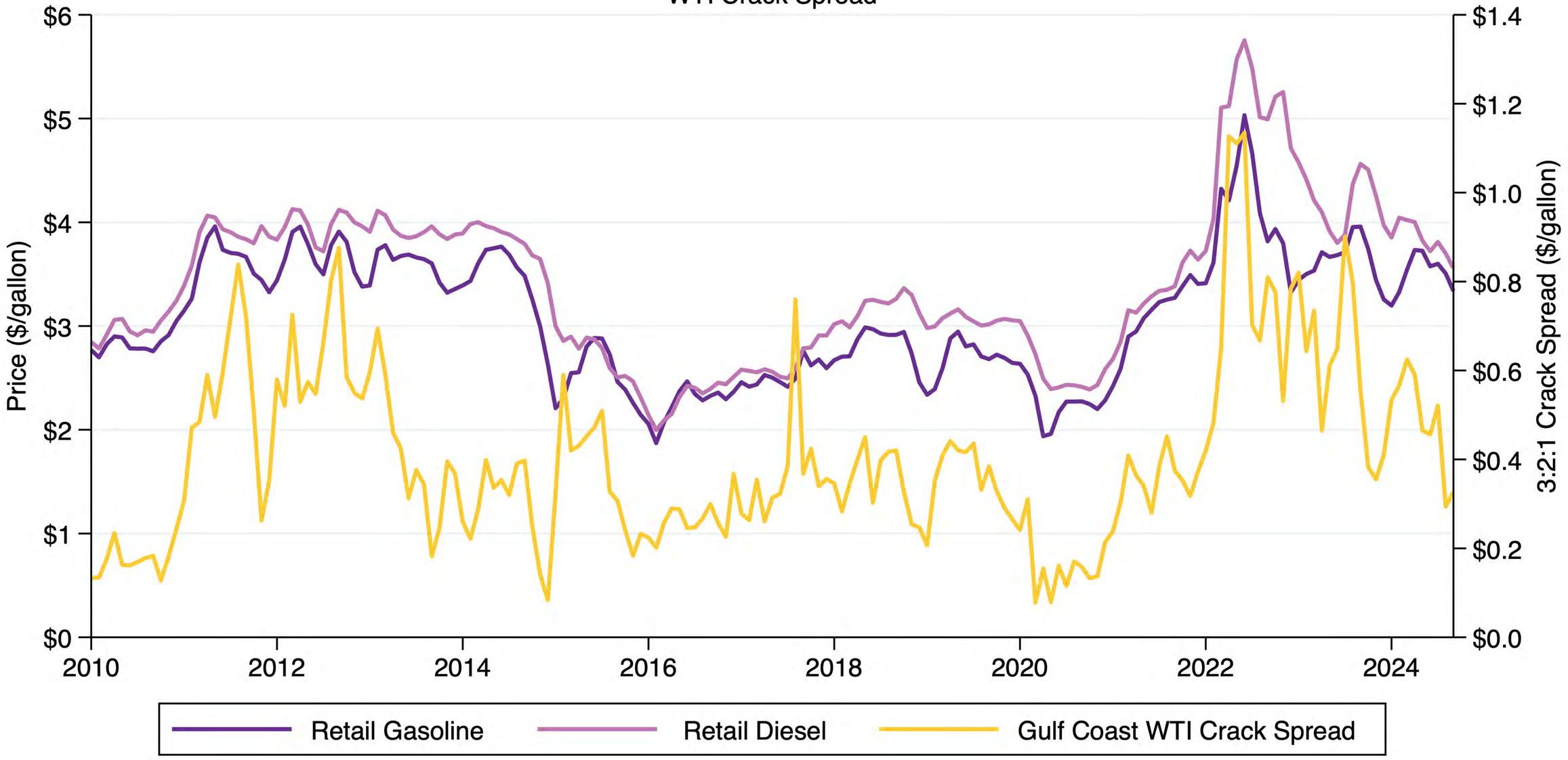
PADD 3 Refining Capacity and Utilization

Source: Energy Information Administration.

U.S. Gulf Coast Gasoline

WTI Crack Spread



Sources: EIA and Bloomberg.

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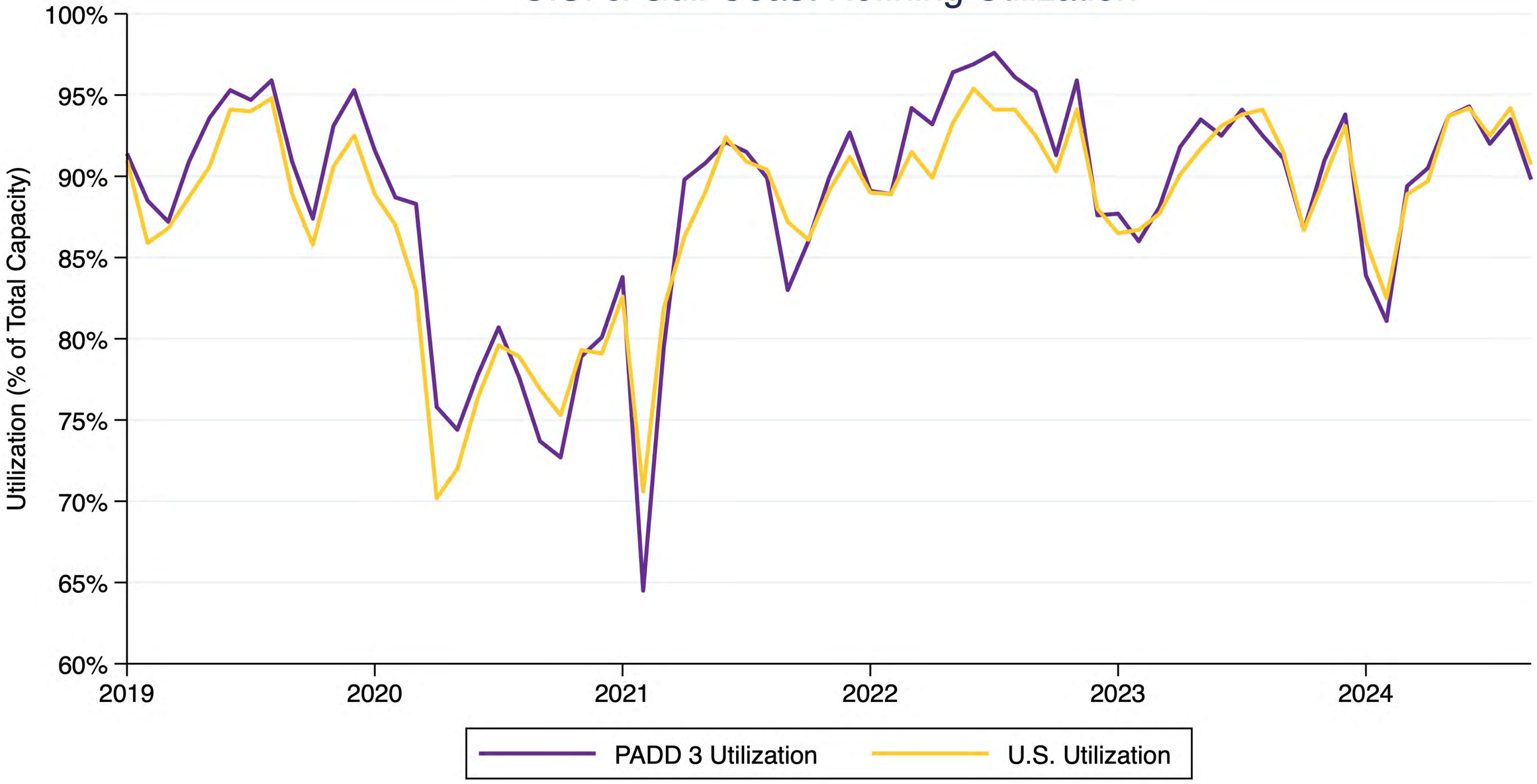
U.S. & Gulf Coast Refining Utilization



Source: Energy Information Administration.

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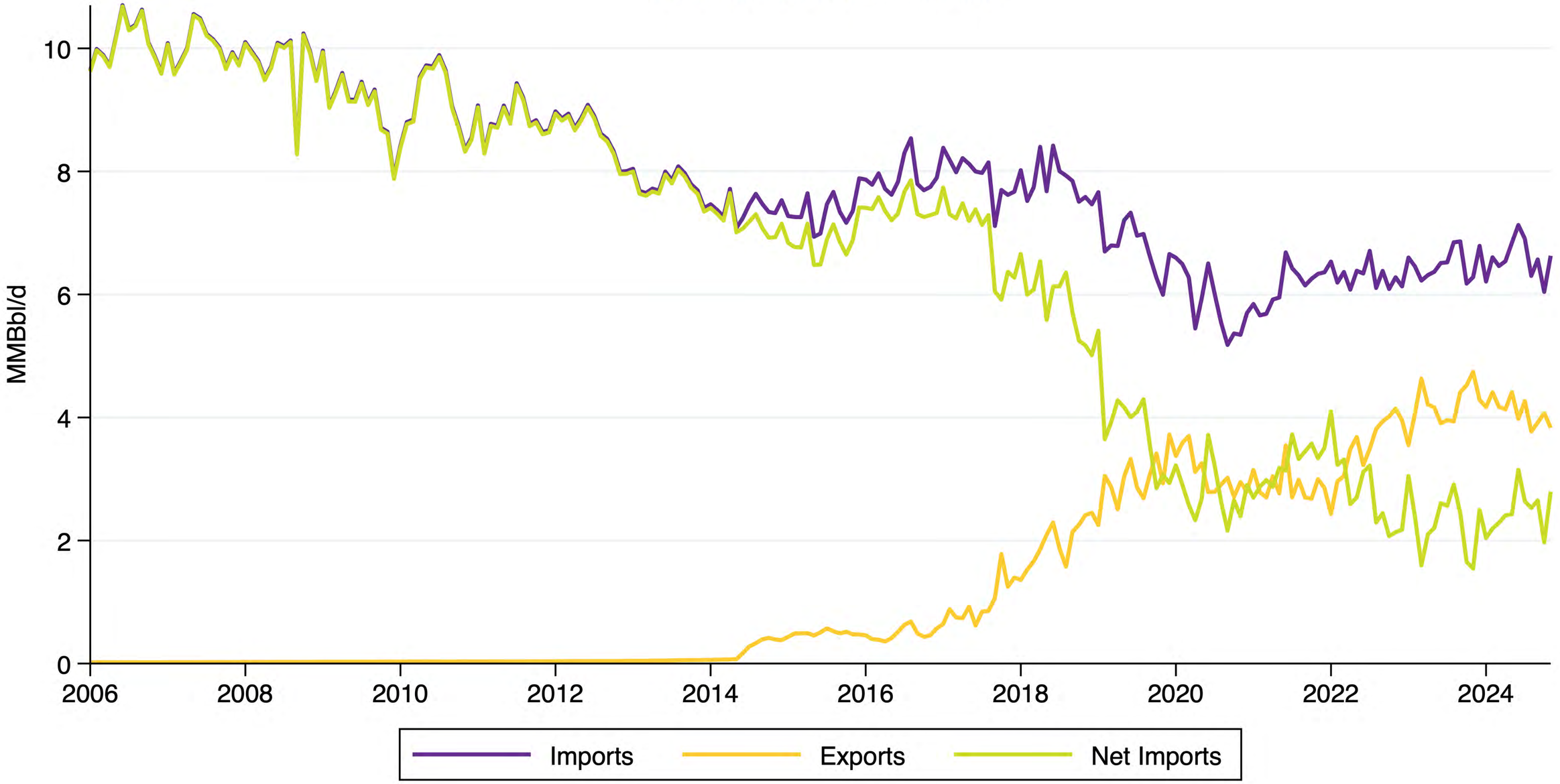
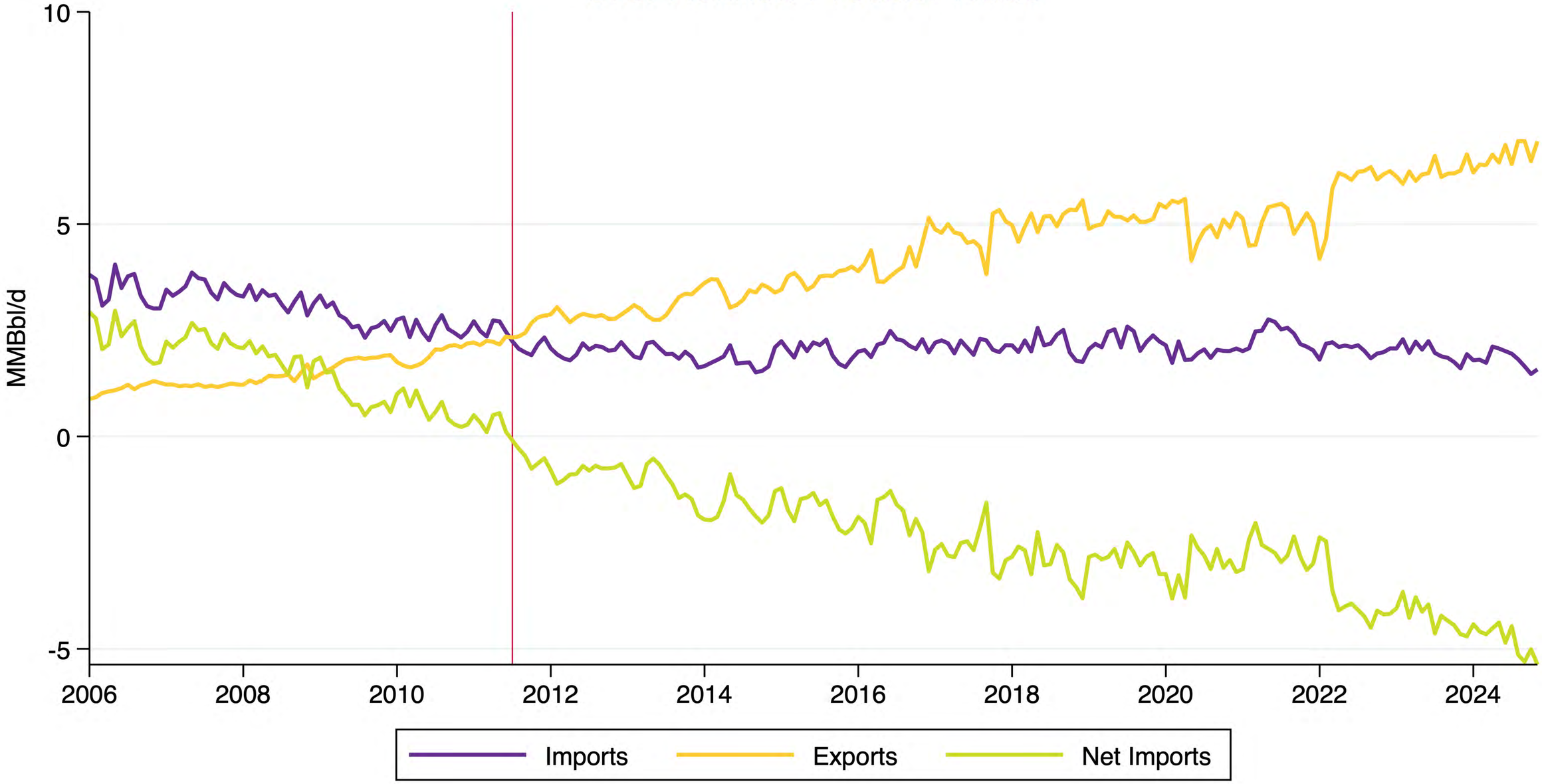
U.S. Crude Oil Trade



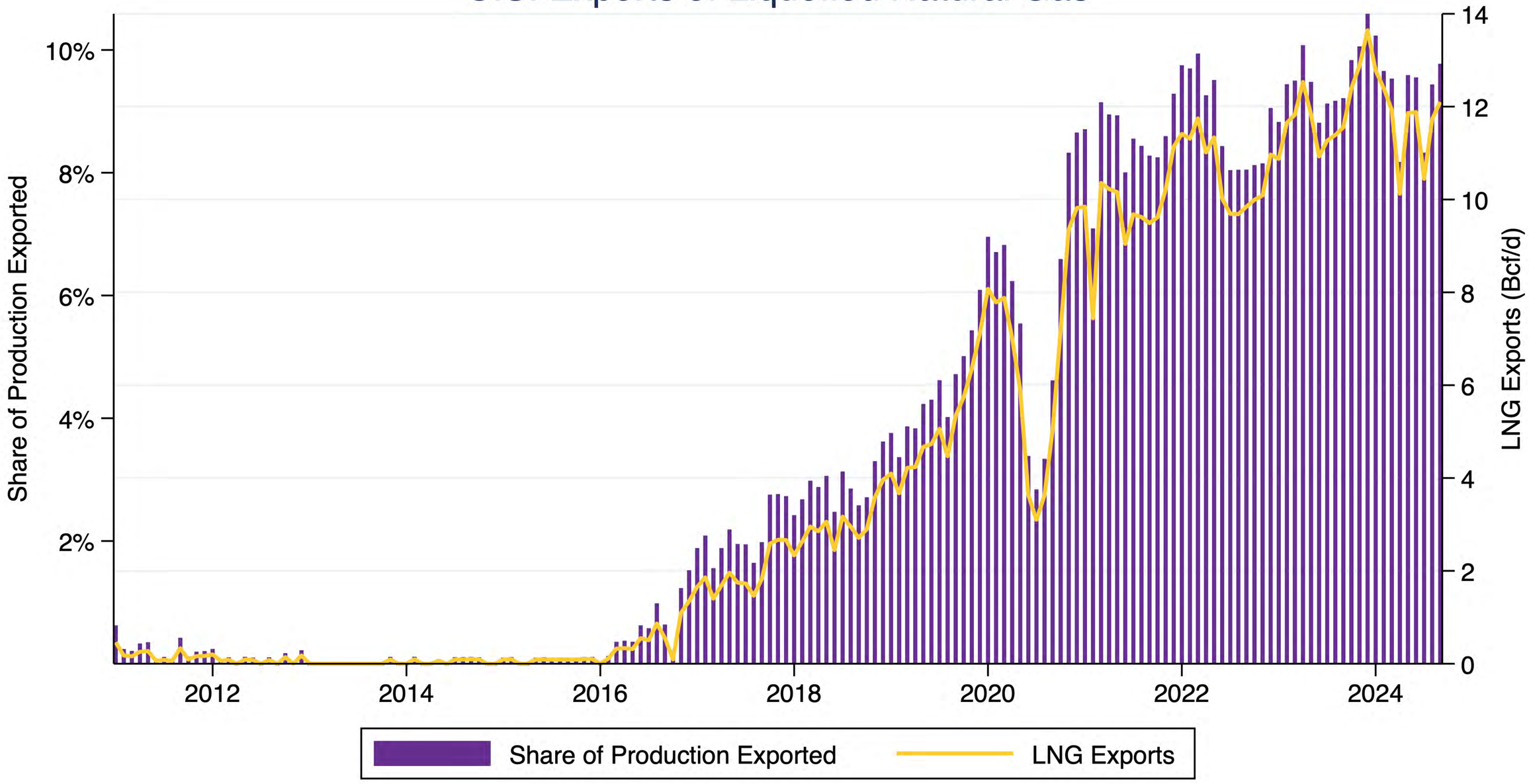
Source: Energy Information Administration.

U.S. Refined Product Trade



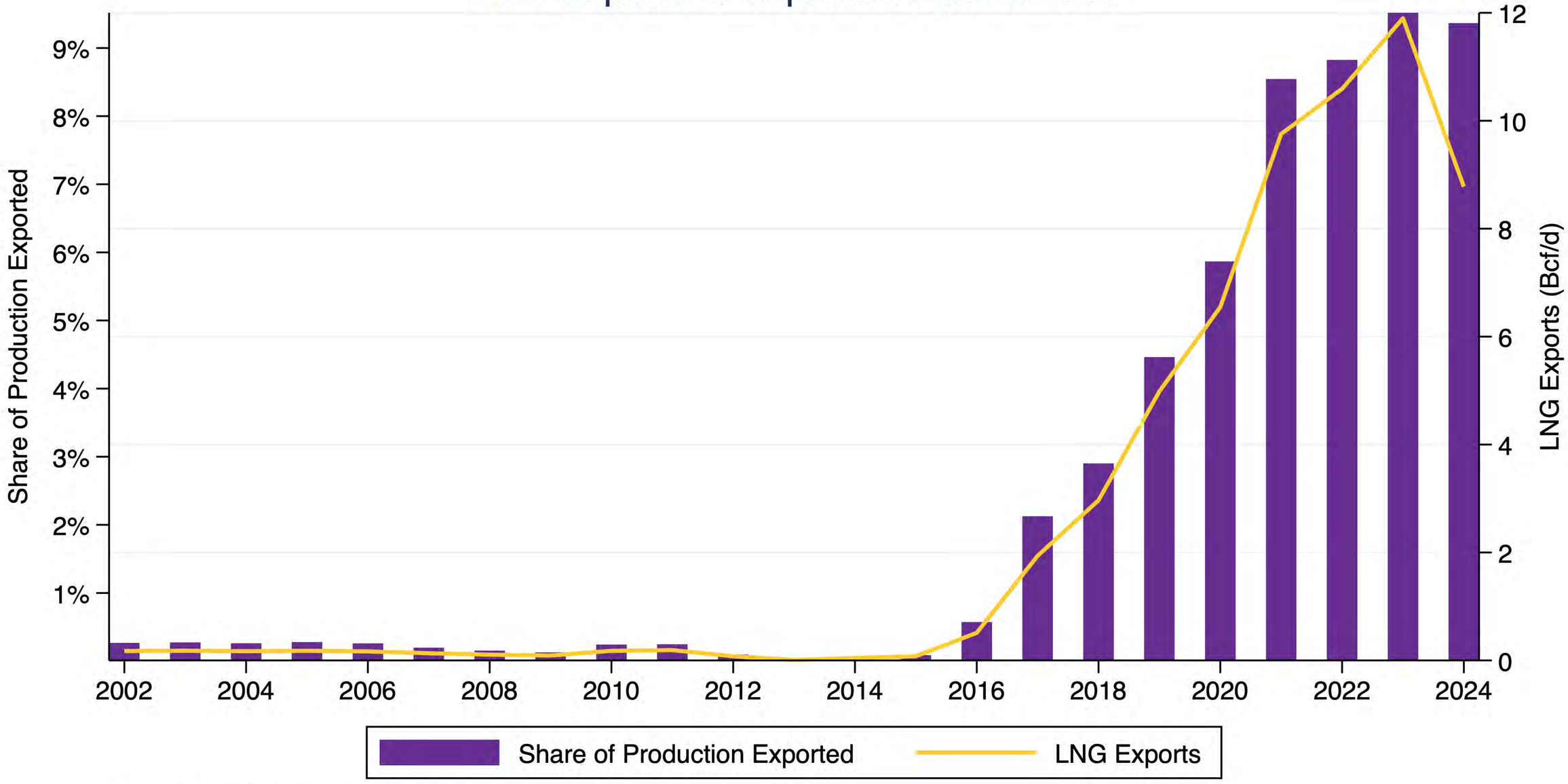
Source: Energy Information Administration.

U.S. Exports of Liquefied Natural Gas



Source: Energy Information Administration.

U.S. Exports of Liquefied Natural Gas



Source: Energy Information Administration.
Note: 2024 includes months January-August.

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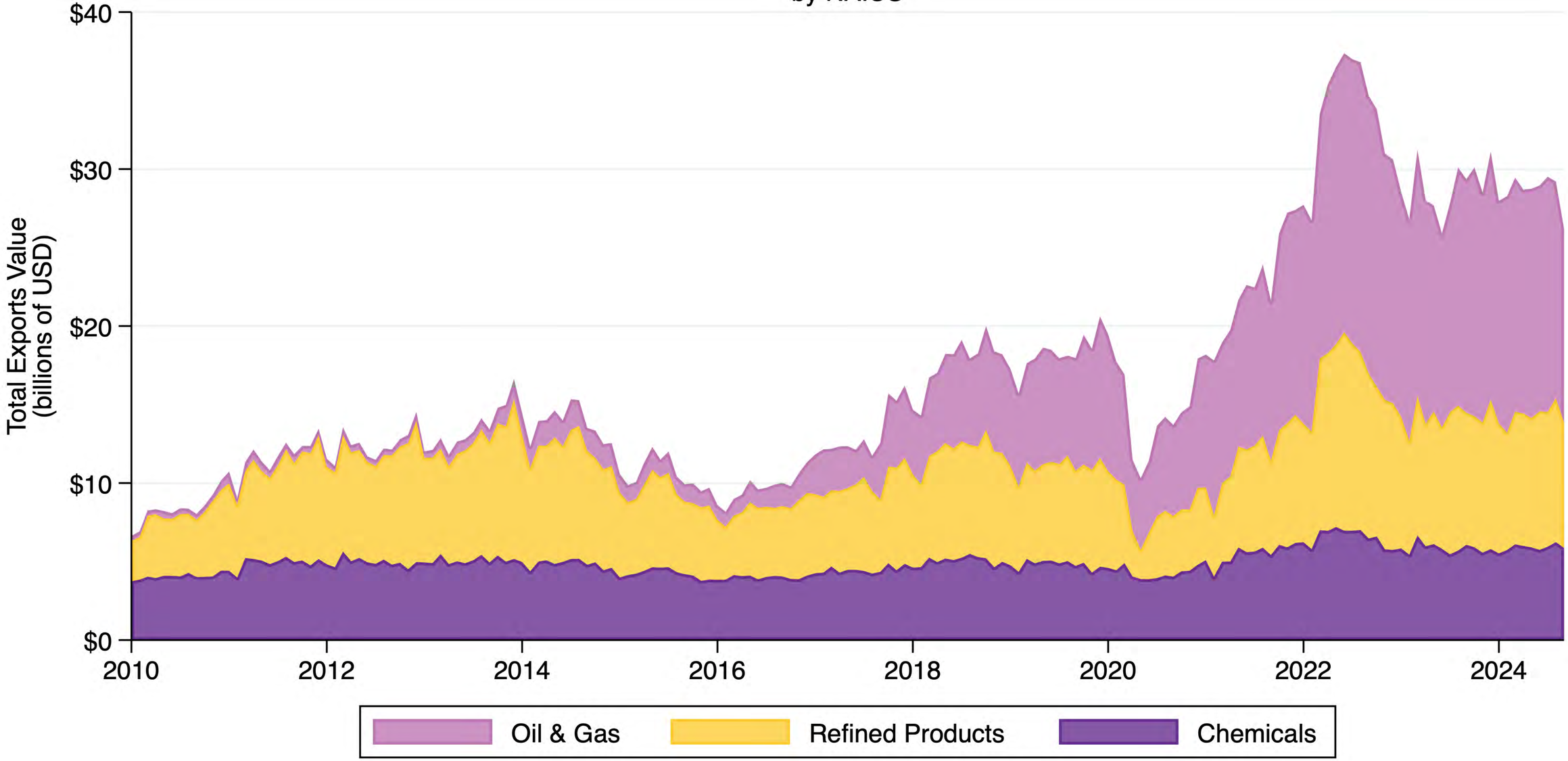
Gulf Coast Exports to World

by NAICS



Source: U.S. Census Bureau: Economic Indicators Division USA Trade Online.

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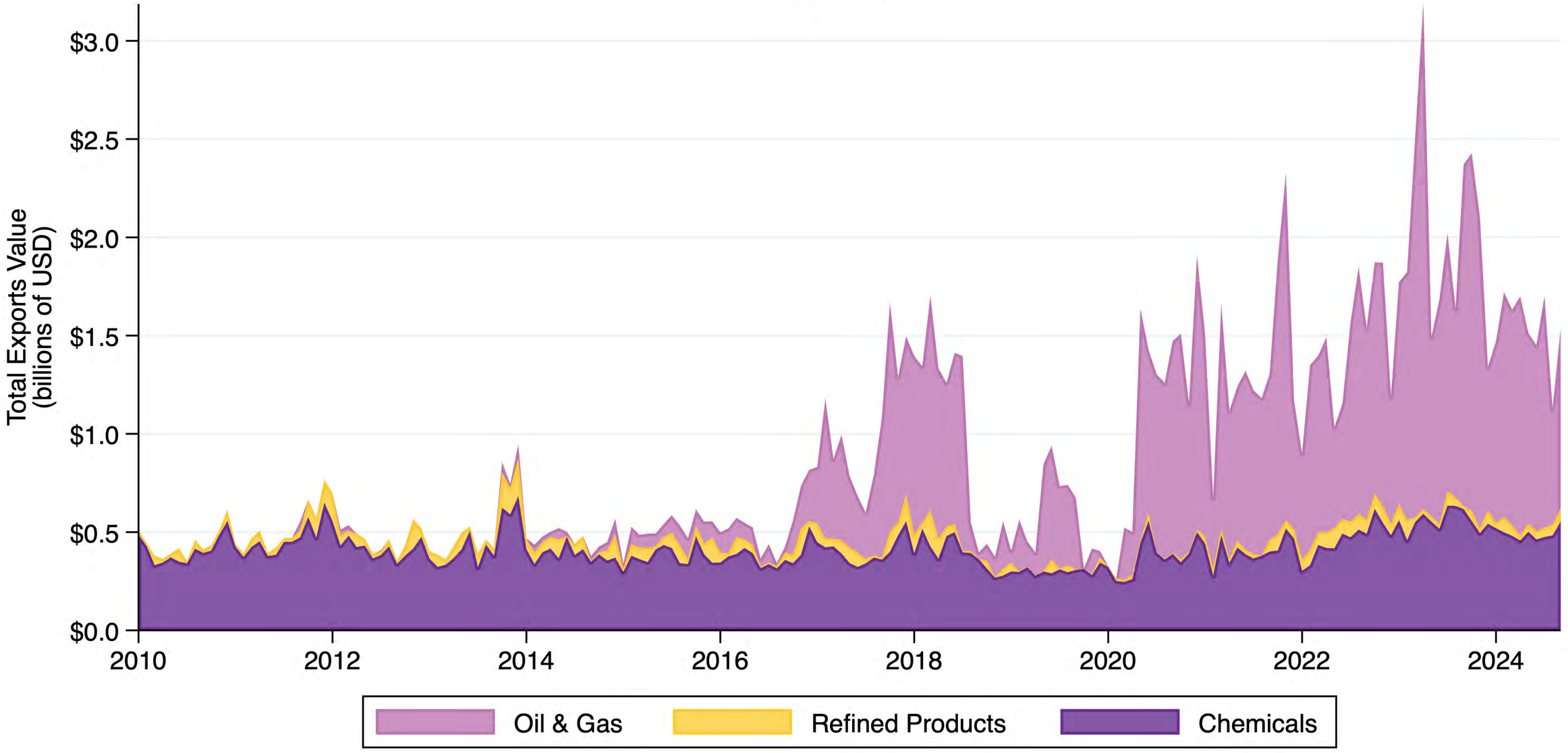
Gulf Coast Exports to China

by NAICS



Source: U.S. Census Bureau: Economic Indicators Division USA Trade Online.

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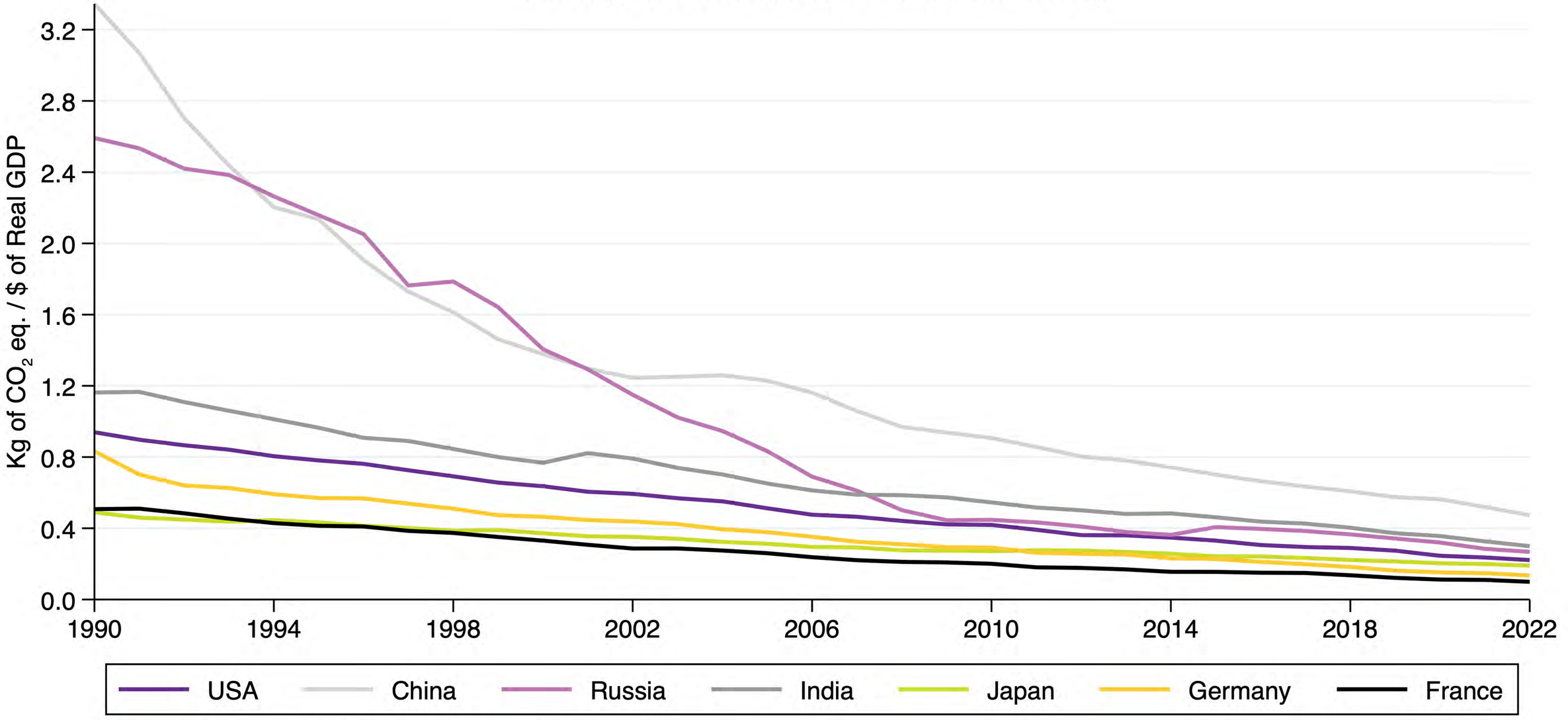
Emissions Intensity of GDP

Including Land Use, Land-Use Change, and Forestry



Sources: GDP data from the World Bank and quoted in current PPP.
Emissions data from the International Monetary Fund.

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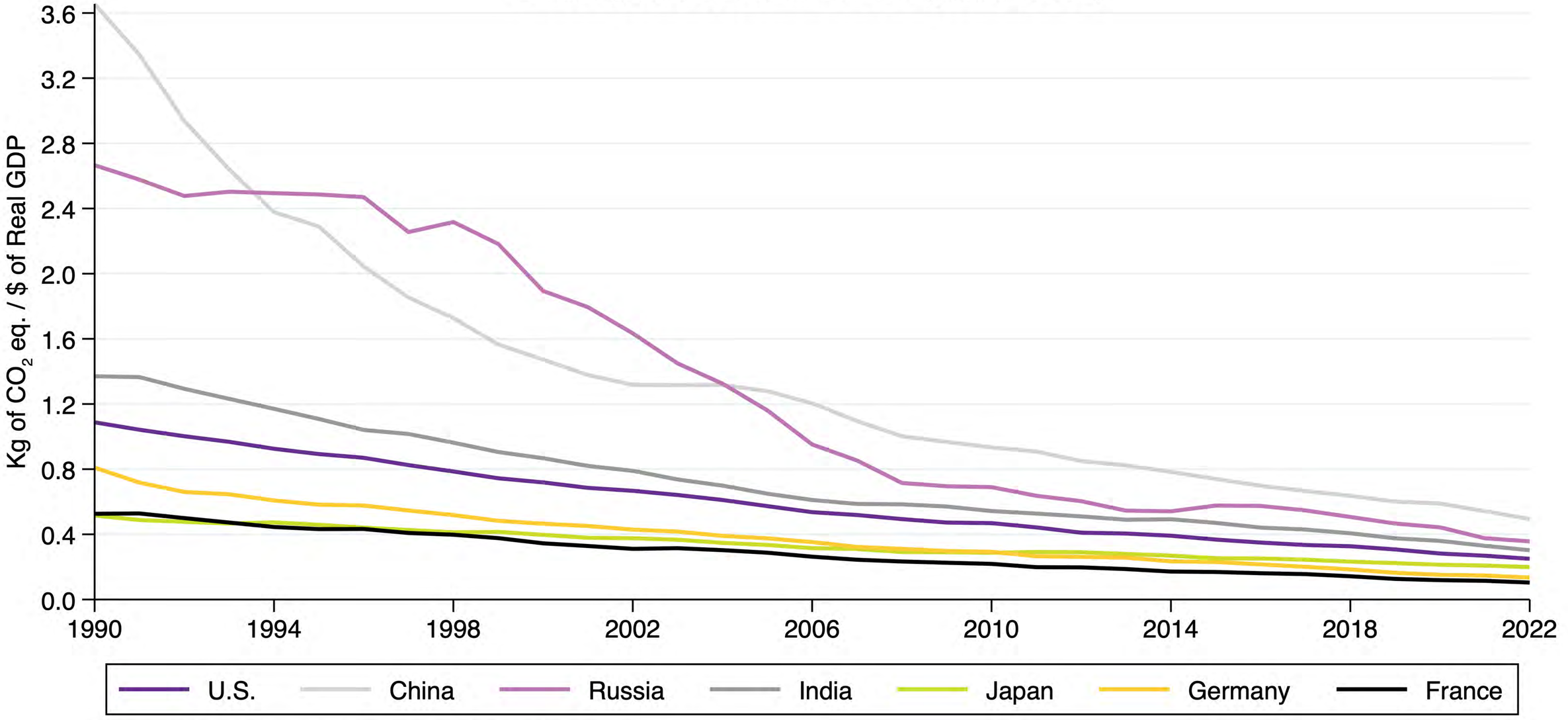
Emissions Intensity of GDP

Excluding Land Use, Land-Use Change, and Forestry



Sources: GDP data from the World Bank and quoted in current PPP.
Emissions data from the International Monetary Fund.

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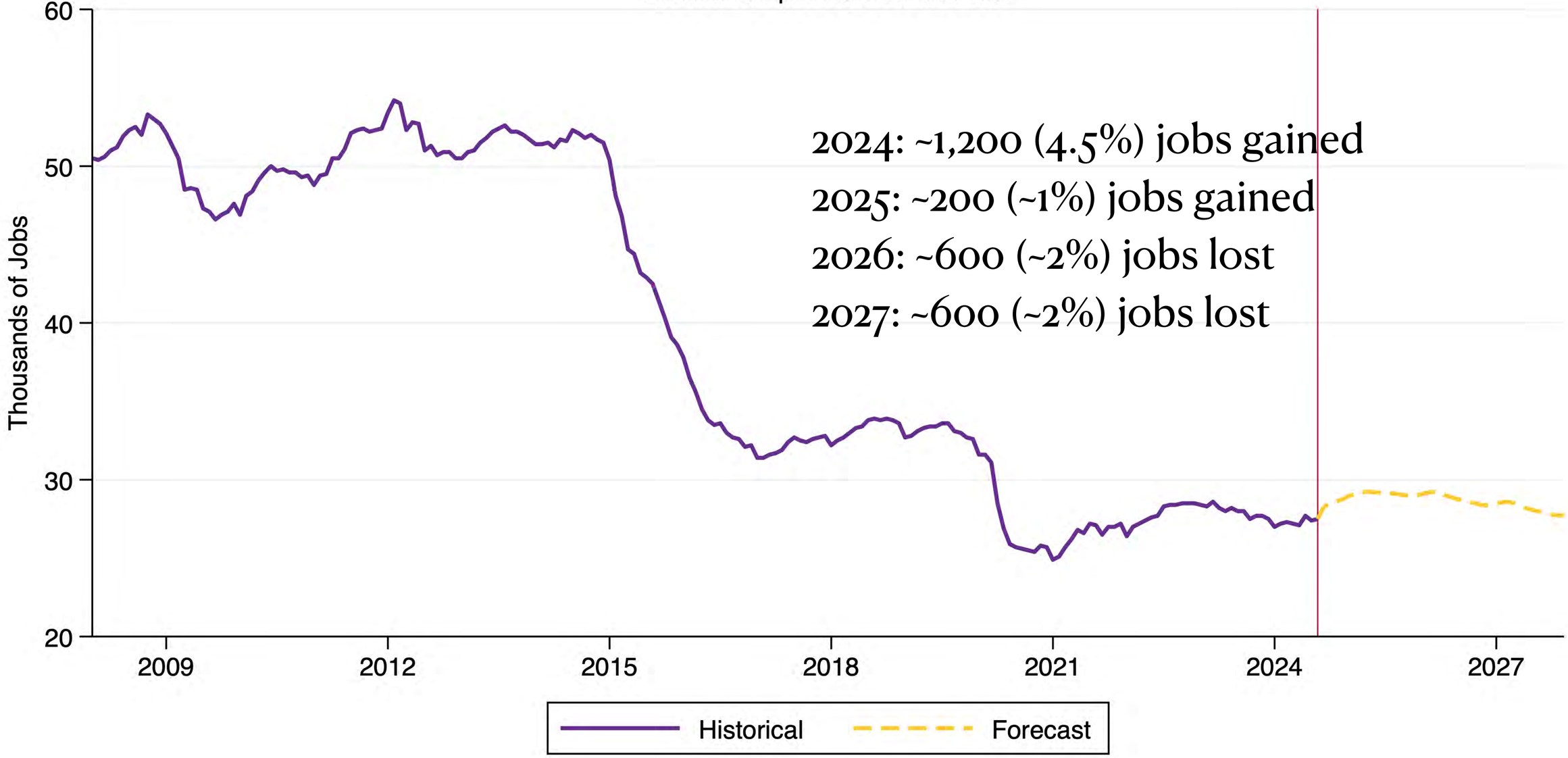
ENVERUS

Employment Forecast

Louisiana Upstream Oil and Gas



Sources: Enverus, Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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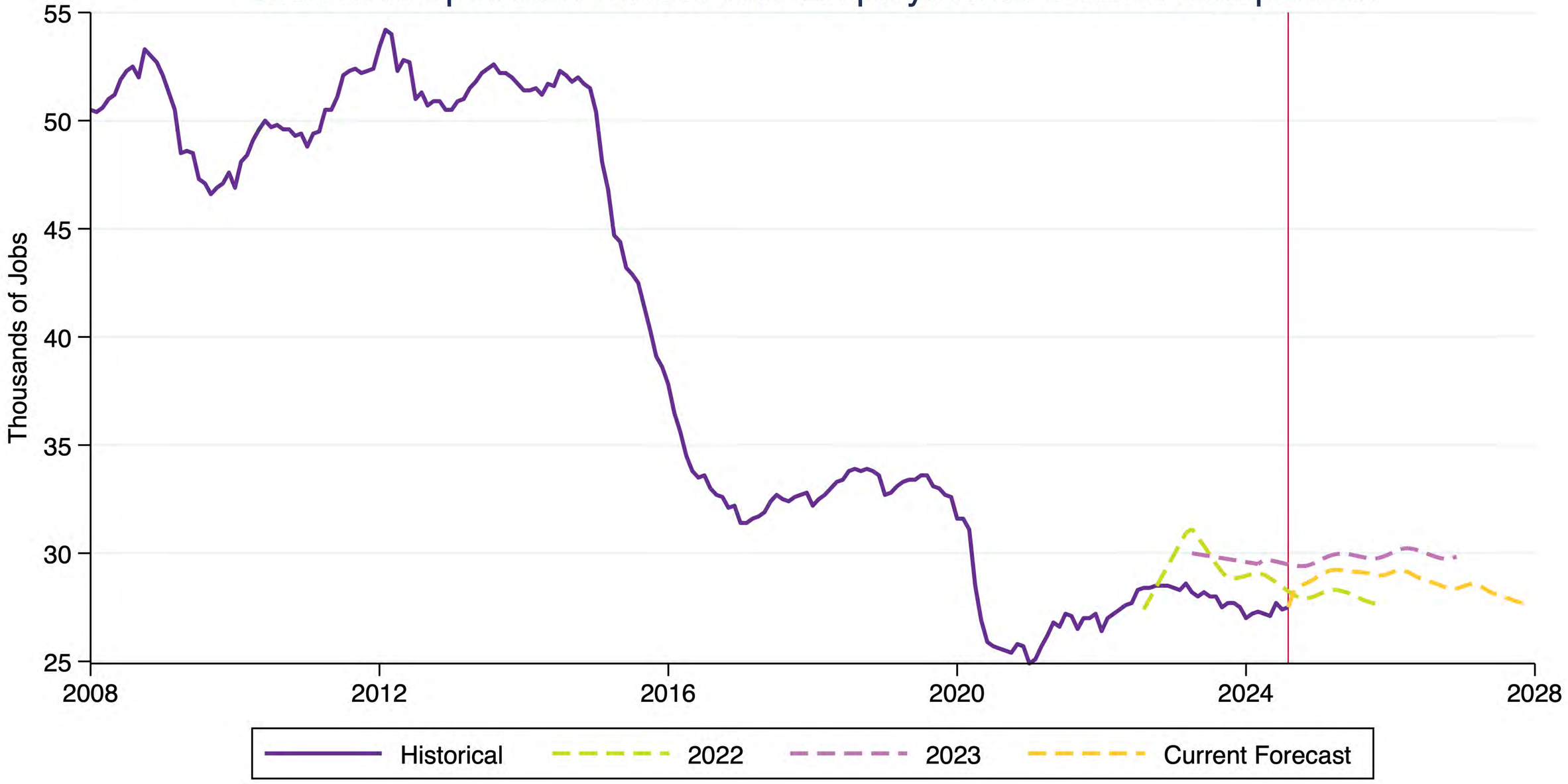
ENVERUS

Louisiana Upstream Oil and Gas Employment Forecast Comparison



Sources: Enverus, Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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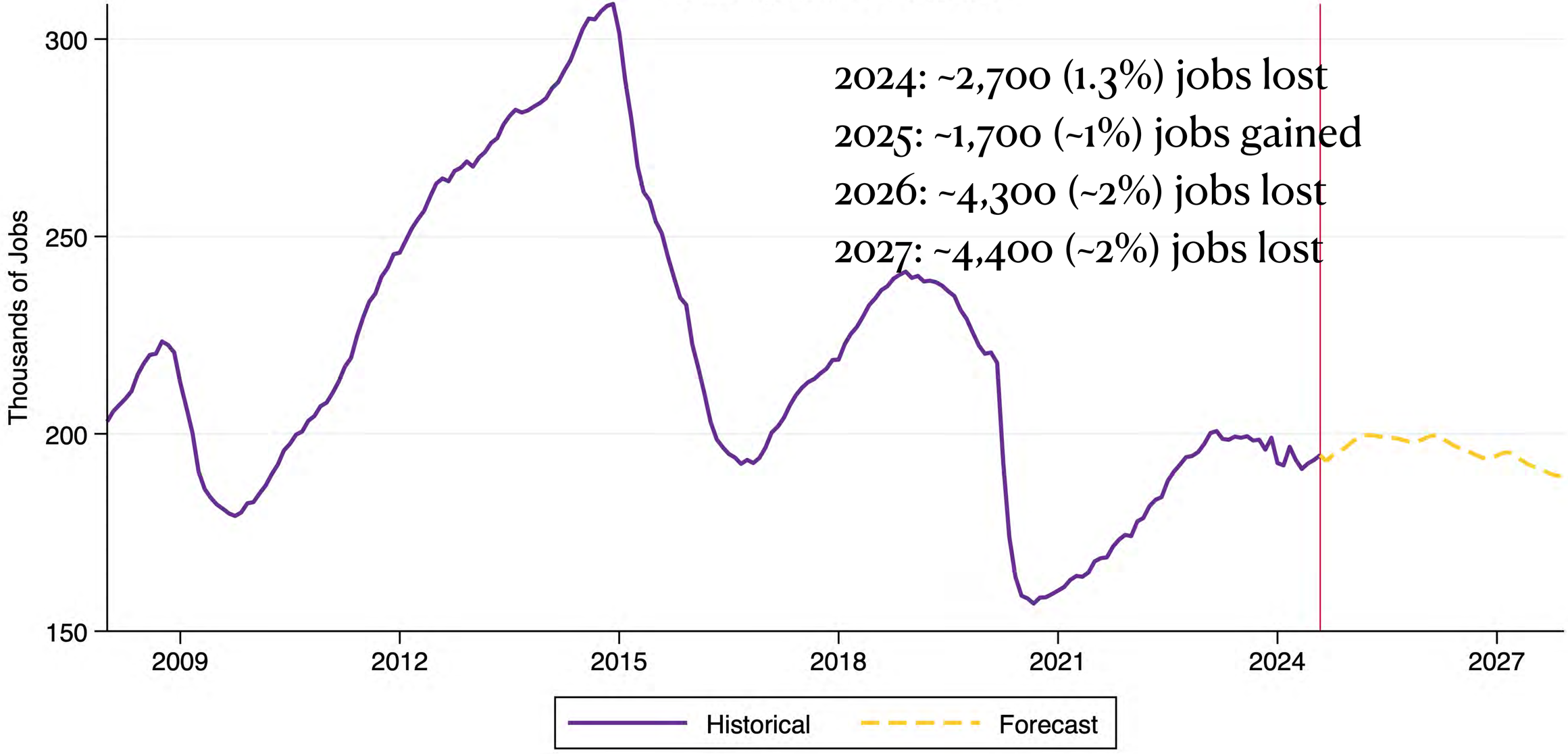
ENVERUS

Employment Forecast

Texas Upstream Oil and Gas



Sources: Enverus, Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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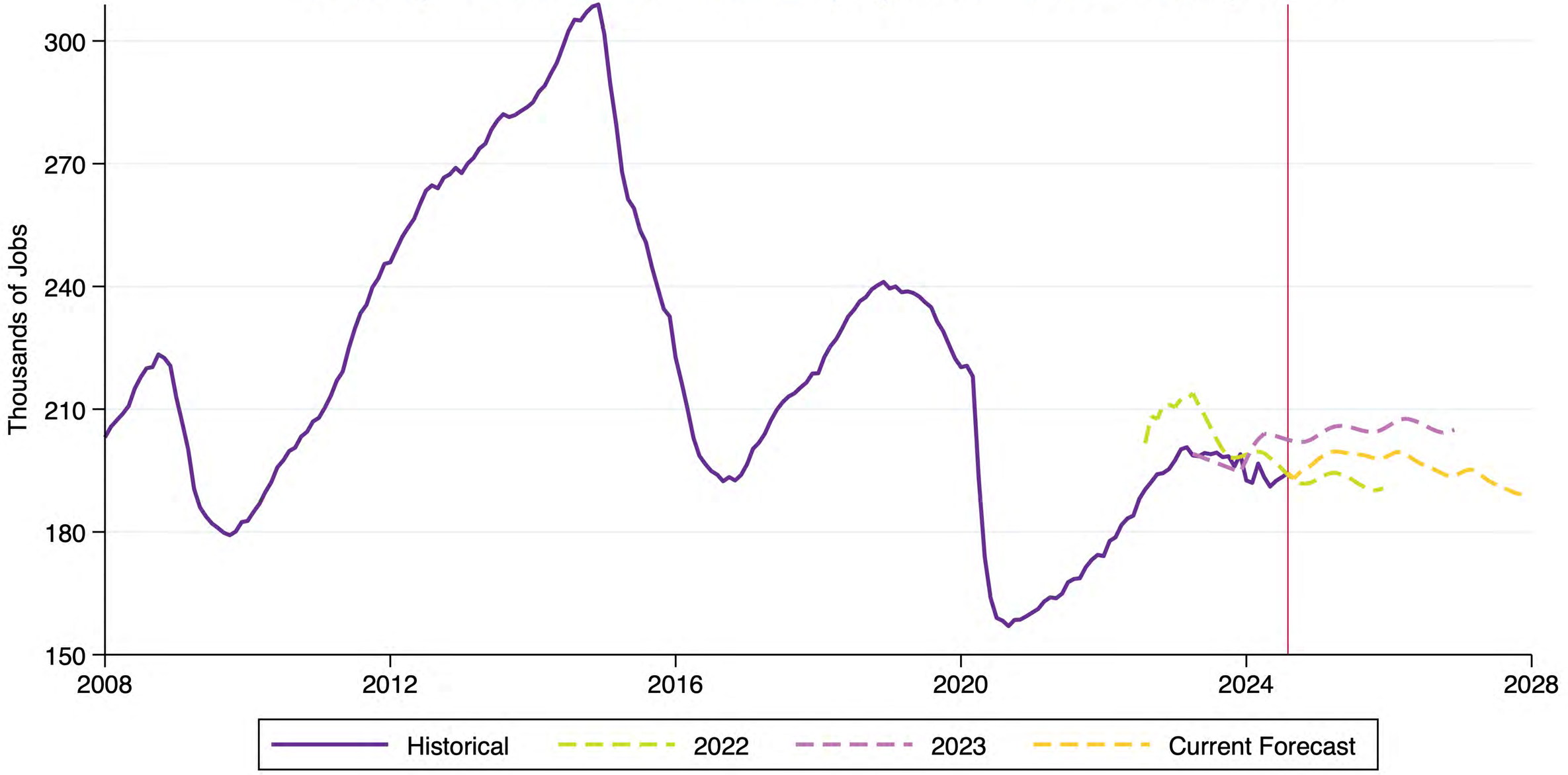
ENVERUS

Texas Upstream Oil and Gas Employment Forecast Comparison



Sources: Enverus, Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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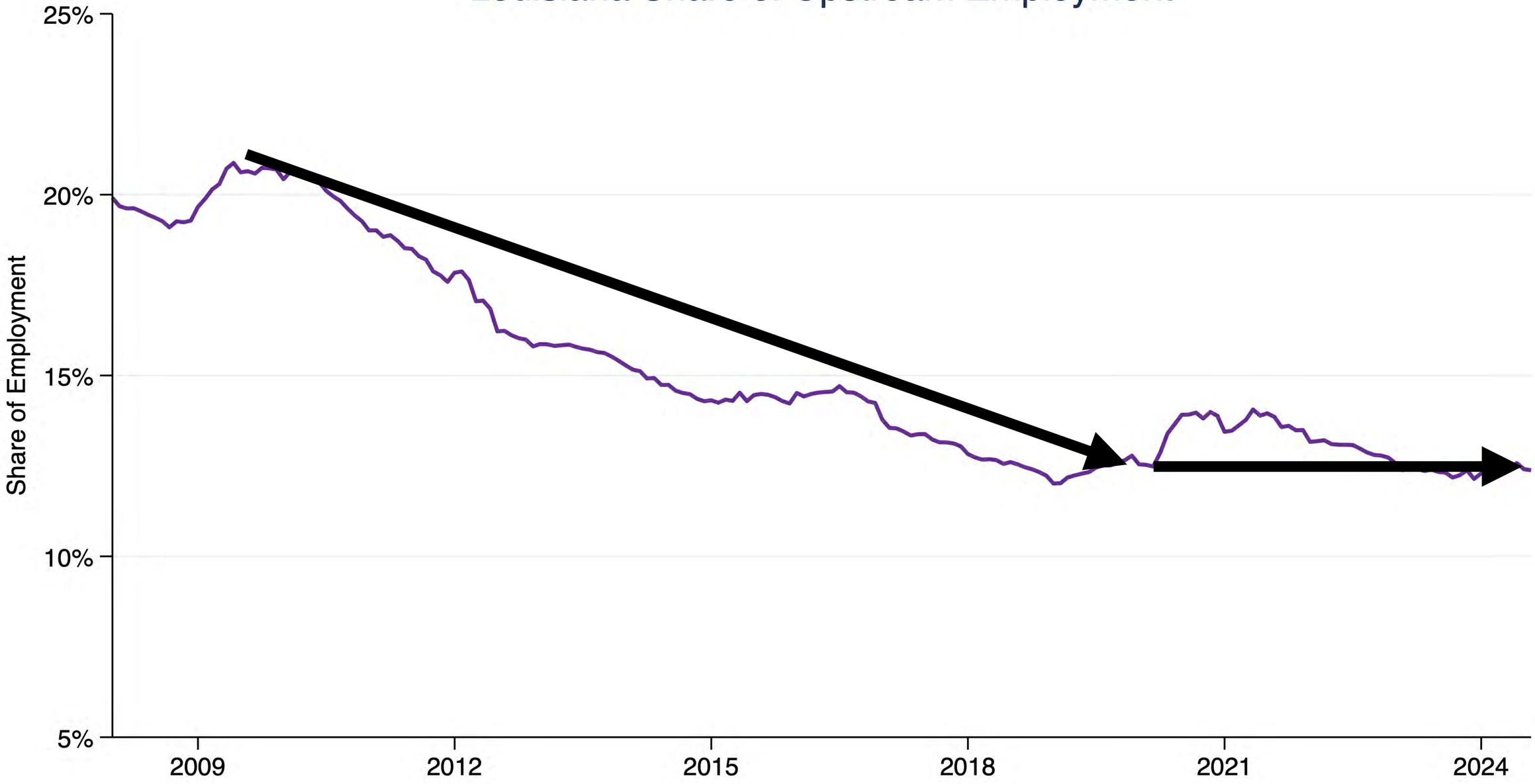
Louisiana Share of Upstream Employment



Sources: Bureau of Labor Statistics. Current Employment Statistics (CES). Retrieved from FRED.

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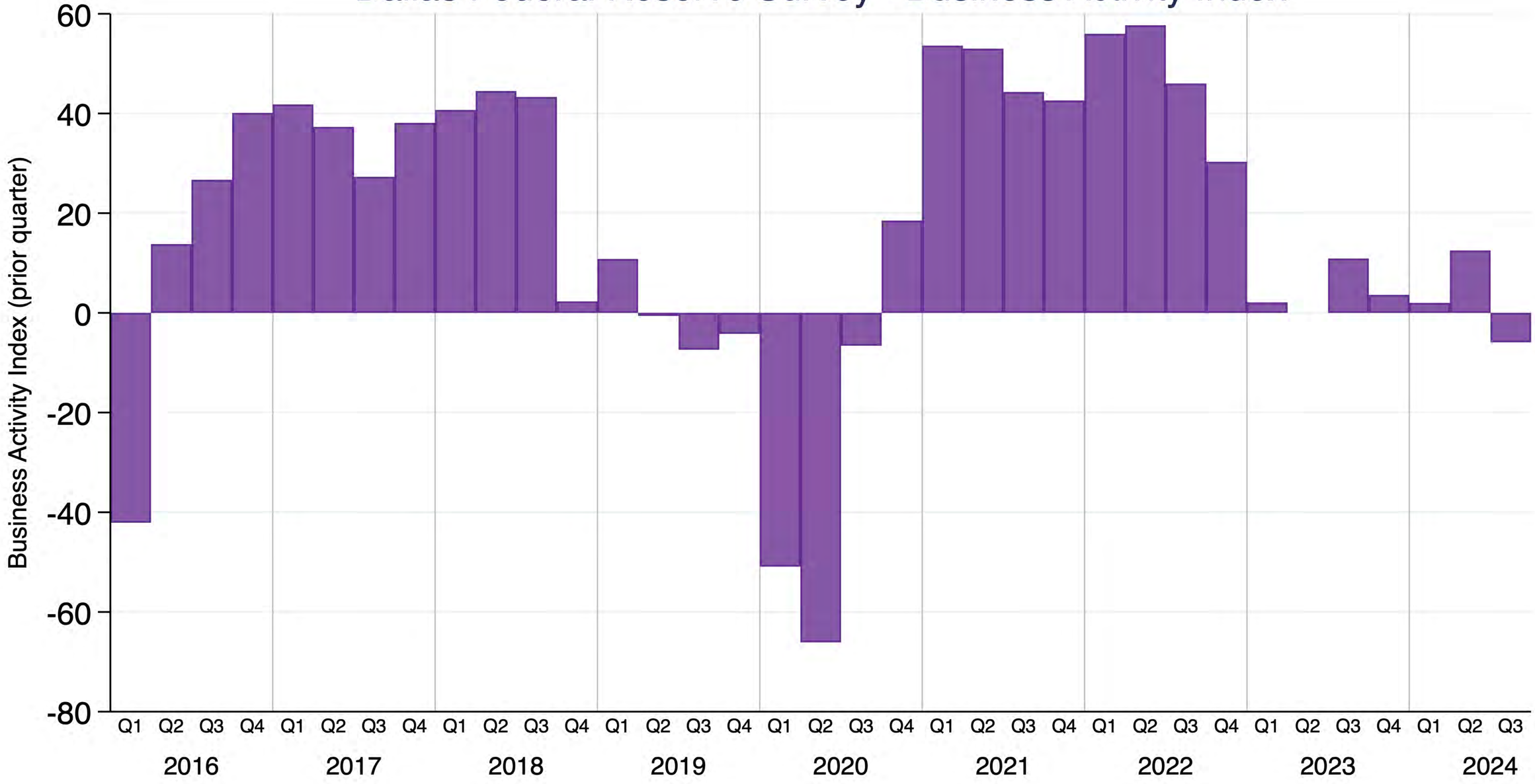
Dallas Federal Reserve Survey - Business Activity Index



Source: Federal Reserve Bank of Dallas. Dallas Fed Energy Survey.

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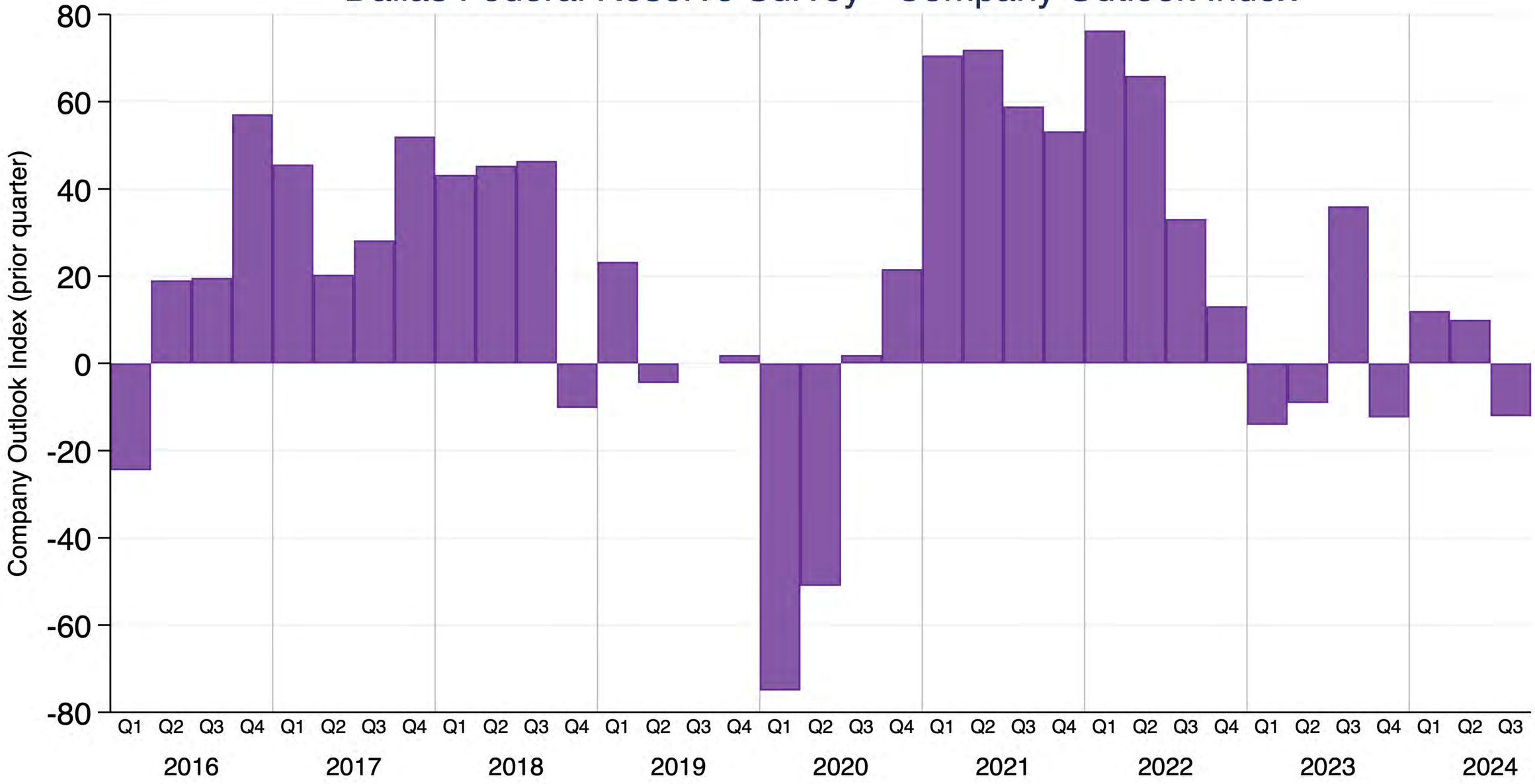
Dallas Federal Reserve Survey - Company Outlook Index



Source: Federal Reserve Bank of Dallas. Dallas Fed Energy Survey.

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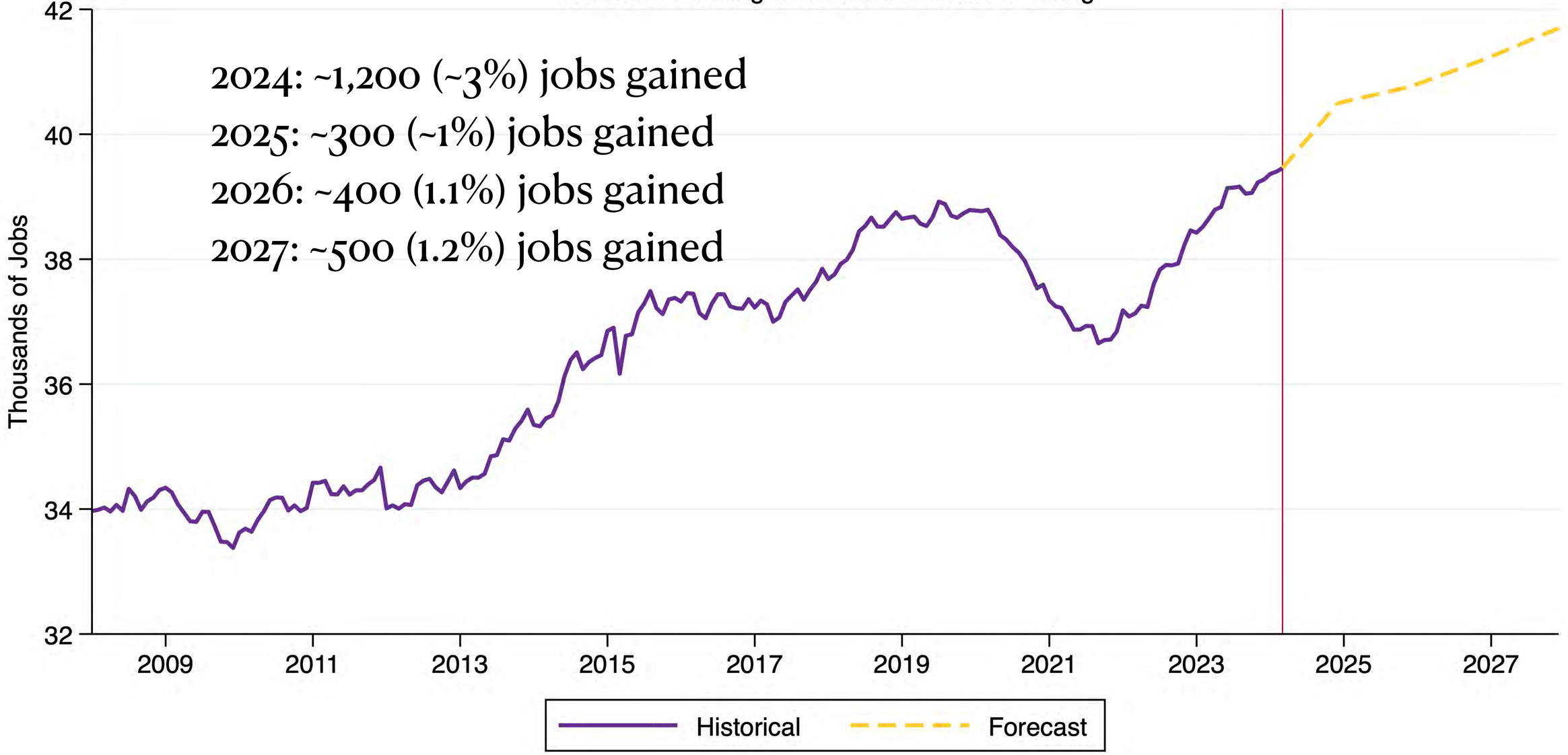
Employment Forecast

Louisiana Refining and Chemical Manufacturing



Sources: Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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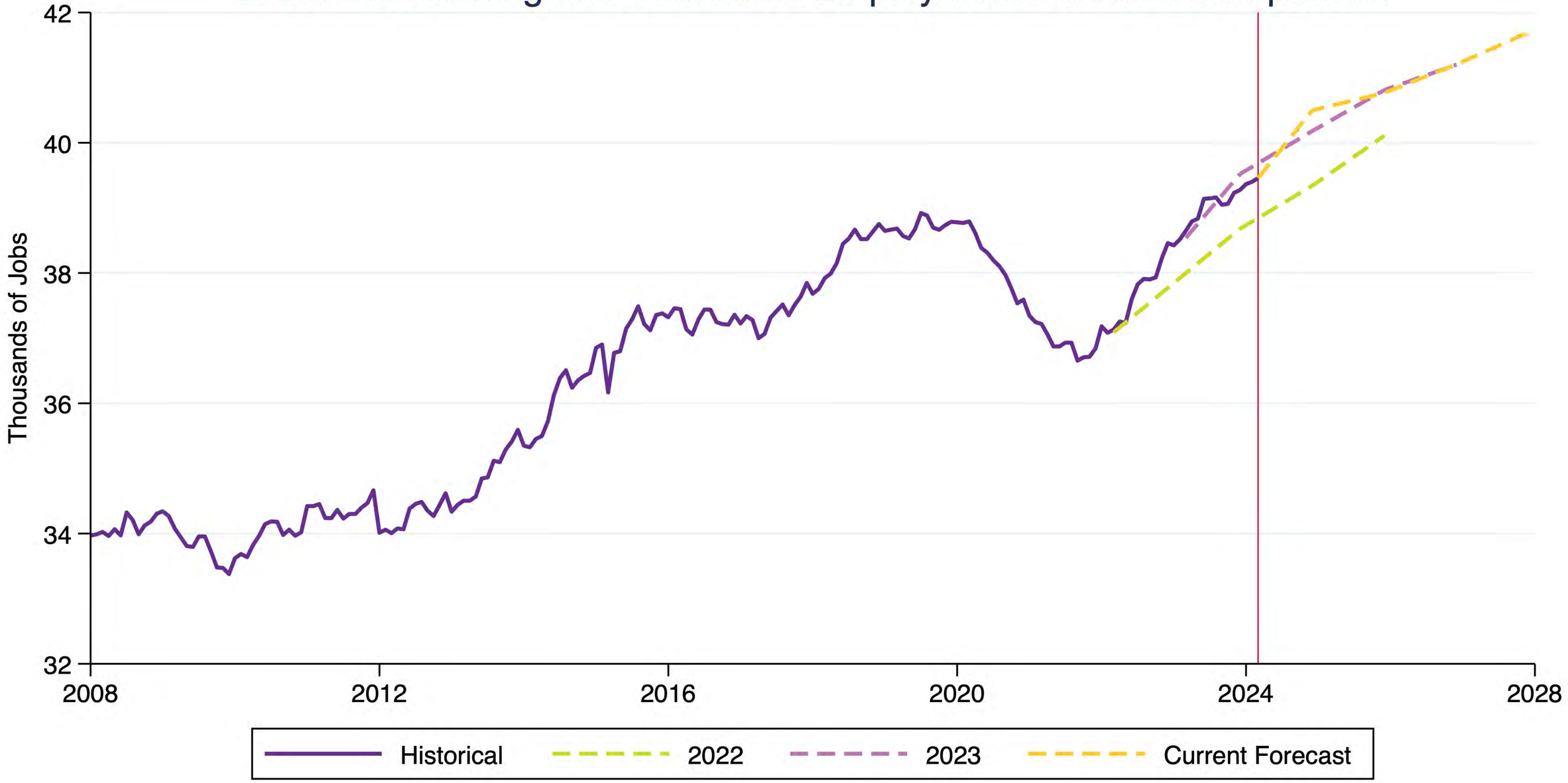
Louisiana Refining and Chemicals Employment Forecast Comparison



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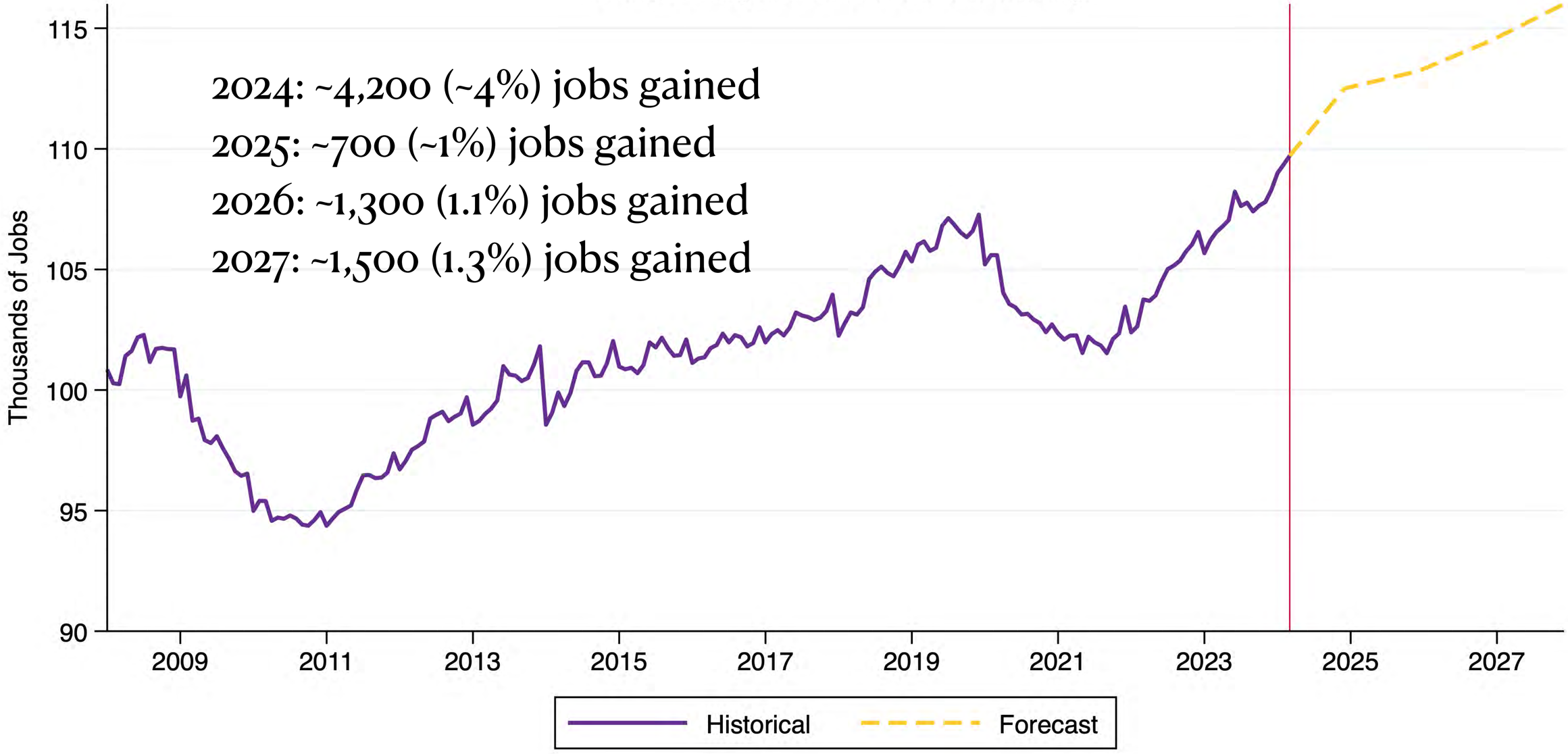
Employment Forecast

Texas Refining and Chemical Manufacturing



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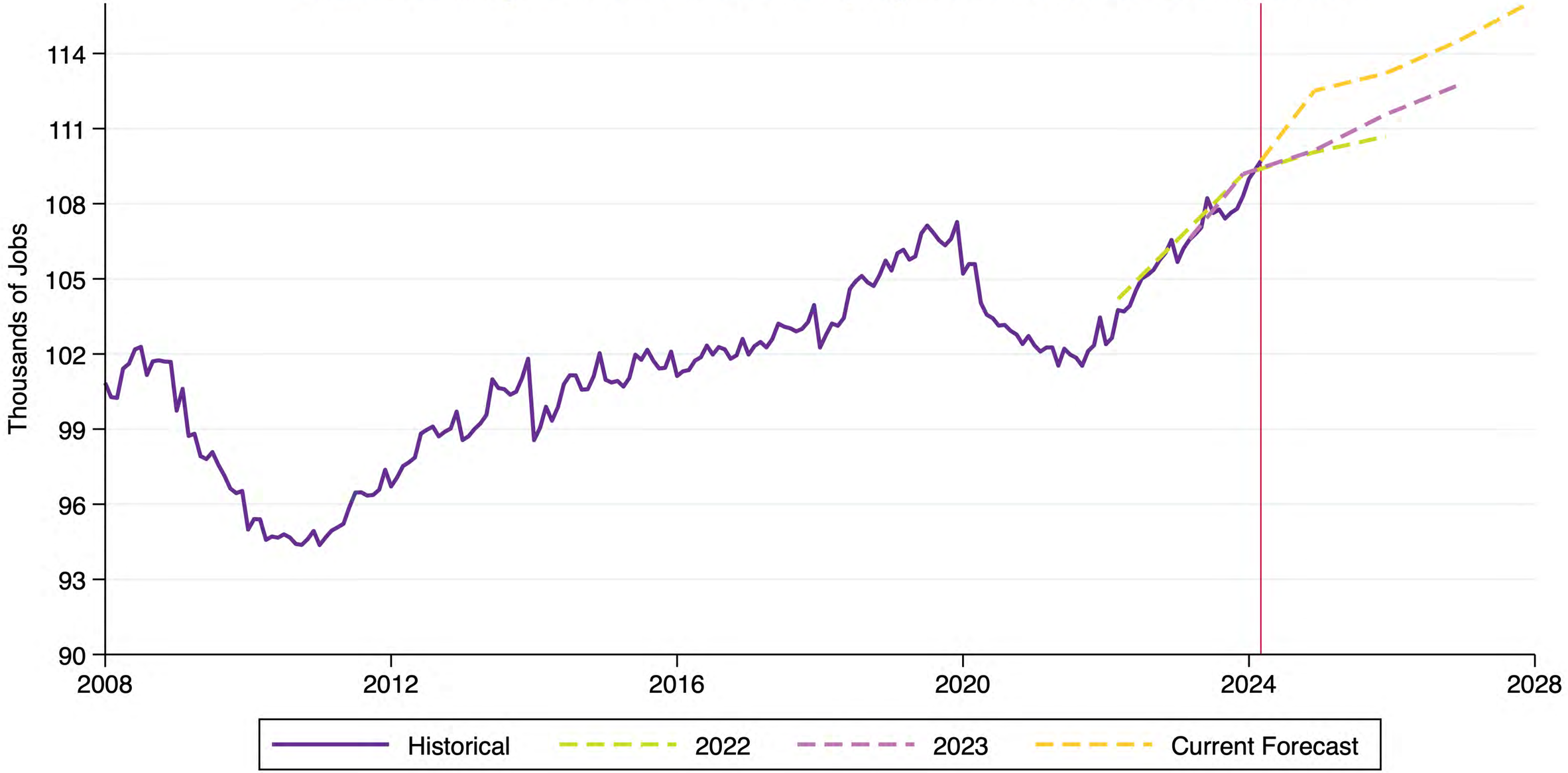
Texas Refining and Chemicals Employment Forecast Comparison



Sources: Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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ENVERUS

Louisiana Employment Forecast

Sources: Enverus, Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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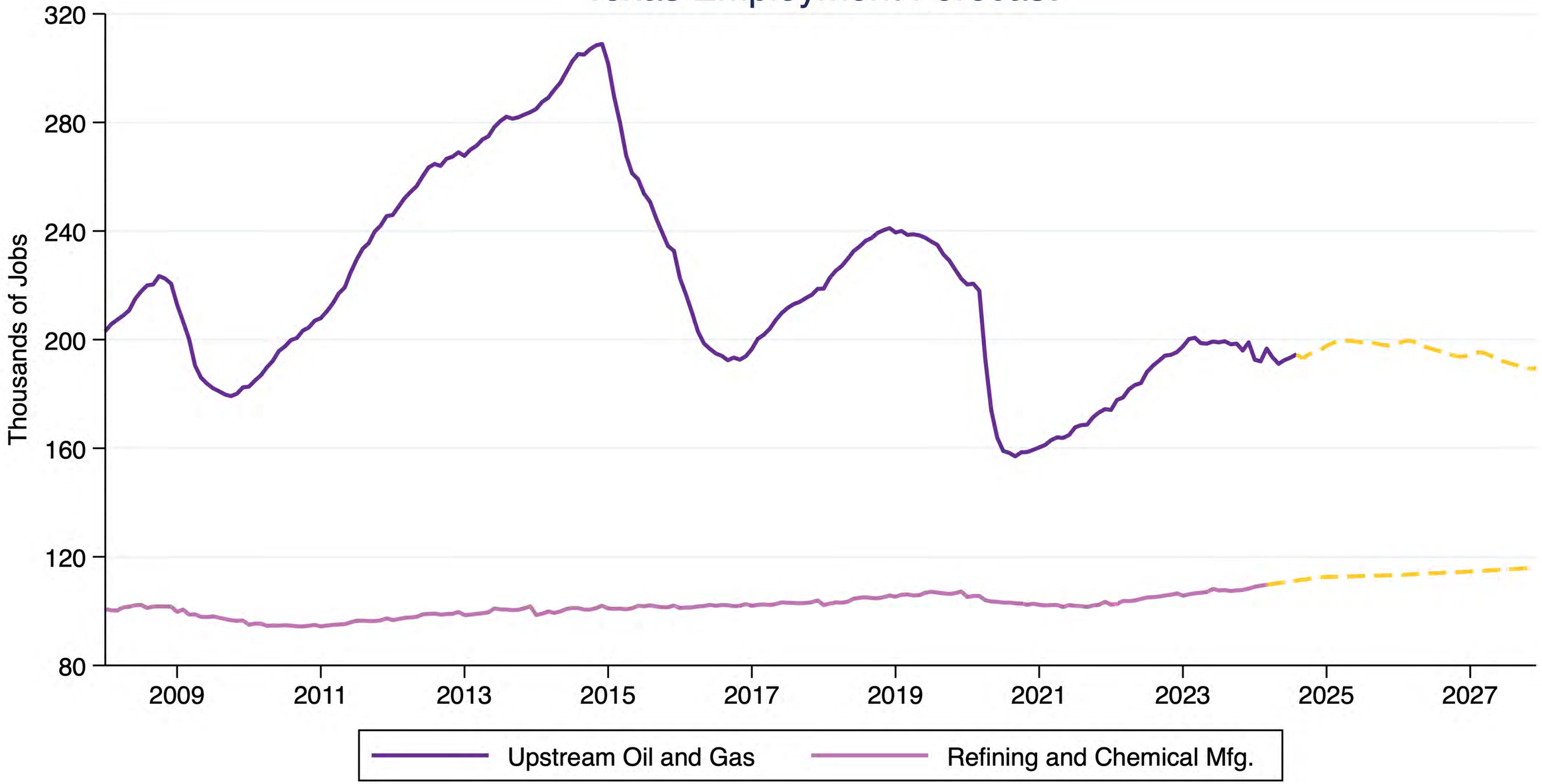
ENVERUS

Texas Employment Forecast



Sources: Enverus, Bureau of Labor Statistics, Energy Information Administration and authors' calculations.

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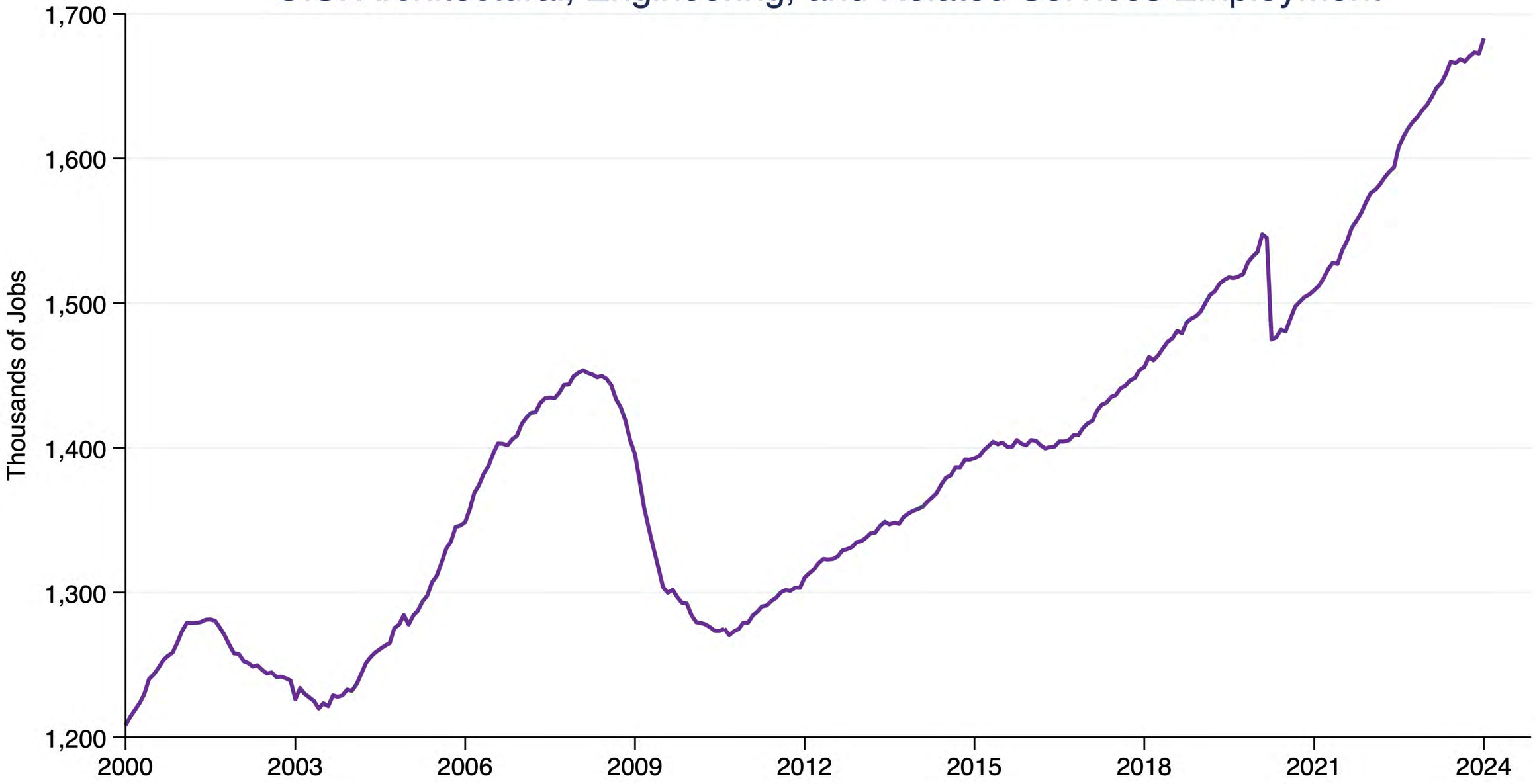
Broader Economic Implications

Industry	Multiplier
Upstream Oil and Gas	
Oil and Gas Extraction	4.3
Support Activities for Mining	4.2
Oil and Gas Manufacturing	
Petroleum and Coal Products Manufacturing	7.1
Chemical Manufacturing	5.3

Source: RIMS II Multipliers.

Note: Multipliers represent the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry.

U.S. Architectural, Engineering, and Related Services Employment



Source: Bureau of Labor Statistics. Current Employment Statistics (CES). Retrieved from FRED.

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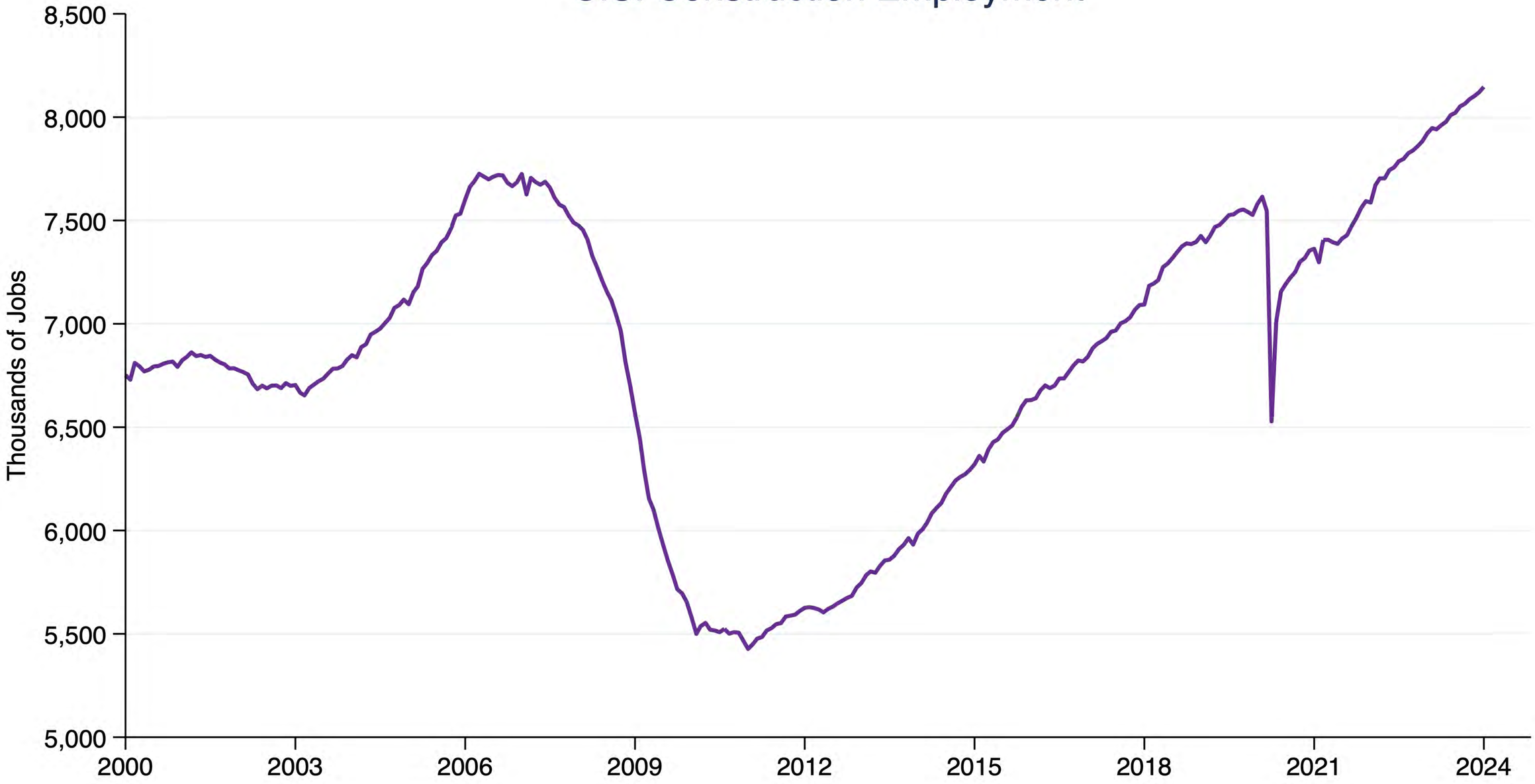
U.S. Construction Employment



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