

RAILROAD INDUSTRY REPORT

**Presented to the
Rail Energy Transportation
Advisory Committee**

Nov. 16, 2021

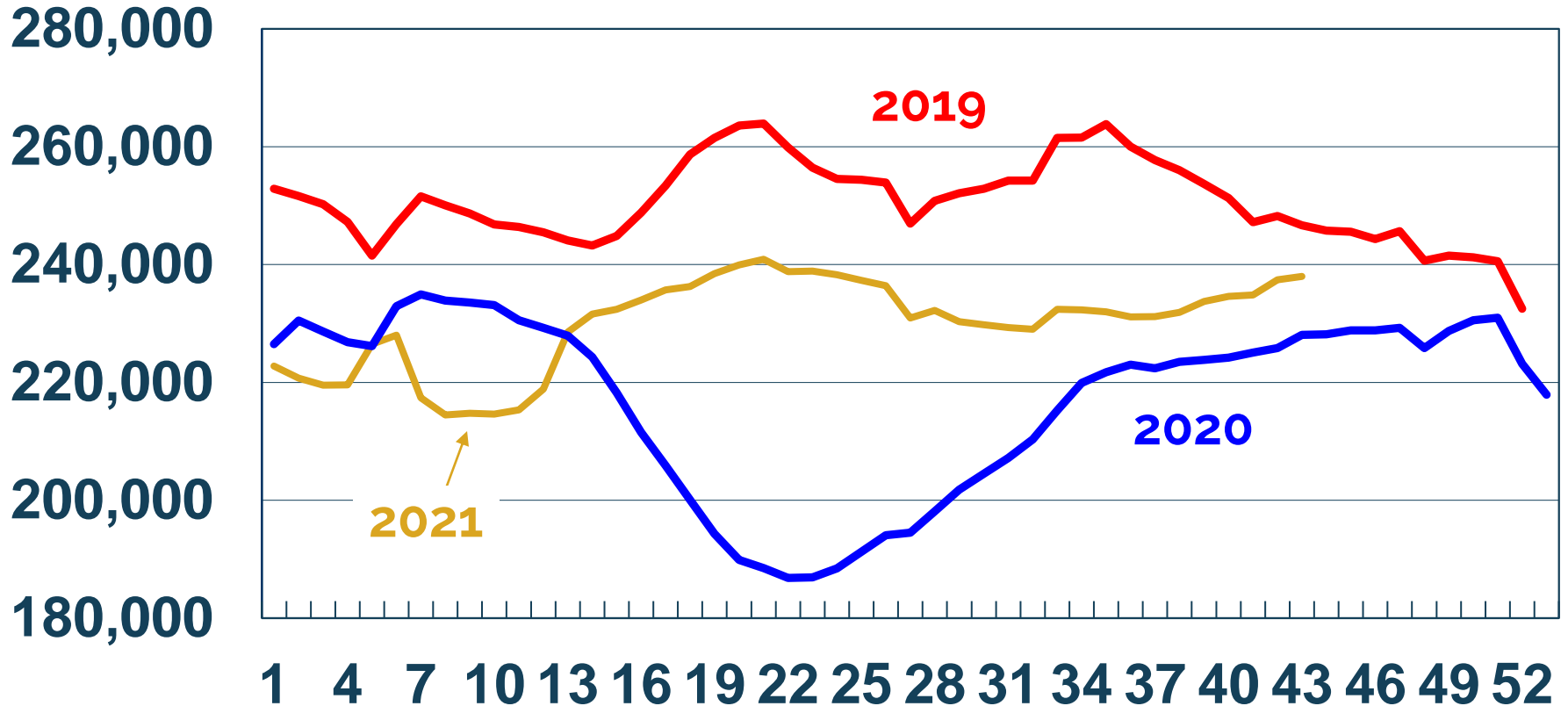
Topics for Today

- Overall rail traffic trends
- Energy markets
- Supply chains

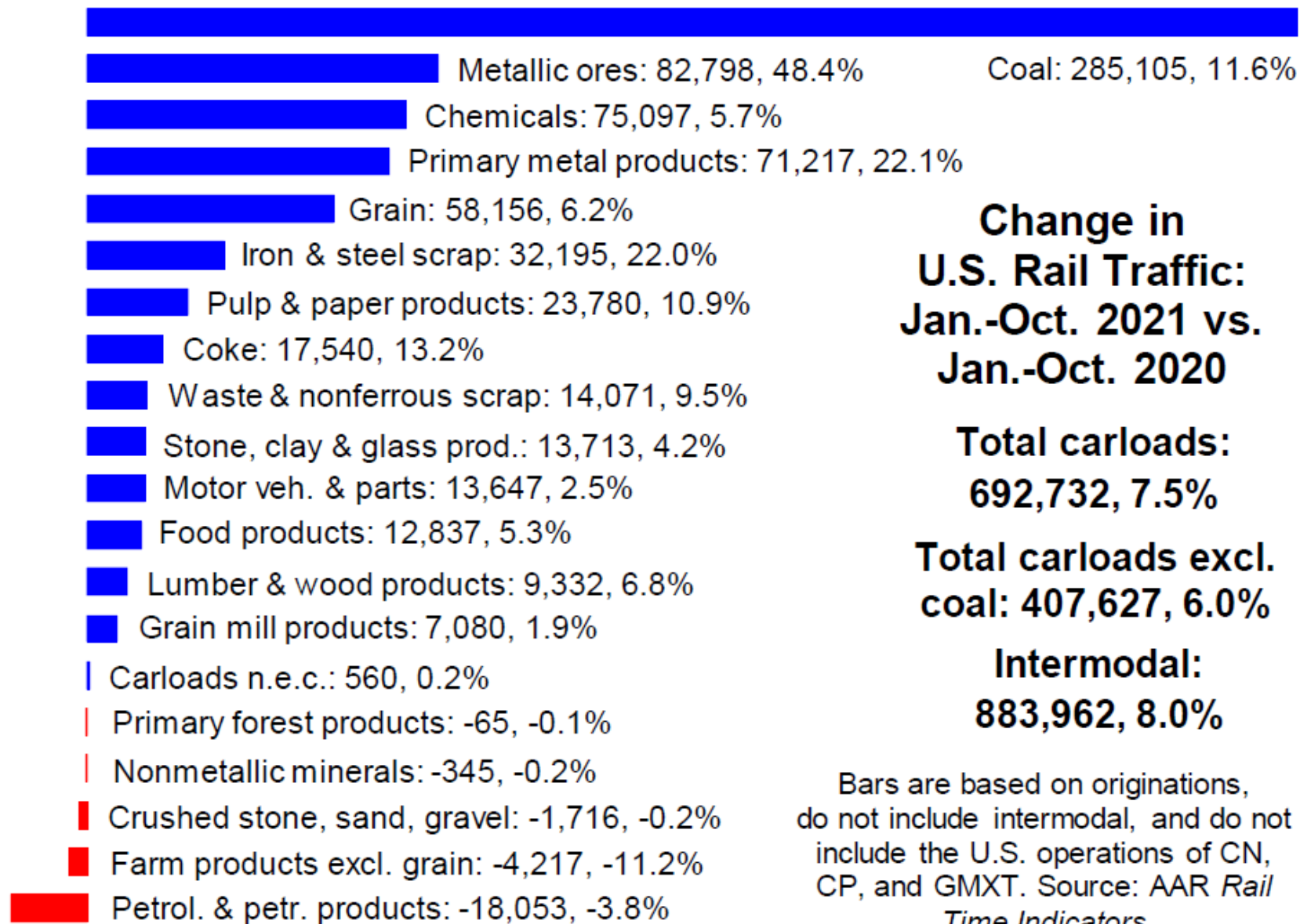


Total U.S. Rail Carloads

(6-week moving average)



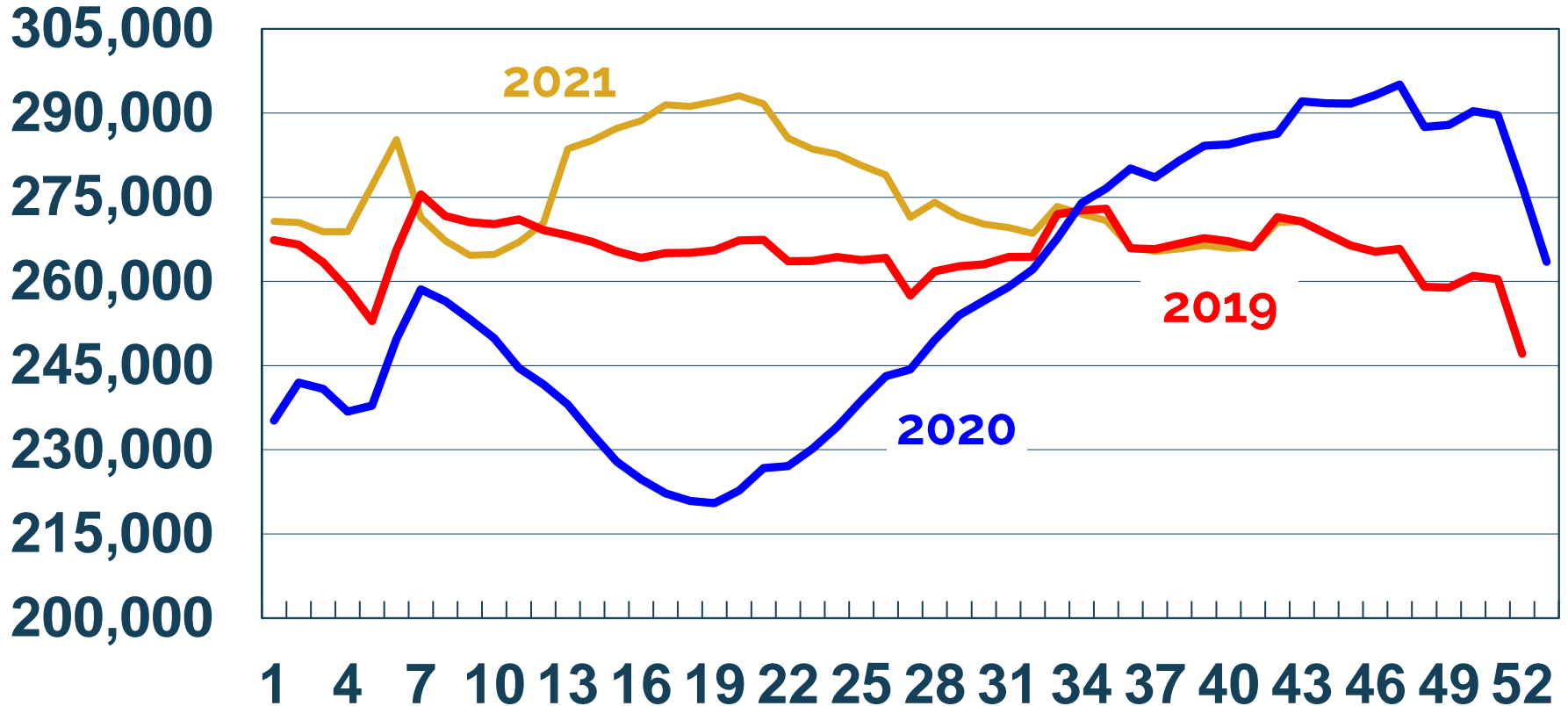
Data are originations, do not include intermodal, and do not include the U.S. operations of CN, CP, and GMXT. Source: AAR *Rail Time Indicators*



Bars are based on originations, do not include intermodal, and do not include the U.S. operations of CN, CP, and GMXT. Source: AAR *Rail Time Indicators*

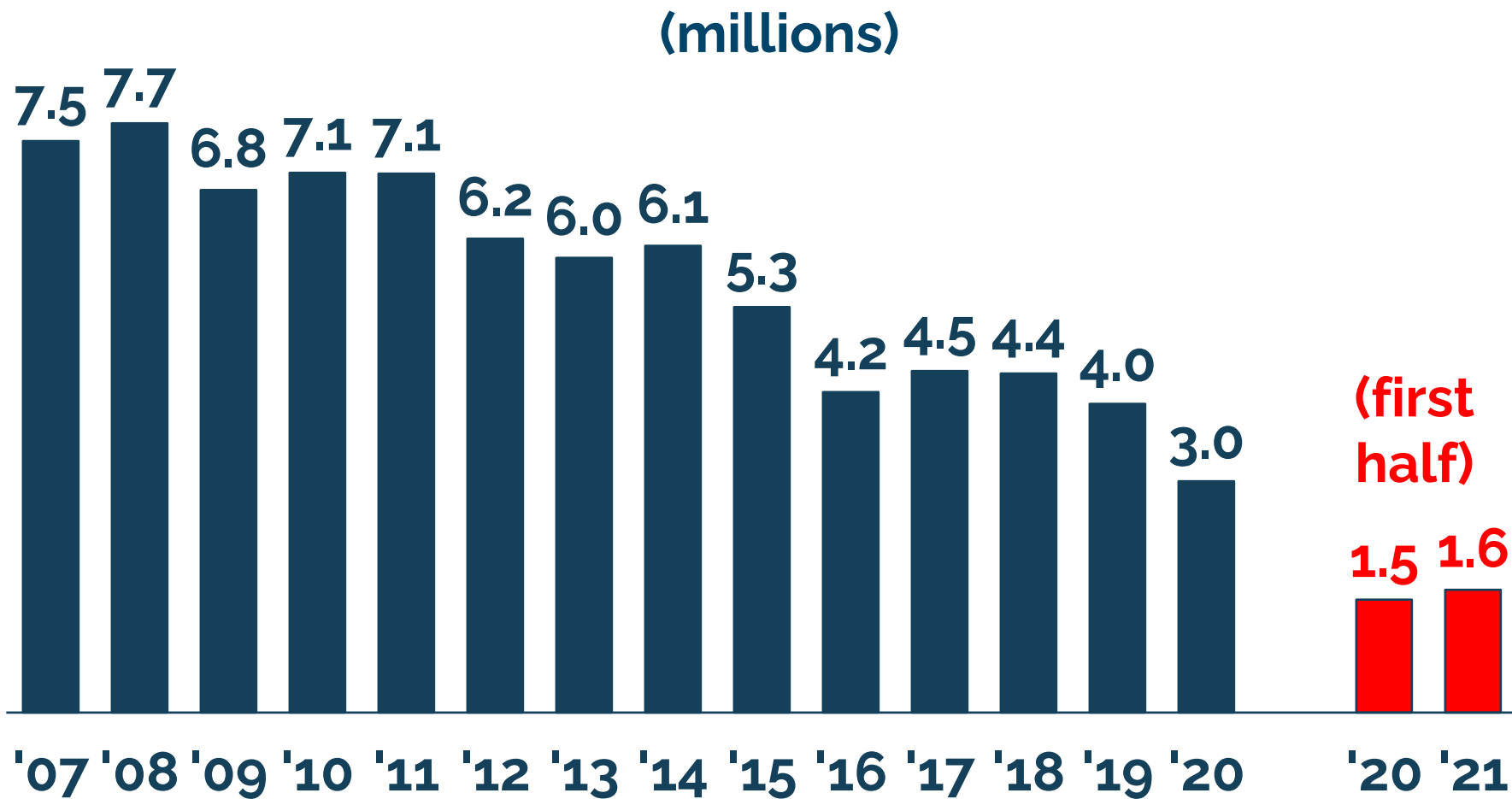
U.S. Rail Intermodal

(6-week moving average)



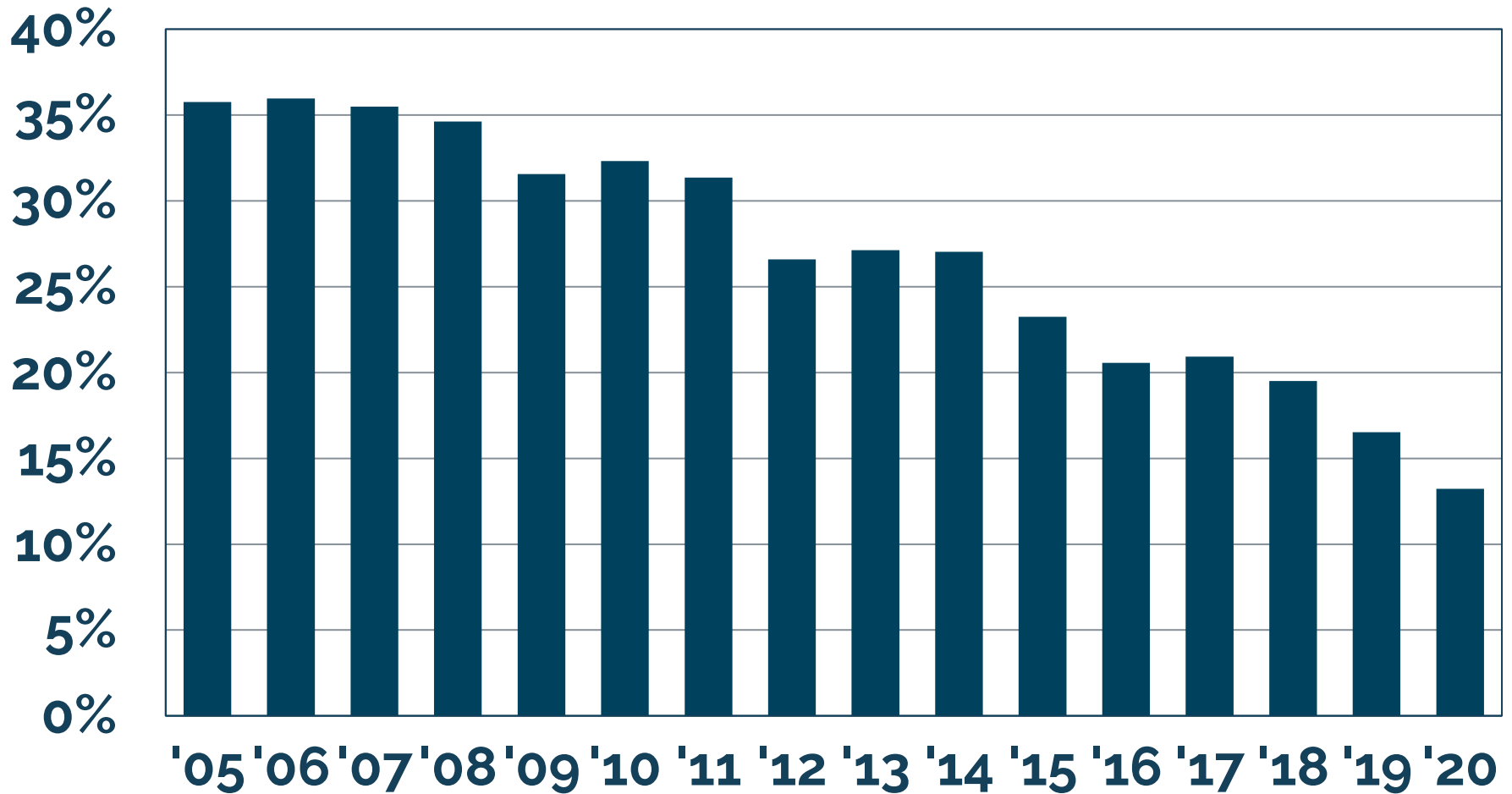
Data are originations, do not include intermodal, and do not include the U.S. operations of CN, CP, and GMXT. Source: AAR *Rail Time Indicators*

Rail Carloads of Coal Have Plunged...



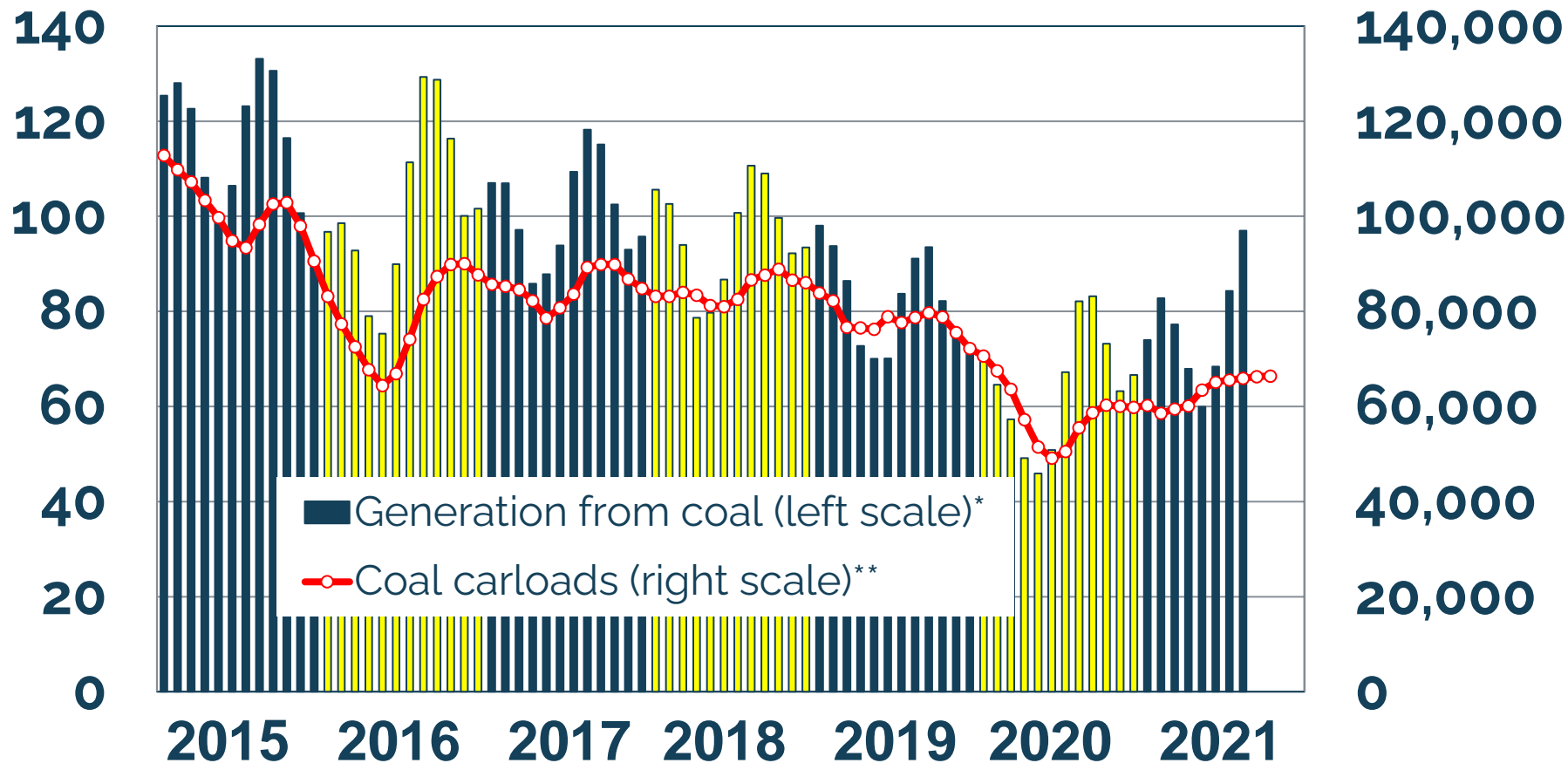
Data are originations for Class I railroads. Source: AAR *Freight Commodity Statistics*

...As Has The Share of U.S. Electricity Generated by Coal Delivered by Rail



Figures are estimates based on AAR analysis of EIA data

Small Recovery in 2021 Tied to Gains in Electricity Generation From Coal



*3-month moving average, million megawatthours.

**3-month moving average based on weekly originations.

Source: EIA, AAR

Incremental Recent Gain in Coal Market Share

% Share U.S. Electricity Generation

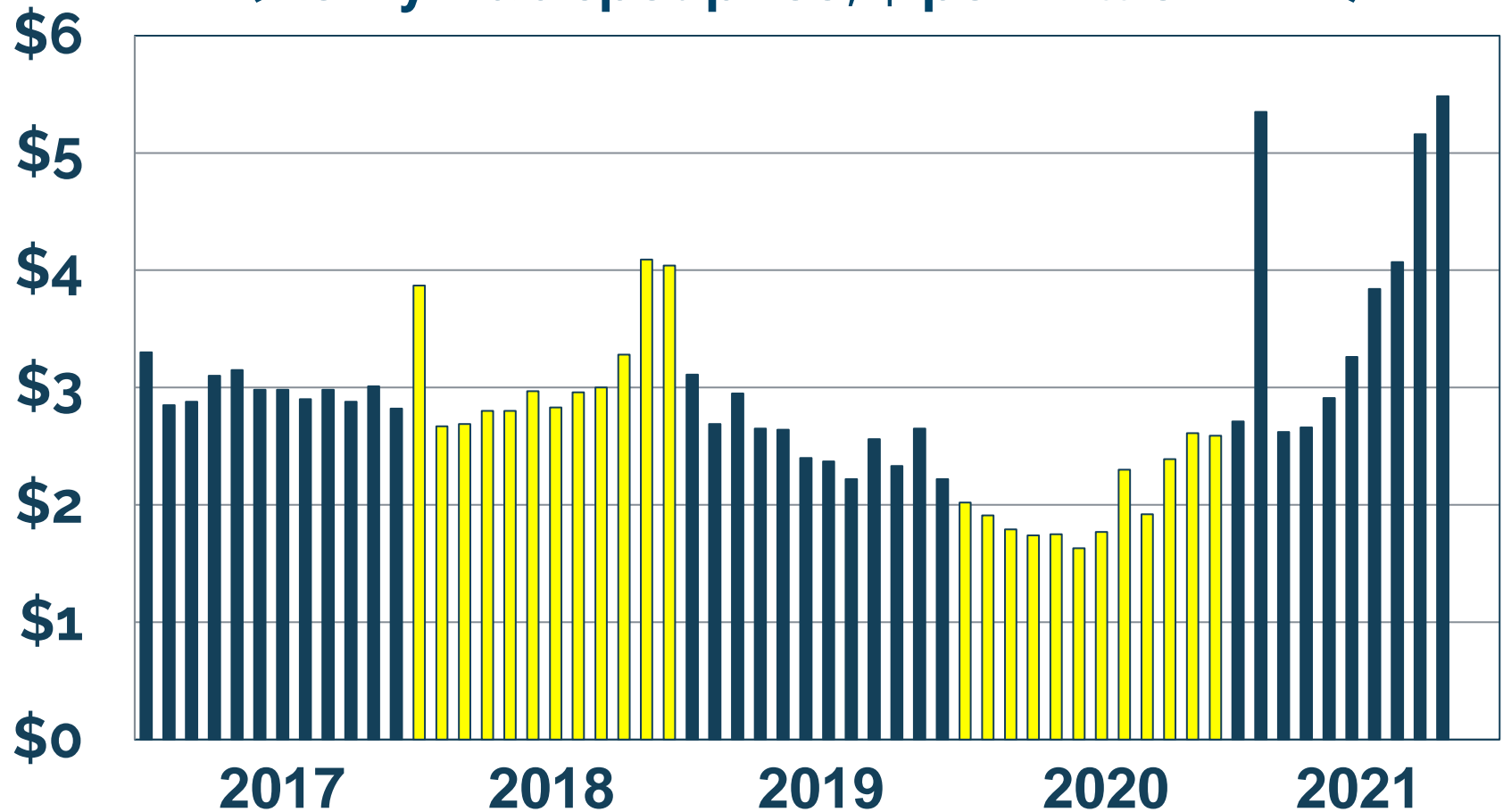
| | 2000 | 2005 | 2010 | 2015 | 2020 | 2021* |
|-------------|------|------|------|------|------|-------|
| Coal | 52% | 50% | 45% | 33% | 19% | 23% |
| Natural Gas | 16% | 19% | 24% | 33% | 40% | 38% |
| Nuclear | 20% | 19% | 20% | 20% | 20% | 19% |
| Renewables | 2% | 2% | 4% | 7% | 13% | 13% |
| Hydro | 7% | 7% | 6% | 6% | 7% | 6% |
| Other | 3% | 4% | 1% | 1% | 1% | 1% |

* Jan-Aug

Source: Energy Information Administration

Caused in Part by Big Jump in Natural Gas Prices

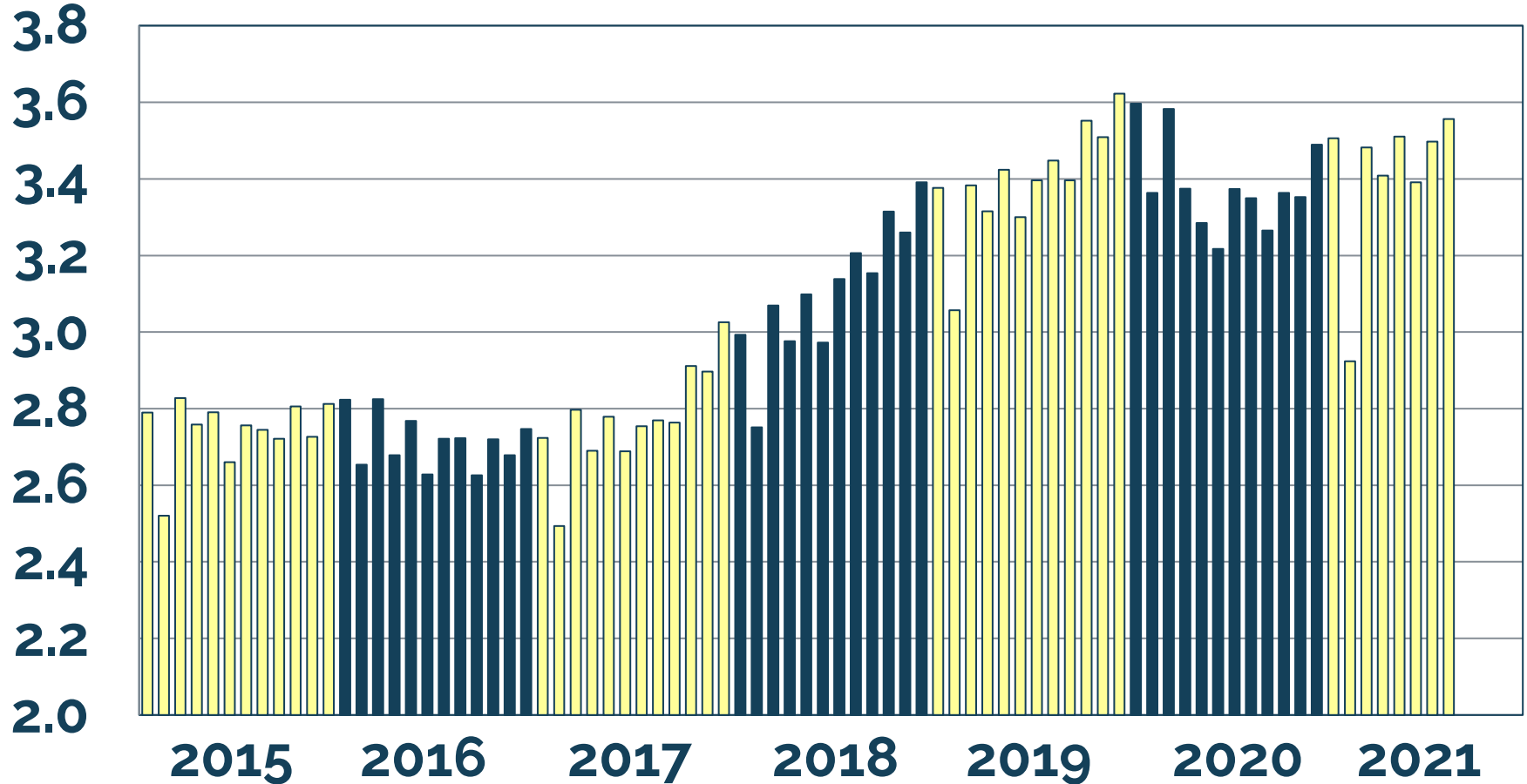
(Henry Hub spot price, \$ per million BTU)



Source: Energy Information Administration

U.S. Natural Gas Output Not Growing With Price Increases

(trillion cubic feet)



Source: Energy Information Administration

Coal Economics Have Improved, But That's Not Enough

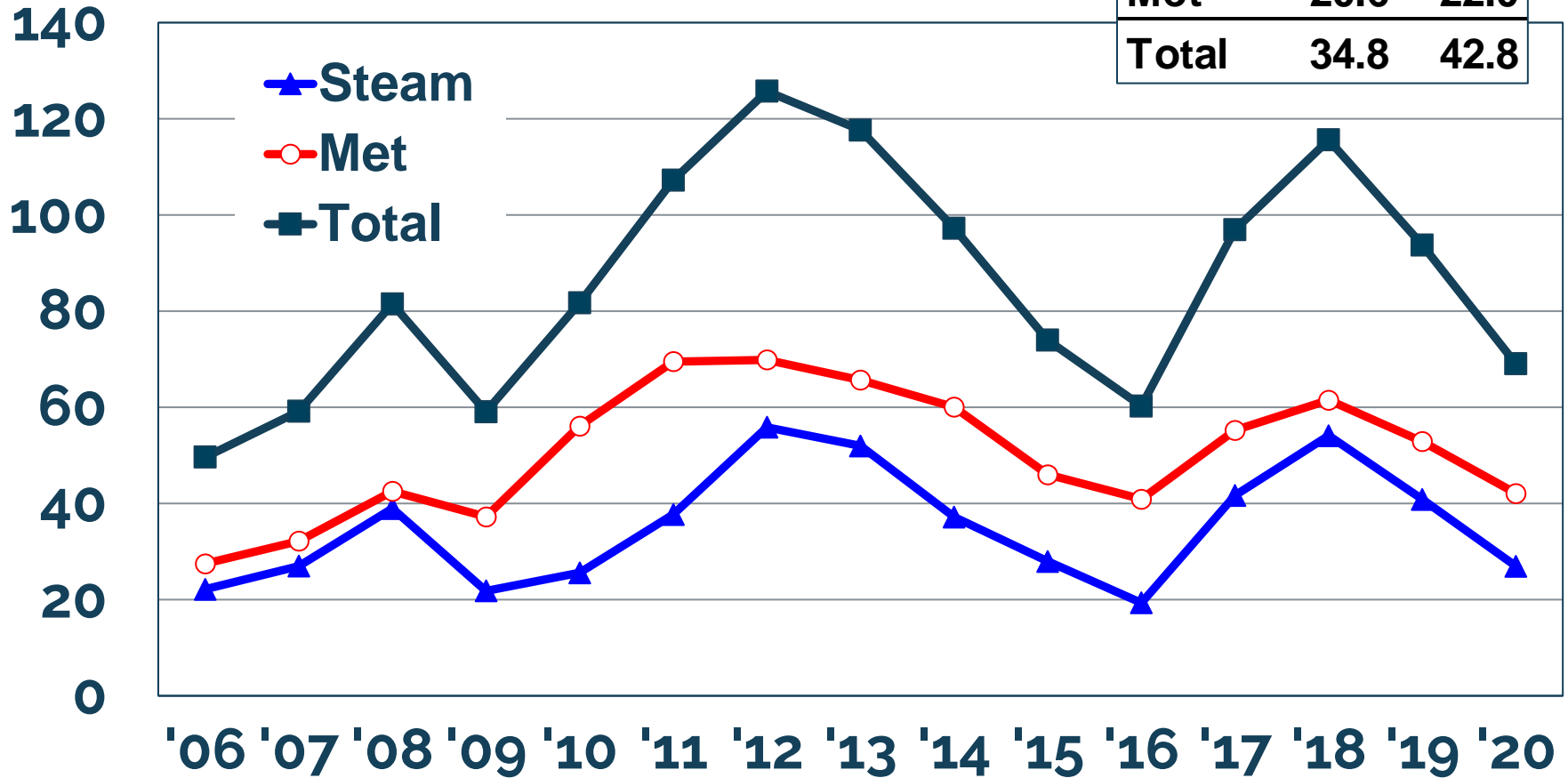
- Continued social and political pressures mean mines and coal-fired power plants have little incentive to reinvest.
- Coal plant shutdowns mean big increases in output not possible.



U.S. Coal Exports

| Type | First Half | |
|--------------|-------------|-------------|
| | '20 | '21 |
| Steam | 14.2 | 20.8 |
| Met | 20.6 | 22.0 |
| Total | 34.8 | 42.8 |

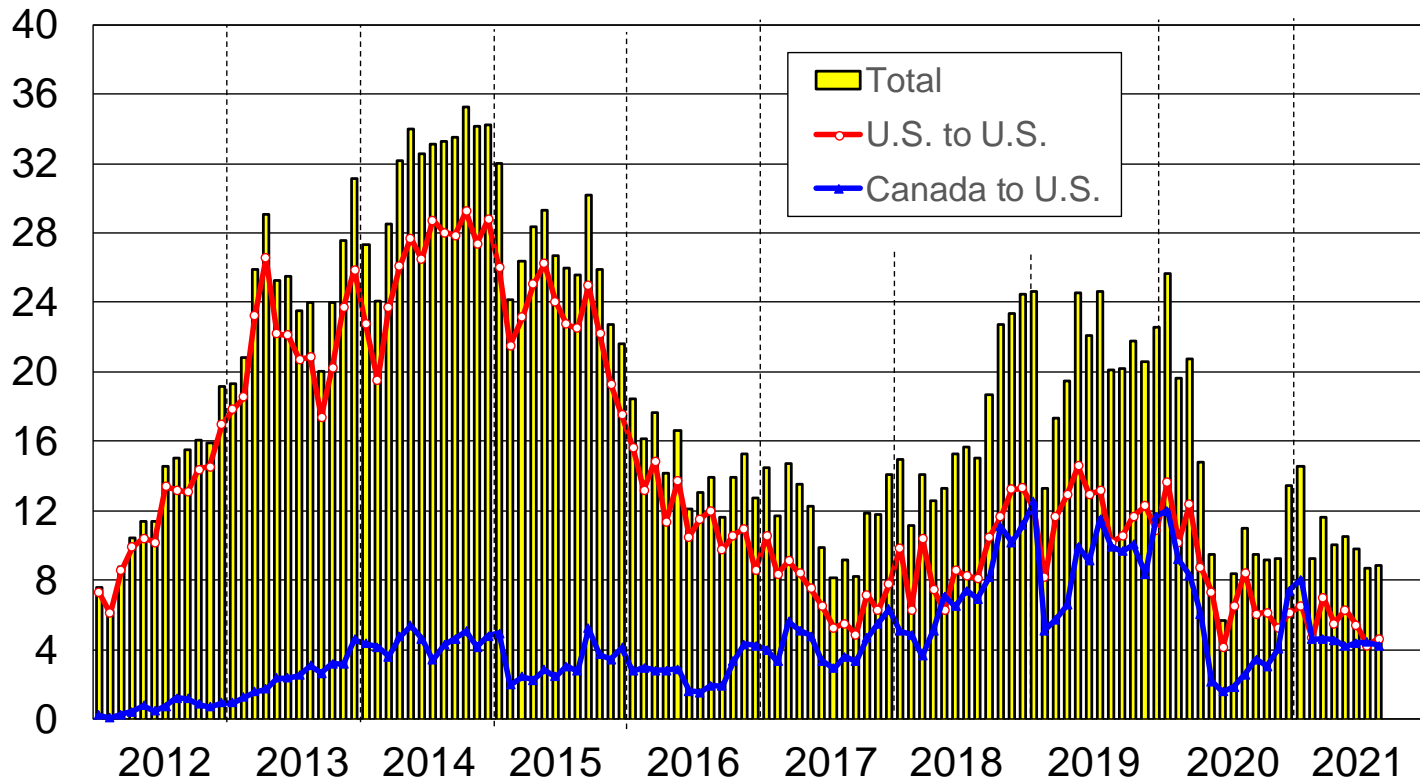
(millions of tons)



Source: Energy Information Administration

Fluctuating Crude Oil Movements

U.S. Crude Oil by Rail: Jan. 2012 - Aug. 2021 (million barrels)



Data are from a different source than the rail carload figures sourced from the AAR's Freight Commodity Statistics. Source: Energy Information Administration

Supply Chains Are a Mess

- Complex, all parts must work in concert
- Once bogged down, very hard to unravel



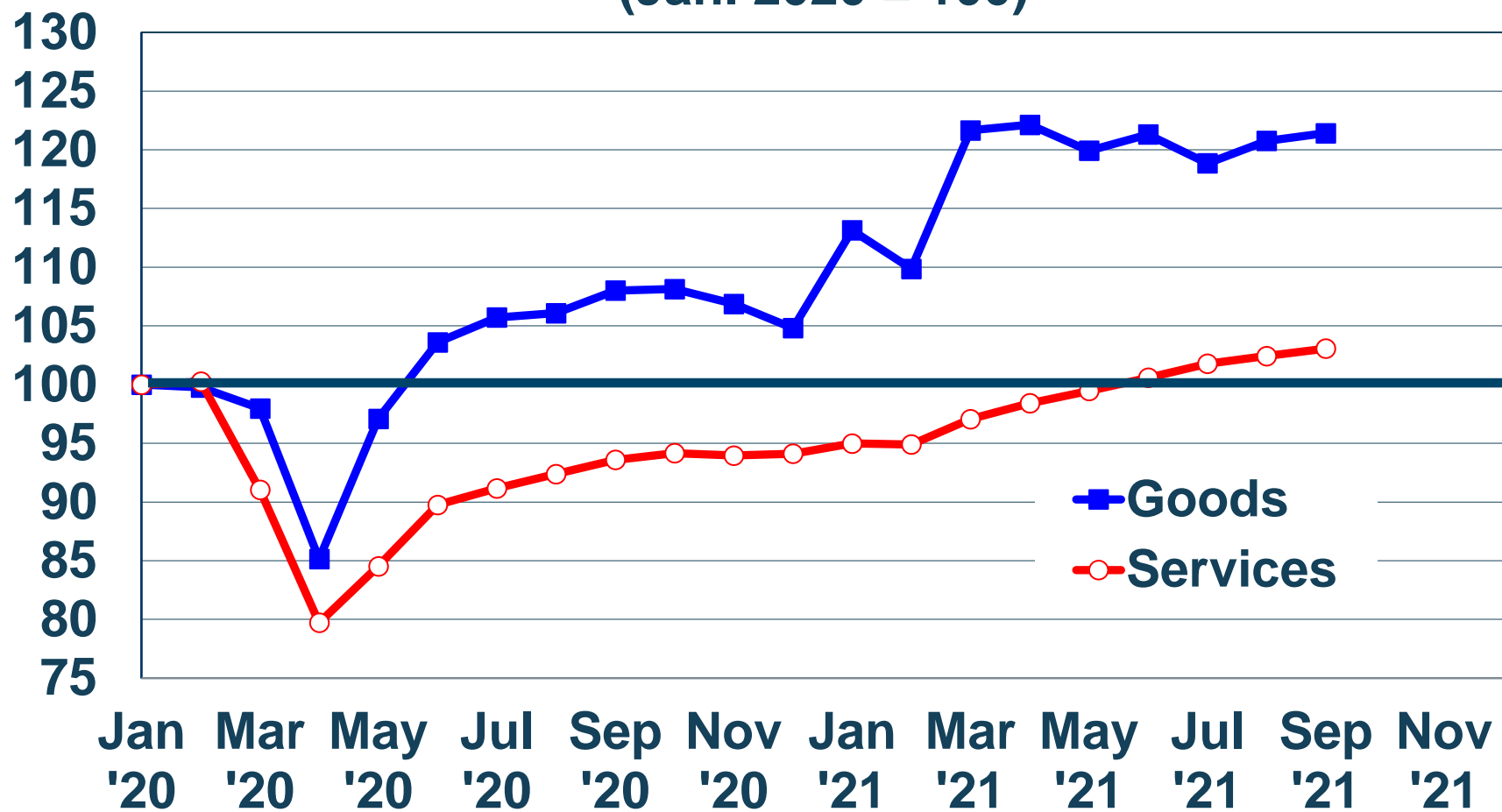
Many Interconnected Supply Chain Challenges

- Covid continues to impact ports, manufacturing plants, etc.
- Shortages of chassis, trucks, drivers, containers, warehouse labor and space, etc.
- Container ship availability
- Extreme weather
- Freak events like Suez Canal blockage



Problems Started When Consumer Spending Patterns Changed Early On

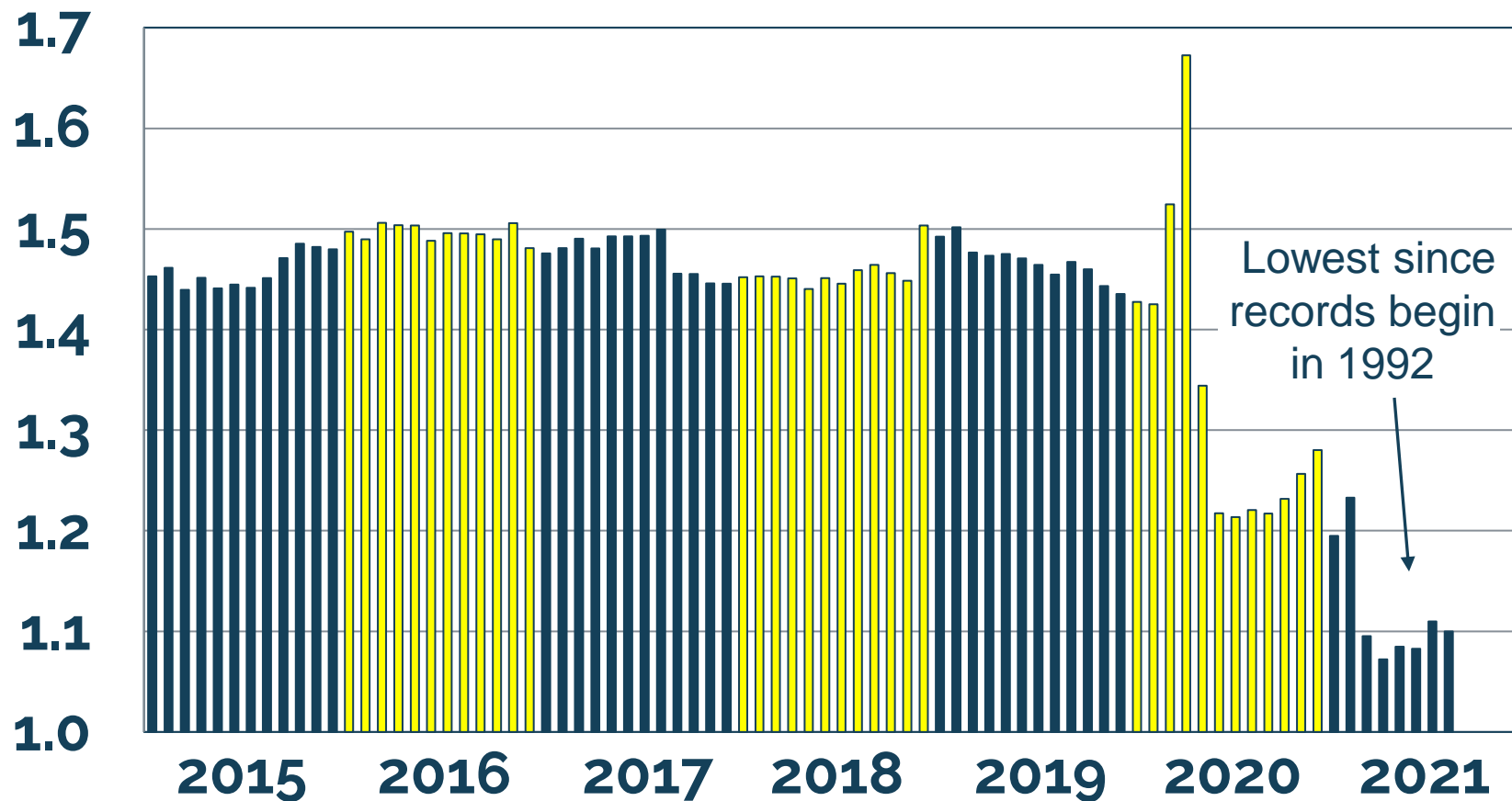
(Jan. 2020 = 100)



Source: Bureau of Economic Analysis

Inventories Plunged and Haven't Caught Up

(Inventory-Sales Ratio for Retailers)



Source: Census Bureau

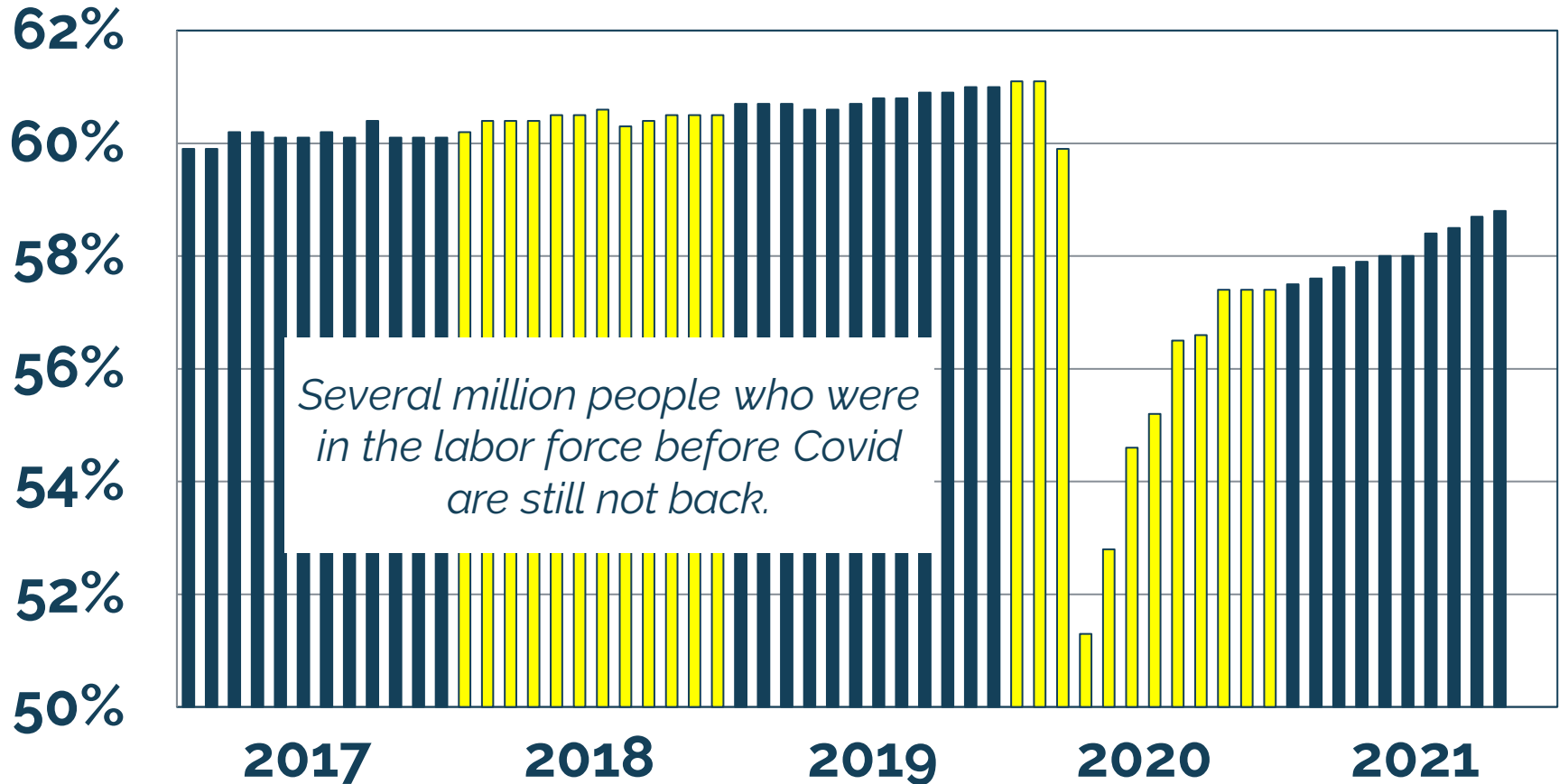
Intermodal Most Impacted, But All RR Operations Affected

- Intermodal terminals can't function effectively if containers aren't cleared.
- Rail terminals not designed for container storage.
- When terminals become congested, trains back up on mainlines, delaying those trains as well.



Labor Supply is Key

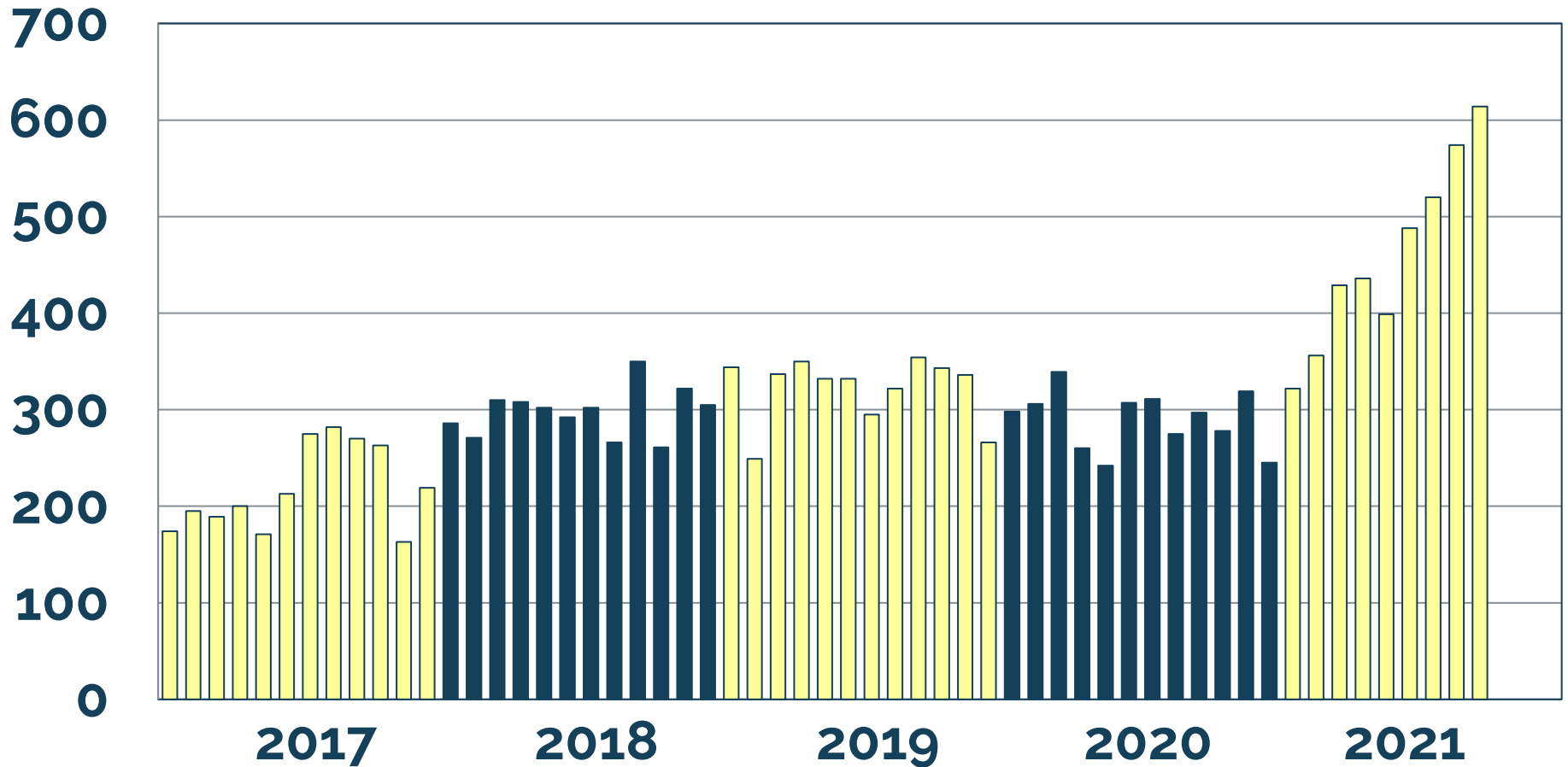
Employed as % of Population



Source: Bureau of Labor Statistics

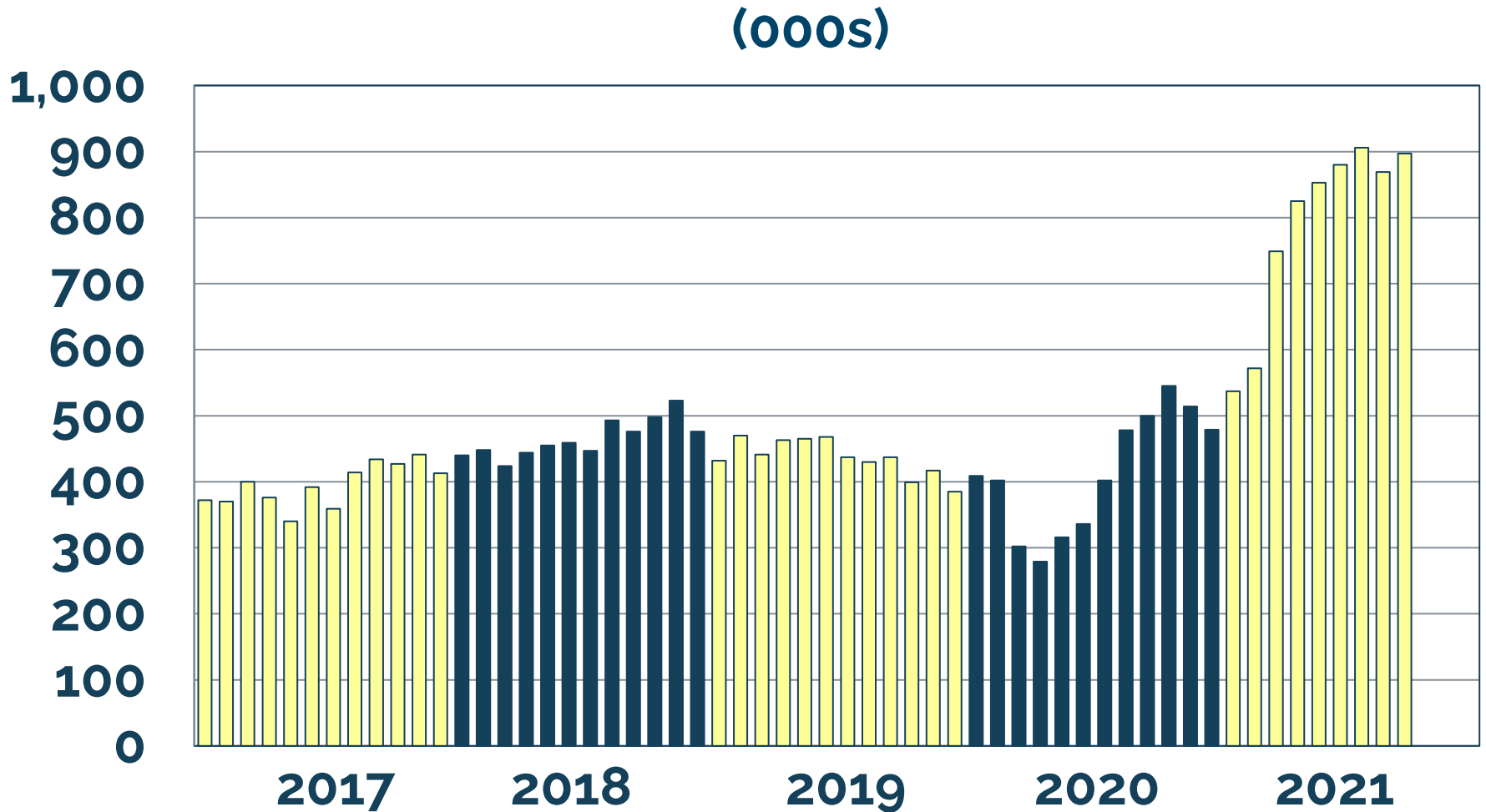
Job Openings: Transportation, Warehousing, & Utilities

(000s)



Source: Bureau of Labor Statistics

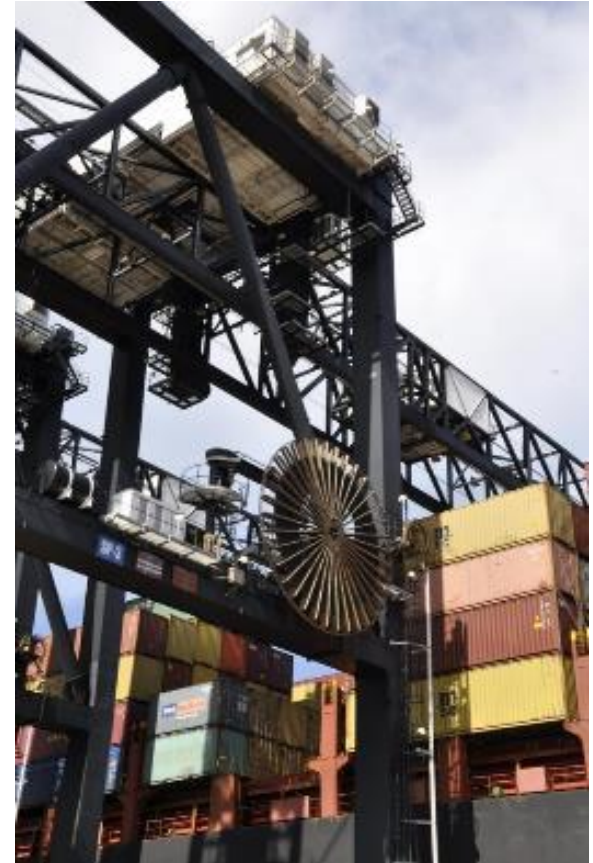
Job Openings: Manufacturing



Source: Bureau of Labor Statistics

Some of the Steps Railroads Are Taking

- Re-routing traffic to less busy locations.
- Reopening shuttered terminals.
- Financial incentives to clear terminals.
- Creating steel-wheel interchanges instead of requiring cross-town drayage.
- Improving communication
- Additional labor and power



Adding More Trains Not Always the Best Thing to Do

Adding more cars to this highway won't help existing cars move faster. Same with railroads.

Key goal when there's congestion: restore velocity.

