

Market Outlook Construction Forum Summary

as of May 24, 2023

Presenters

- Blair Tennant, Principal, Vermeulens
- Richard Vermeulen, Sr Principal, Vermeulens

Macro to Micro Market Update, Vermeulens

- Still in a growing economy, GDP is up 5.3% since 2019
- Construction jobs as well as overall jobs are growing, currently at an all-time high, however the rate of growth is declining.
- Year over year construction growth in the northeast is average, south central is growing at an above average rate, California and Colorado are experiencing a decline
- Strong dollar growth in the past year has caused commodities to come down in material cost
- Steel prices are forecasted to decline throughout the year; Roofing and AHU prices are coming down to normal price levels
- Earthwork, drywall, glass pricing is steady; Plumbing HVAC and electrical are extremely volatile
- AIA billings are declining
- PPI (producer price index) is beginning to decline
- Turner Construction index has seen a 17% increase since the beginning of the pandemic
- Vermeulens index is showing a 18-28% escalation since the beginning of the pandemic
- Escalation is trending at 9% per annum, recommend 6% for 2024, 5% for 2025 and 4% for 2026
- Recommend a Bidding Contingency of 5%-10% for select projects and regions
- Design add/deduct alternates in the 10% construction cost range

Sectoral and Fed Watch

- Big upward movements nonresidential office, commercial, educational and manufacturing spending
- Growth since pandemic lows 203 billion, nonresidential 35% and infrastructure 17%
- Fed raised rates on May 3rd, potentially for the final time
- Credit tightening is ahead of expectations
- Job growth is slowing because there are less unemployed people seeing softening in wage increases
- Labor force participation has gone up, overall labor demand substantially exceeds the supply
- Federal reserve does not anticipate a recession

Energy and the Built Environment

- Solar and Wind energy costs have come down over the years
- Transportation is the only sector that is lagging with regards to electricity usage, still heavily reliant on liquid fuels; This is anticipated to change with the reduced costs of electrical energy
- Battery costs coming down below 300\$/KW has made them competitive with conventional vehicles. Tesla now is at 100\$/kw and is aiming for 50\$/kw



Design and Construction Market Outlook Forum[®]

Richard Vermeulen, Sr Principal

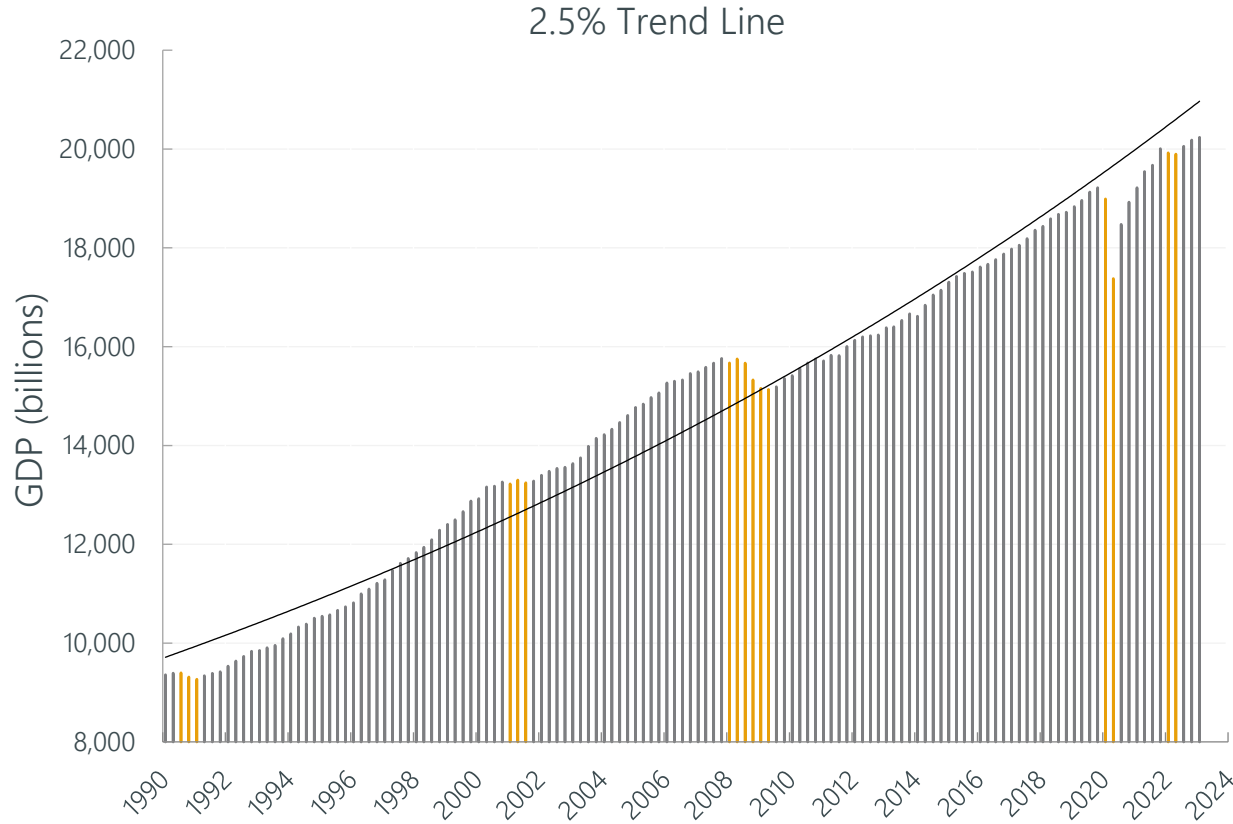
Blair Tennant, Principal

vermeulens.com

- interim questions and comments via chat
- slide deck, recording, summary notes; available on website
- Forums will follow Quarter end. 2023 Q2 will be August 2023

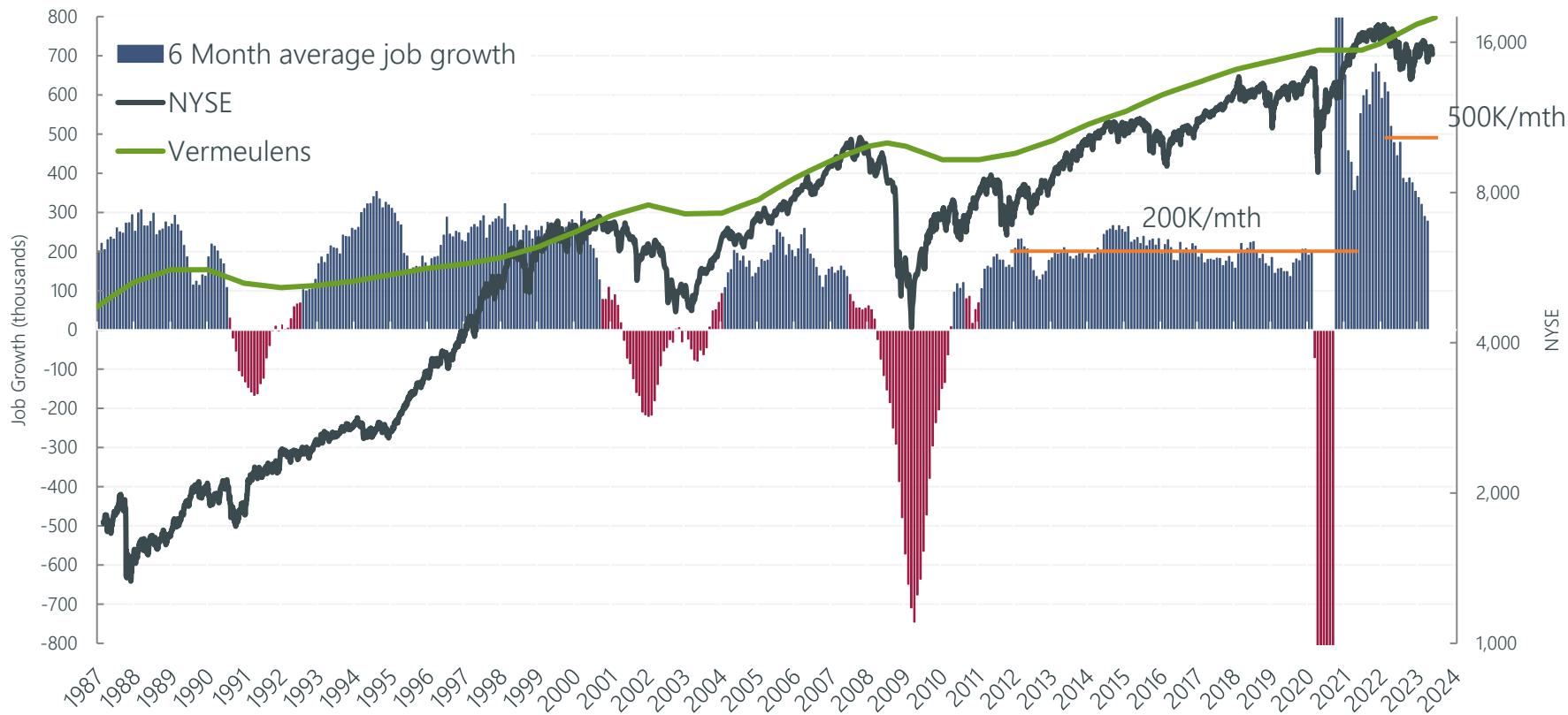
- ➔ Vermeulens Market Update: Quarterly Report
- ➔ Sectoral Watch
- ➔ Fed Watch – Another Growth Recession
- ➔ Industrial Revolution Redux

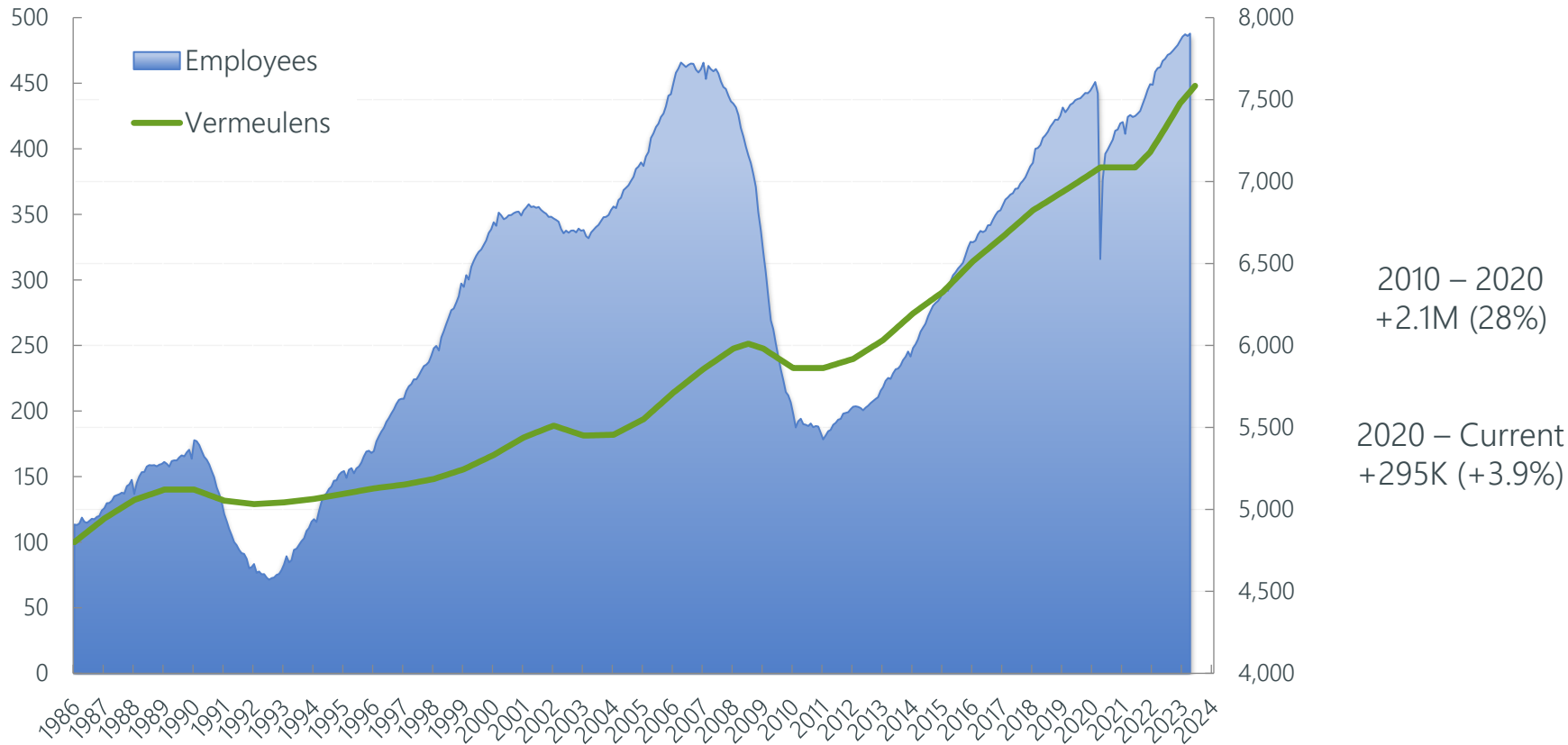
Market Update

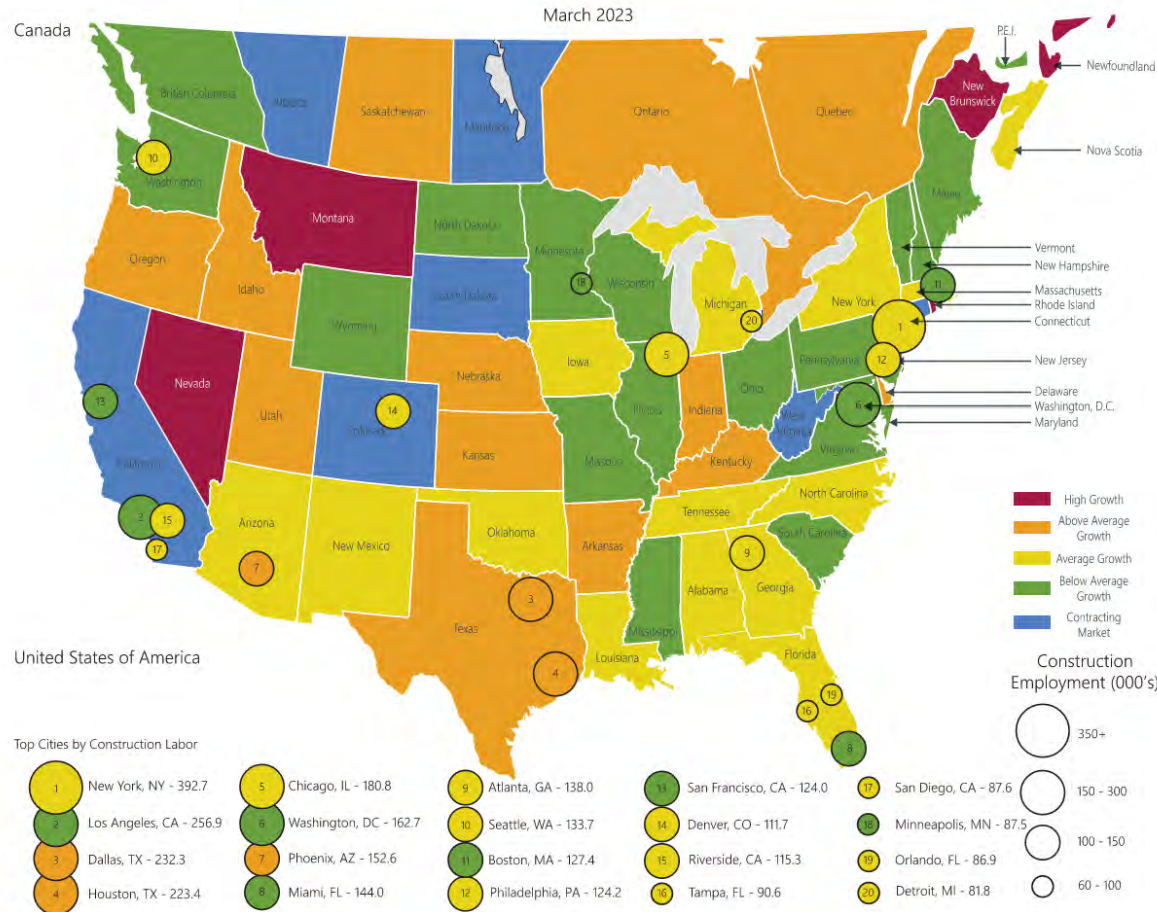


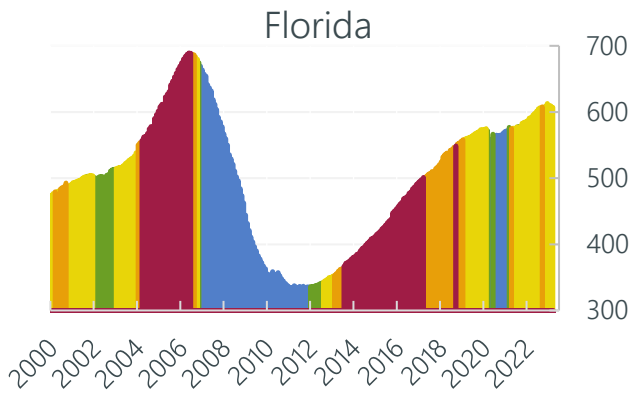
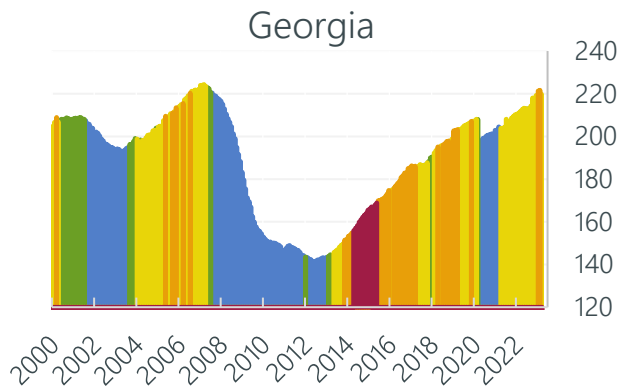
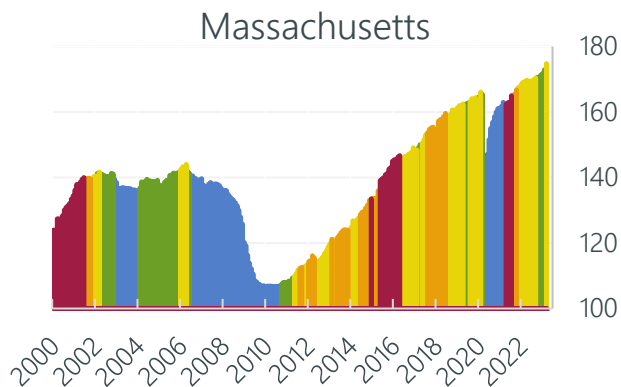
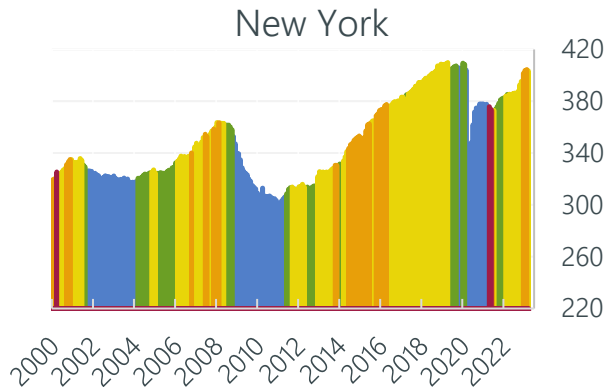
2009 to 2019
+25.6%

2019 to Current
+5.3%

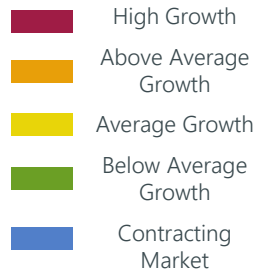






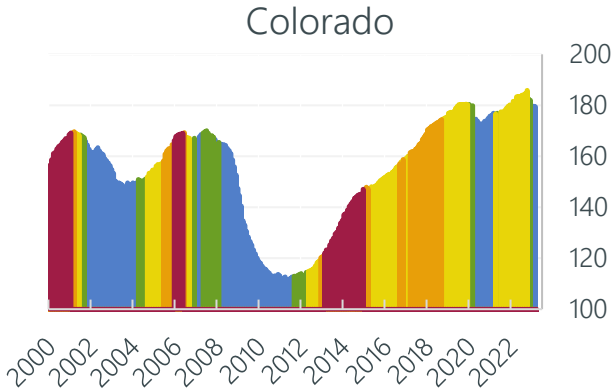
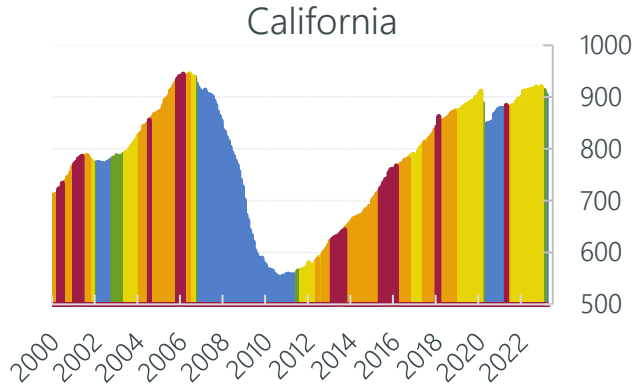
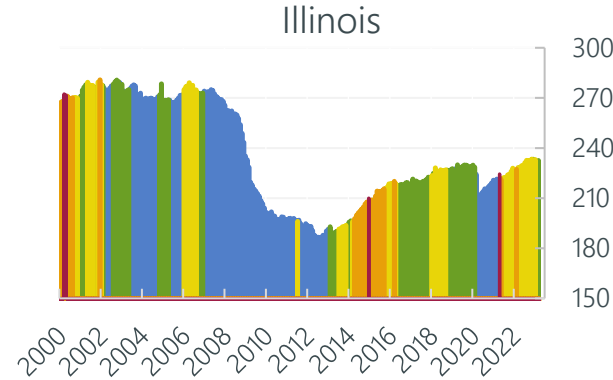
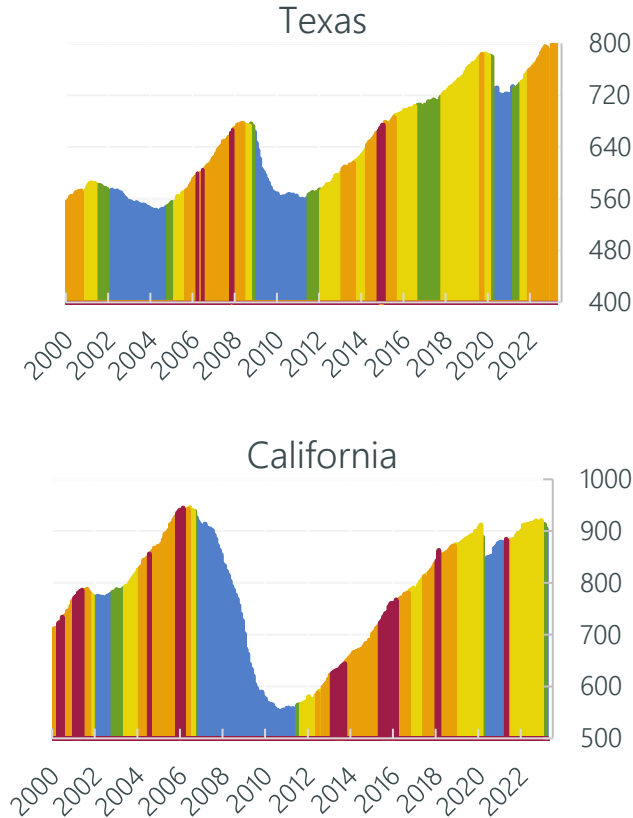


Year-Over-Year Growth

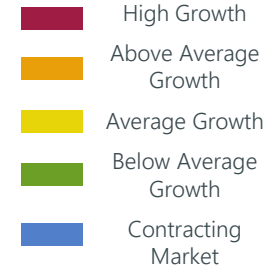


Pandemic Impact

New York
(-1.5%)
Massachusetts
(+5.2%)
Georgia
(+5.6%)
Florida
(+5.6%)
National
(+3.9%)



Year-Over-Year Growth



Pandemic Impact

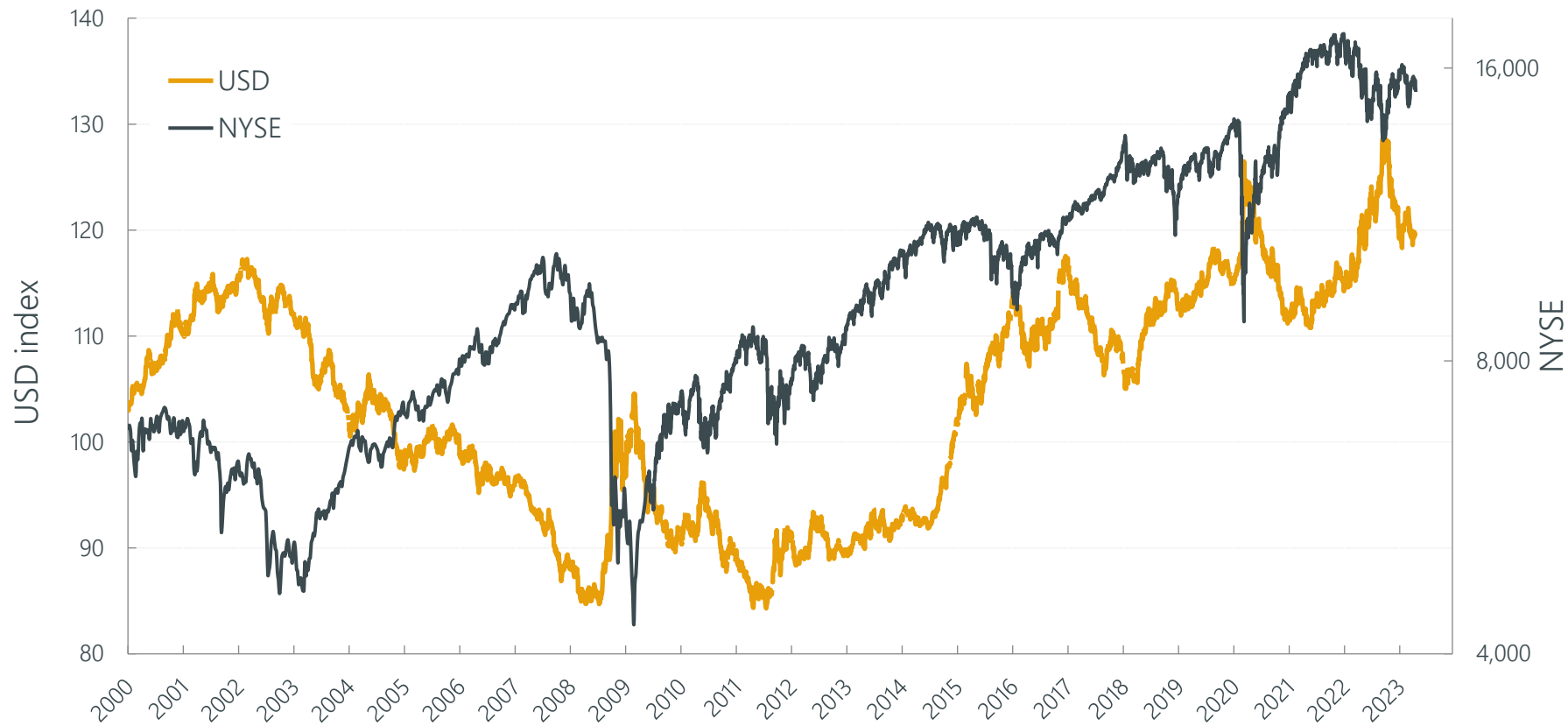
Texas
(+3.1%)

Illinois
(+1.1%)

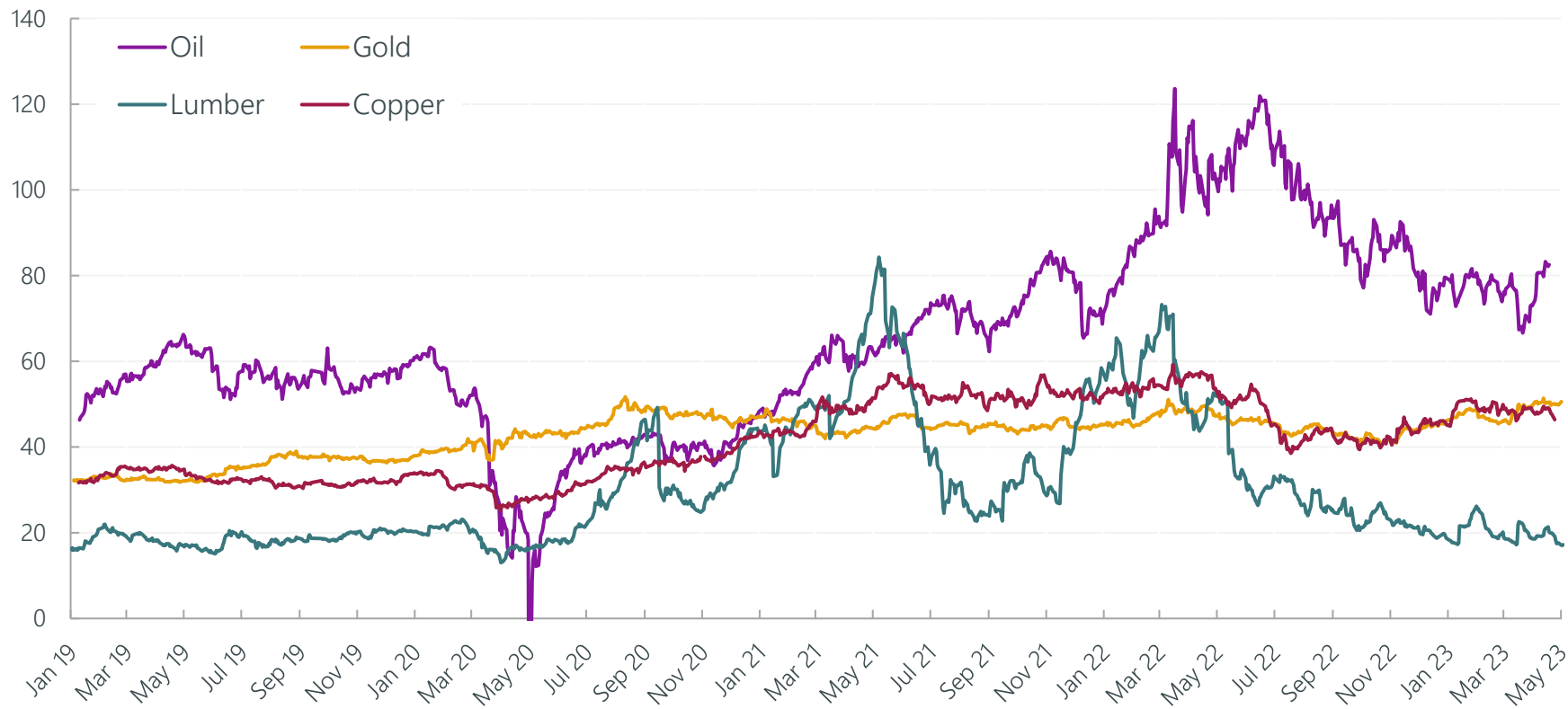
California
(-0.8%)

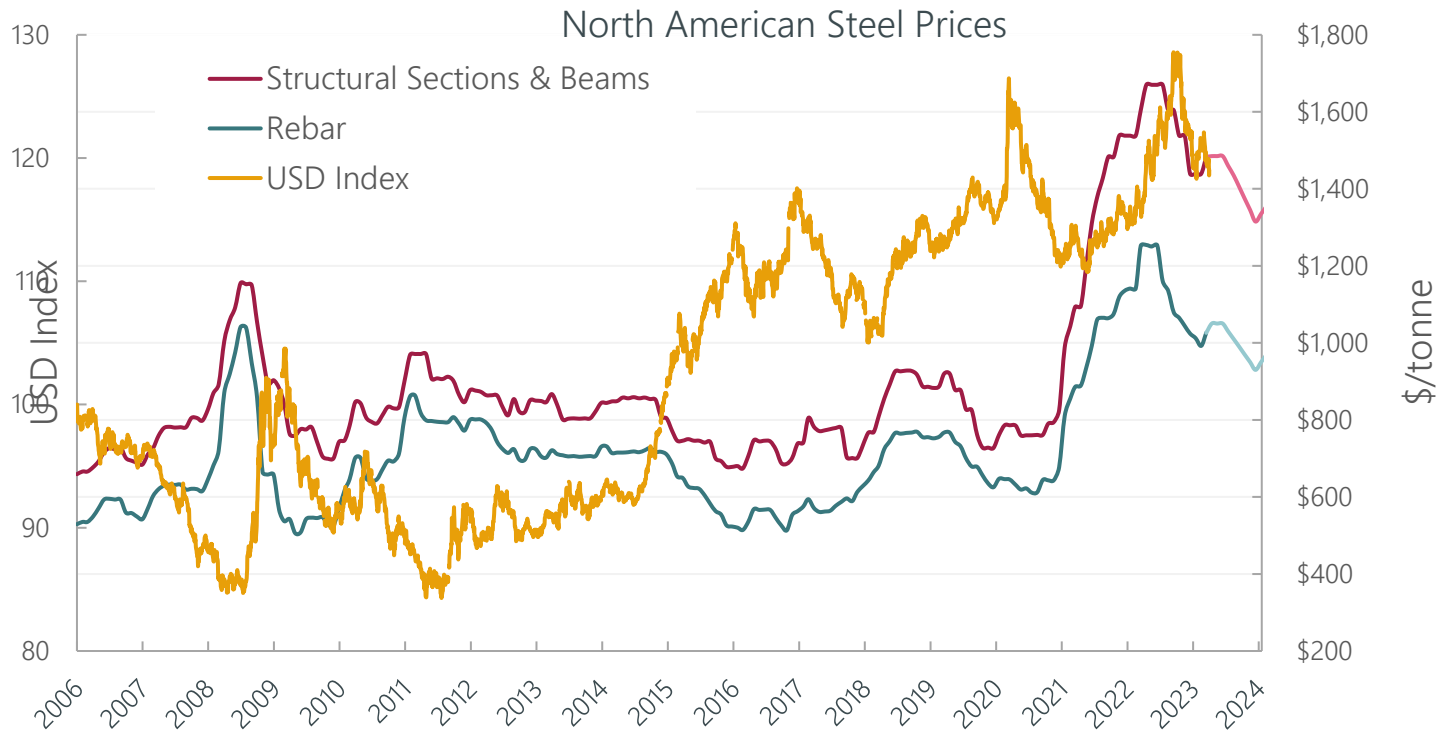
Colorado
(-0.6%)

National
(+3.9%)



Commodities





Declining

- Steel
- Roofing
- AHU's

Flattening

- Earthwork
- Drywall
- Glass

Volatile

- Plumbing
- HVAC
- Electrical

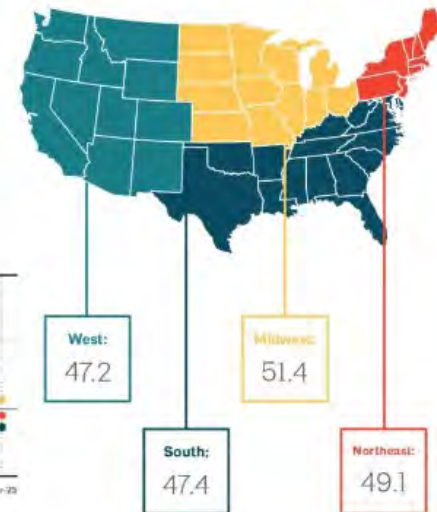
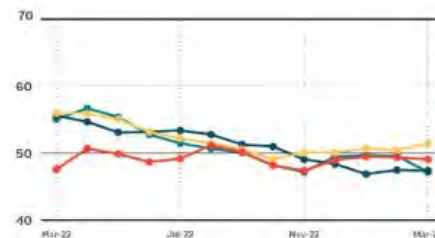
Seeing 100% spreads on many bids/quotes



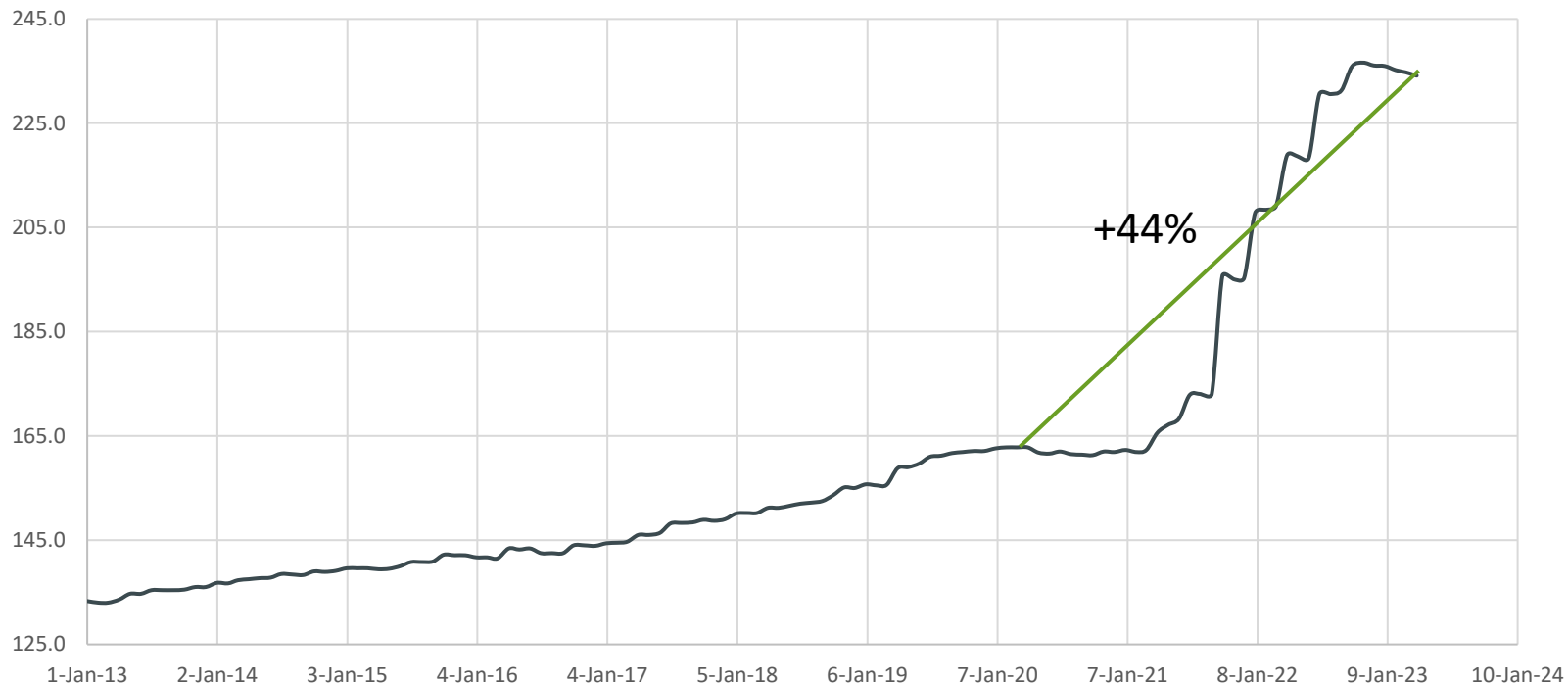
Regional

Business conditions remain soft in all regions except the Midwest

Graphs represent data from March 2022-March 2023 across the four regions. 50 represents the diffusion center. A score of 50 equals no change from the previous month. Above 50 shows increase; Below 50 shows decrease. 3-month moving average.



PPI Non Residential Building Construcion



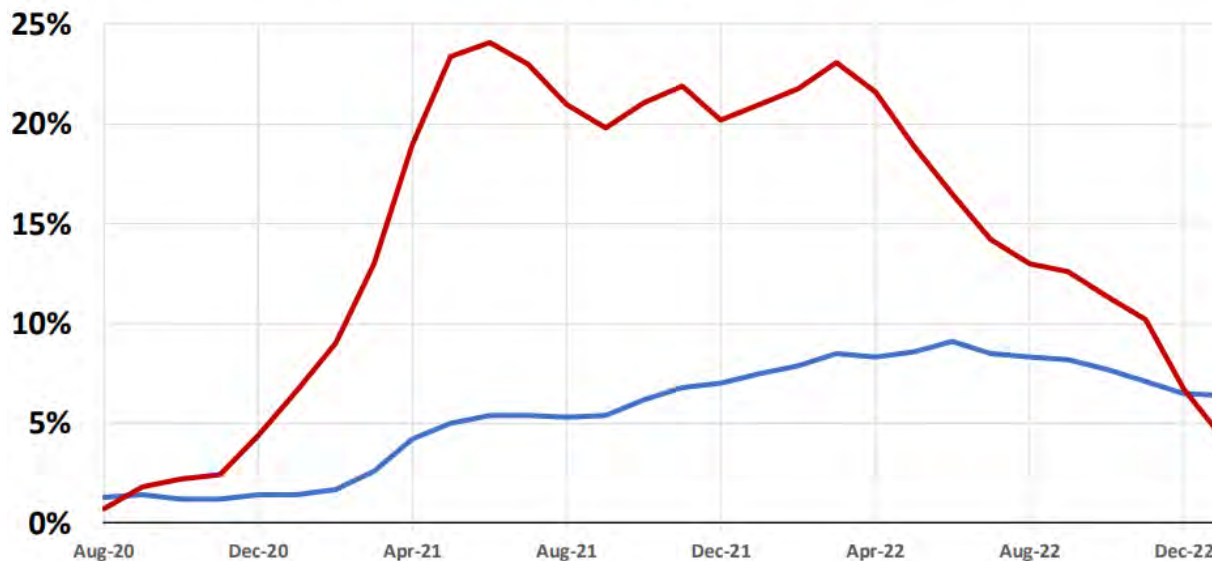
Costs for new nonresidential construction vs. consumer prices

Year-over-year change in PPI for construction inputs and CPI

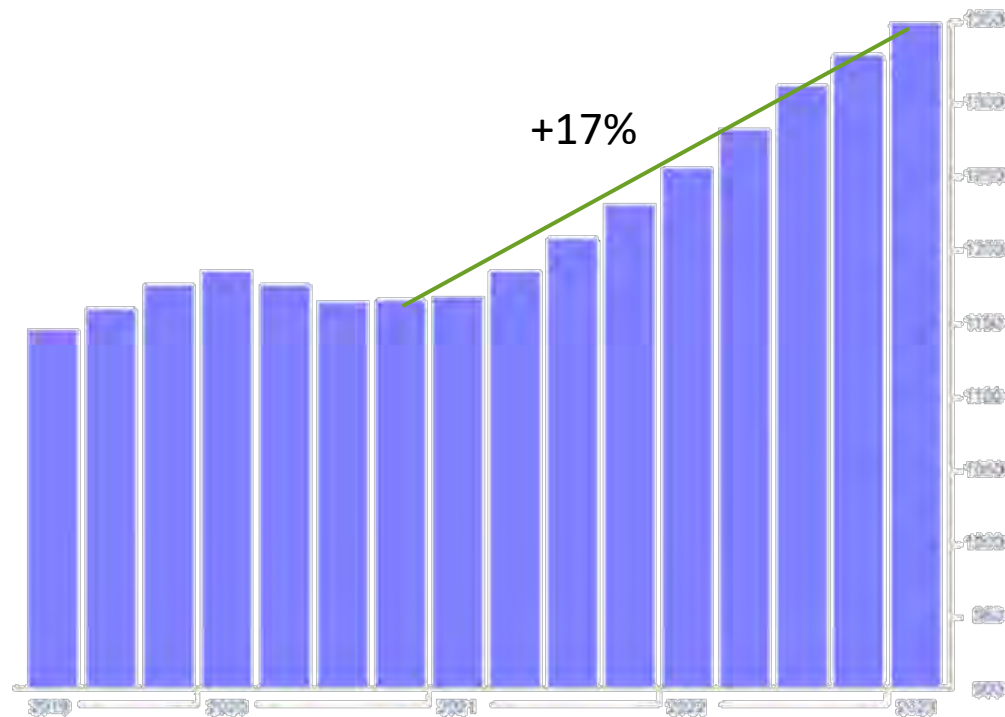
August 2020 – January 2023, not seasonally adjusted



AGC
THE CONSTRUCTION
ASSOCIATION

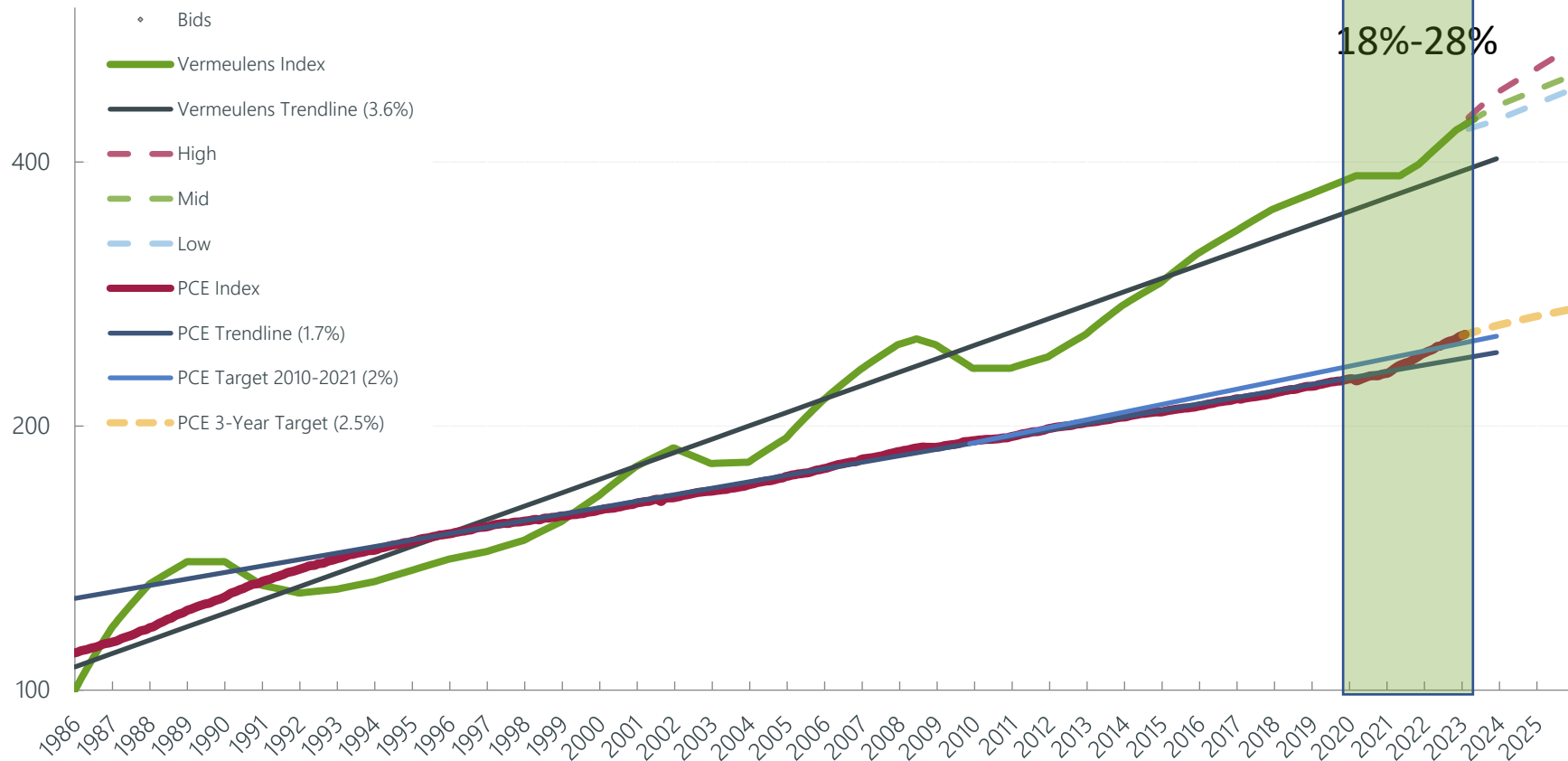


	12 months to:	
	Aug-20	Jan-23
CPI	1.3%	6.4%
Inputs PPI	0.7%	4.3%



Turner

Quarter	Index	% Change
1st Quarter 2023	1349	1.28
4th Quarter 2022	1332	1.60
3rd Quarter 2022	1311	2.18
2nd Quarter 2022	1283	2.23
1st Quarter 2022	1255	2.03
4th Quarter 2021	1230	1.91
3rd Quarter 2021	1207	1.68
2nd Quarter 2021	1187	1.28



- ➔ Escalation Trending at 9% per annum
- ➔ Recommend 6% for 2024, 5% for 2025 and 4% for 2026
- ➔ Recommend a Bidding Contingency of 5%-10% for select projects and regions
- ➔ Design add/deduct alternates in the 10% of construction cost range

Sectoral Watch



UA WORK OUTLOOK



ESTIMATED TOTAL
\$819,300,000,000

Fire Protection
\$ 3 Billion

Electric Vehicle /
Battery Plants
\$67 Billion

Energy
Infrastructure
\$294 Billion

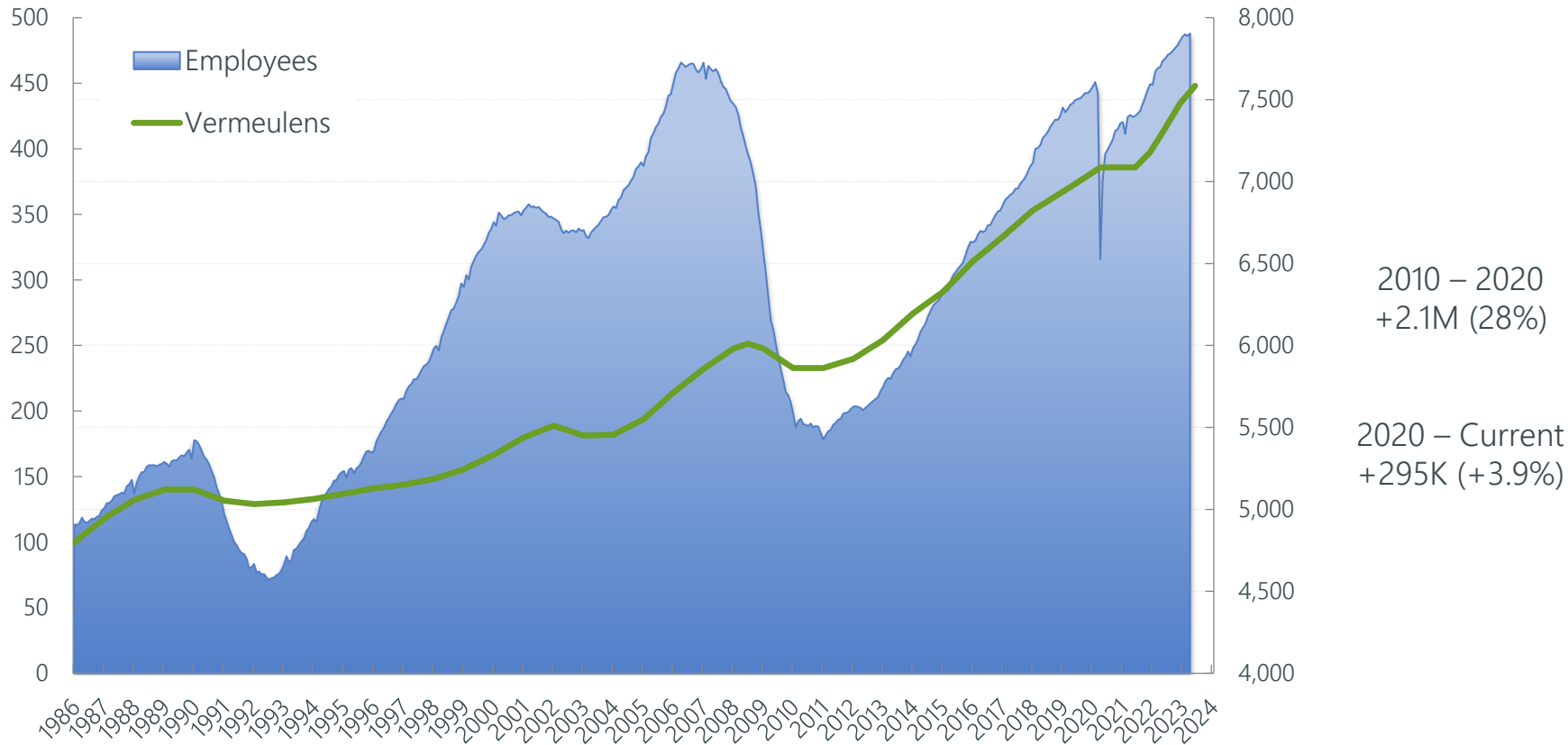
Semi-Conductors
\$258 Billion

Plumbing &
HVAC
\$172 Billion

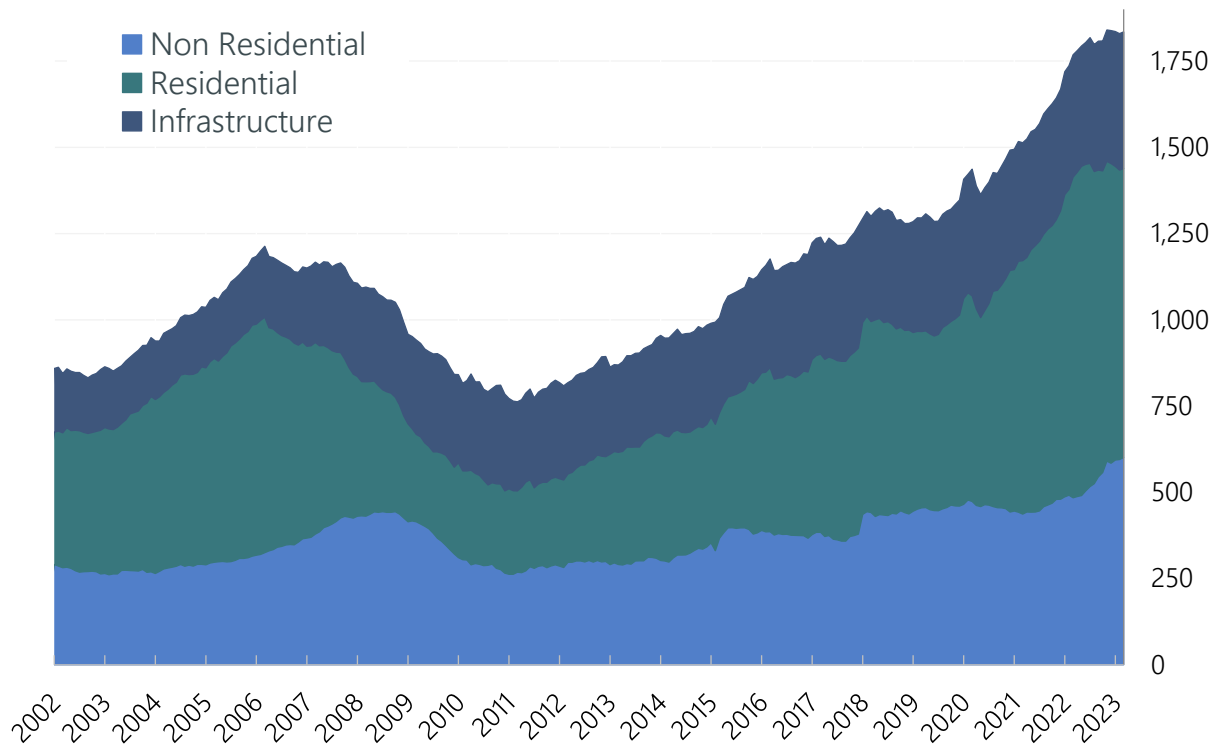
Pipeline & Gas
Distribution
\$25 Billion

US Employment (millions)

	Jan 08	Feb 10	Feb 10 to Feb 20	Feb 20	Apr 20	Apr 23	Feb 20 to Mar 23
Total nonfarm	138.4	129.7	22.8	152.4	130.4	155.7	+3.3
➔ Total private	116.0	107.3	22.4	129.5	108.5	133.1	+3.6
> Goods-producing	21.9	17.6	3.5	21.1	18.6	21.5	+0.4
- Mining and logging	0.7	0.7	0.0	0.7	0.6	0.6	-0.1
- Construction	7.48	5.50	2.12	7.61	6.53	7.90	+0.29
- Manufacturing	13.7	11.5	1.4	12.8	11.4	13.0	+0.2
➔ Private service-providing	94.1	89.6	19	108.4	89.9	111.6	+3.2
> Trade, transportation, and utilities	26.7	24.5	3.4	27.7	24.6	28.9	+1.2
> Business	29.3	27.0	6.3	33.2	30.4	35.2	+2.0
> Education and health services	19.0	19.8	4.8	24.6	21.8	25.1	+0.5
> Leisure and hospitality	13.5	12.9	4.0	16.9	8.7	16.5	-0.4
> Other services	5.5	5.3	0.6	5.9	4.5	5.8	-0.1
➔ Government	22.4	22.5	0.3	22.9	21.9	22.6	-0.3



Put In Place Construction (annualized billions)



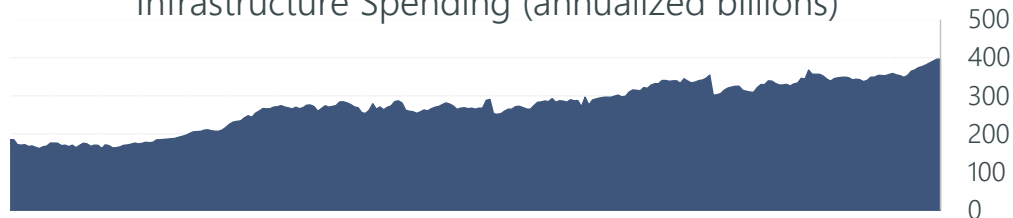
2011 to 2020

Total	+71%
Infra	+43%
Res	+119%
Non Res	+54%

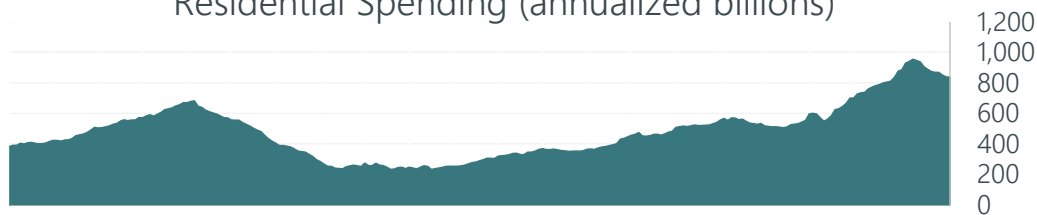
2020 to Current

Total	+27%
Infra	+8%
Res	+39%
Non Res	+26%

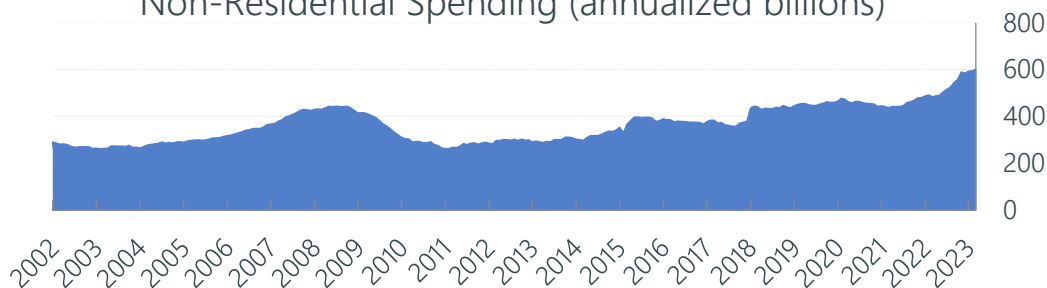
Infrastructure Spending (annualized billions)



Residential Spending (annualized billions)



Non-Residential Spending (annualized billions)



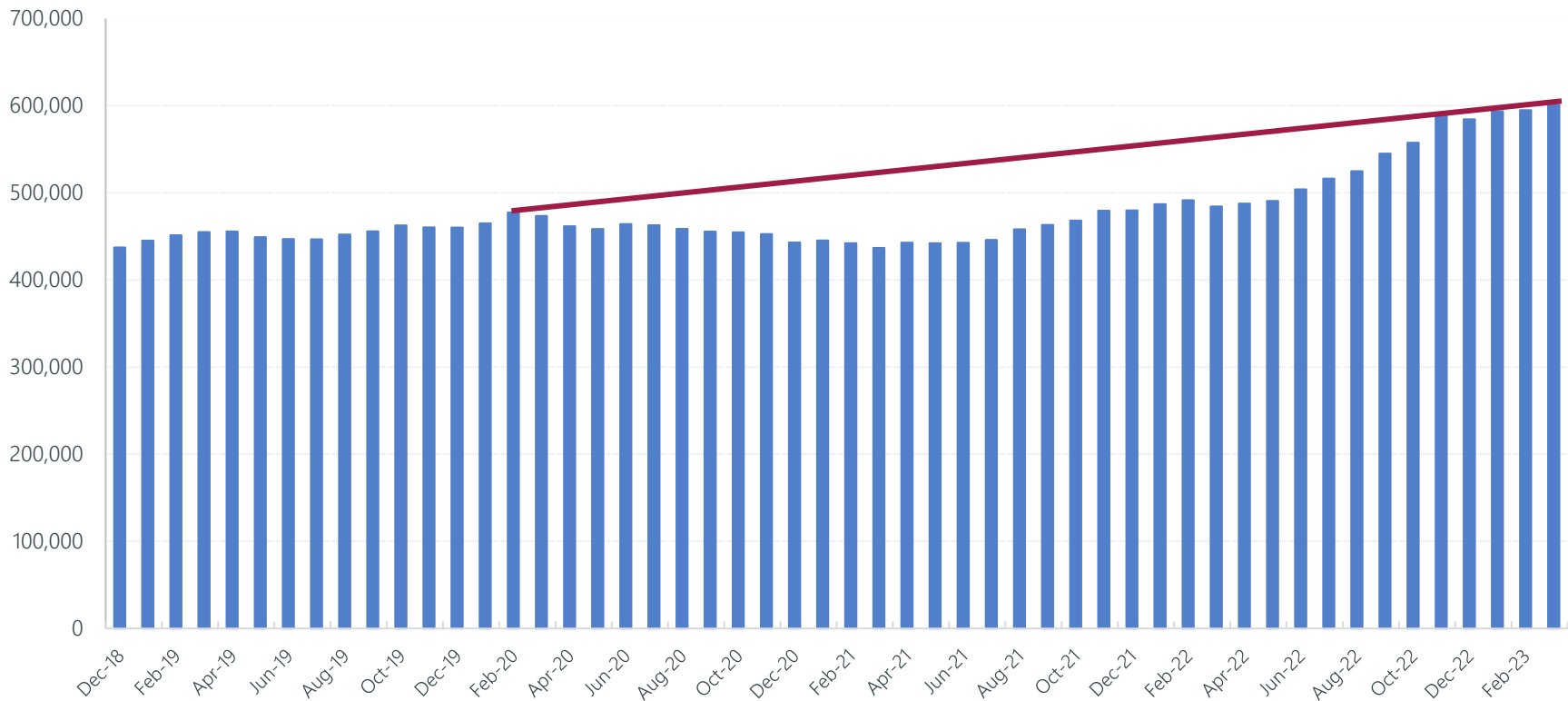
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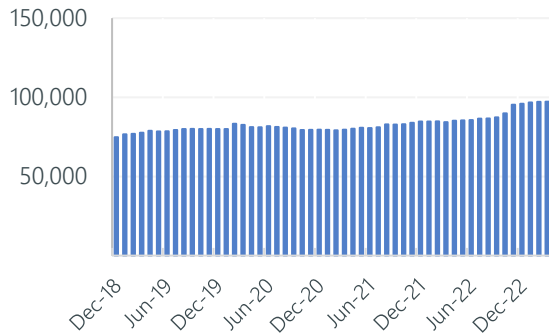
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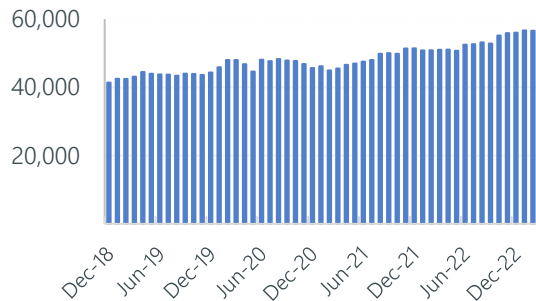
Total Non-Residential Spending (\$millions)



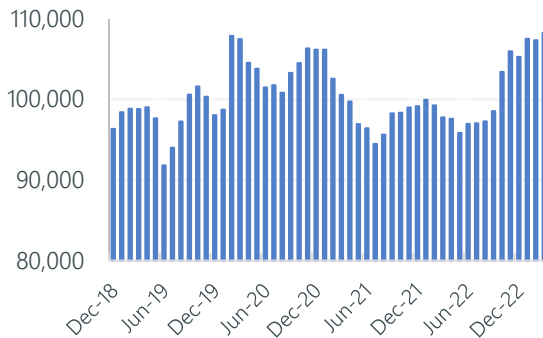
Office Spending (\$millions)



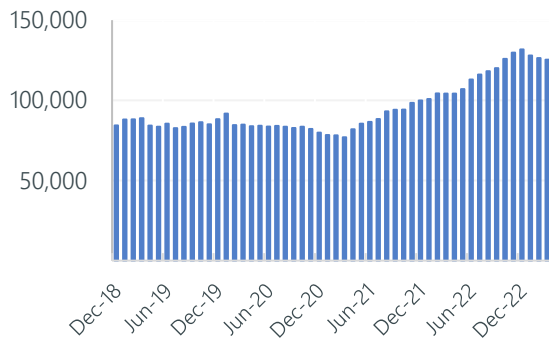
Health Care Spending (\$millions)



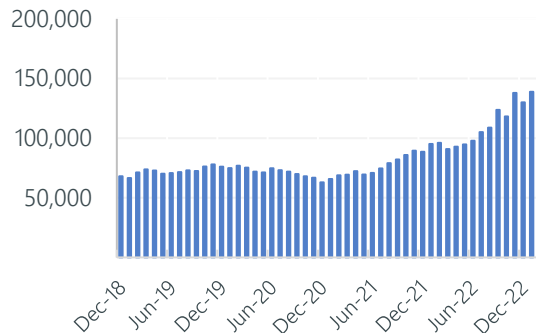
Educational Spending (\$millions)

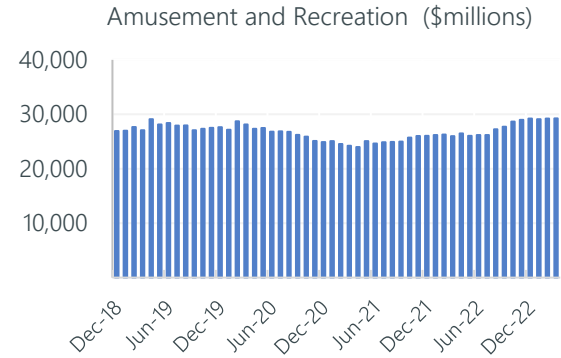
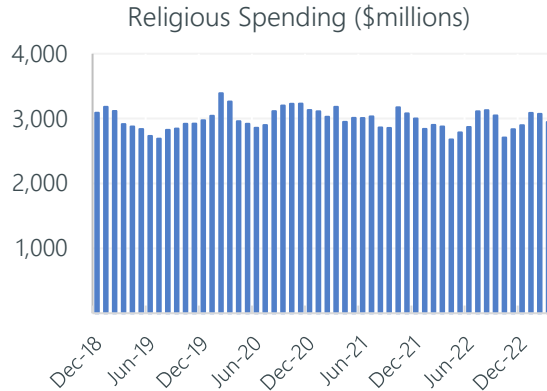
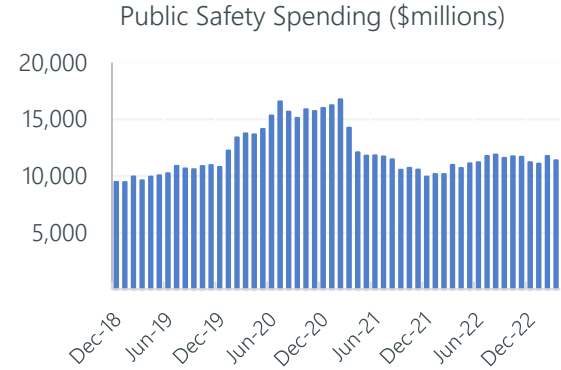
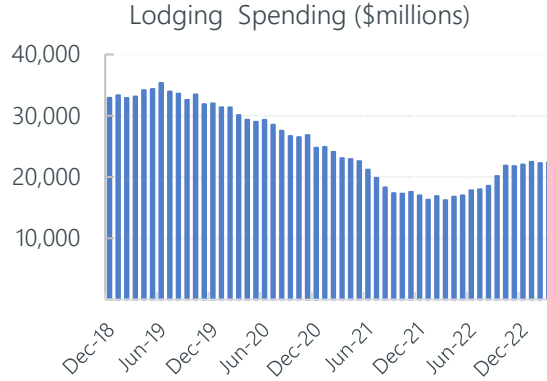


Commercial Spending (\$millions)



Manufacturing Spending (\$millions)





Growth Since Pandemic Low

Non-Residential 35%

Infrastructure 17%

70 Manufacturing

45 Commercial

20 Office

10 Educational

10 Healthcare

0 Recreation, Public Safety, Religious

-10 Lodging

145 Total Billion \$

5 Transportation

3 Communication

-1 Power

31 Highway and Street

11 Sewage and Waste

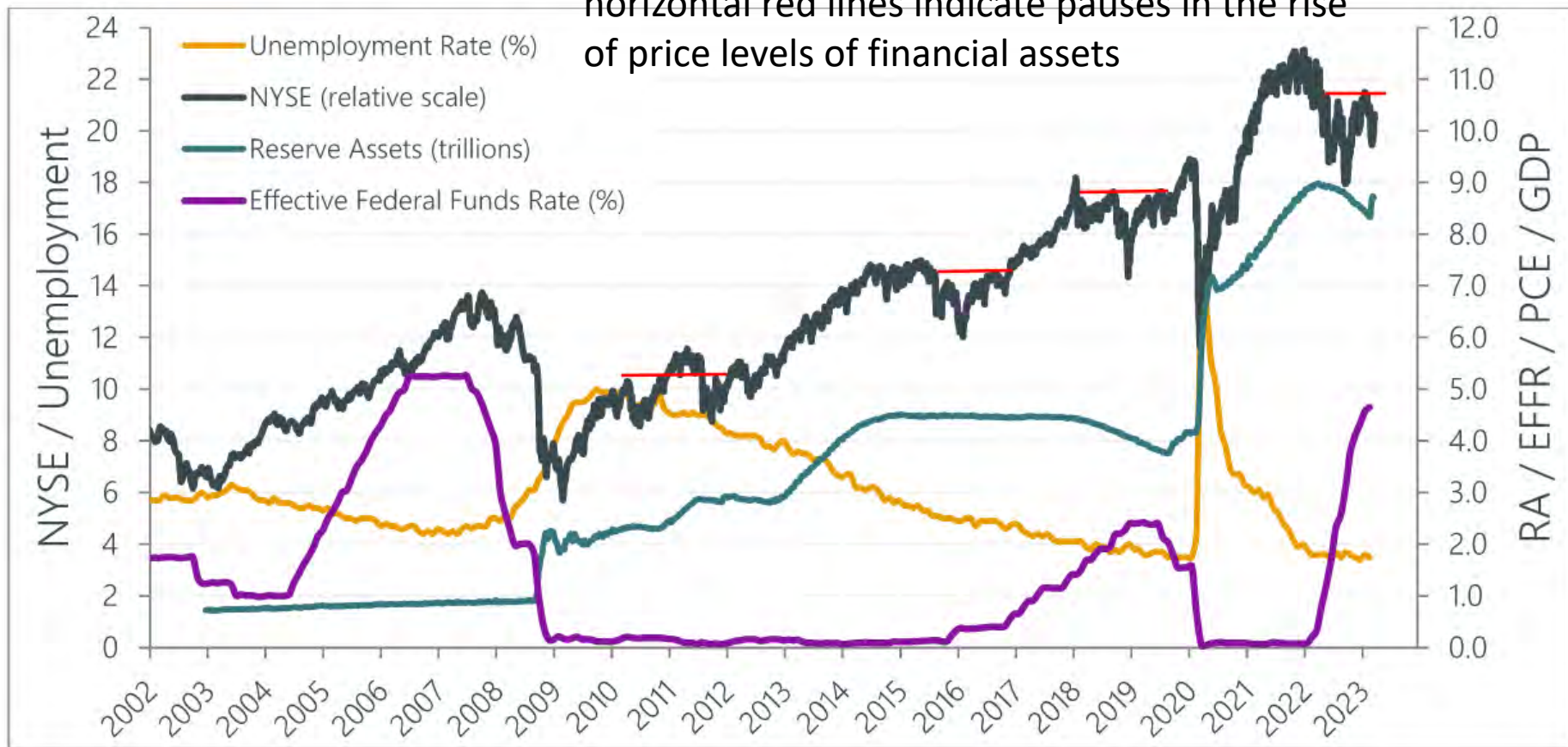
6 Water supply

4 Conservation

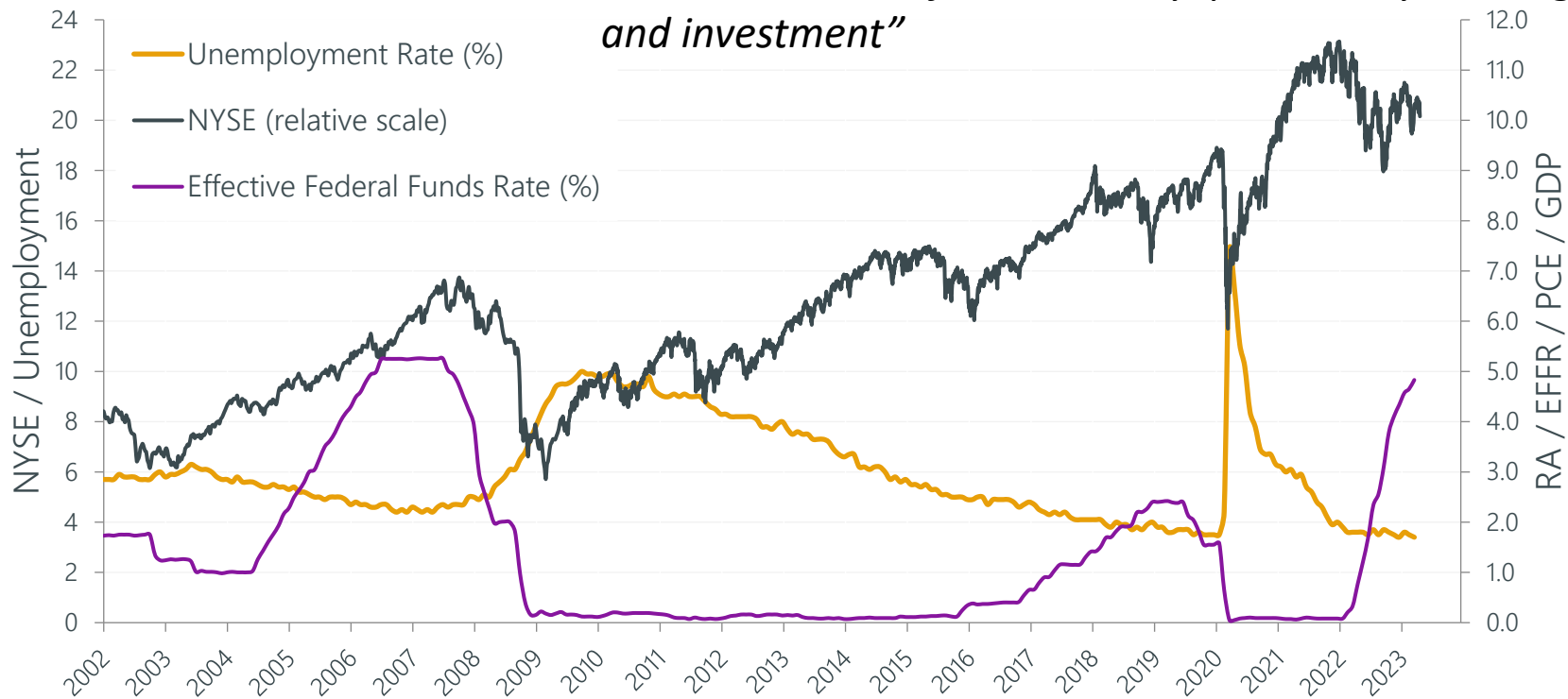
58 Total Billion \$

Fed Watch

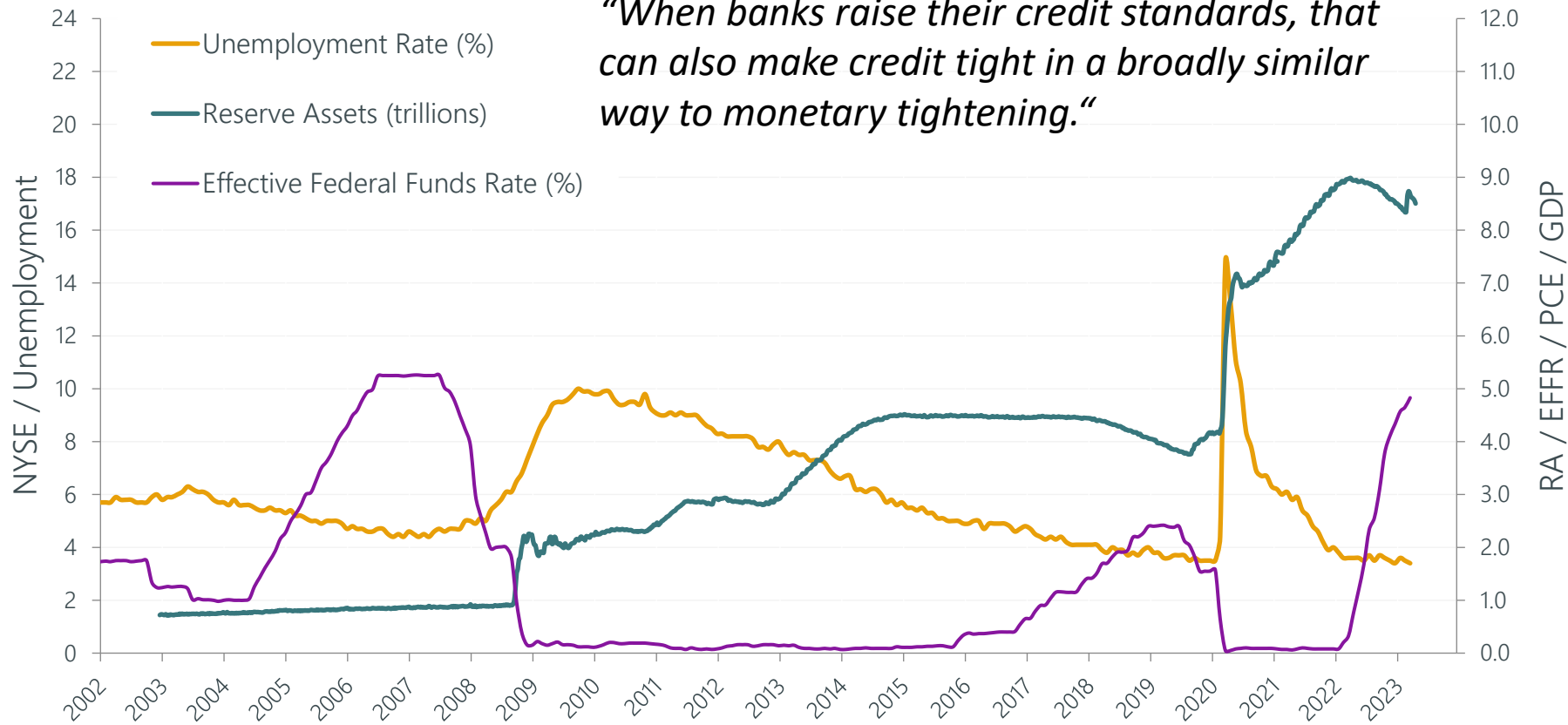
horizontal red lines indicate pauses in the rise
of price levels of financial assets

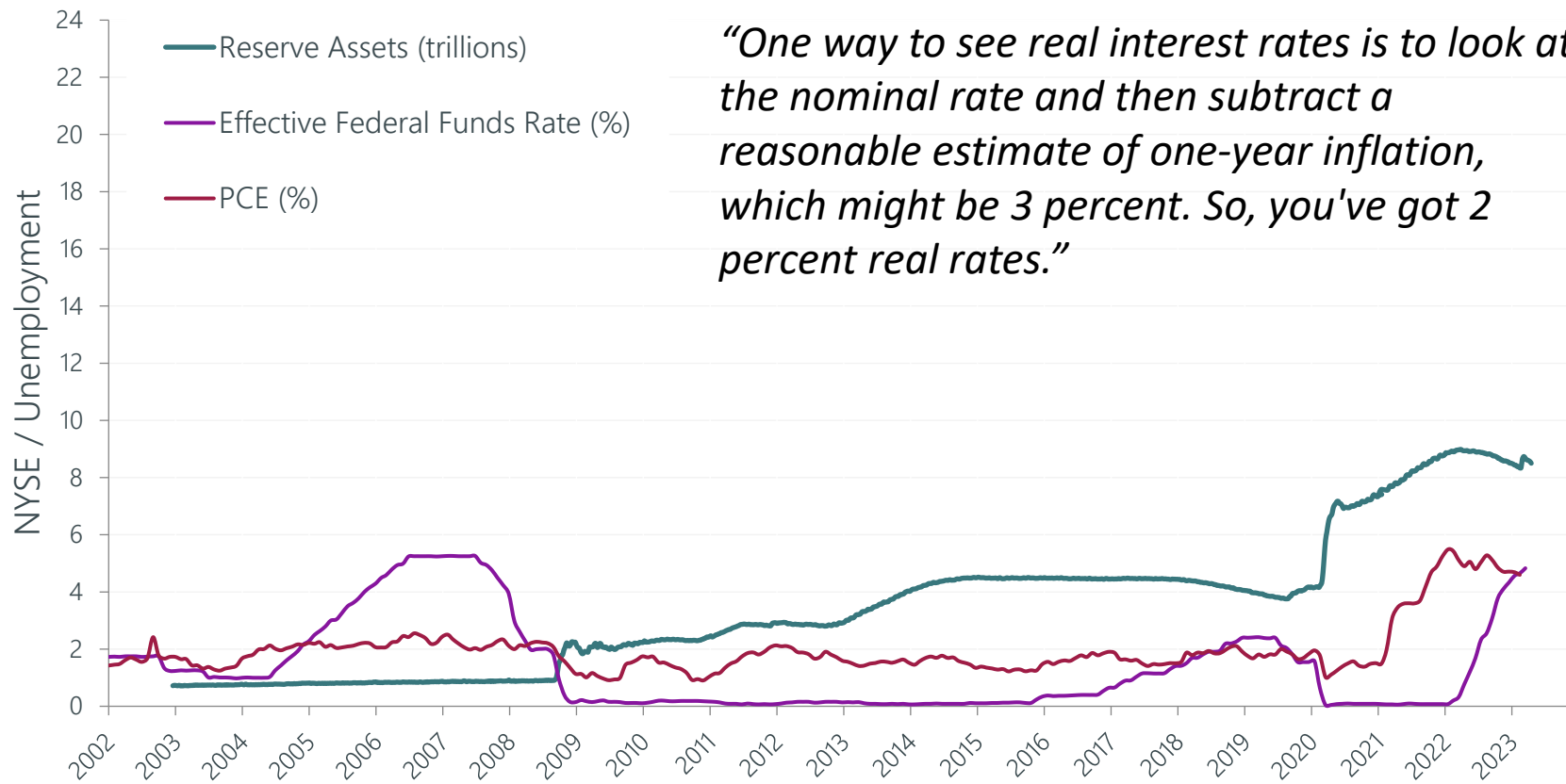


“our policy tightening effects the most interest rate sensitive sectors of the economy, particularly housing and investment”

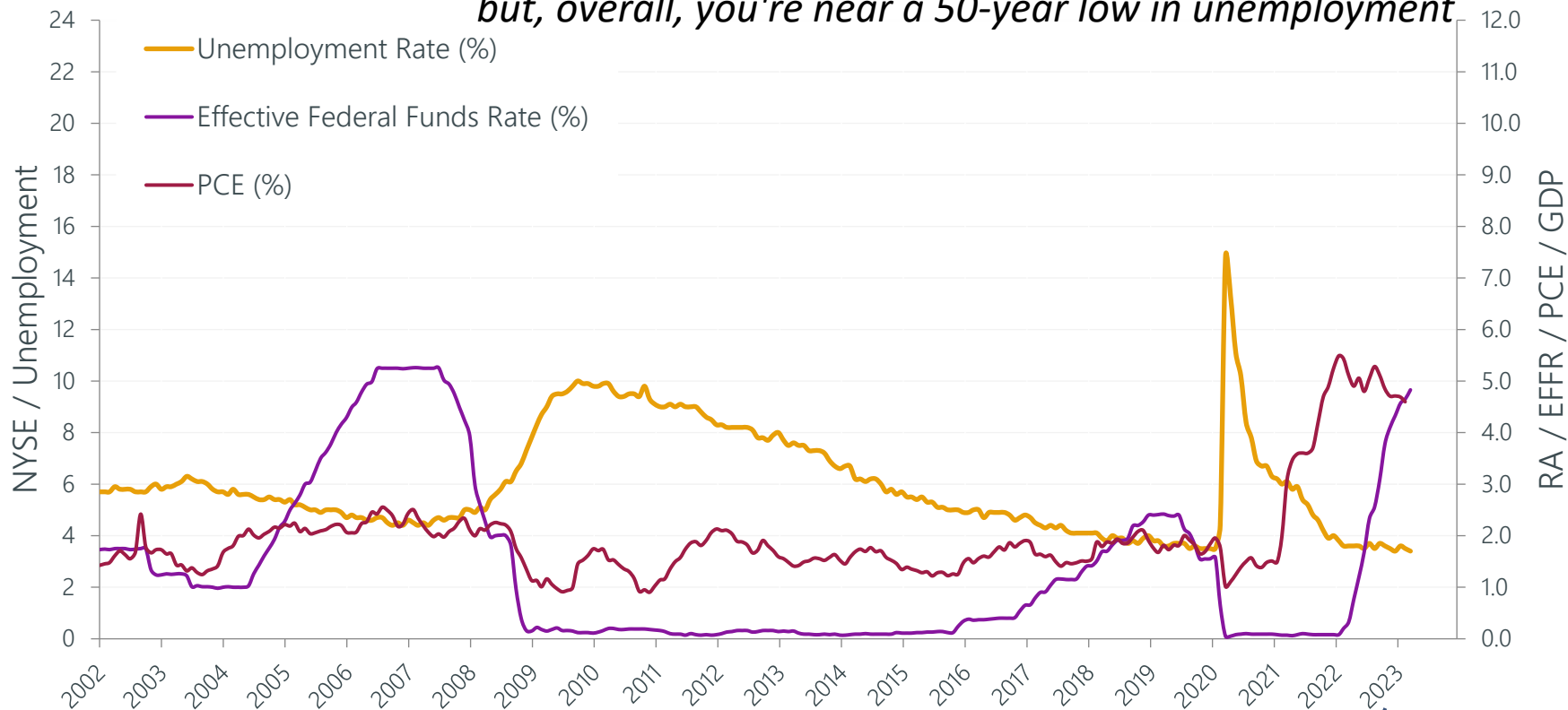


“When banks raise their credit standards, that can also make credit tight in a broadly similar way to monetary tightening.”

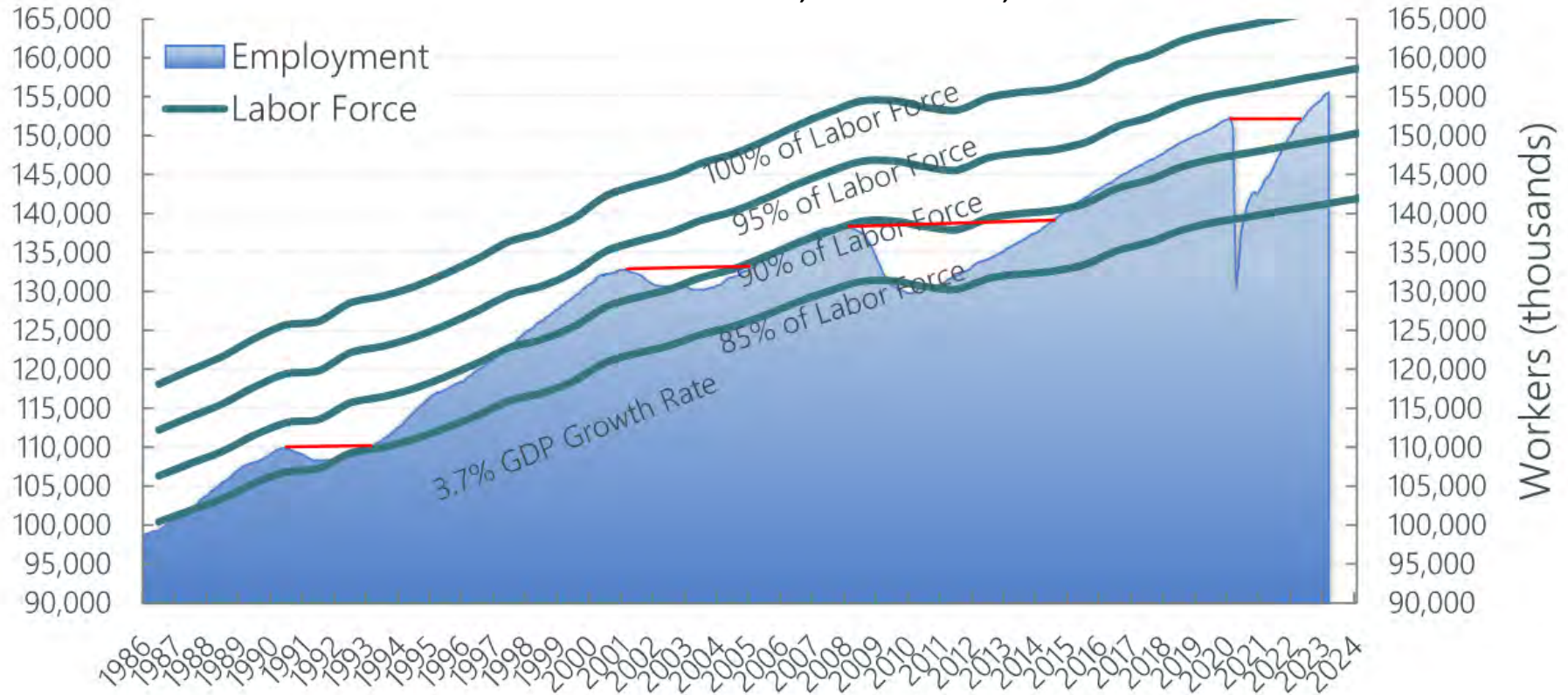


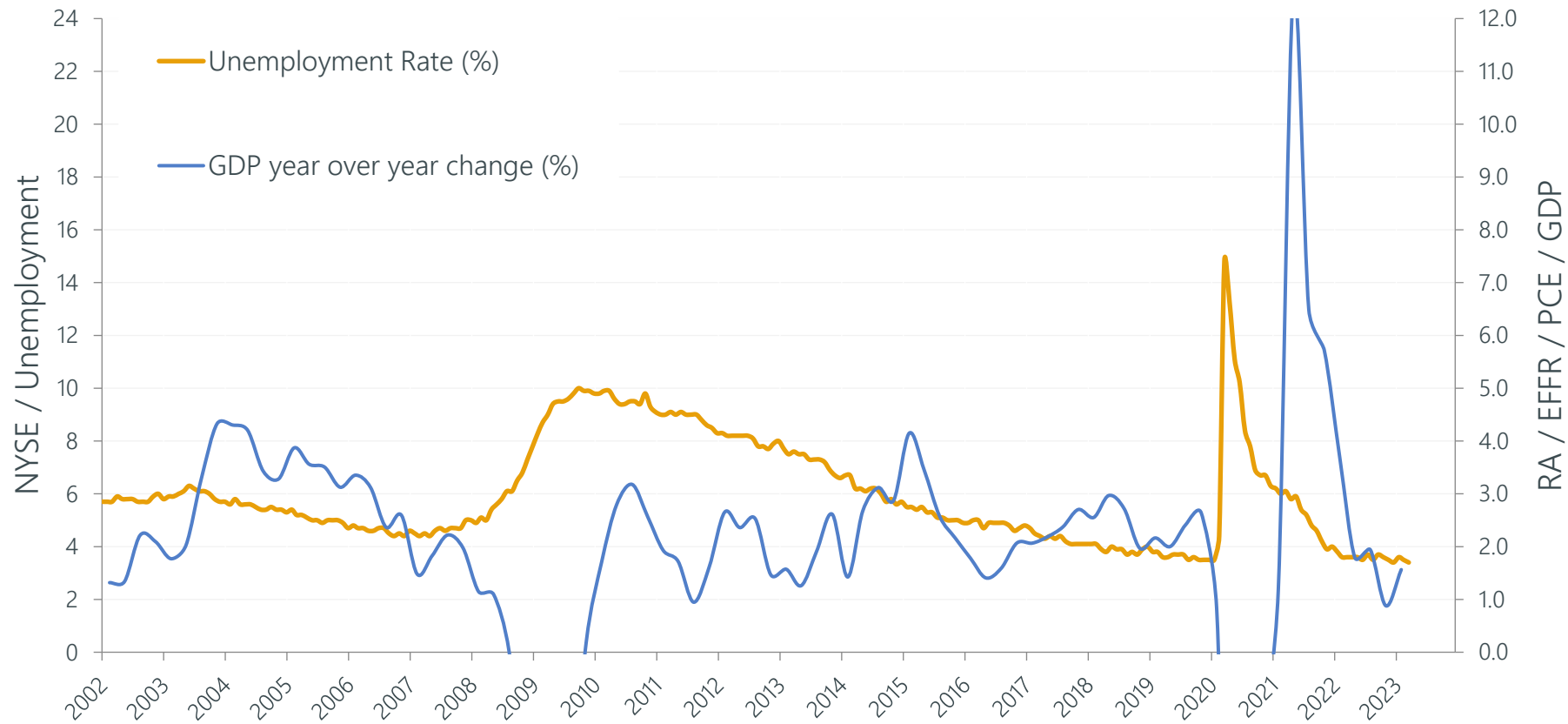


“The labor market is extraordinarily tight. You still got 1.6 job openings for every unemployed person. We do see softening, but, overall, you're near a 50-year low in unemployment

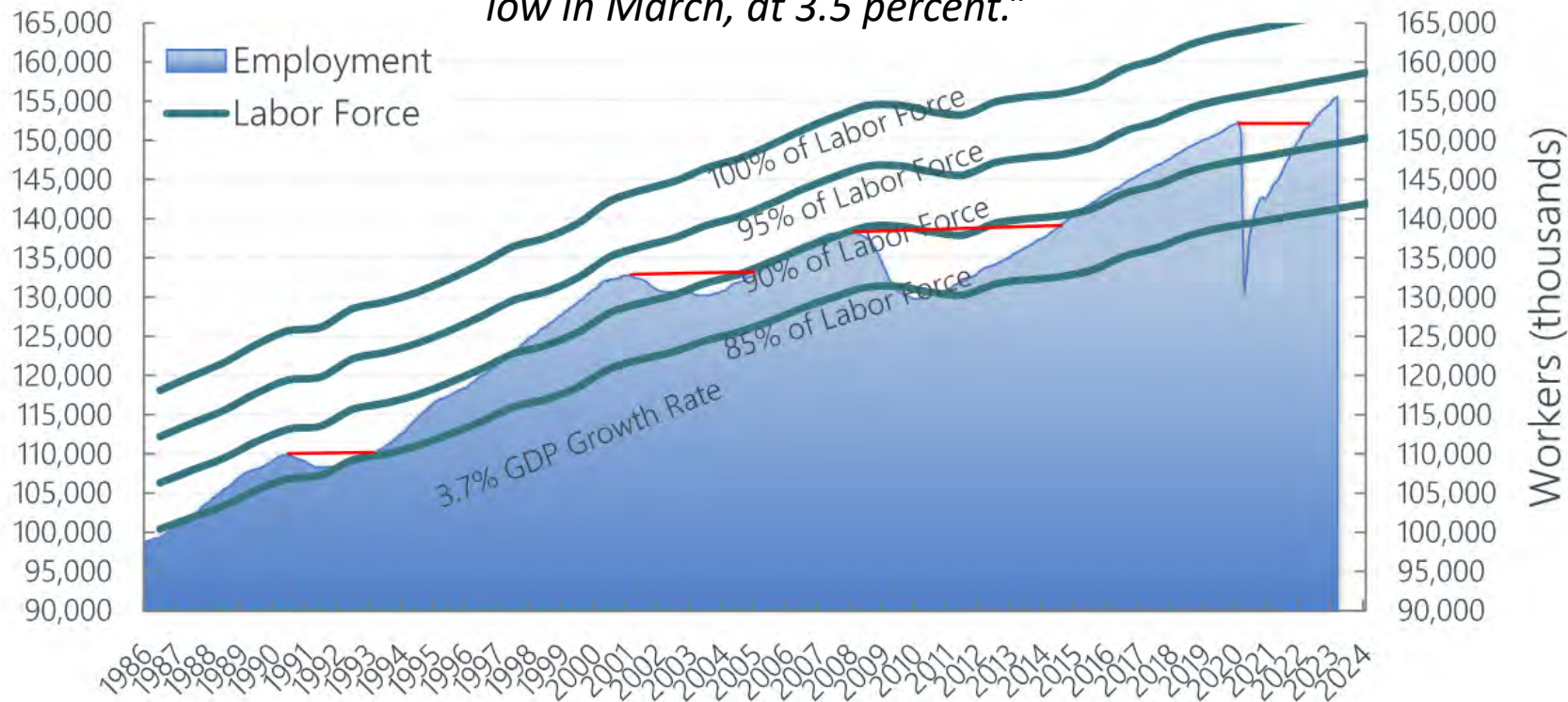


Horizontal red lines show the previous recessions of 90-93, 2001-2004, 2008-2014.

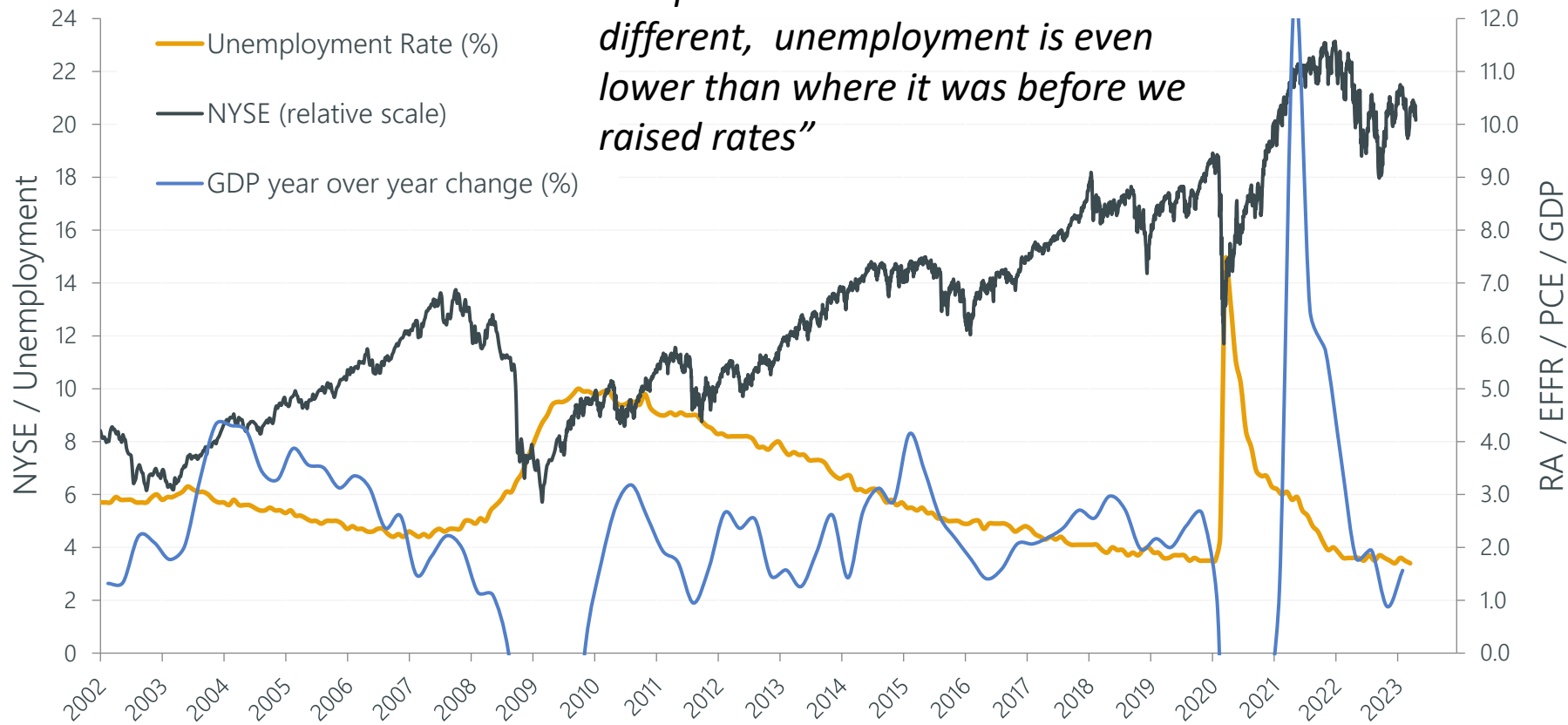




“Over the first three months of the year, job gains averaged 345 thousand jobs per month. The unemployment rate remained very low in March, at 3.5 percent.”

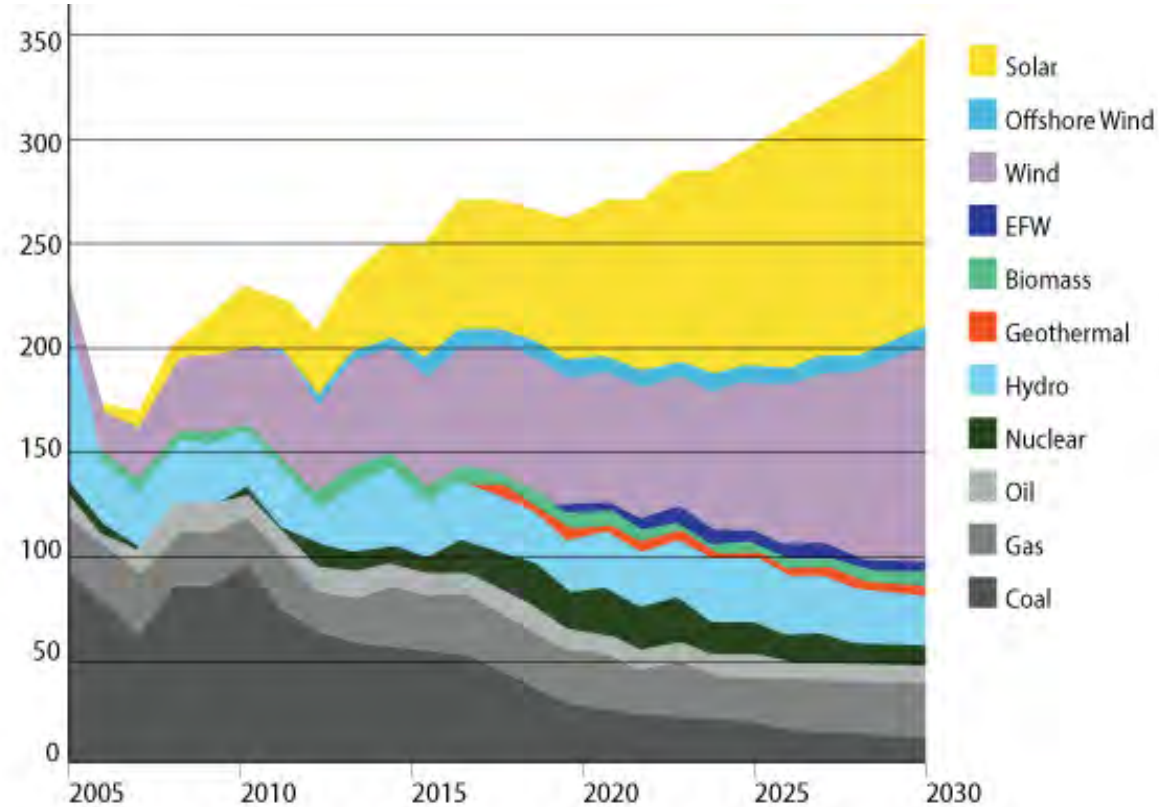


“it's possible that this time is different, unemployment is even lower than where it was before we raised rates”



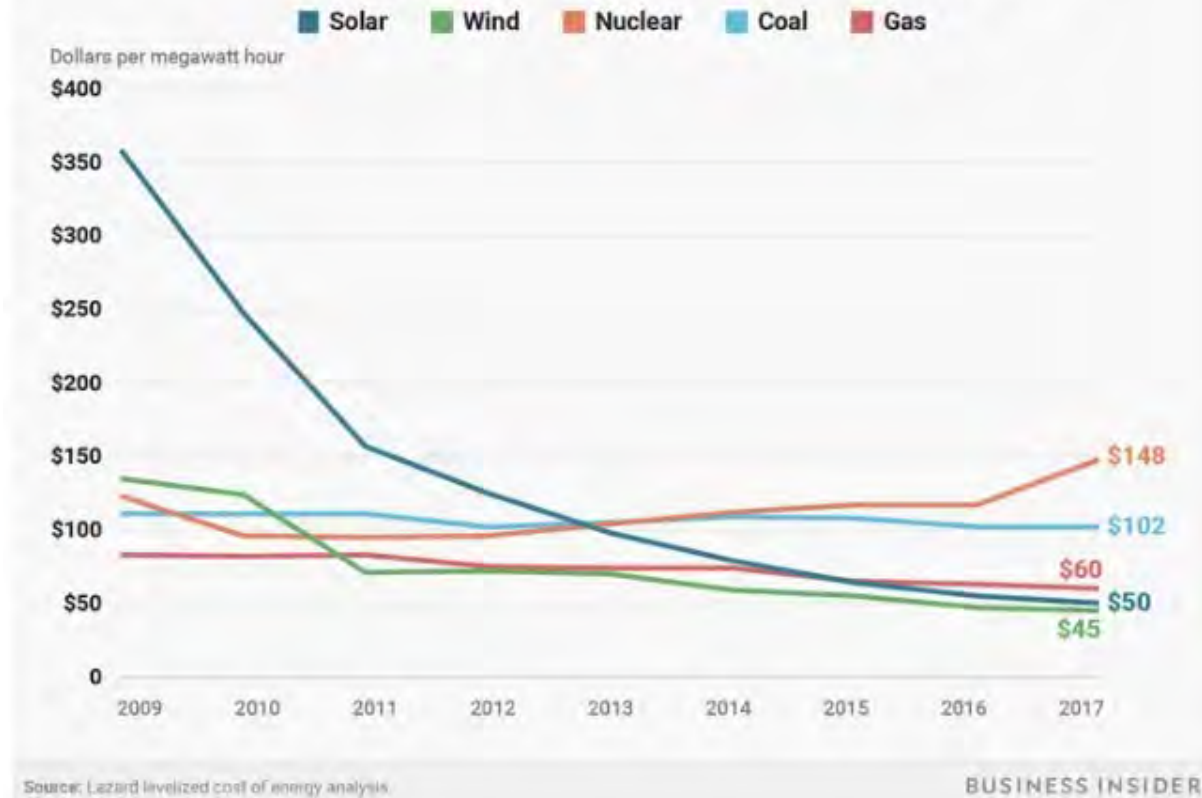
Industrial Revolution Redux

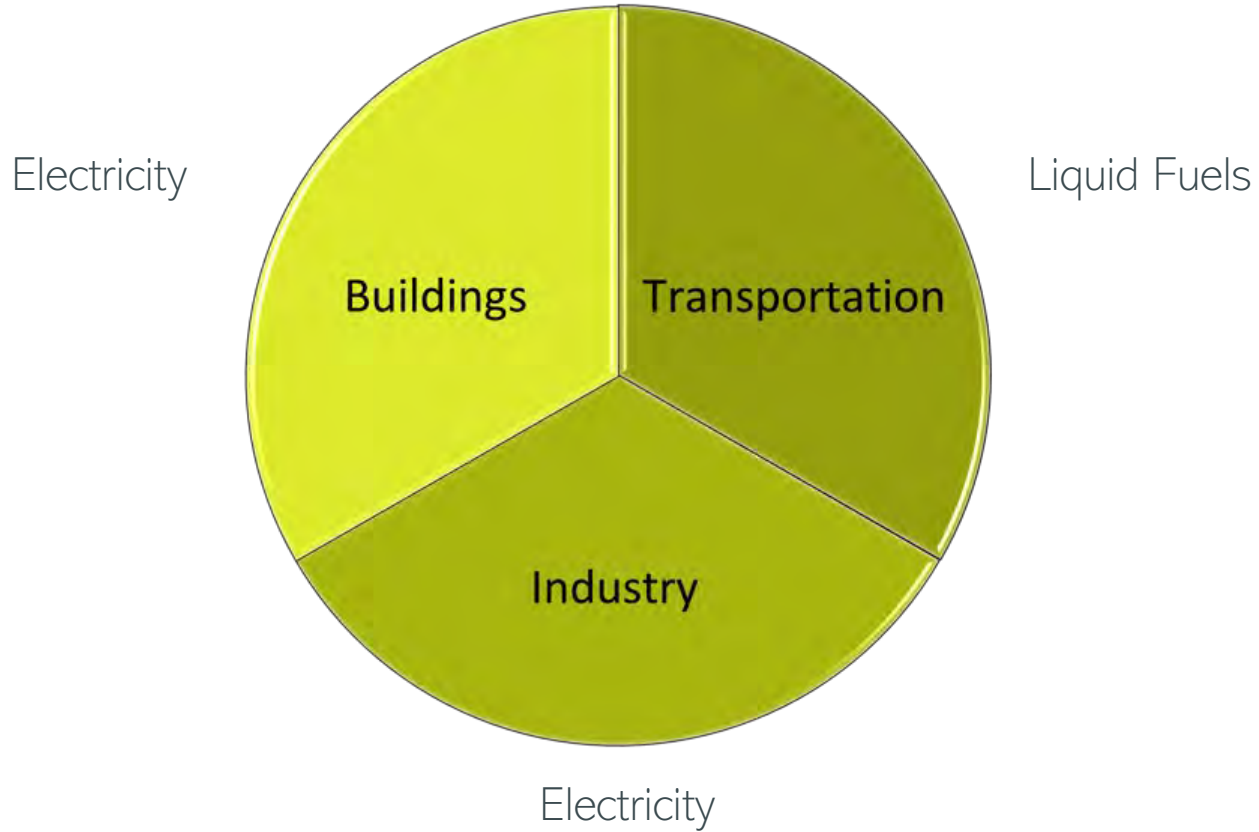
GW



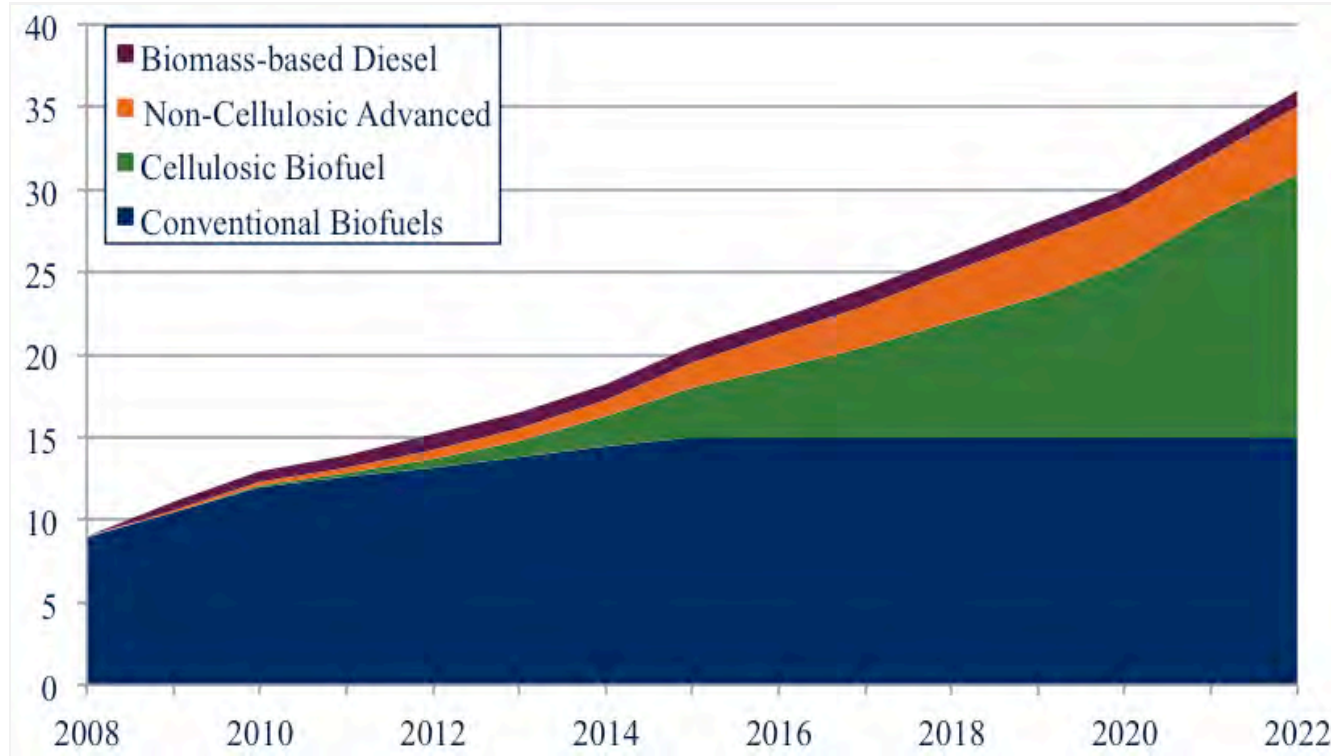
Competitive Renewable Energy. As renewable sources of energy become cheaper, and as finite sources of energy become more expensive, the global mix of energy sources changes as it grows.

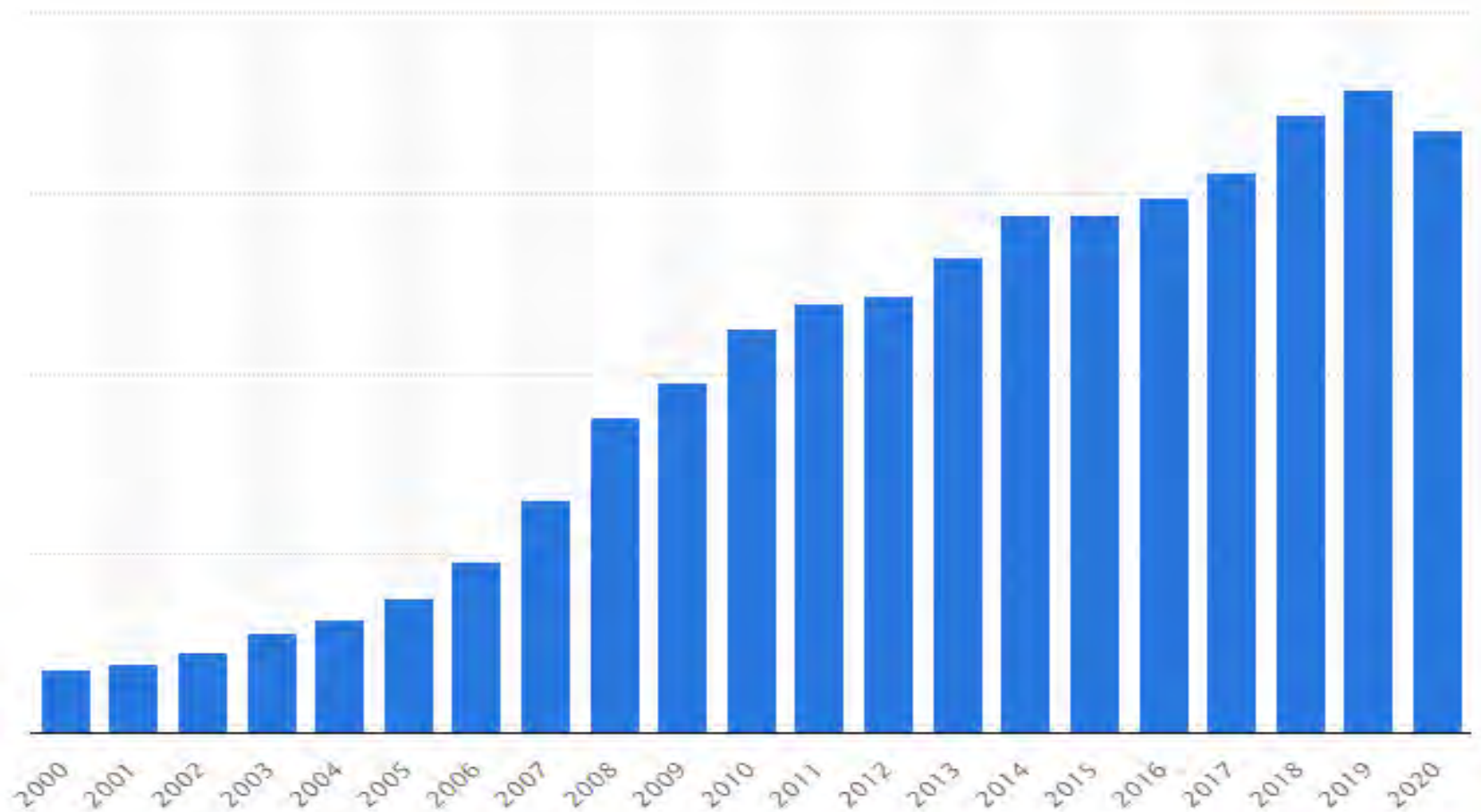
The average cost of energy in North America

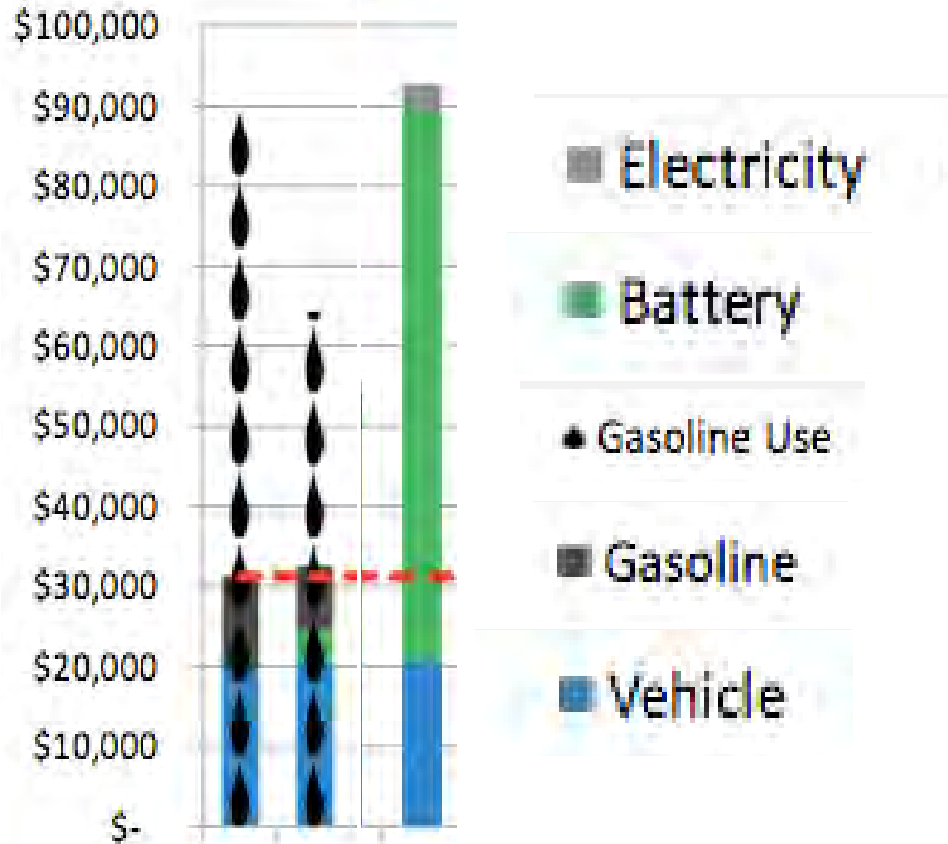




Biofuels. Imagine plants eating sunshine and pooping oil. This would allow us to keep carbon-based conventional fuels in the ground until we need them.







Car + Fuel Cost 2008

Hybrid vehicles strike a balance between lower first cost and lower fuel cost over the life of the vehicle.

Battery Cost per kiloWatt hour 2018 to 2030

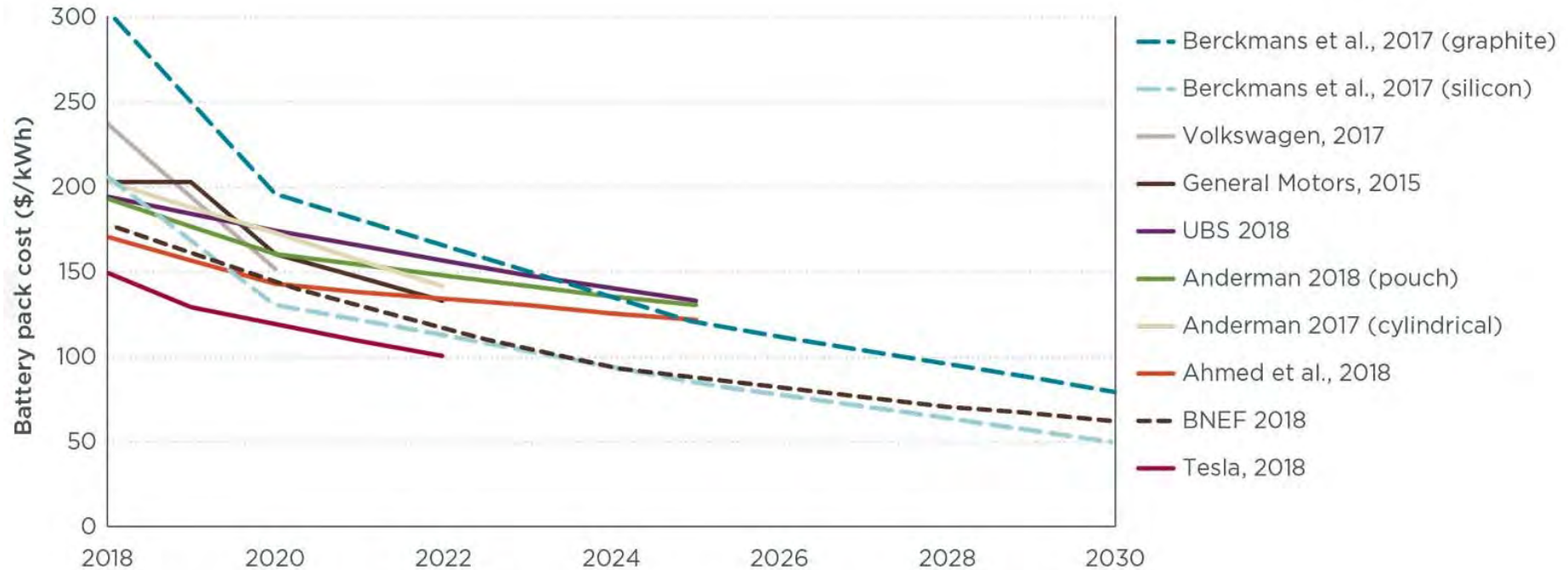
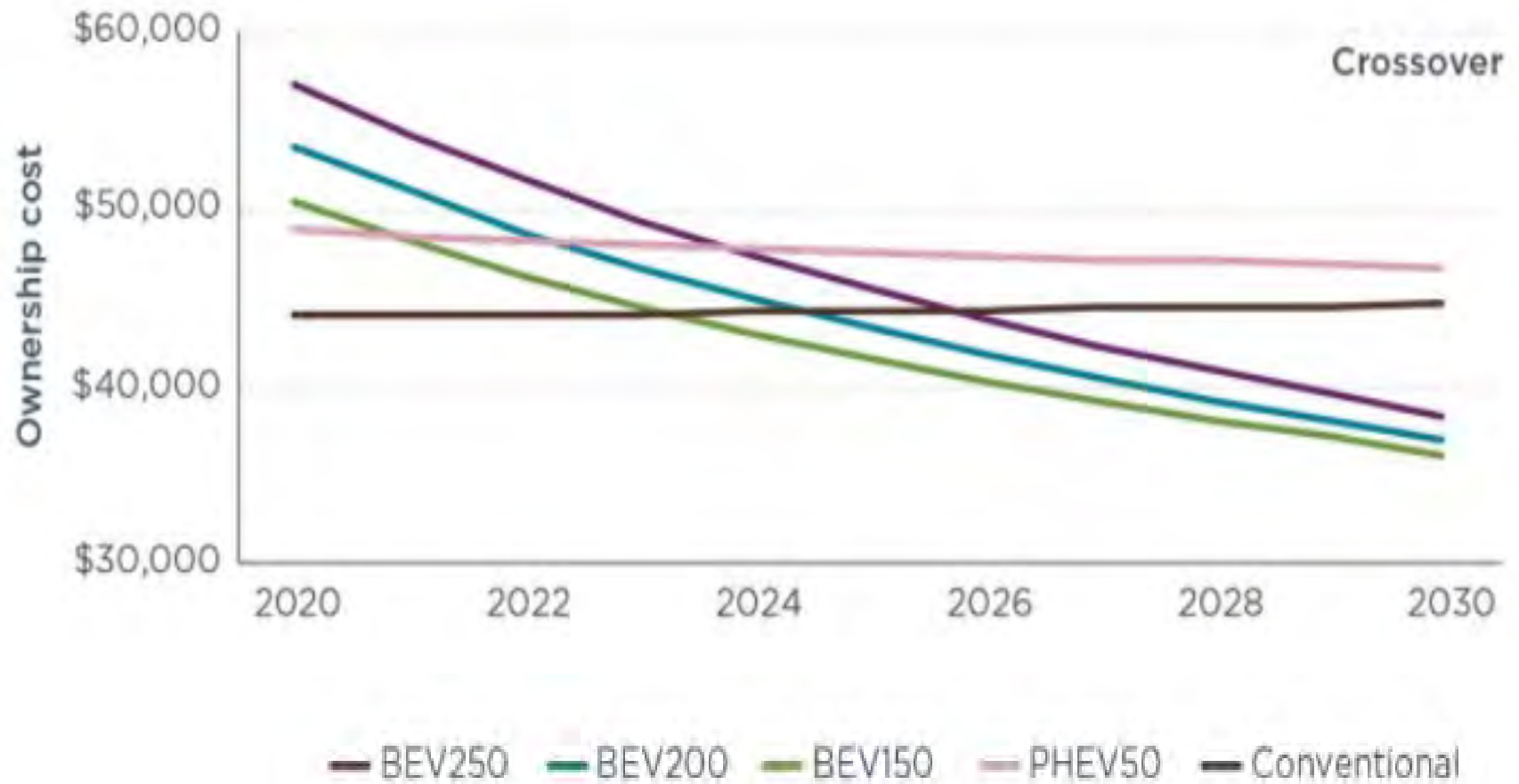


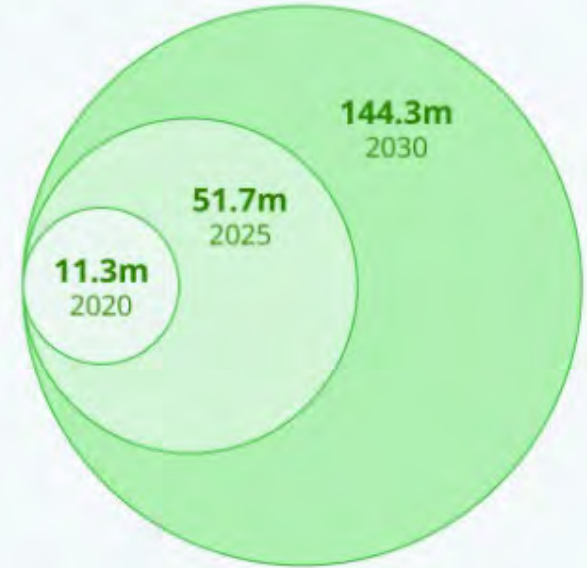
Figure 2. Electric vehicle battery pack costs from technical studies and automaker statements.



One for the Road.

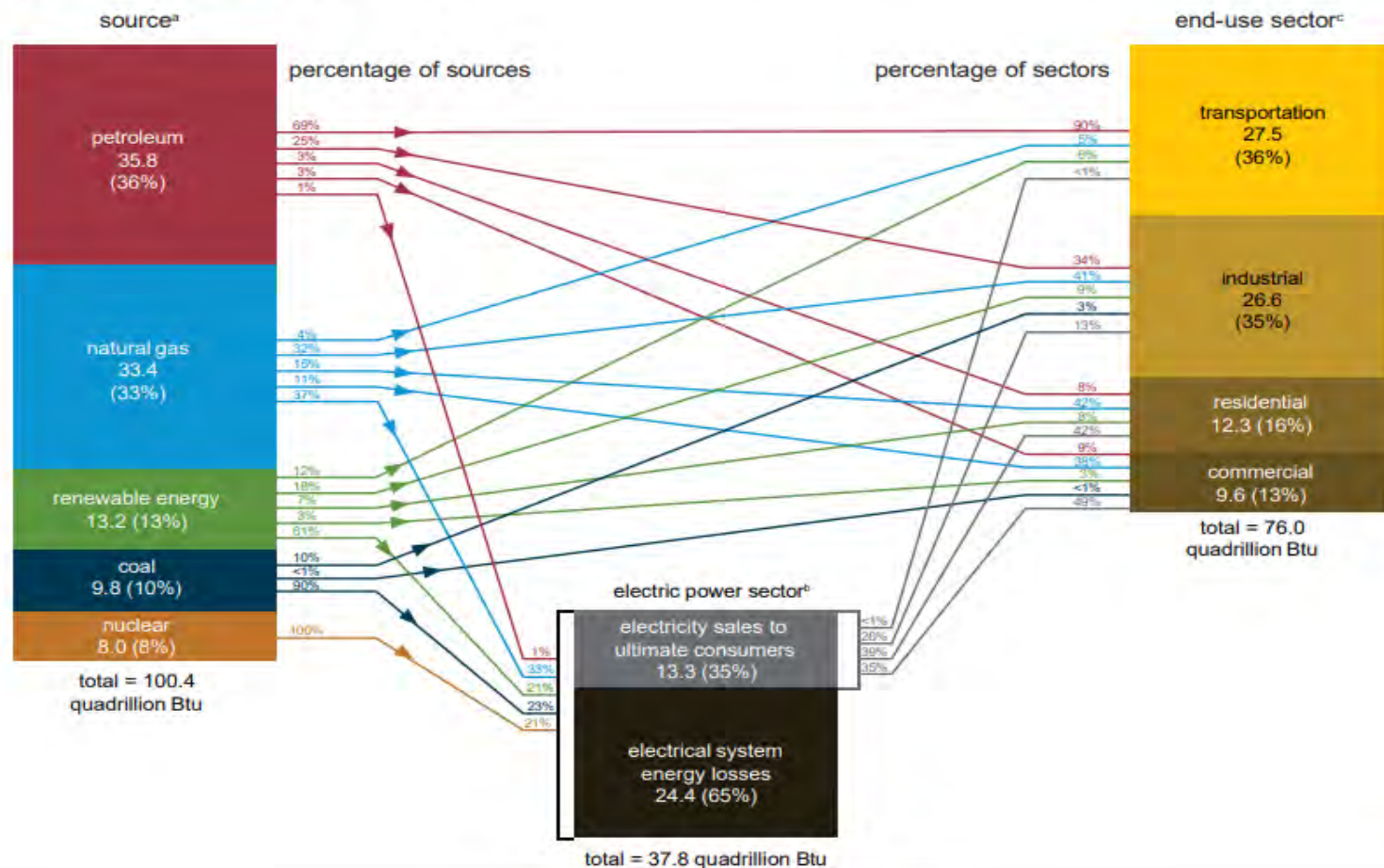


Projected number of electric vehicles
driving globally up to 2030*

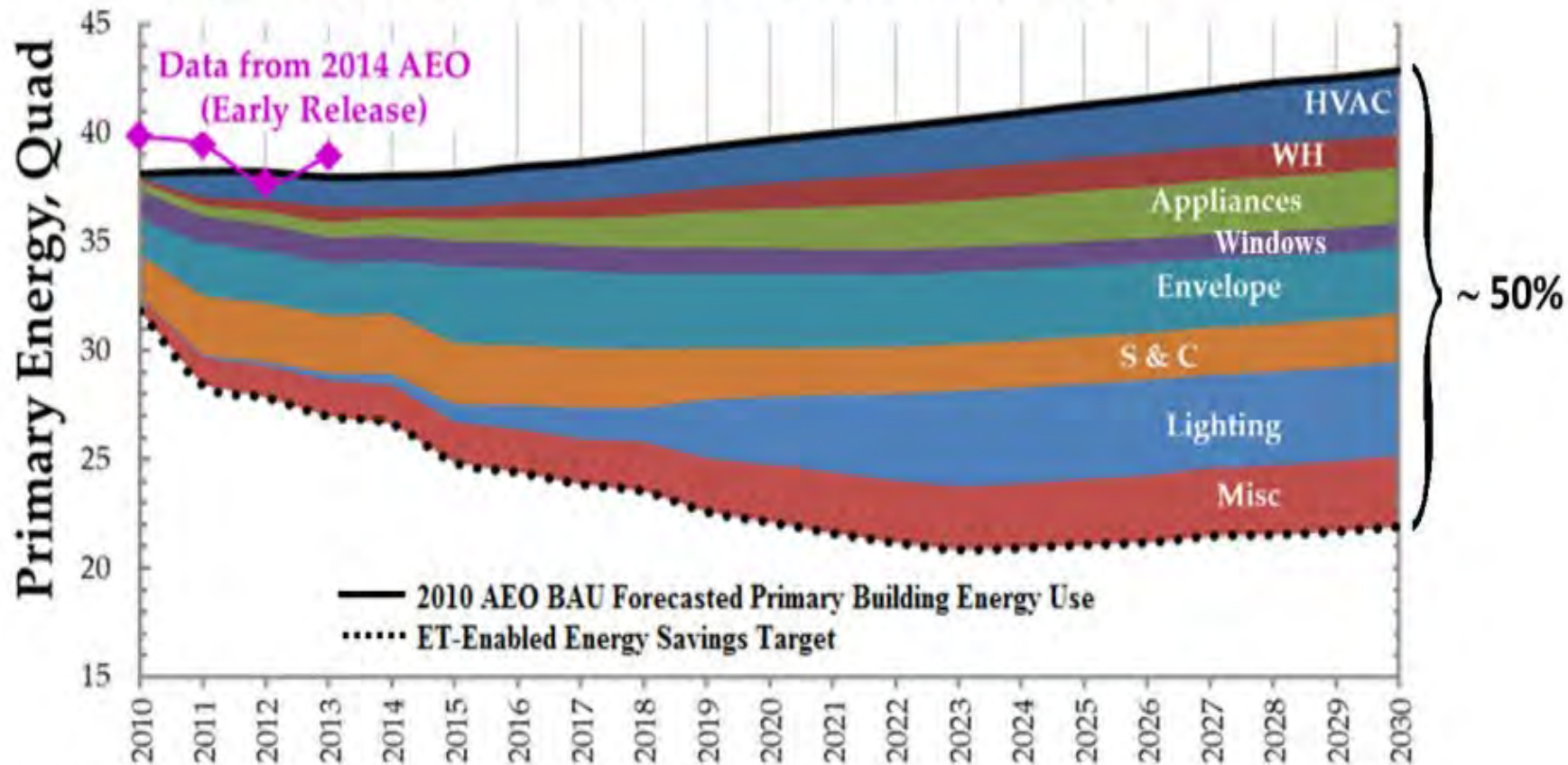


U.S. energy consumption by source and sector, 2022

quadrillion British thermal units (Btu)

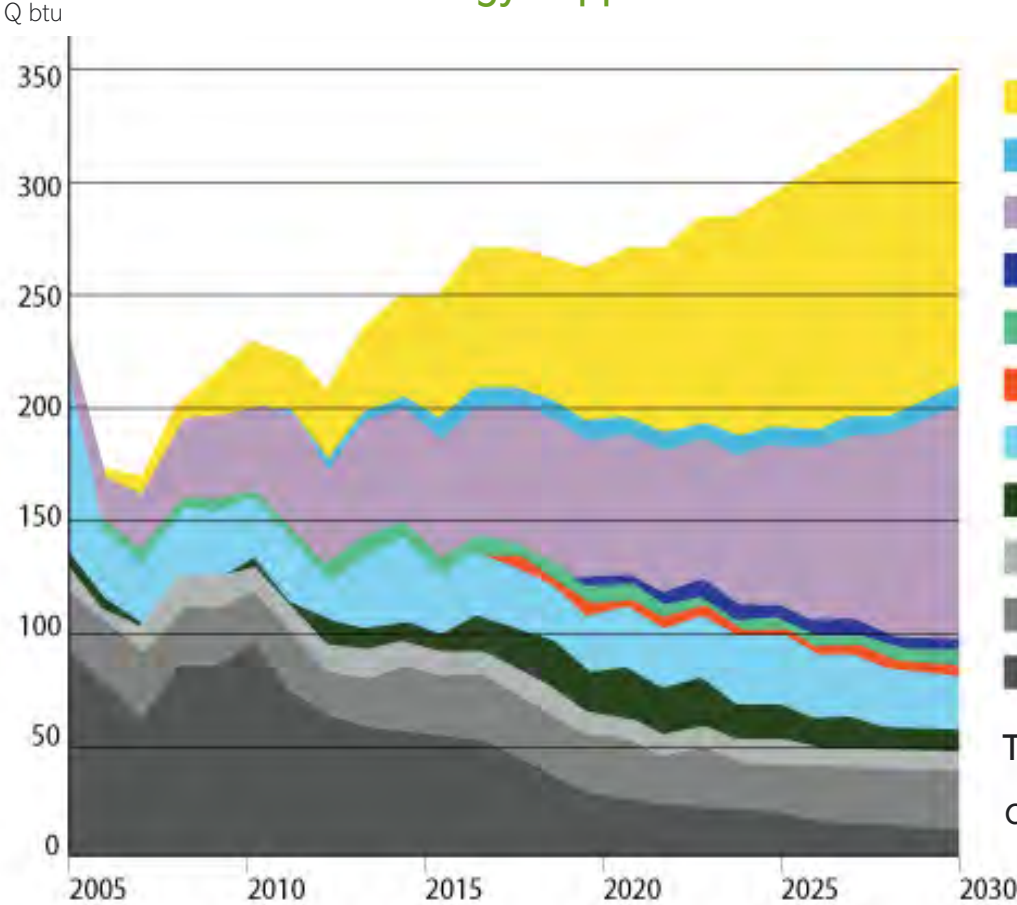


Emerging Technology-Enabled Cost-Effective Energy Savings



Source: Energy Information Administration's (EIA) Annual Energy Outlook (AEO); savings estimates from BTO

Global Energy Supplies



North American Energy Supplies

Solar	15	40
Offshore Wind		
Wind		
EFW	5	15
Biomass		
Geothermal		
Hydro		
Nuclear	10	5
Oil	30	5
Gas	30	15
Coal	5	0
Total	90	80
Capture	-5	-15

2030 Q Btu

2050 Q Btu

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