



**ASAP**  
**(American Solar Action Plan)**

**PV-Wind Monthly Data Slideshow**

**May 2024**

**ASAP**  
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# Highlights for February 2024



- PV capacity additions are a respectable 1,488 MW; wind capacity additions are 385 MW.
  - MW = megawatts; GW = gigawatts (1000 MW); TW = terawatts (1000 GW)
- PV and Wind generated 18.5% of total U.S. electricity generation.
- PV cumulative capacity is poised to surpass wind cumulative capacity in 2024.
- PV panel imports remain robust at \$1.4 billion, which supports strong U.S. PV capacity additions.
- For the month of April, TAN ETF (solar) share price declined 11.1%, and FAN ETF (wind) share price declined 0.8%.
- China's PV capacity additions in 2023 were an amazing 217 GW.

# Slideshow Objectives



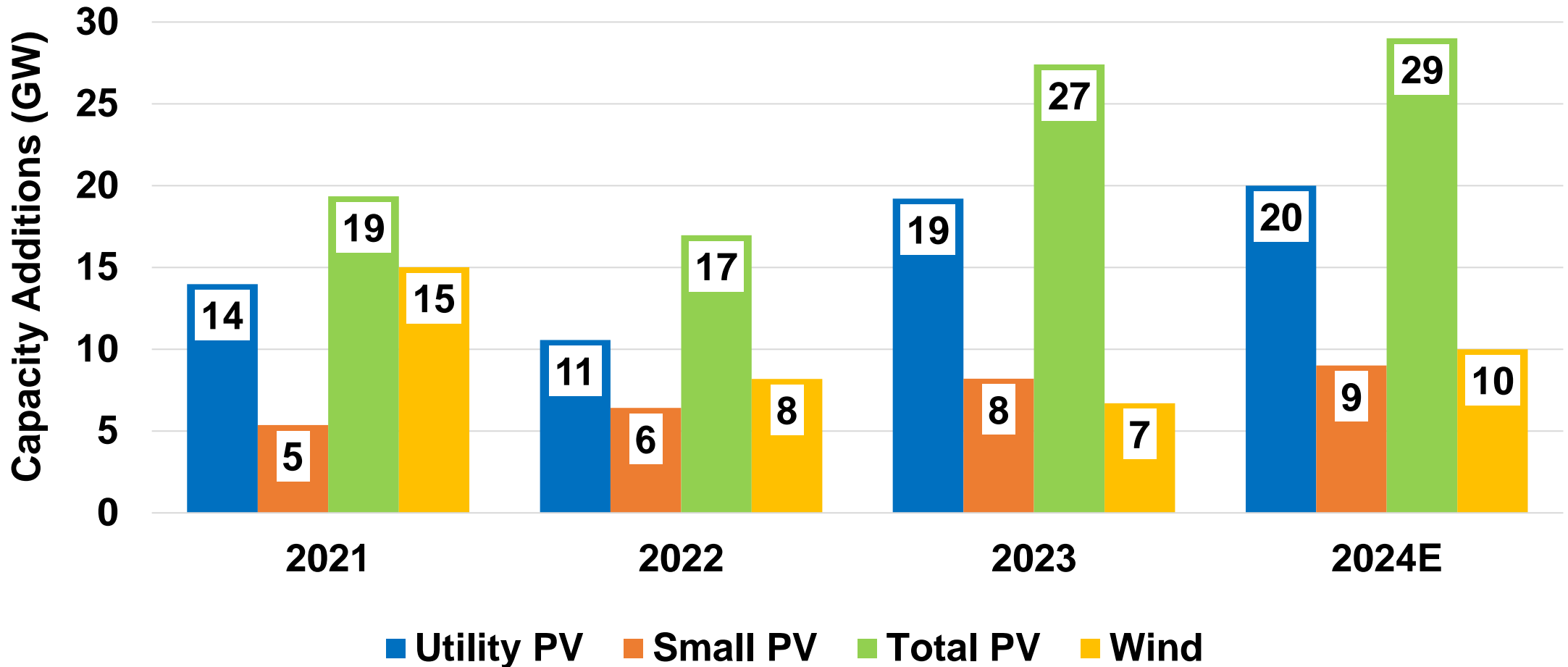
- To Document Monthly and Annual Growth in PV and Wind Capacity and Electricity Generation
  - MW = megawatts; GW = gigawatts; TW = terawatts; MT = thousand metric tons (polysilicon)
- PV and Wind Capacity Additions
  - The Graphs Show Current and Past Year Monthly PV and Wind Capacity Additions
  - For Perspective, Compare Current Monthly Capacity Additions to the Long-Term Goals
    - U.S. PV Long-Term Goal (2040 forward)
      - Monthly Average – 8 GW of Capacity Additions
      - Annual Average – 96 GW of Capacity Additions
    - U.S. Wind Long-Term Goal (2040 forward)
      - Monthly Average – 4 GW of Capacity Additions
      - Annual Average – 48 GW of Capacity Additions
    - World PV Long-Term Goal (2040 forward)
      - Annual Average – 700 GW of Capacity Additions
    - World Wind Long-Term Goal (2040 forward)
      - Annual Average – 300 GW of Capacity Additions
- Slides Present U.S. Monthly PV, Wind and Fossil Fuel Electricity Generation to Show Seasonality



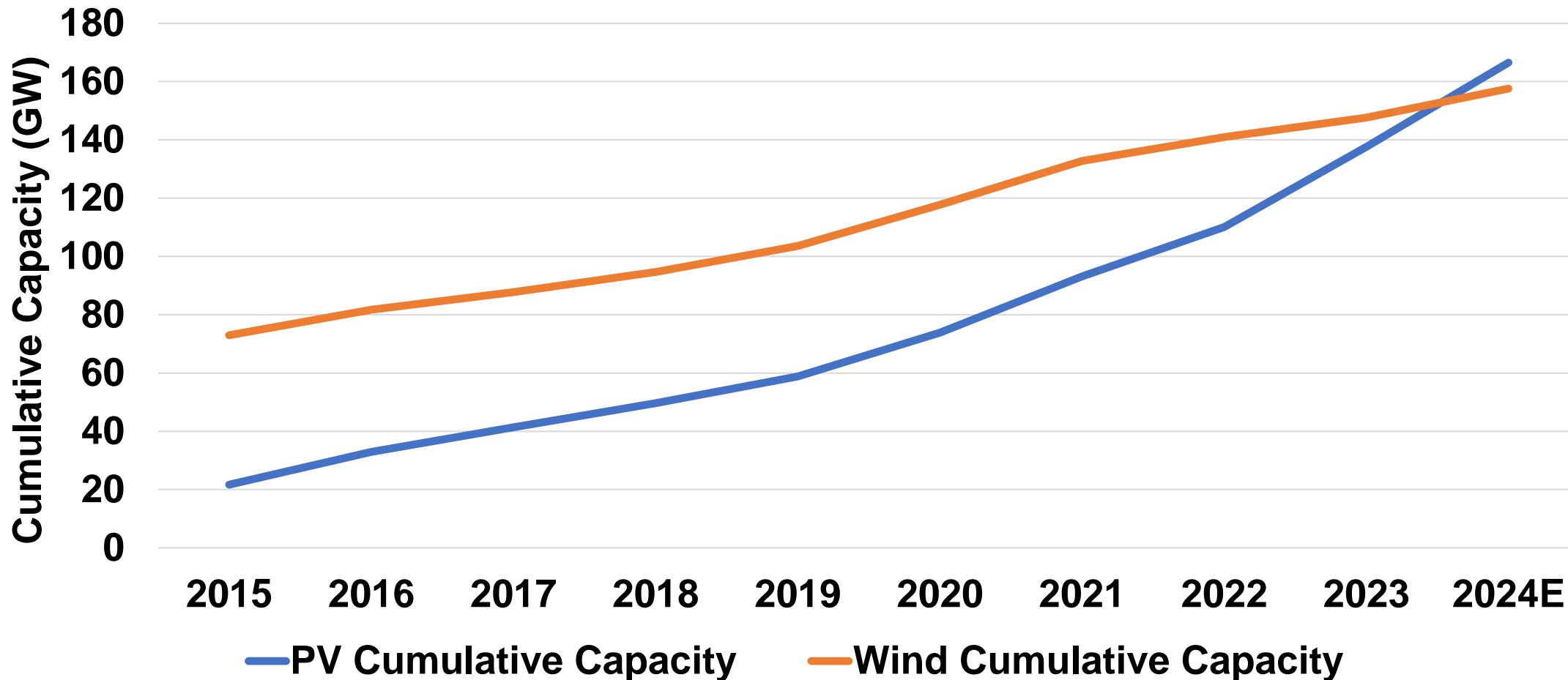
# U.S. PV and Wind Capacities

# 2024 PV and Wind Forecast

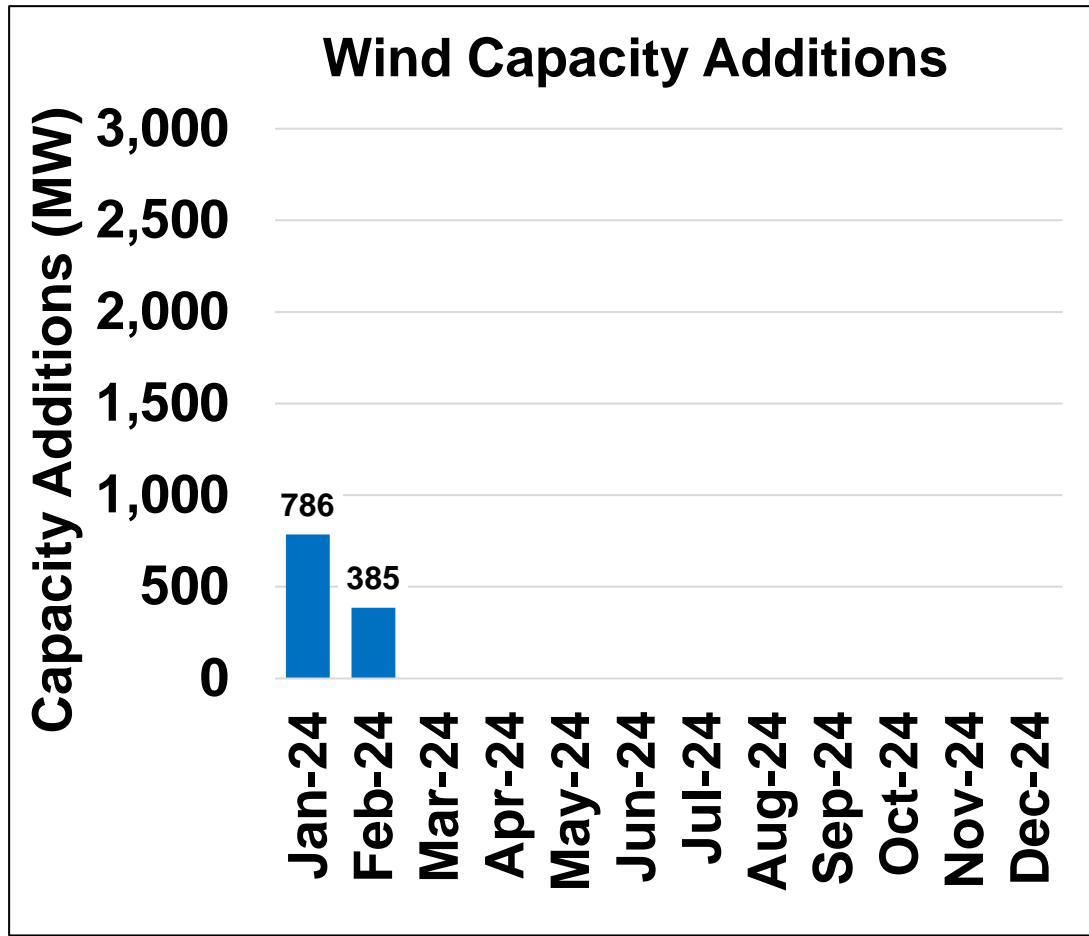
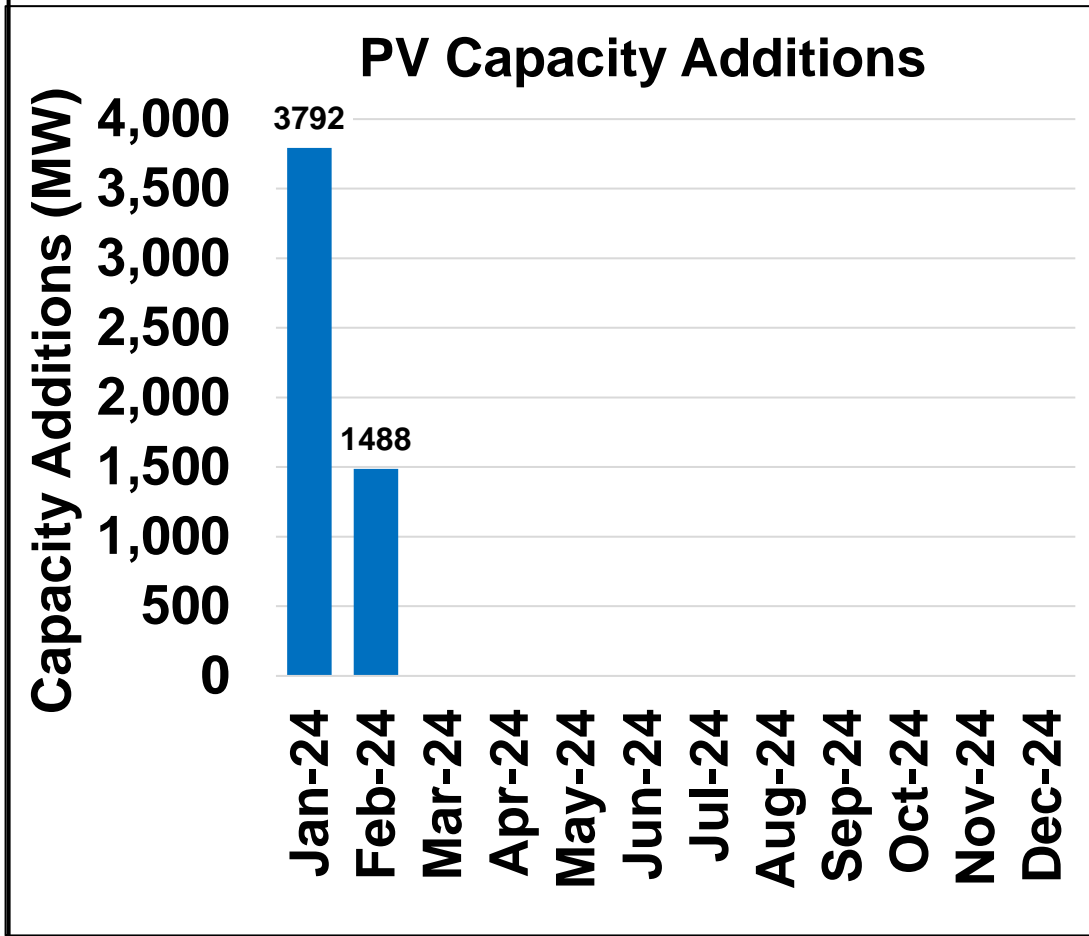
## U.S. Annual PV and Wind Capacity Additions 2021-2023



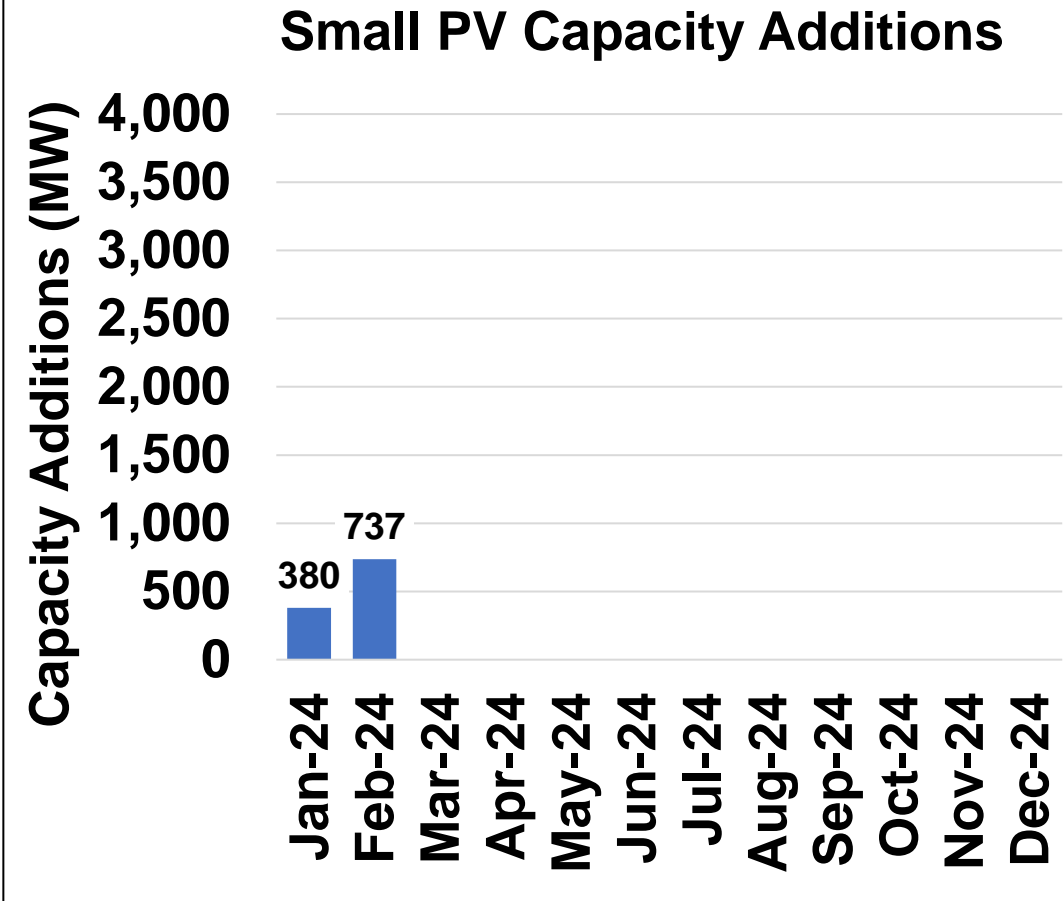
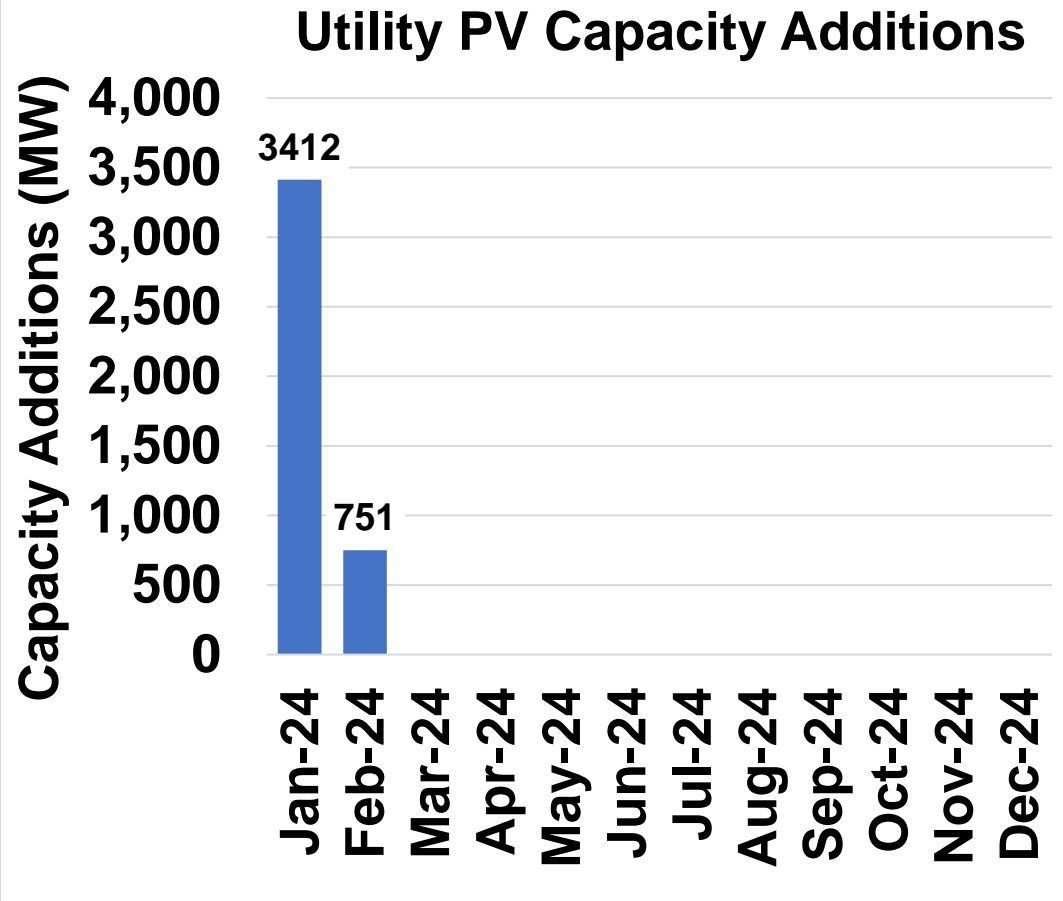
# PV and Wind Annual Cumulative Capacity



# U.S. PV and Wind Monthly Net Capacity Additions 2024 (through February)

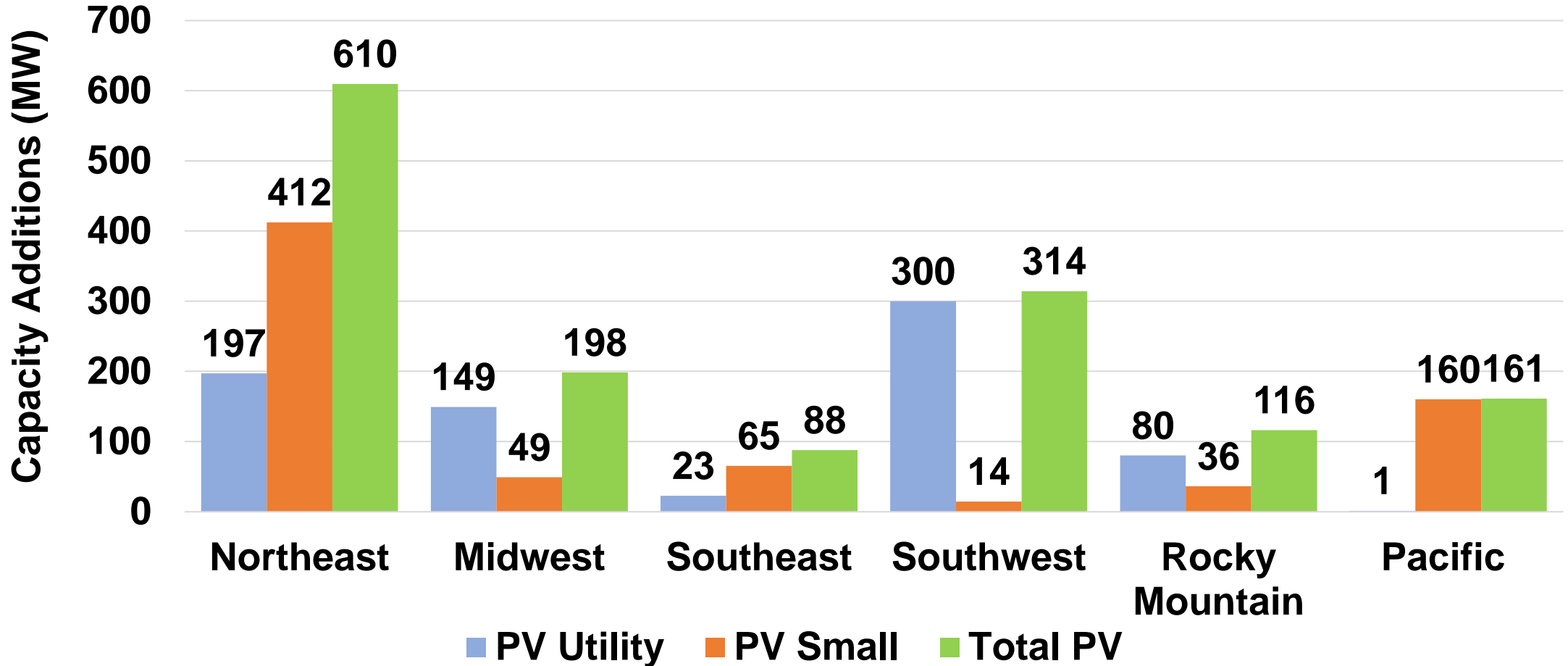


# Monthly Utility and Small PV Net Capacity Additions 2024 (through February)

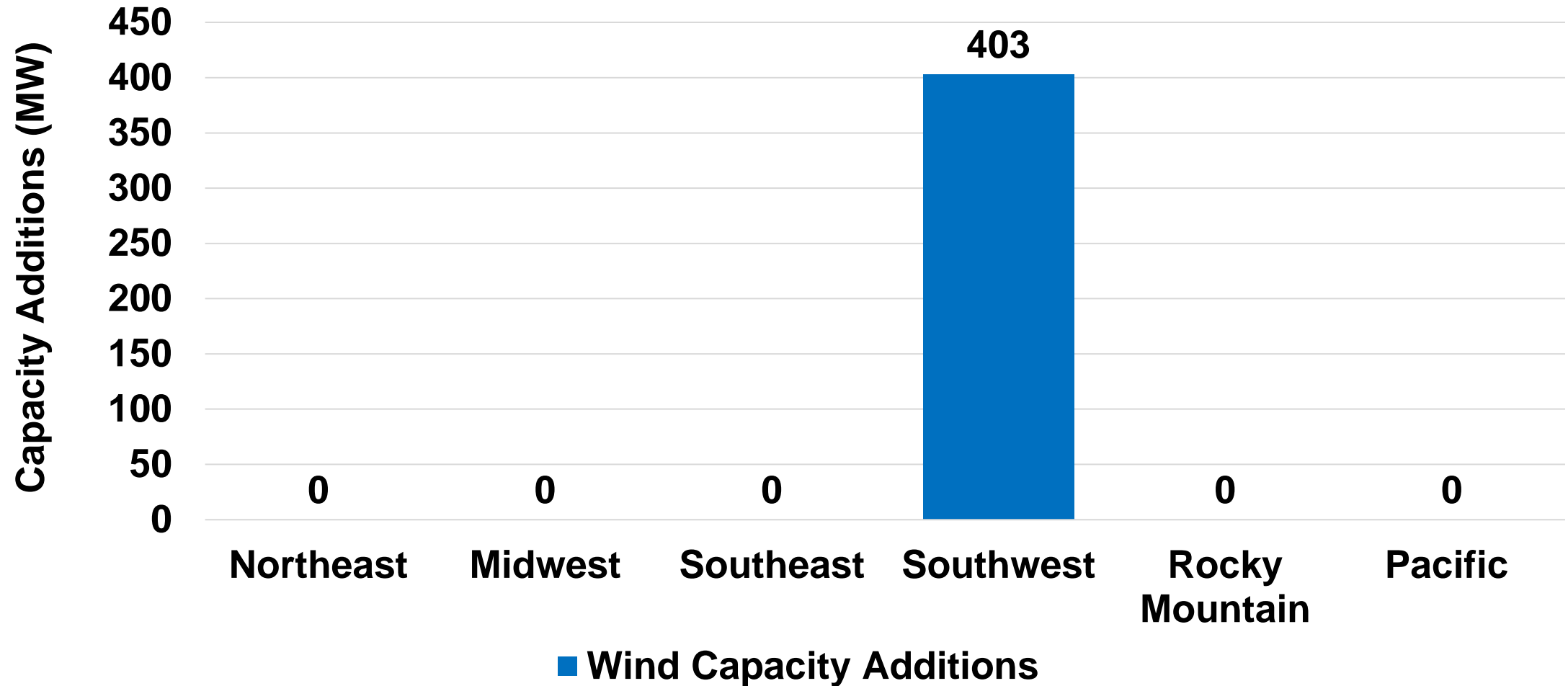




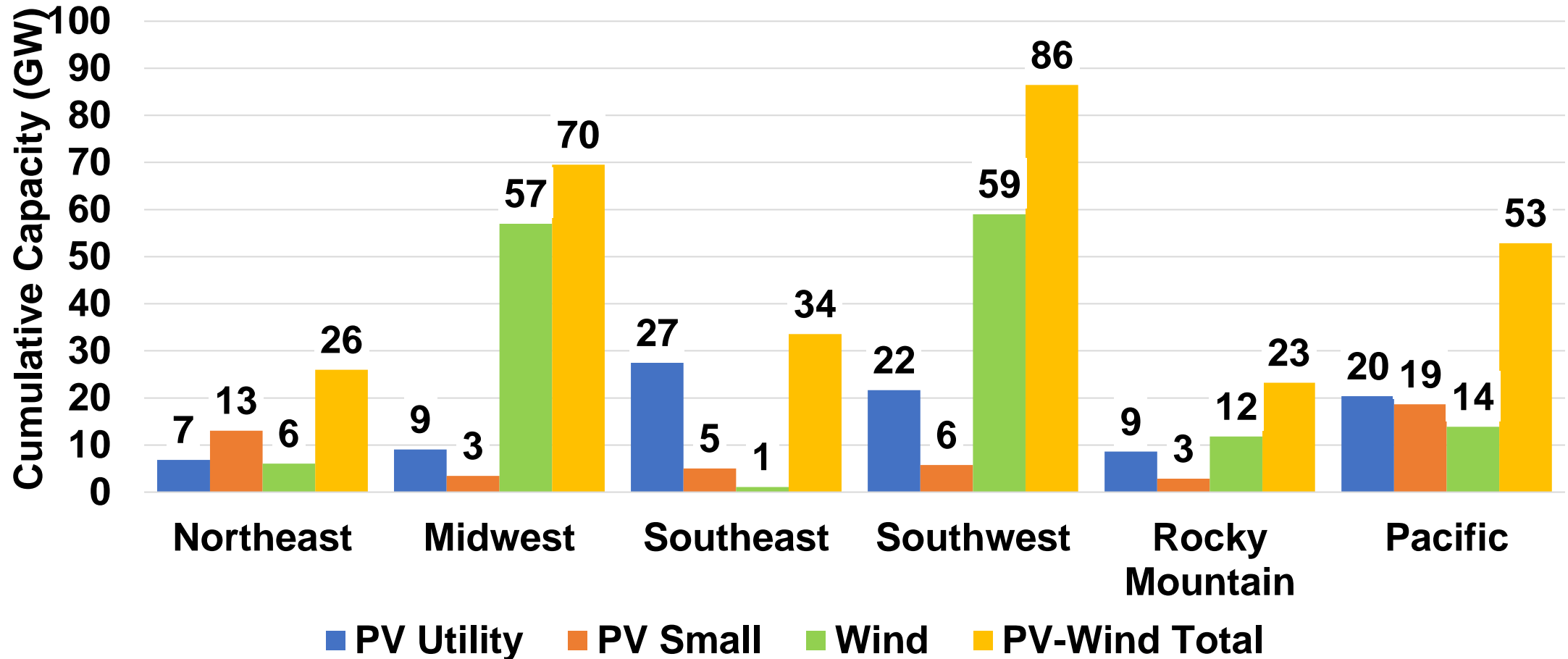
# Regional PV Capacity Additions February 2024



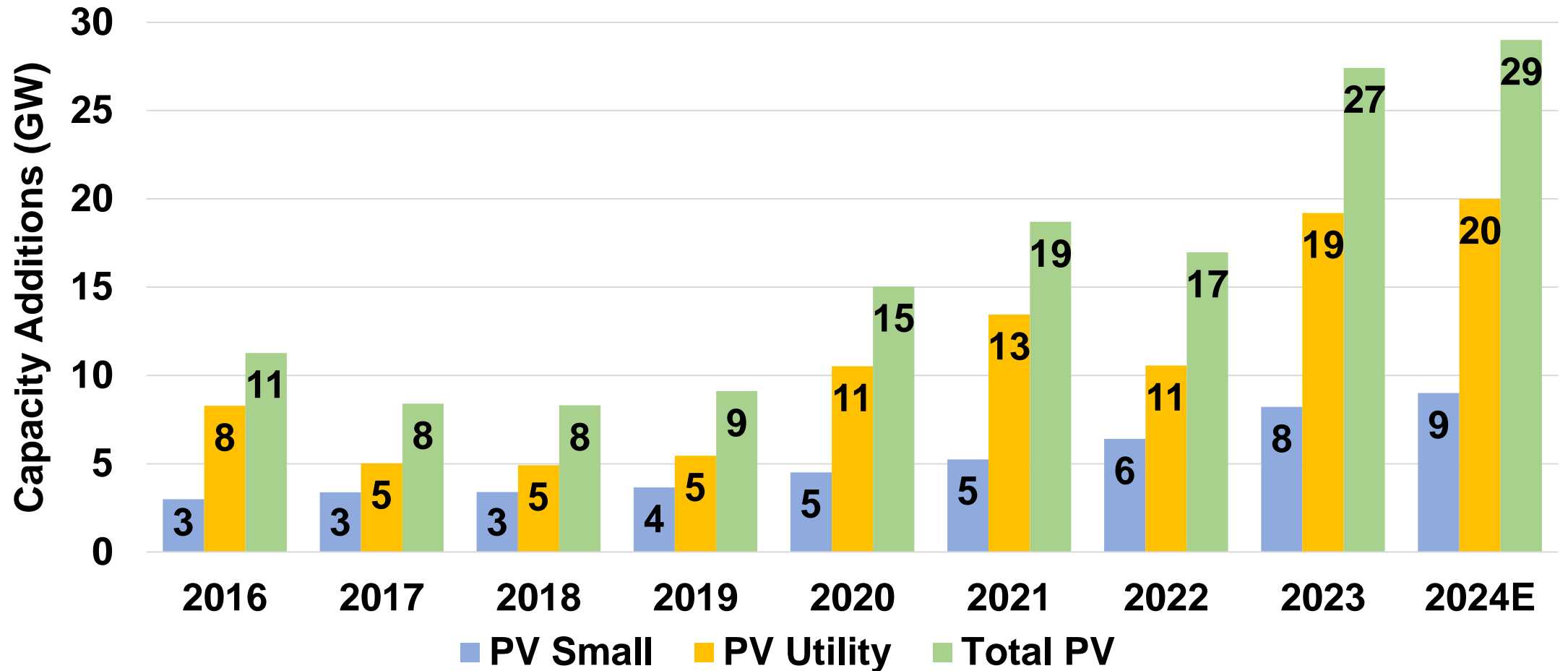
# Regional Wind Net Capacity Additions February 2024



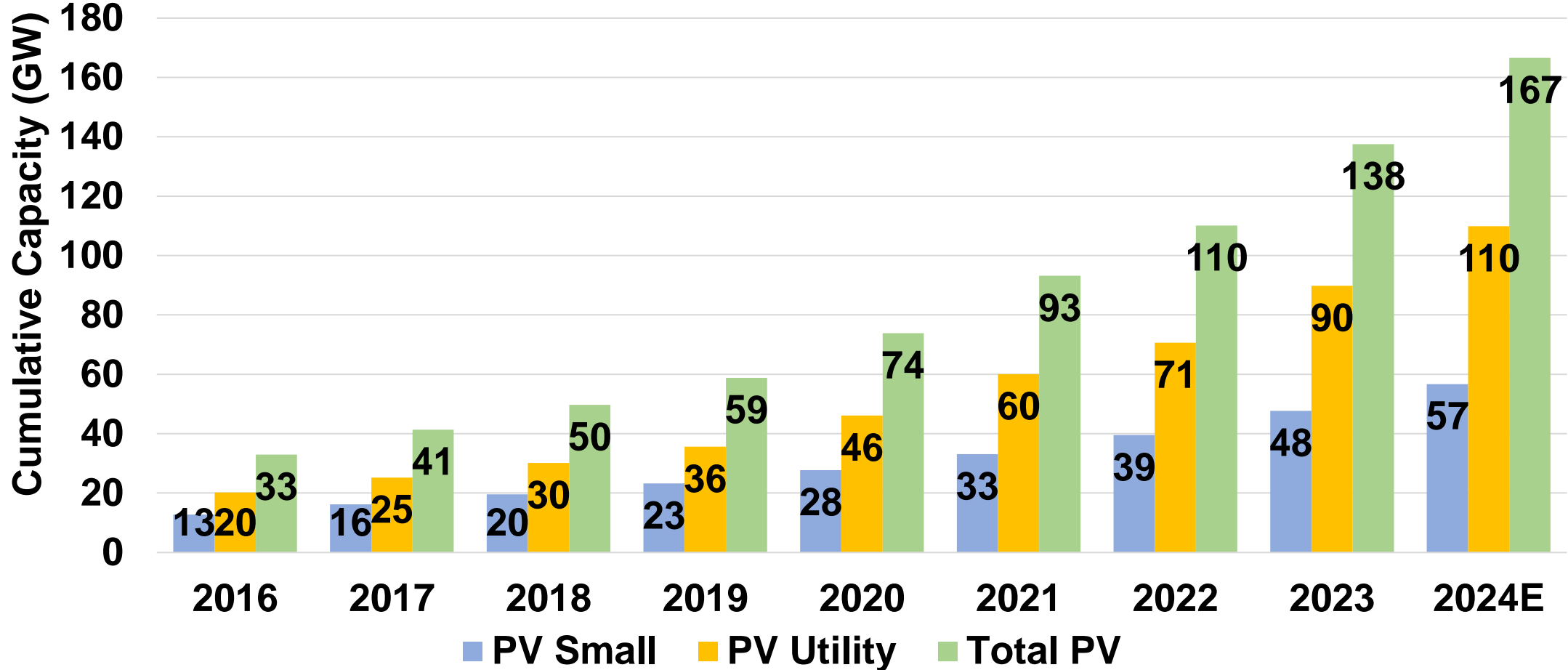
# PV and Wind Cumulative Capacity by Region February 2024



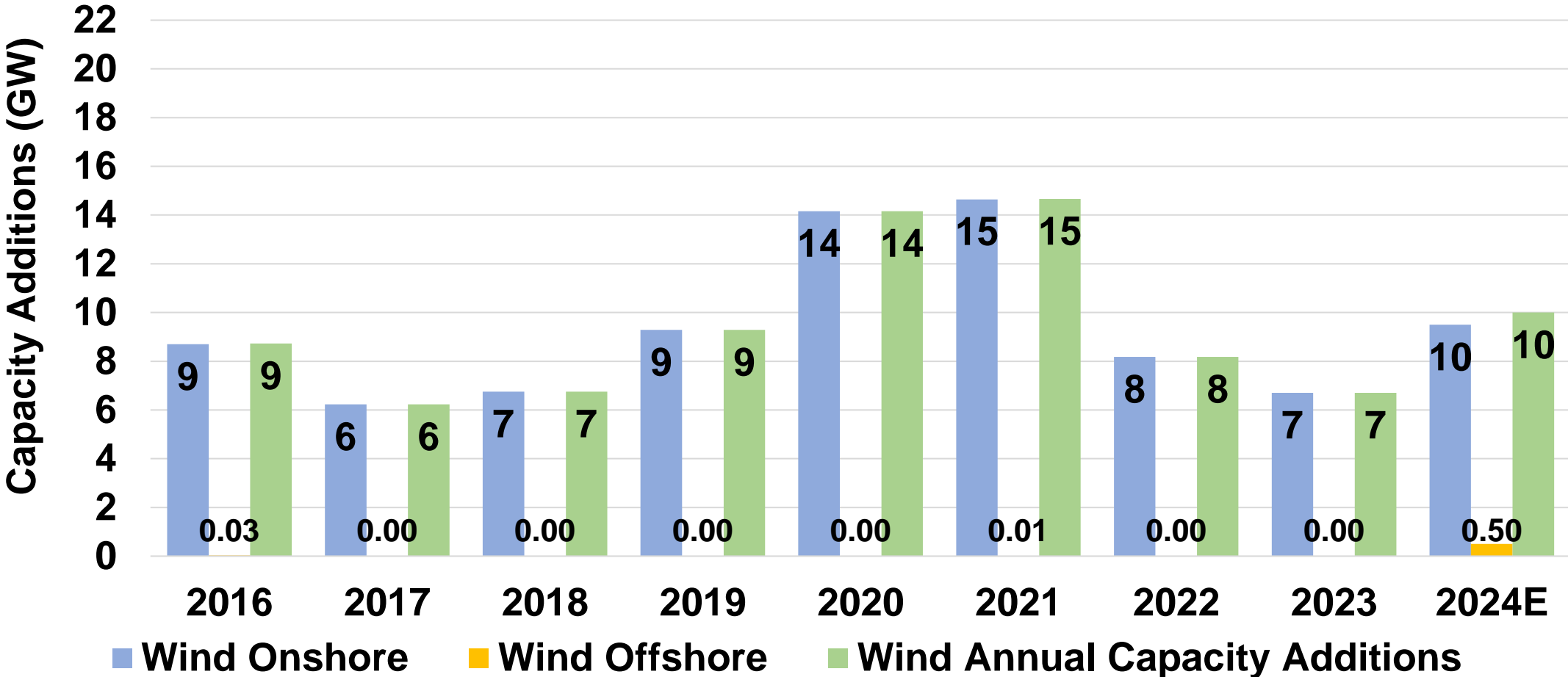
# PV Annual Capacity Additions 2024 Forecast



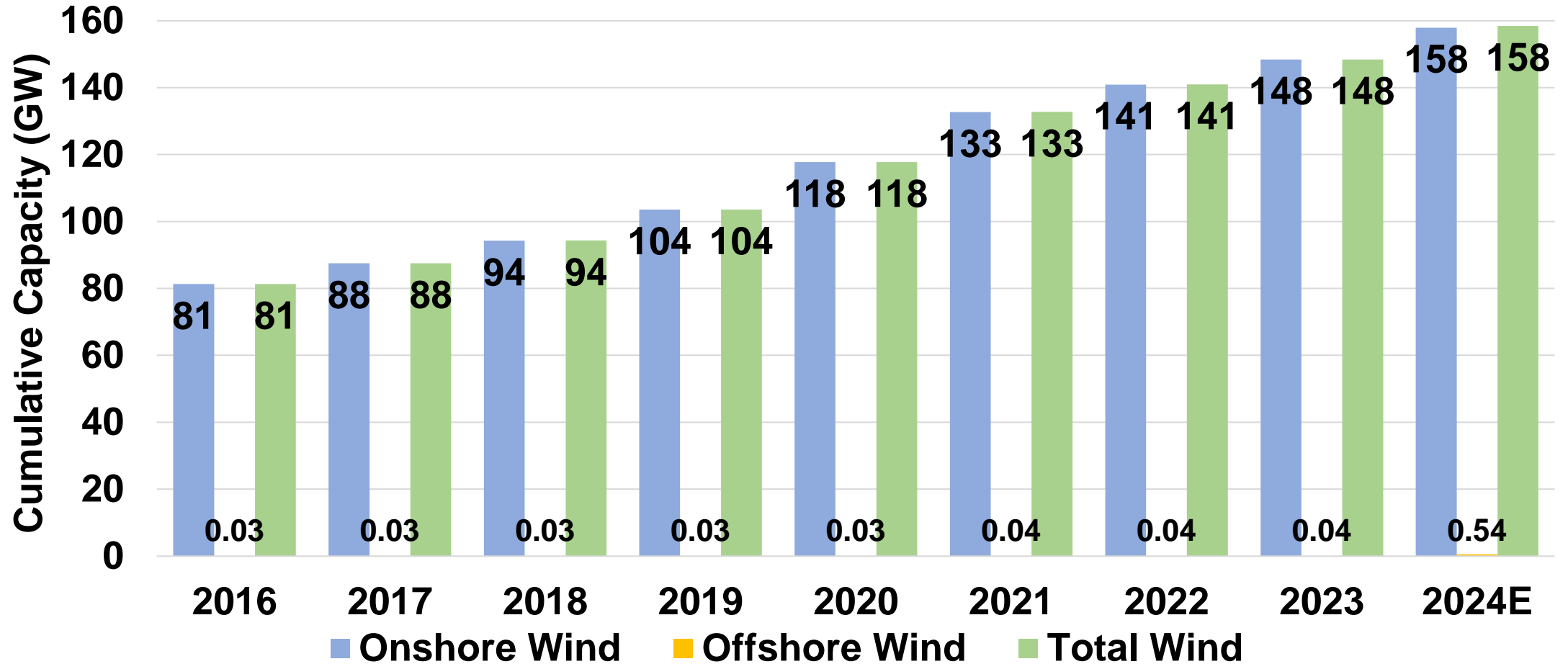
# PV Annual Cumulative Capacity 2024 Forecast



# Wind Annual Capacity Additions 2024 Forecast



# Wind Annual Cumulative Capacity 2024 Forecast



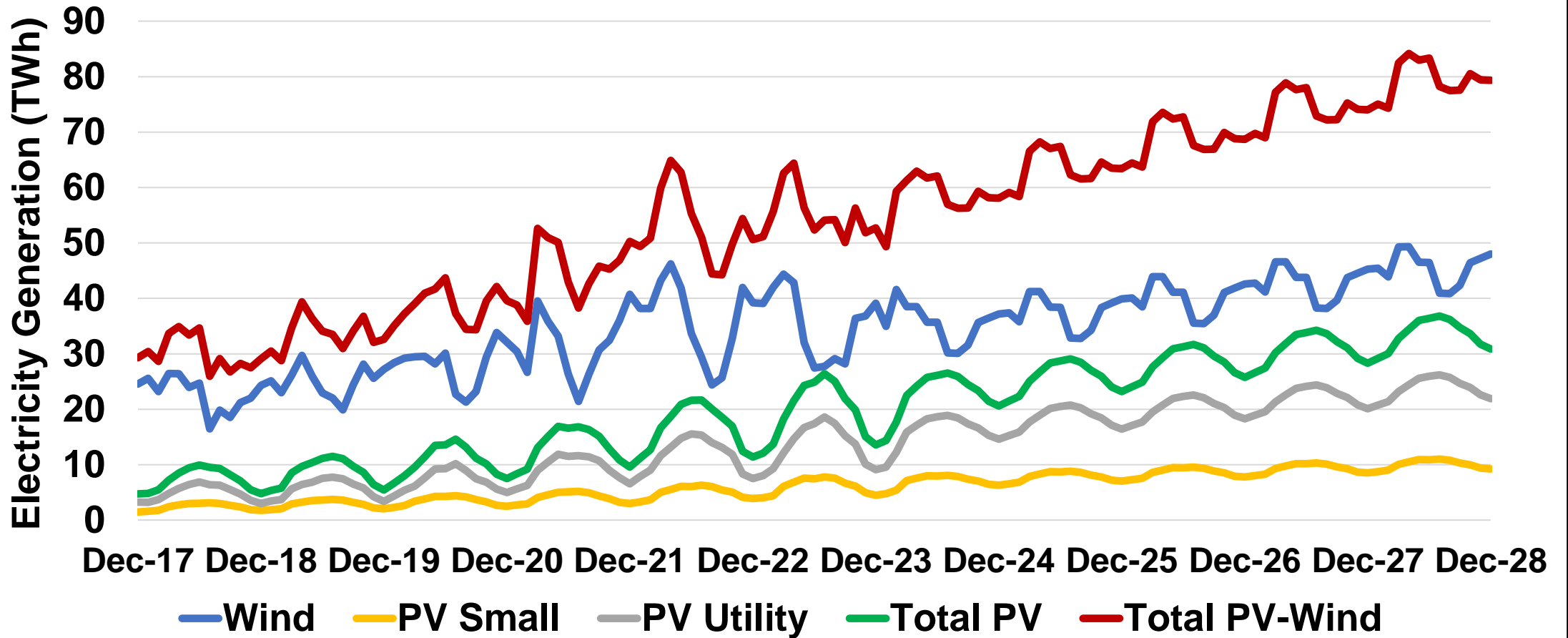


# U.S. PV and Wind Electricity Generation



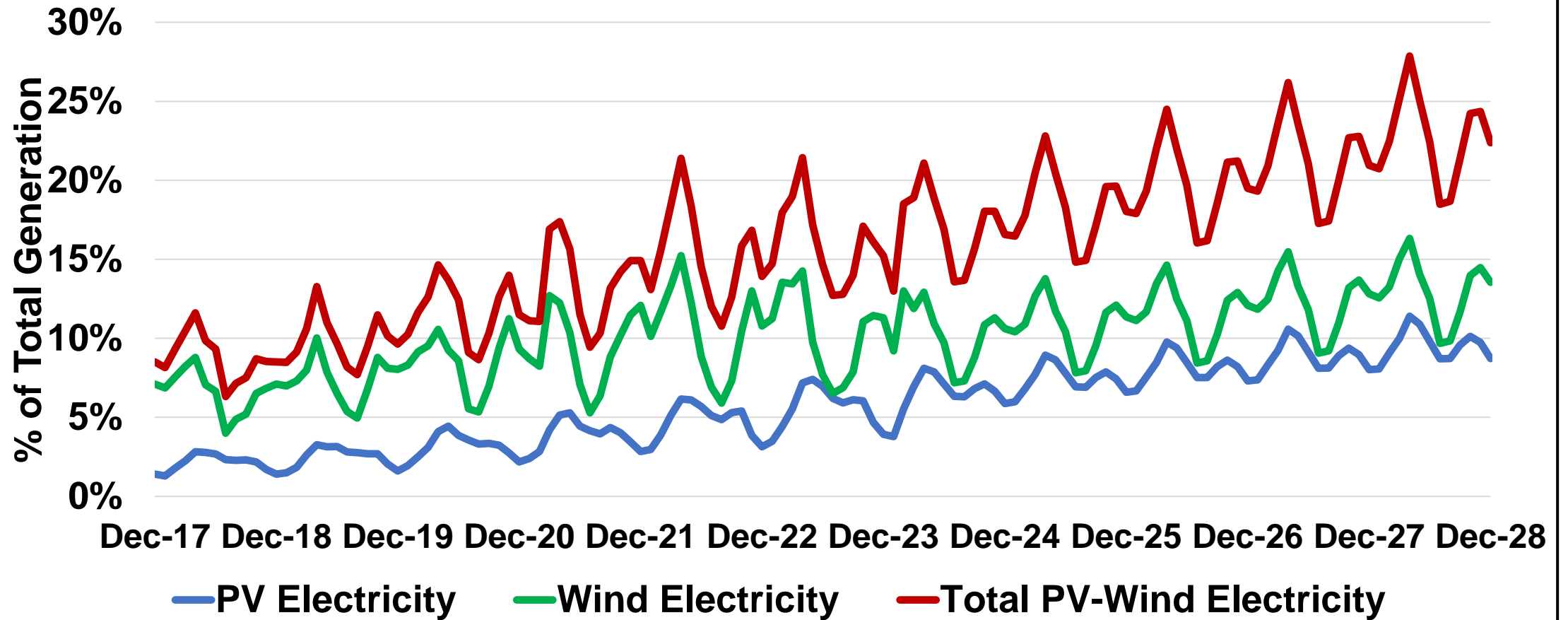
# U.S. PV & Wind Monthly Electricity Generation (2018-2028)

Actual through February 2024; Forecast through Dec. 2028



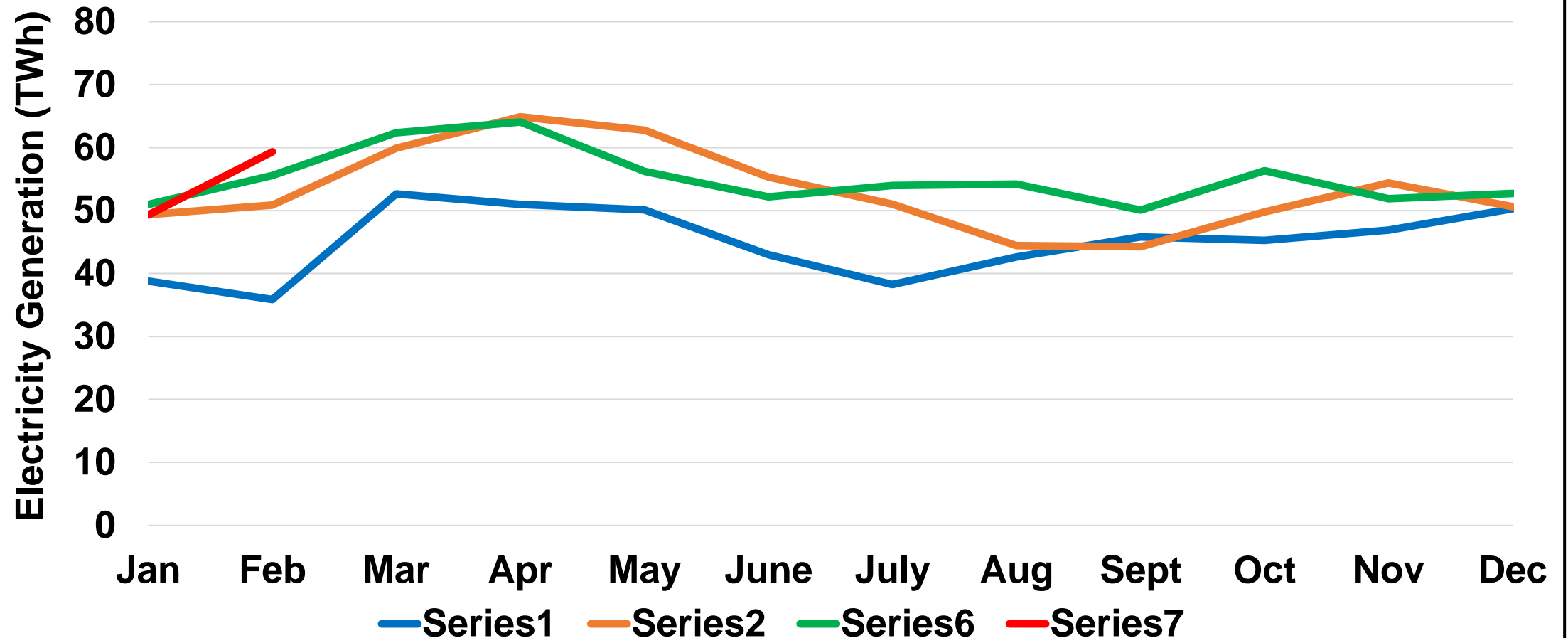
Note: PV Small is less than 1.0 MW; PV Utility is 1.0 MW and greater

# U.S. PV & Wind Electricity as % of Total Generation Actual through February 2024; Forecast through Dec. 2028

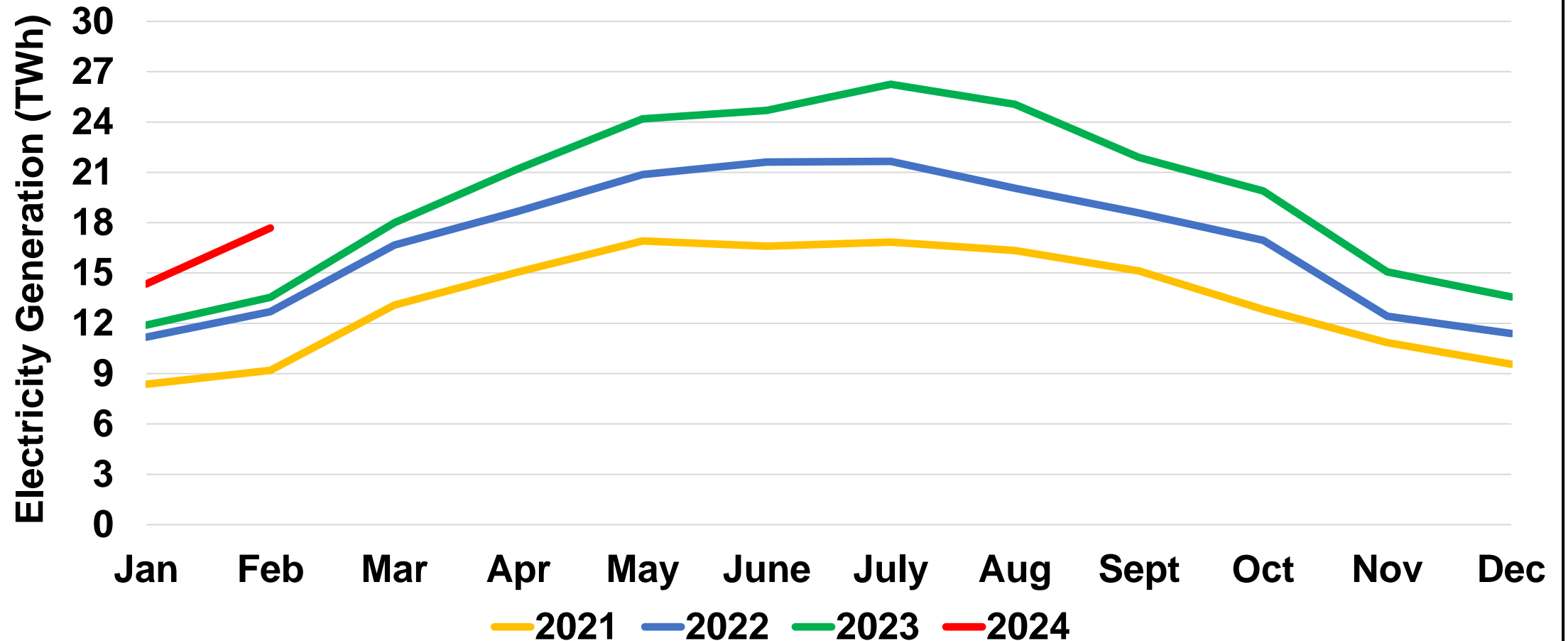


Note: Fossil fuel electricity generation was 60% of total 2022 electricity generation.

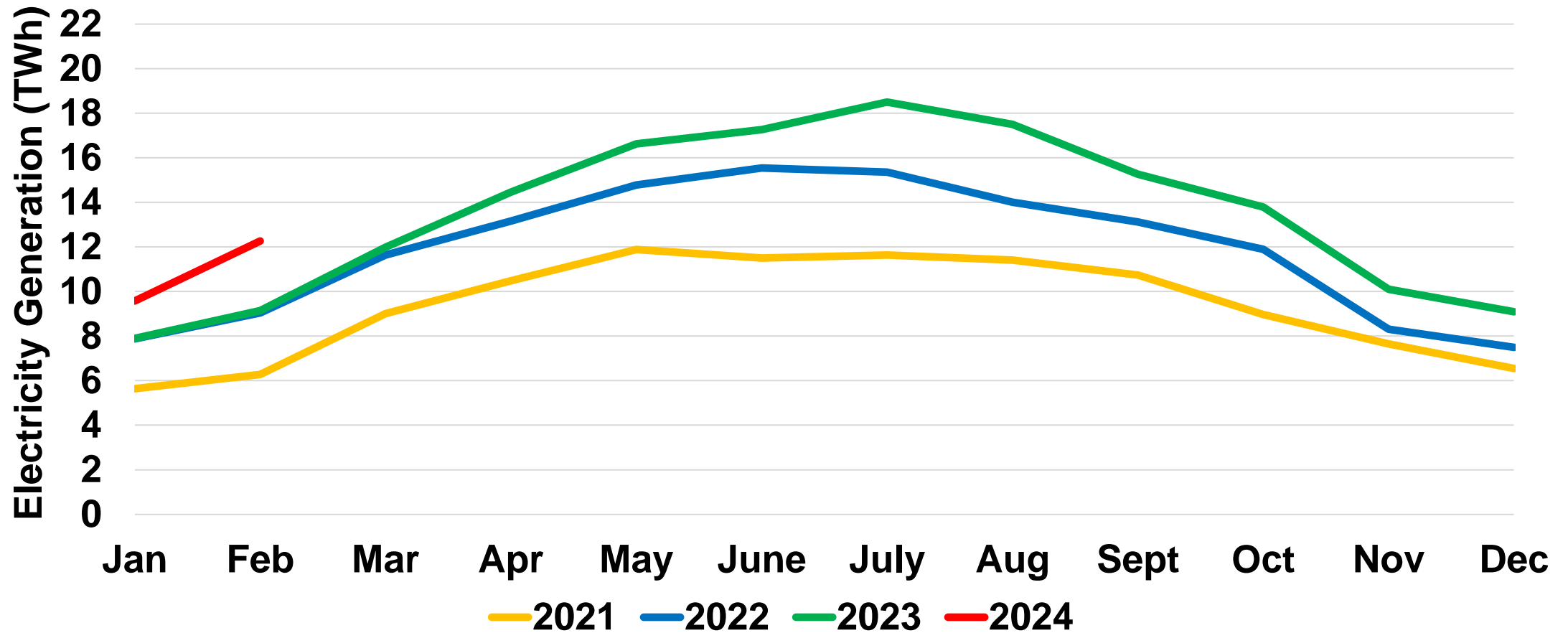
# Combined PV and Wind Electricity Generation Year-on-Year (through February 2024)



# PV Electricity Generation Year-on-Year (through February 2024)

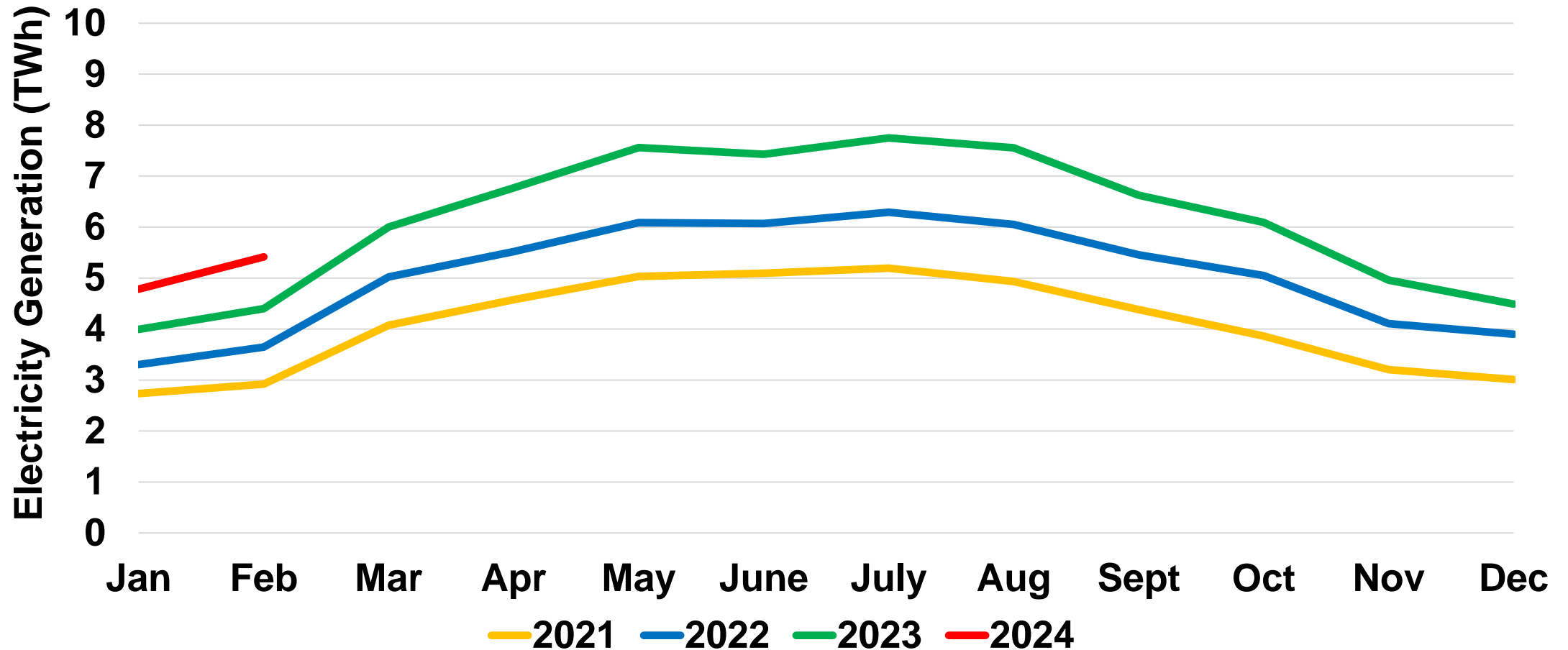


# Utility PV Electricity Generation Year-on-Year (through February 2024)

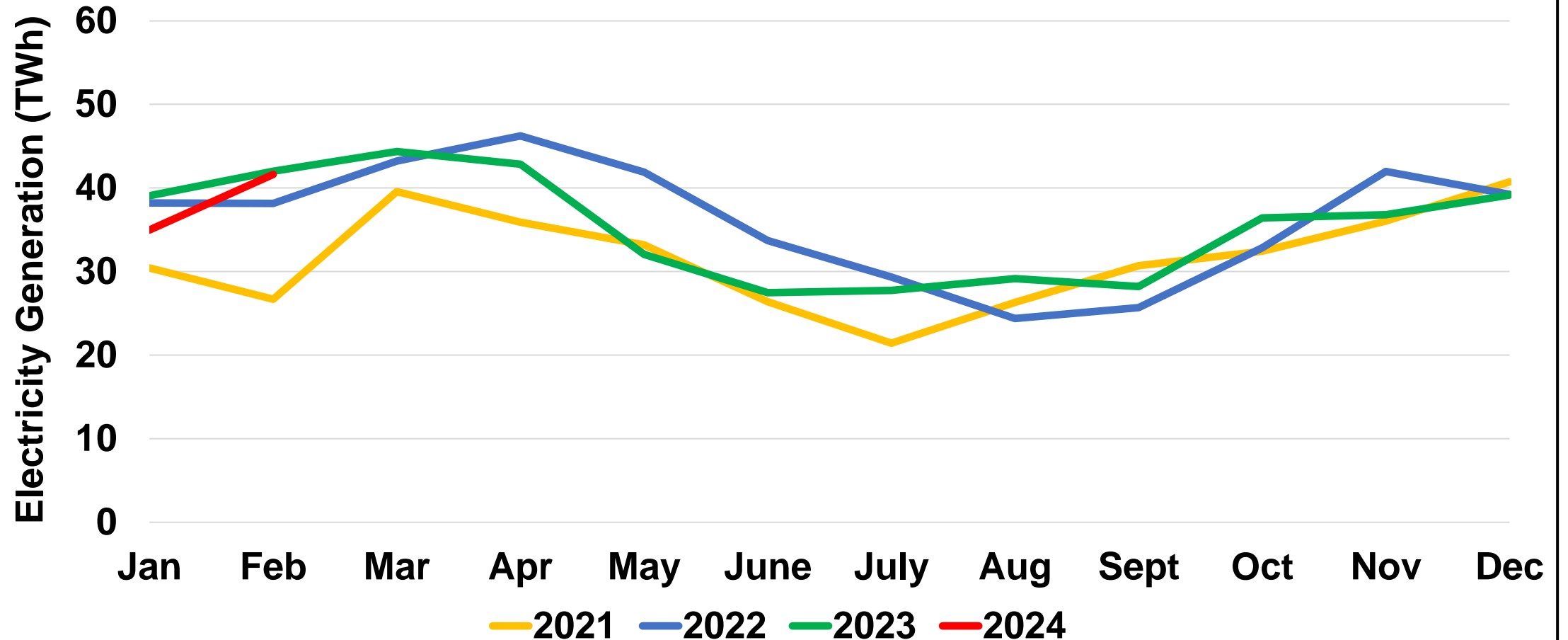


Note: PV Utility is greater than 1.0 MW

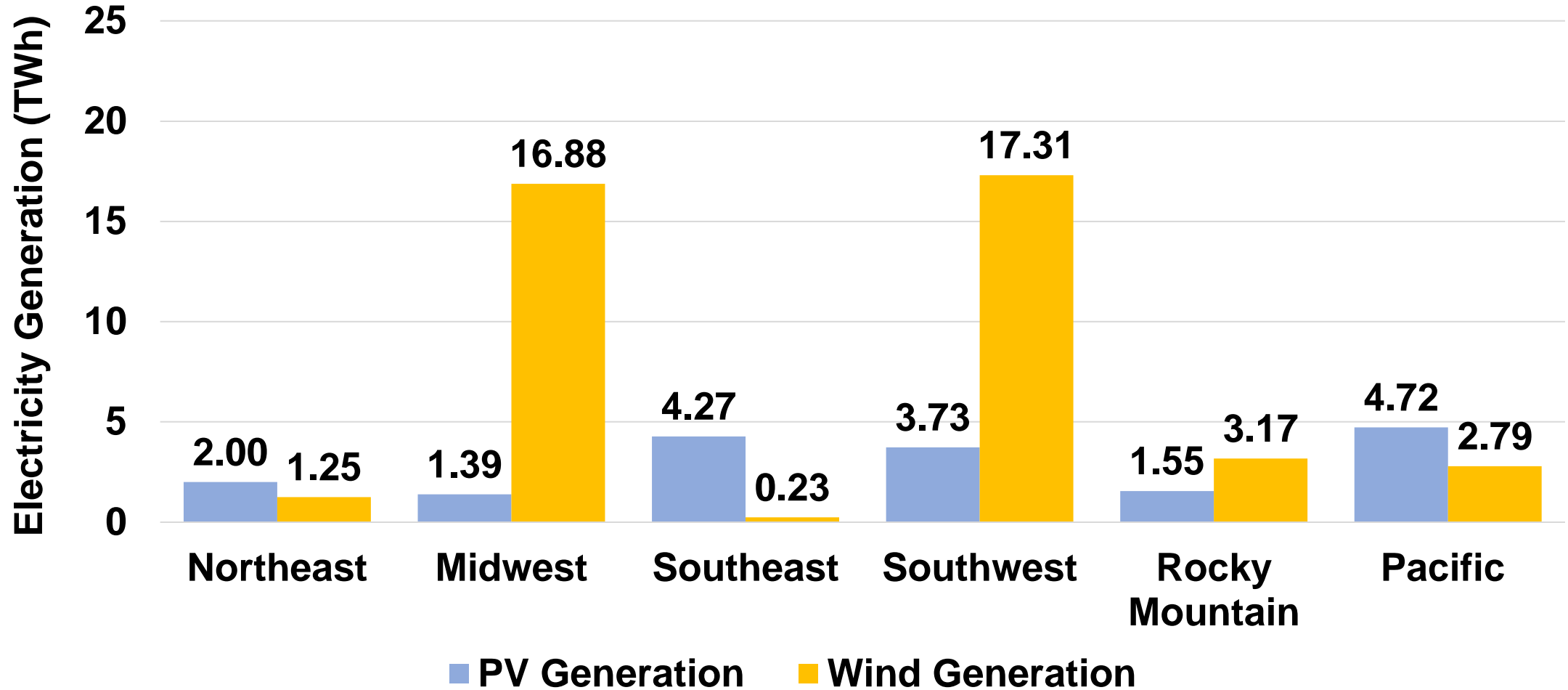
# Small PV Electricity Generation Year-on-Year (through February 2024)



# Wind Electricity Generation Year-on-Year (through February 2024)



# Regional PV & Wind Electricity Generation February 2024

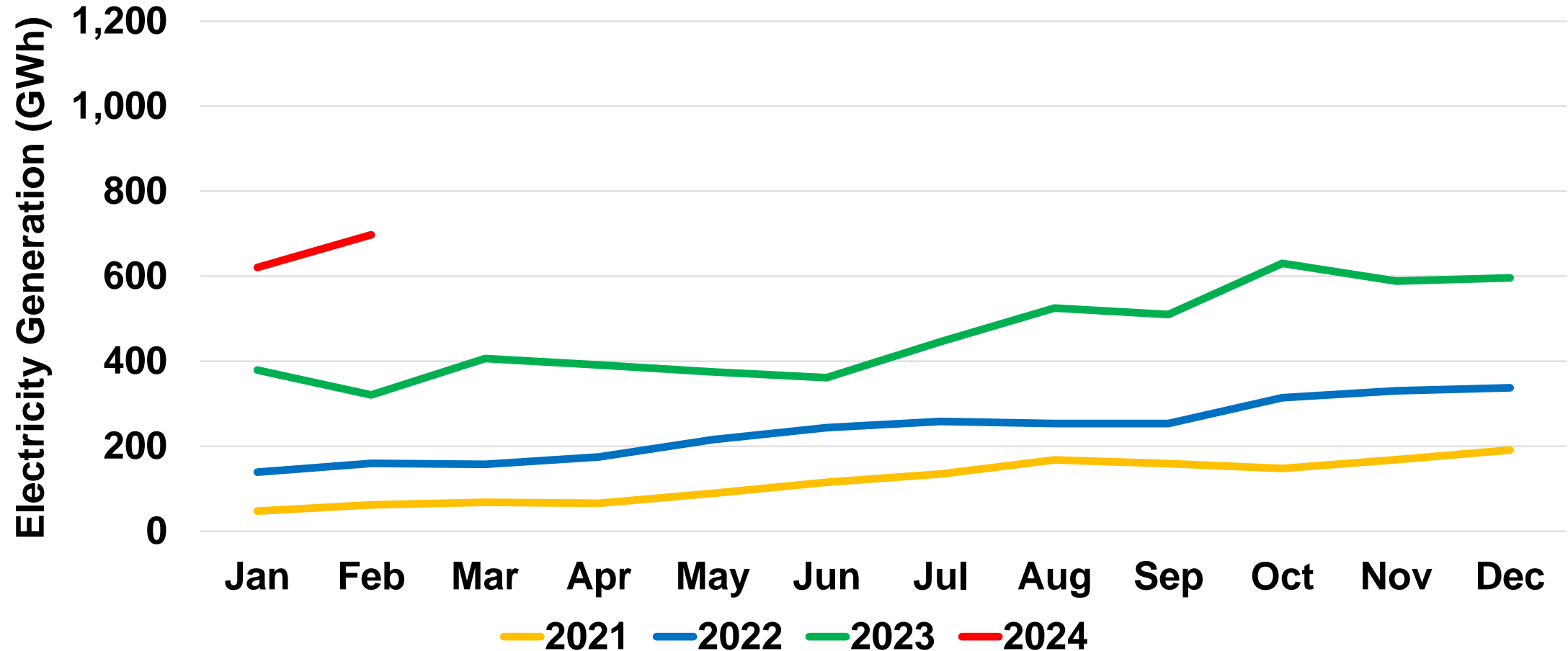






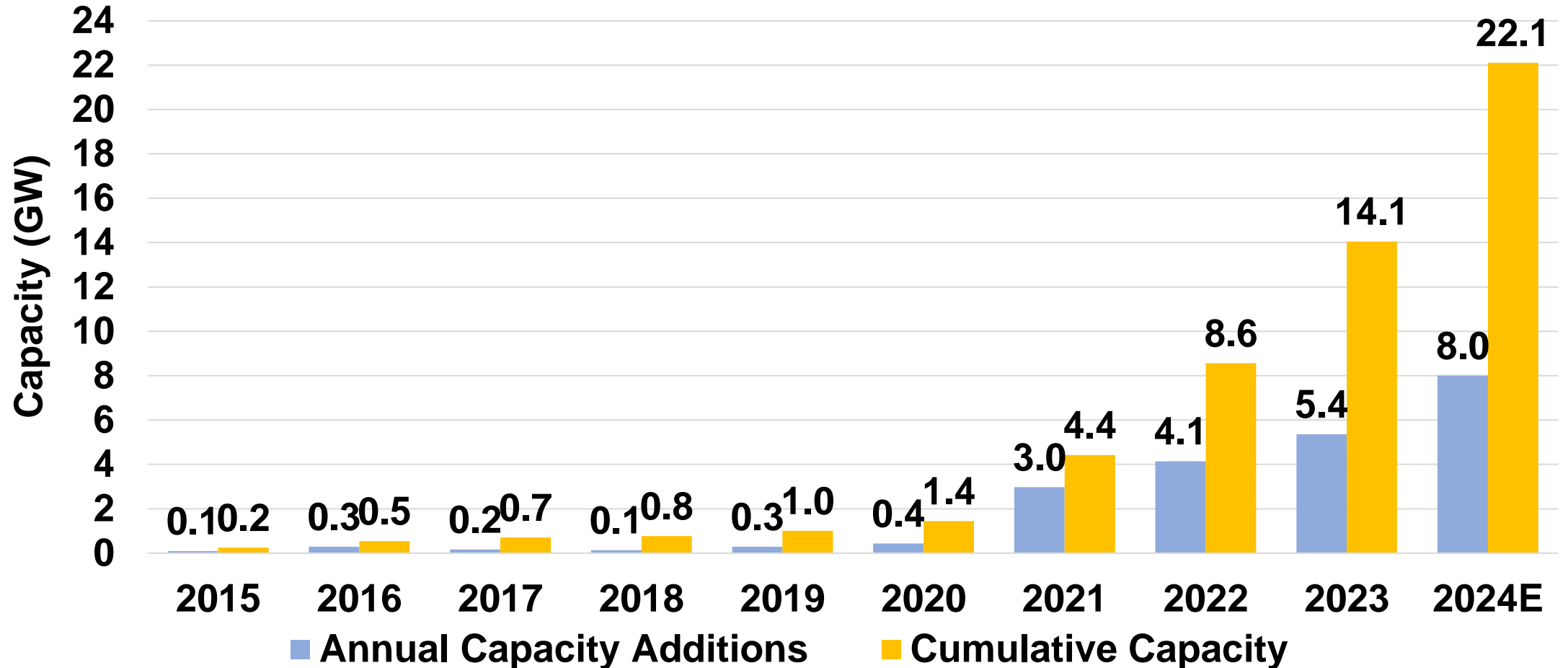
# U.S. Battery Storage

# Battery Electricity Generation Year-on-Year (through February 2024)



# Battery Storage Forecast 2024

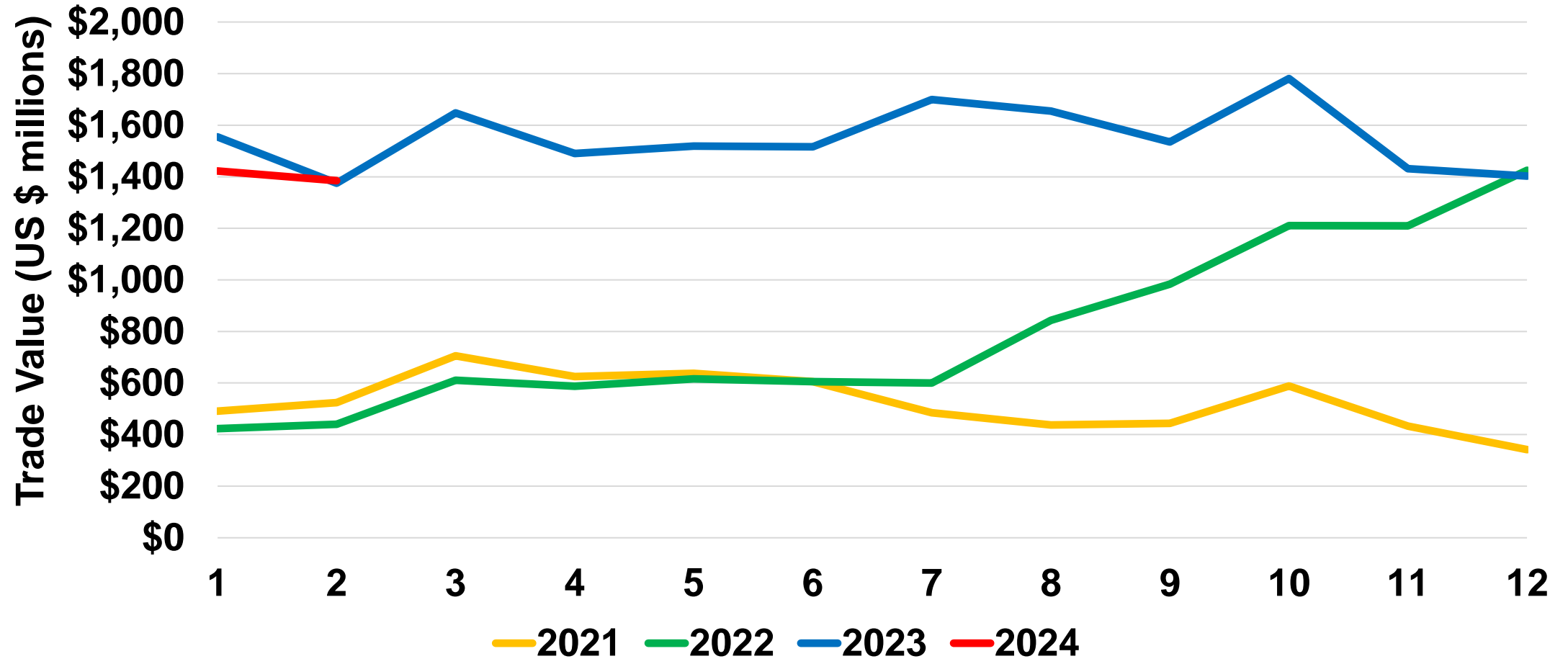
## Annual Capacity Additions and Cumulative Capacity



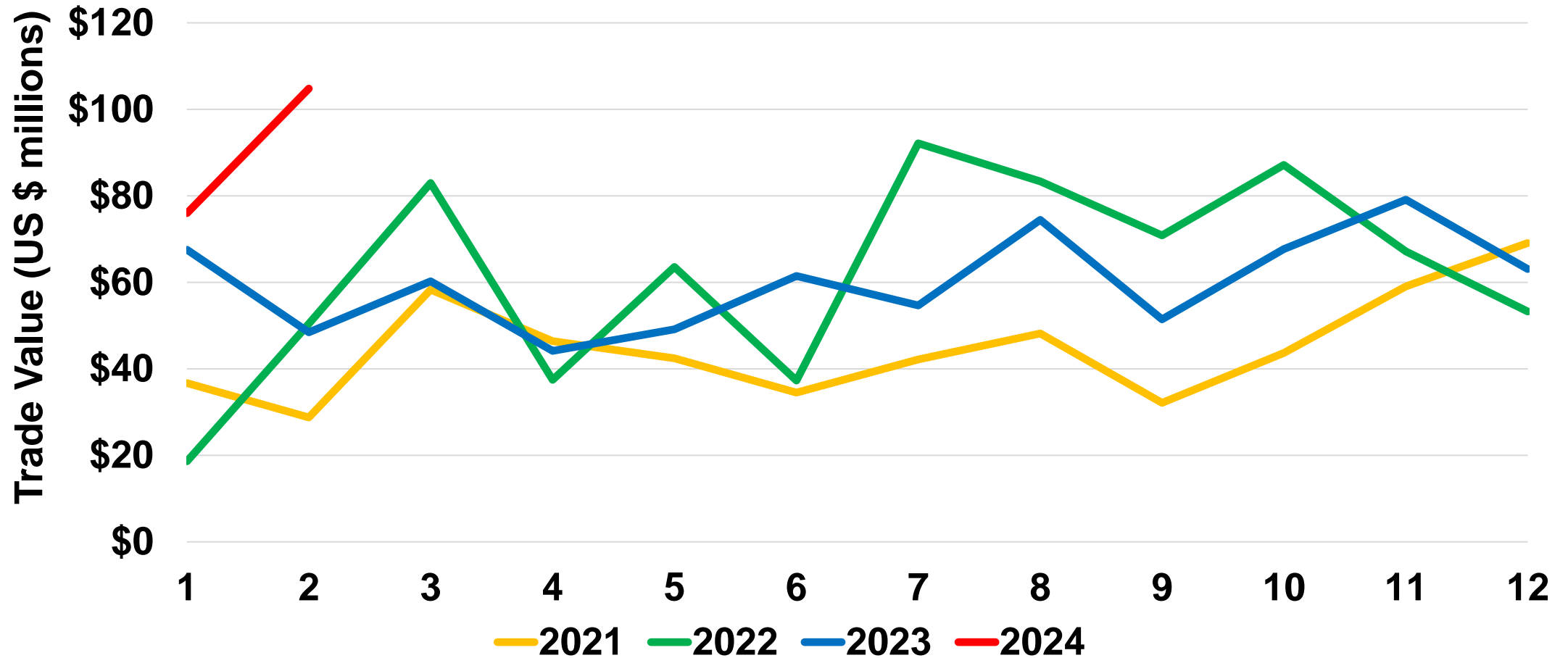


# **U.S. PV Trade (Cells and Modules)**

# U.S. Year-on-Year PV Panel Imports (through February 2024)



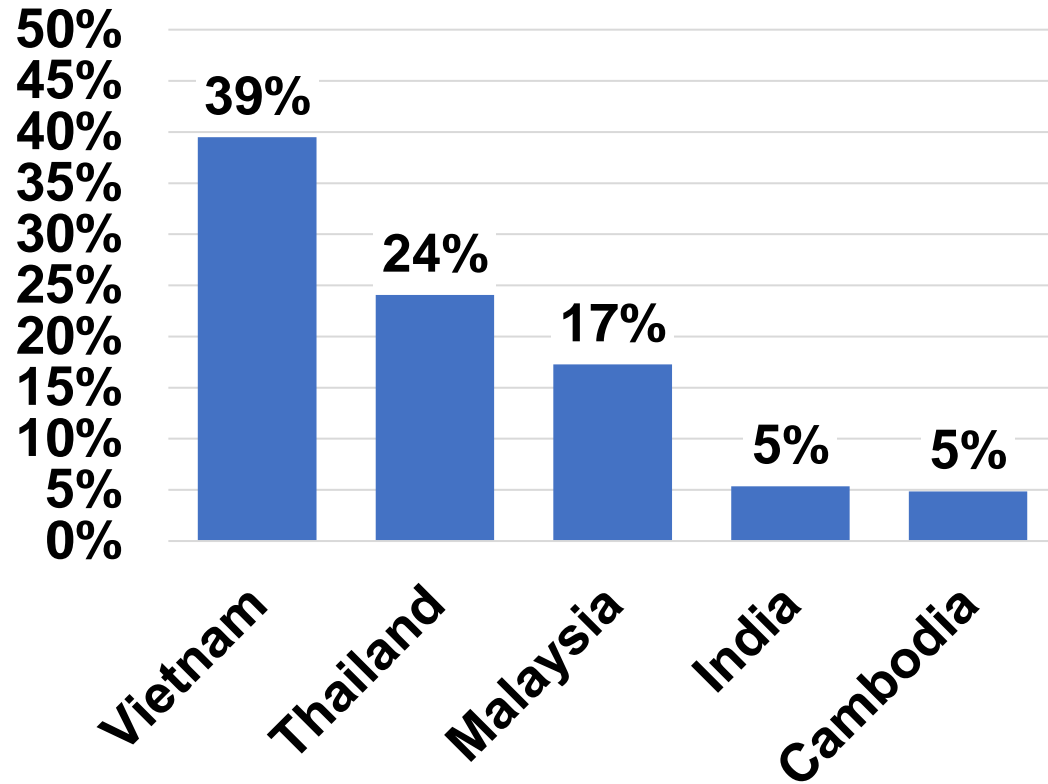
# U.S. Year-on-Year PV Cell Imports (through February 2024)



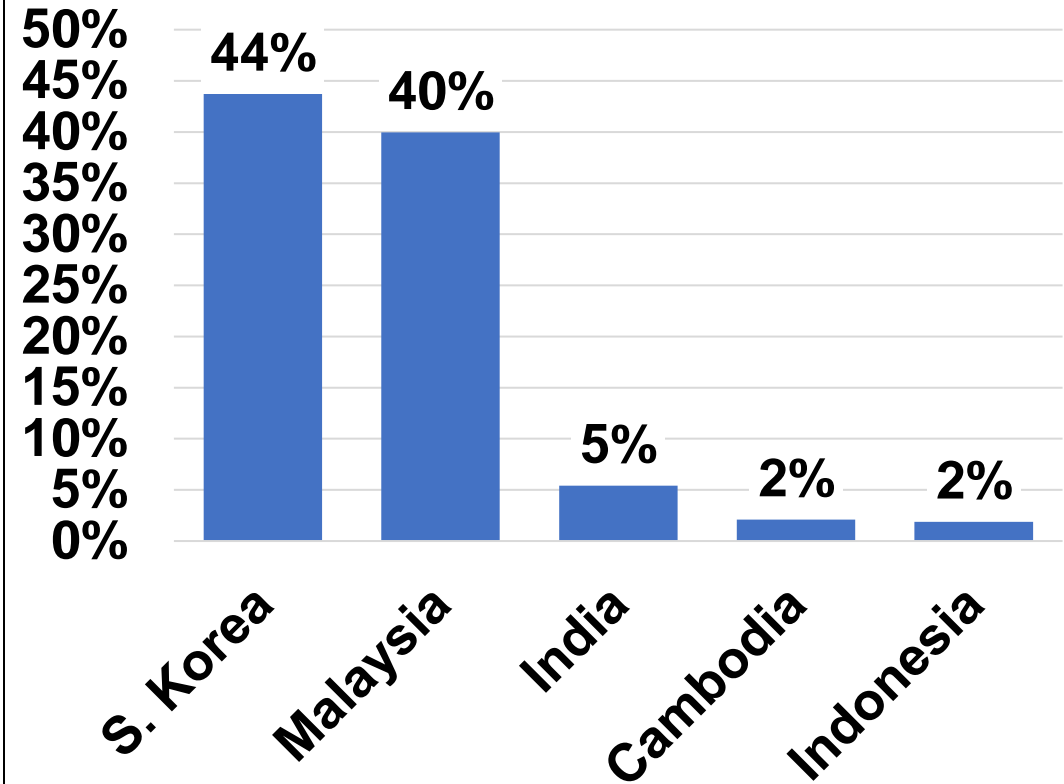
# Monthly U.S. PV Panel and Cell Imports by Country February 2024



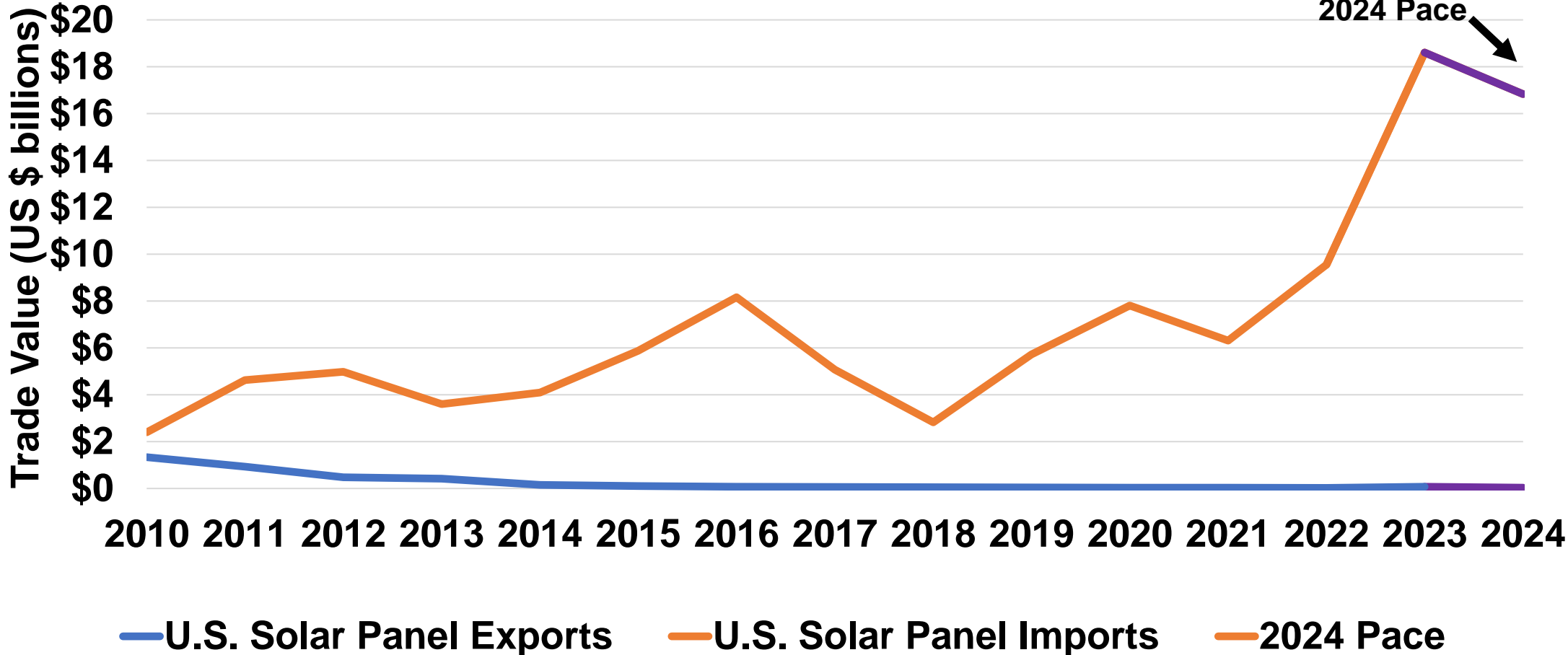
## U.S. PV Panel Imports by Country



## U.S. PV Cell Imports by Country

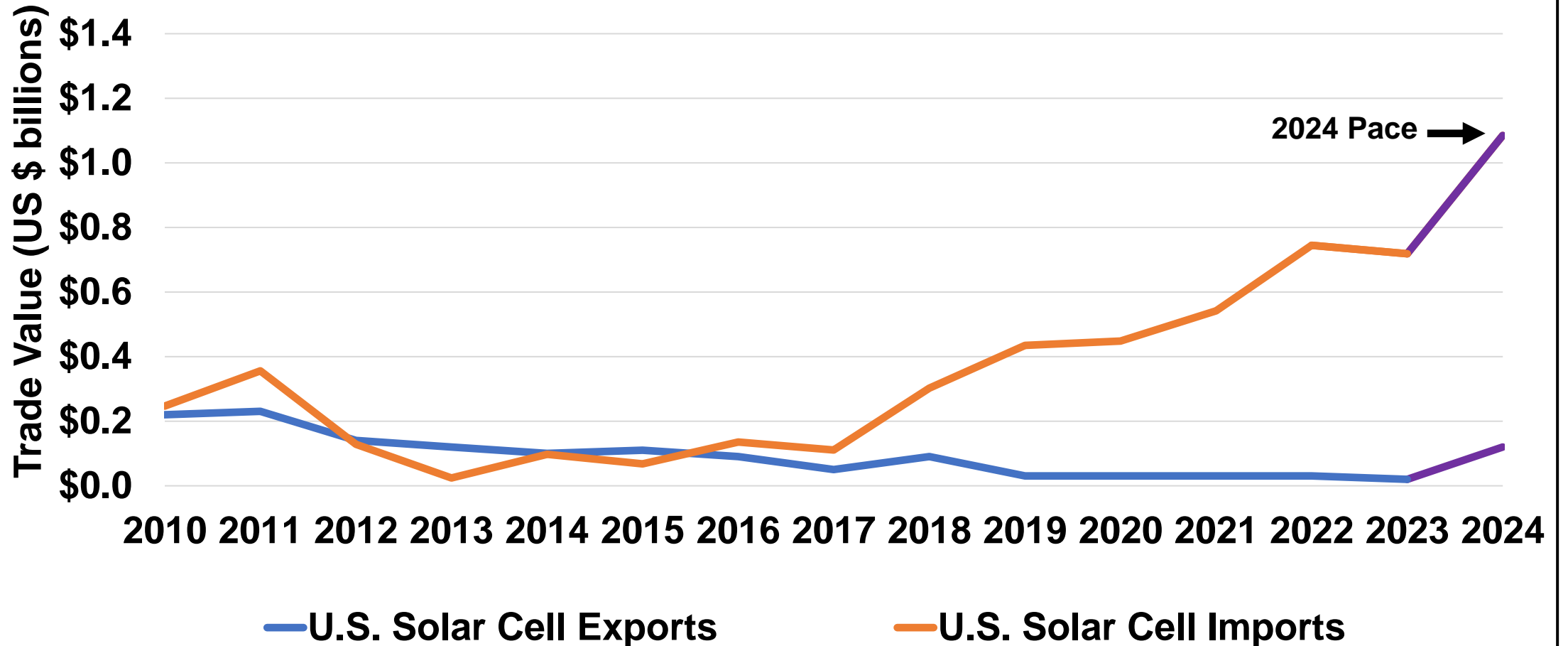


# Annual U.S. PV Panel Trade through February 2024

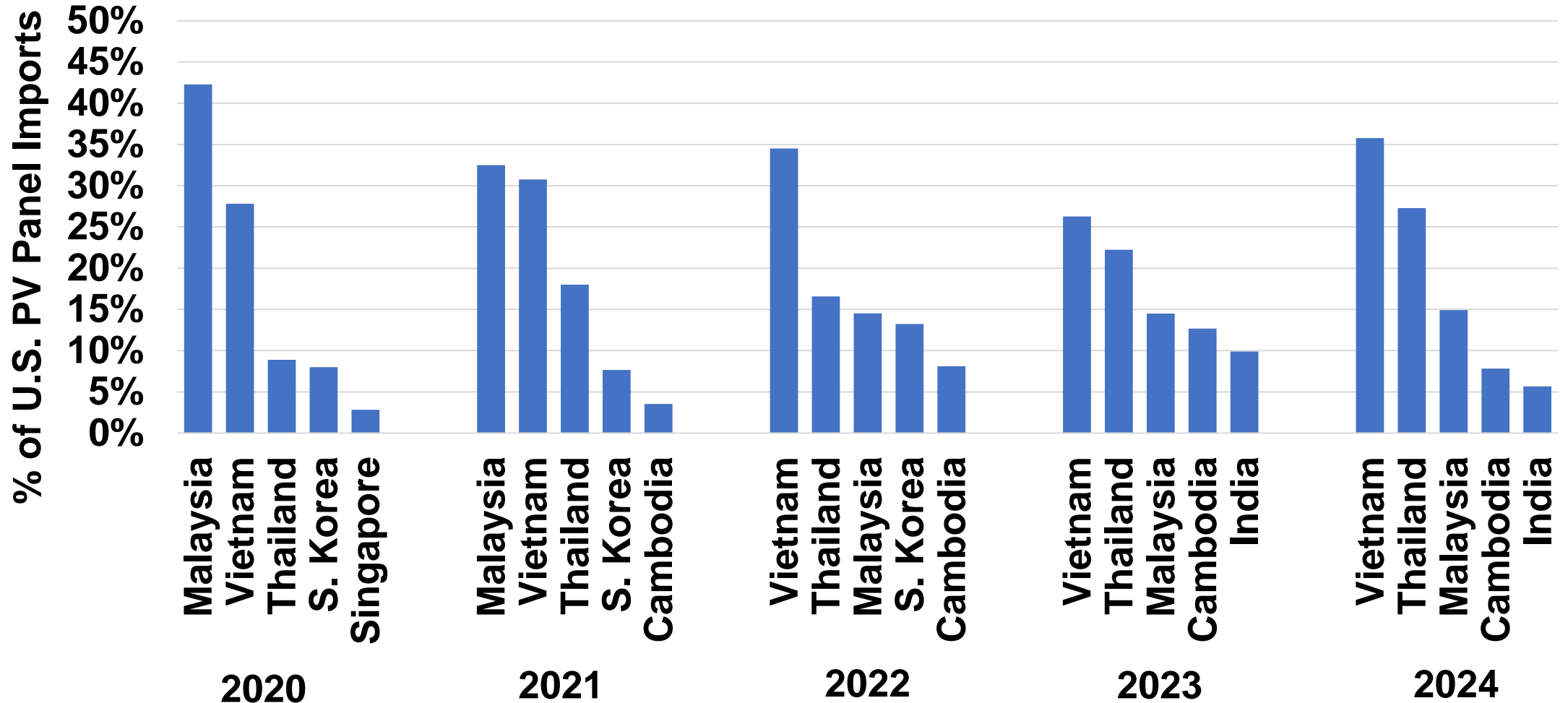




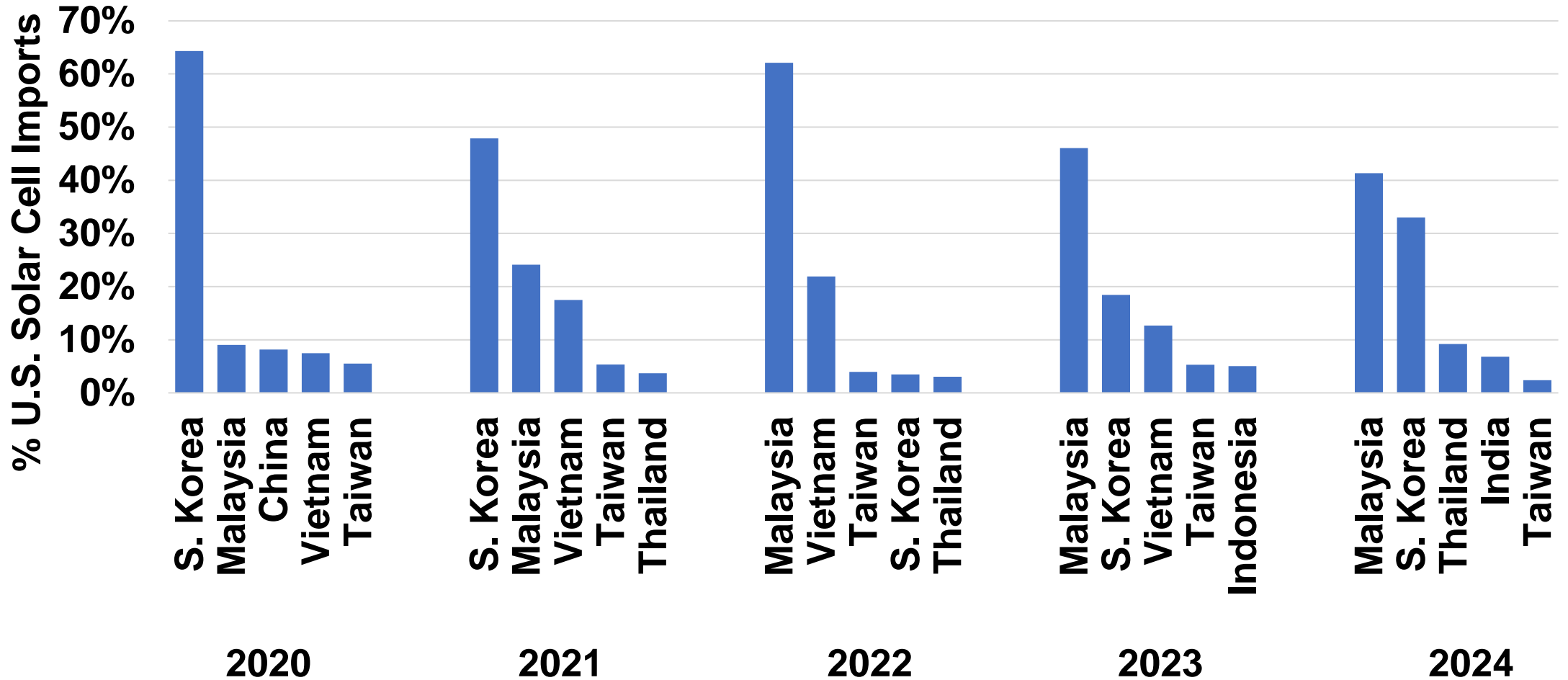
# Annual U.S. PV Cell Trade through February 2024



# Annual U.S. PV Panel Imports Rank Order of Countries Year-to-Date through February 2024



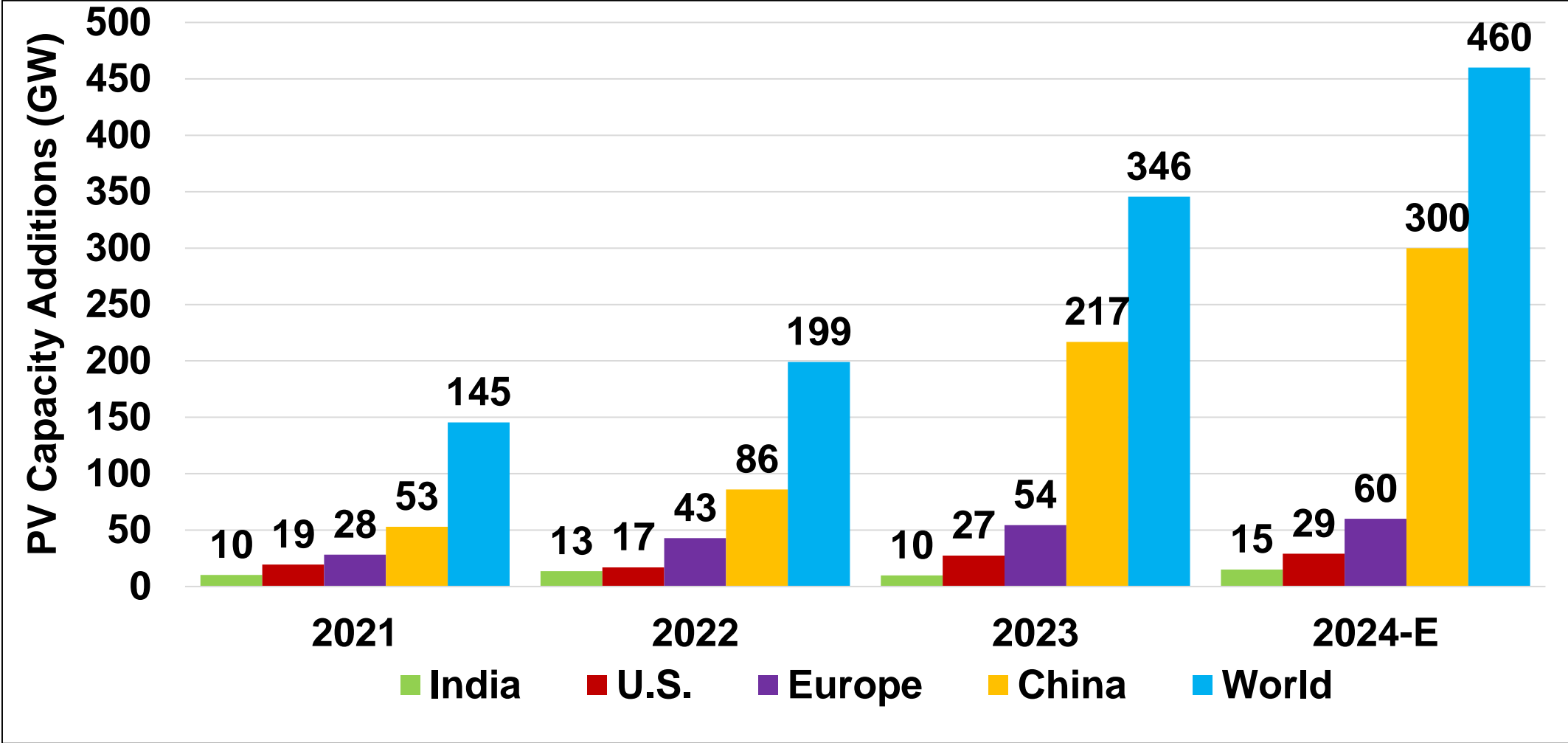
# Annual U.S. PV Cell Imports Rank Order of Countries Year-to-Date through February 2024



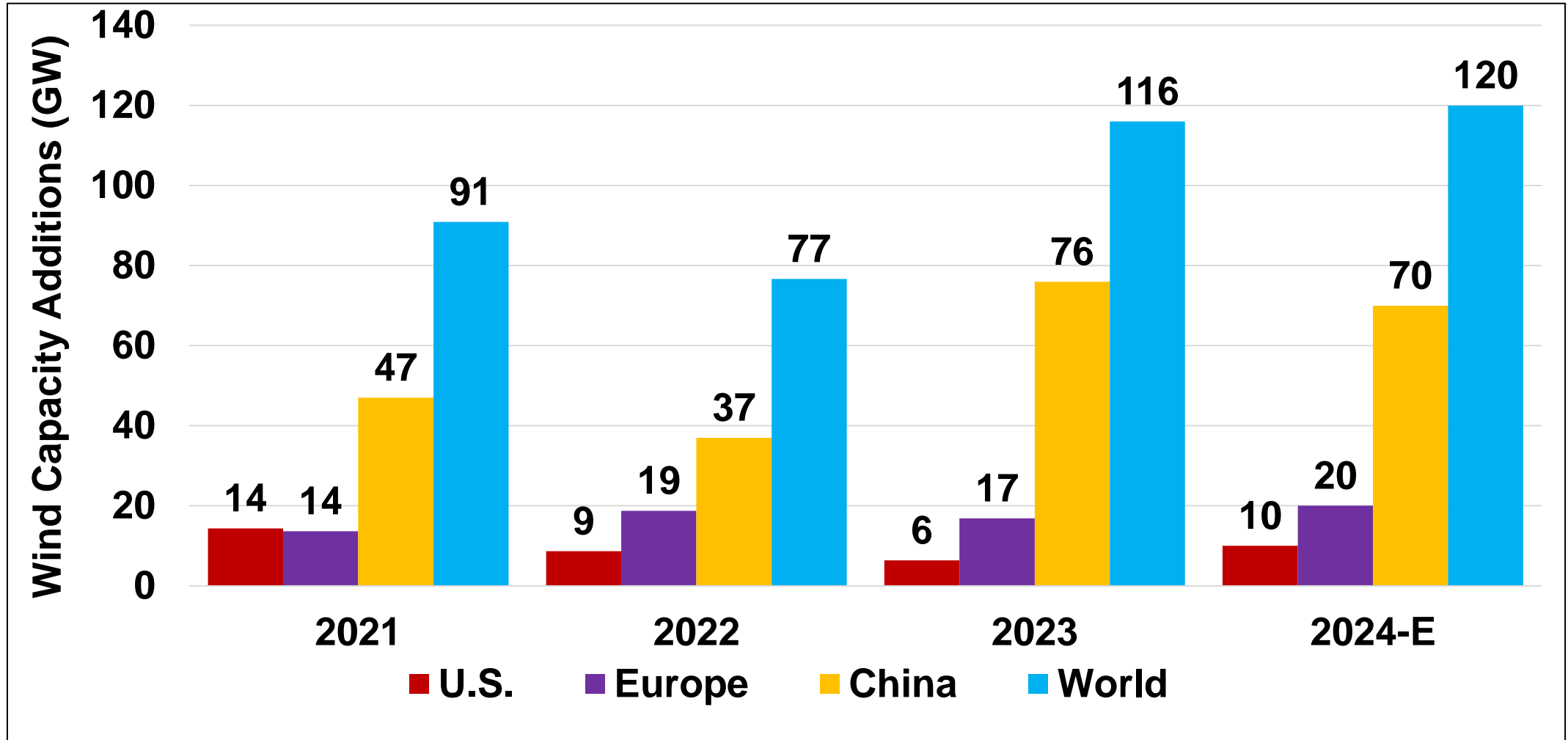


# World PV and Wind

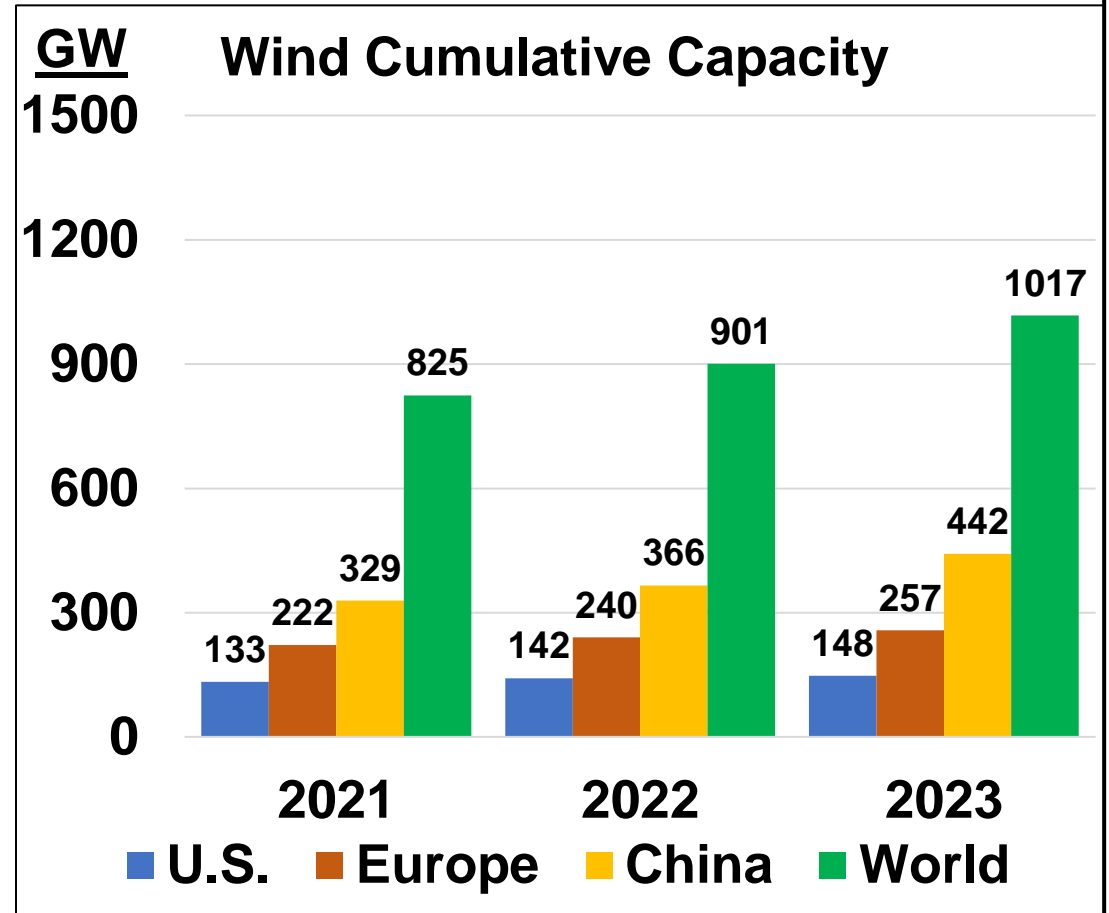
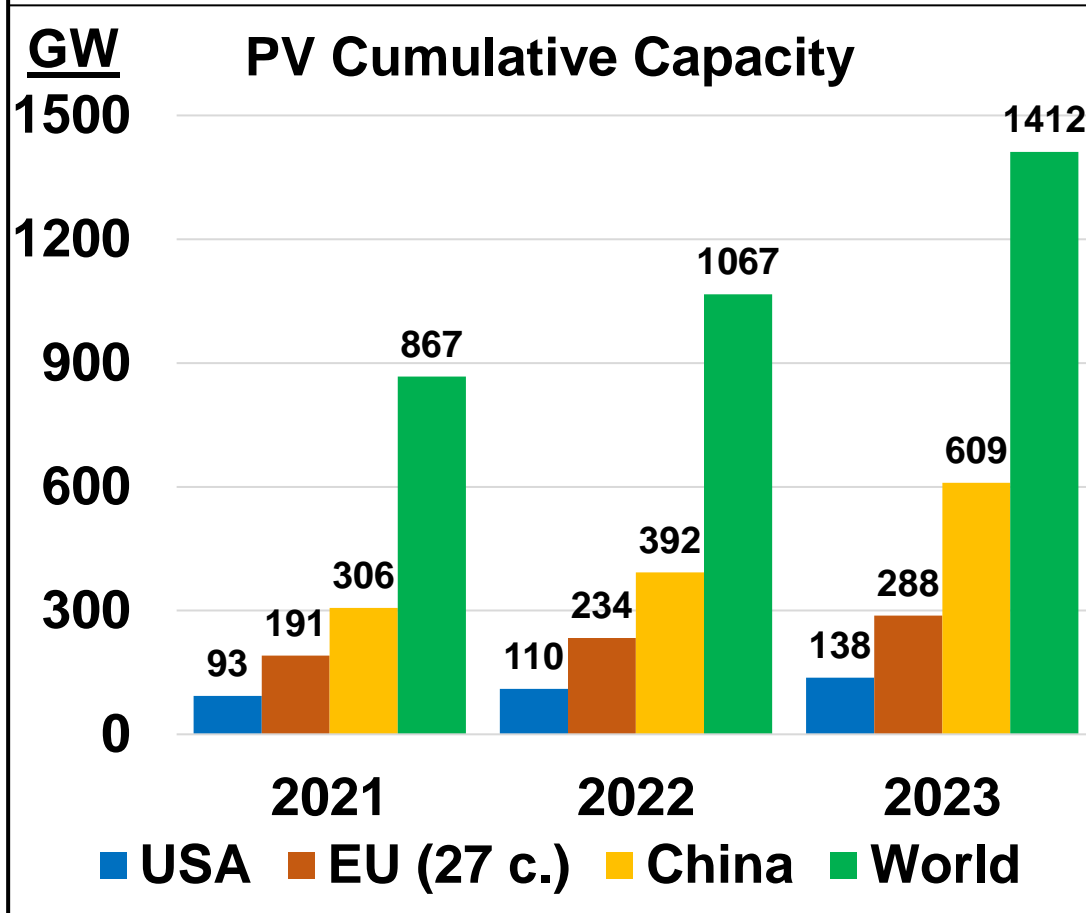
# World PV Capacity Additions, 2021-2023 2024 Forecast



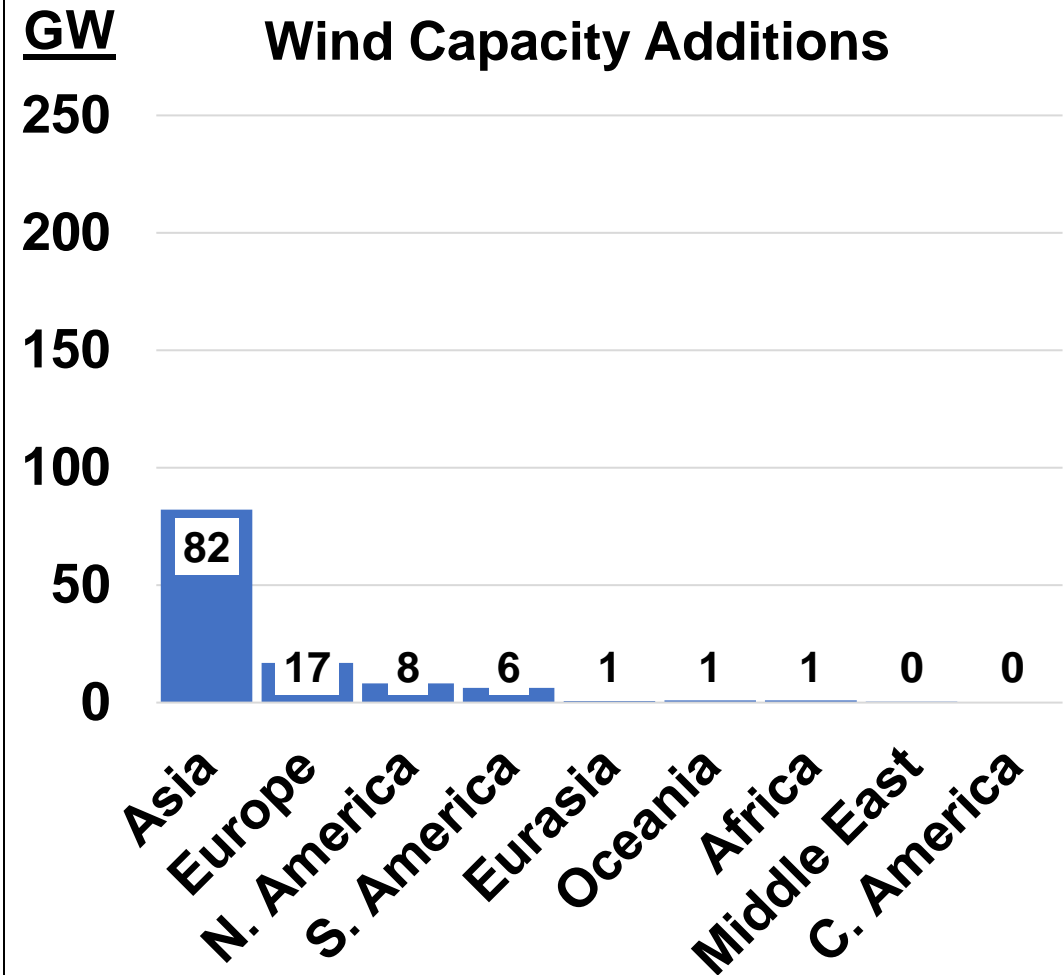
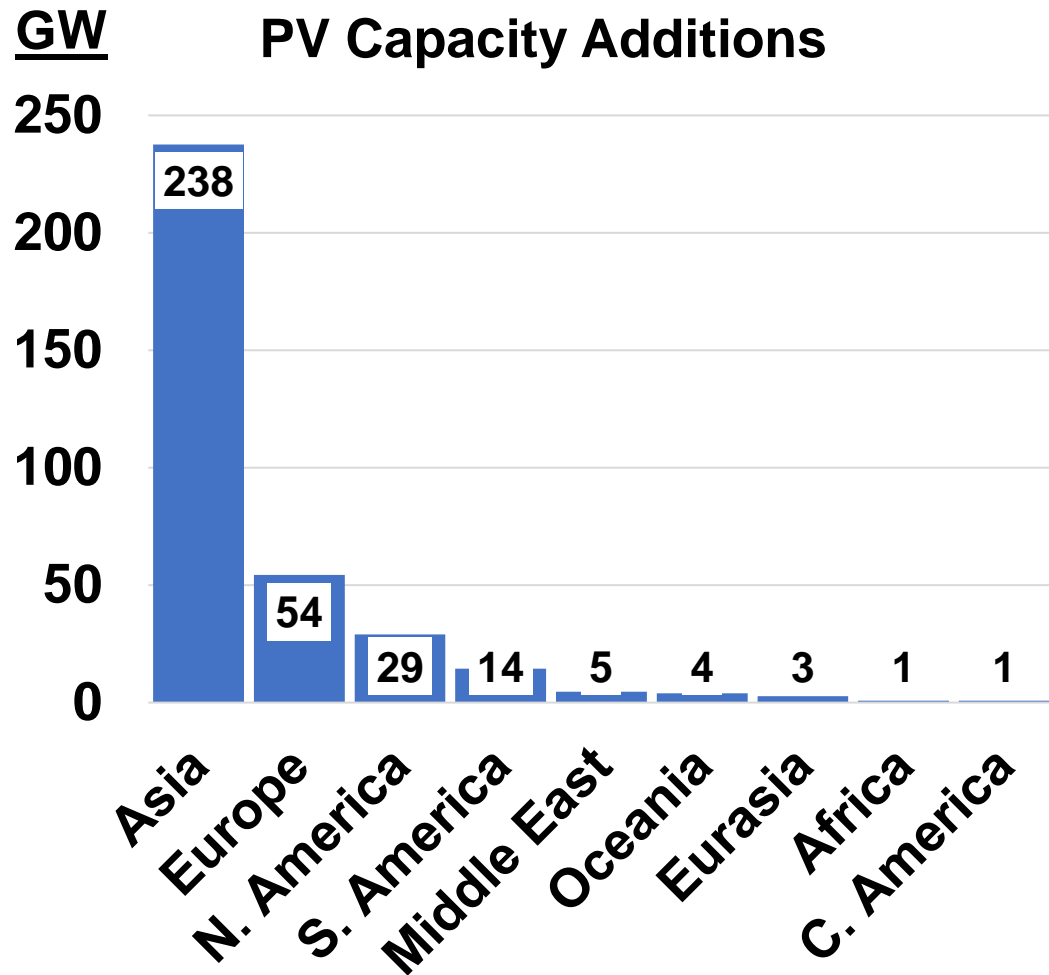
# World Wind Capacity Additions, 2021-2023 2024 Forecast



# 2023 PV and Wind World Cumulative Capacity

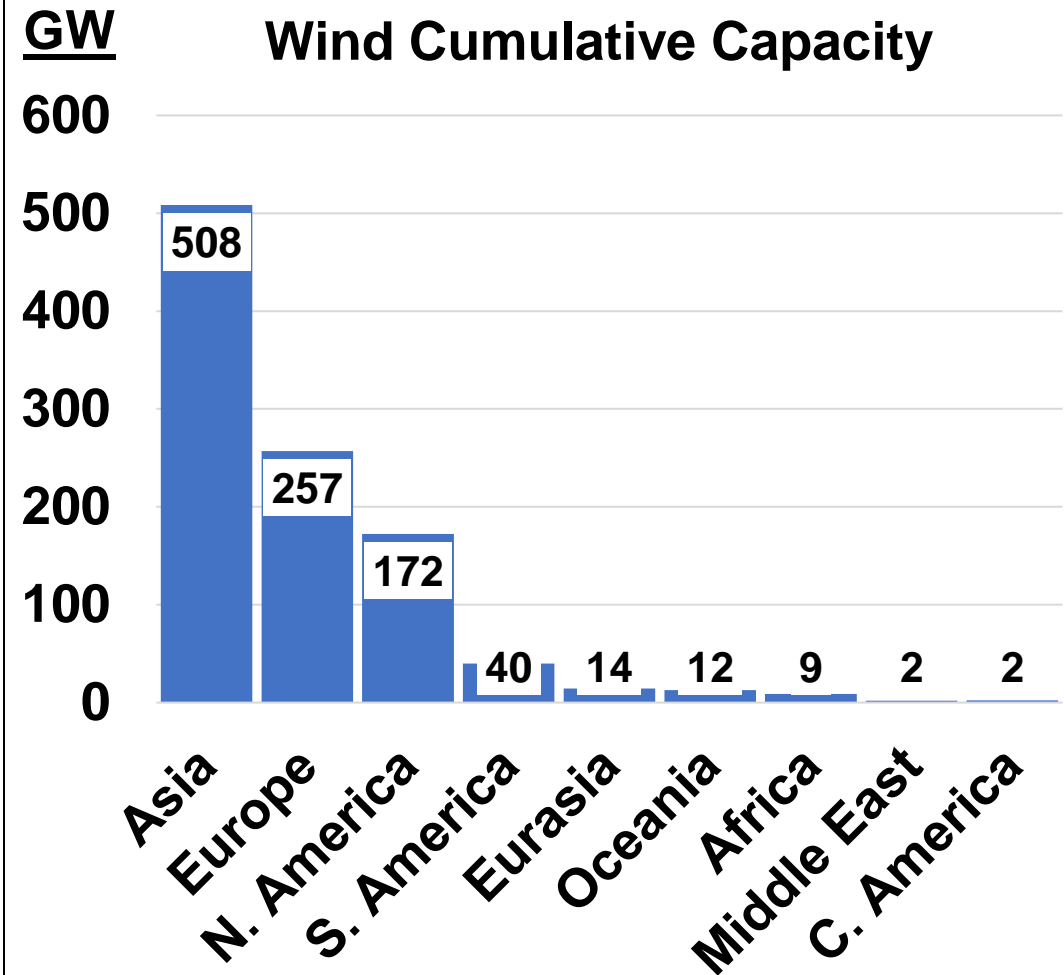
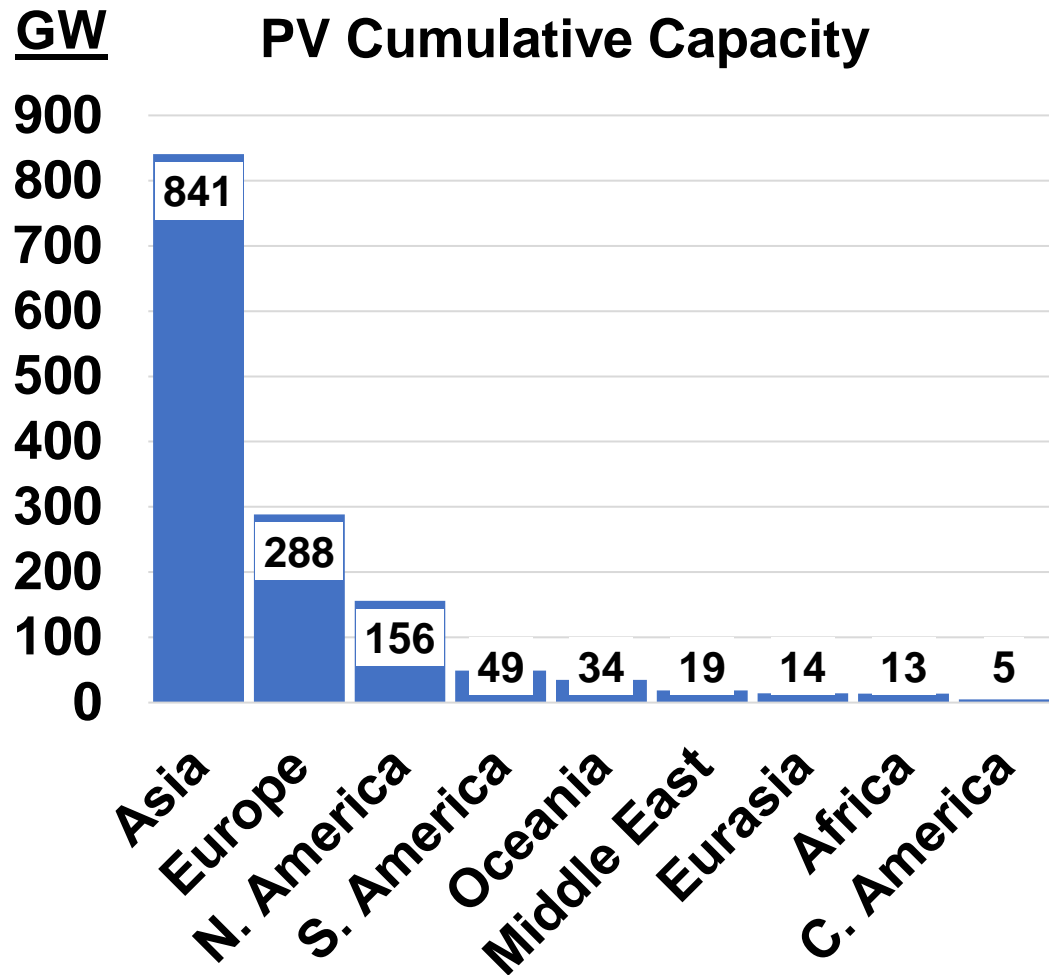


# 2023 World Regional PV and Wind Capacity Additions

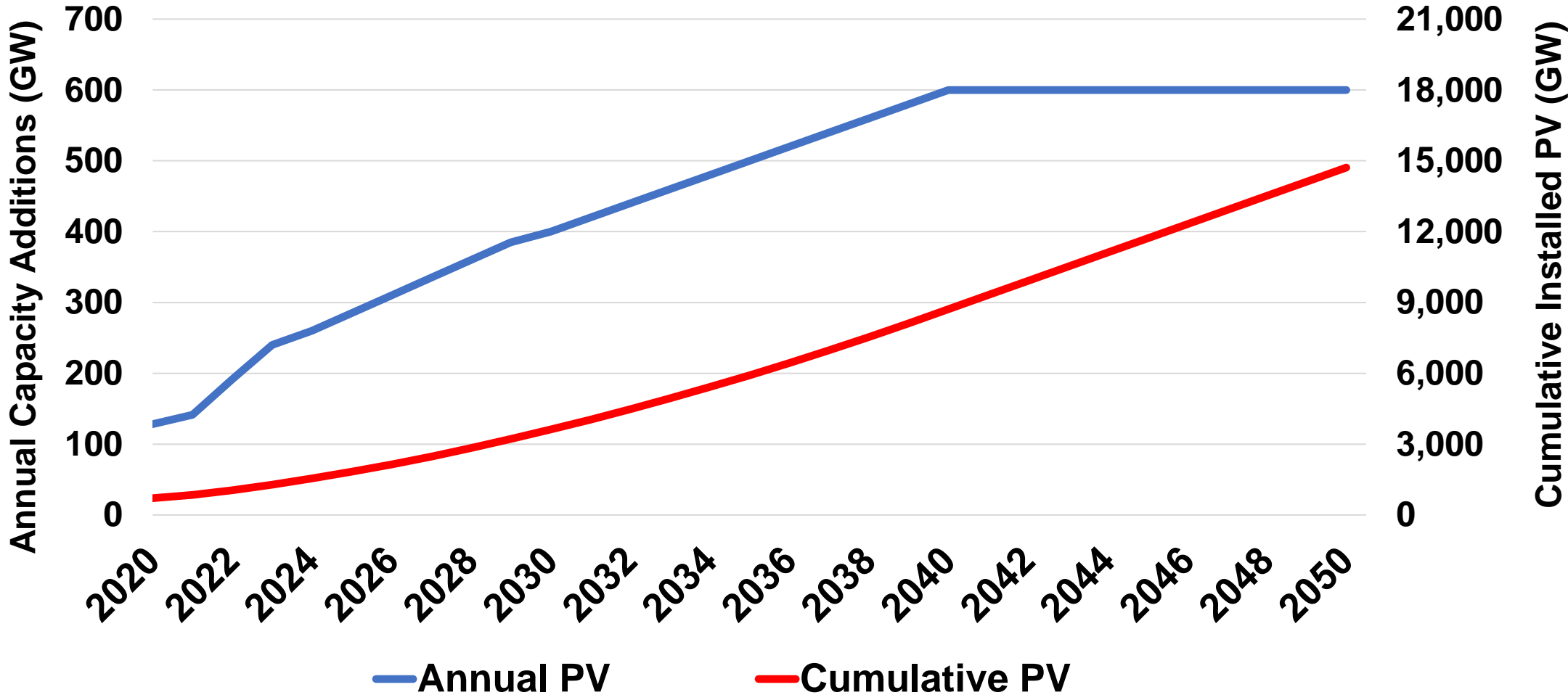




# 2023 World Regional PV and Wind Cumulative Capacity



# ASAP's World PV Forecast through 2050

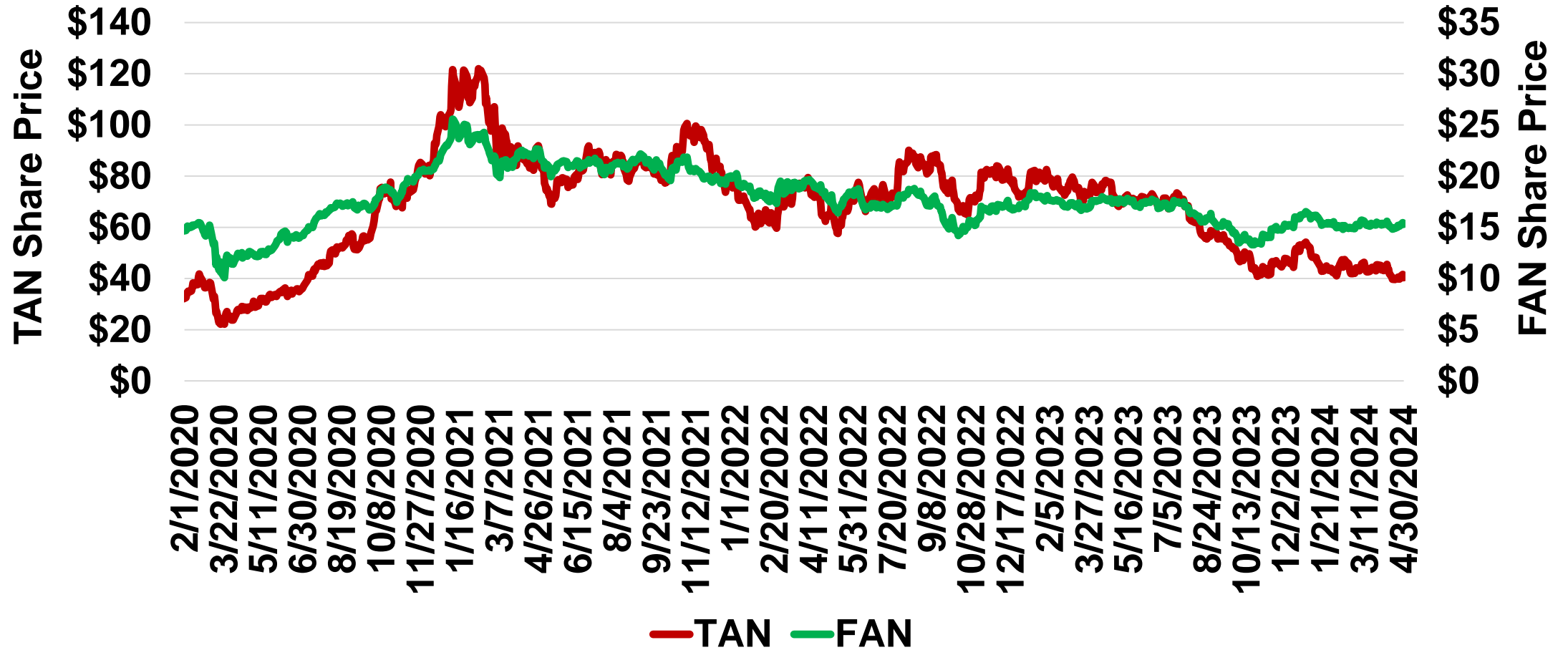




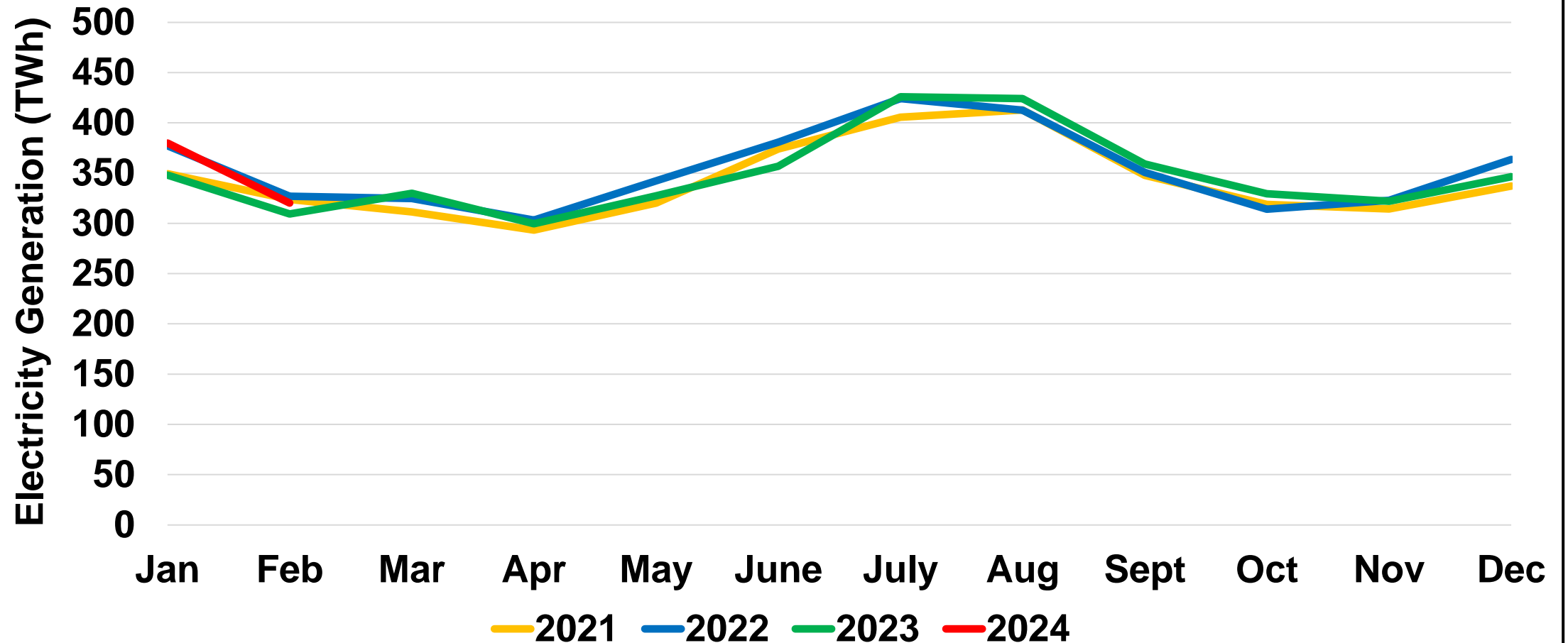
# U.S. Electricity Market Overview

**TAN and FAN Stock Prices**  
**Monthly Electricity Supply and Demand**  
**Electricity and Energy CO<sub>2</sub> Emissions**

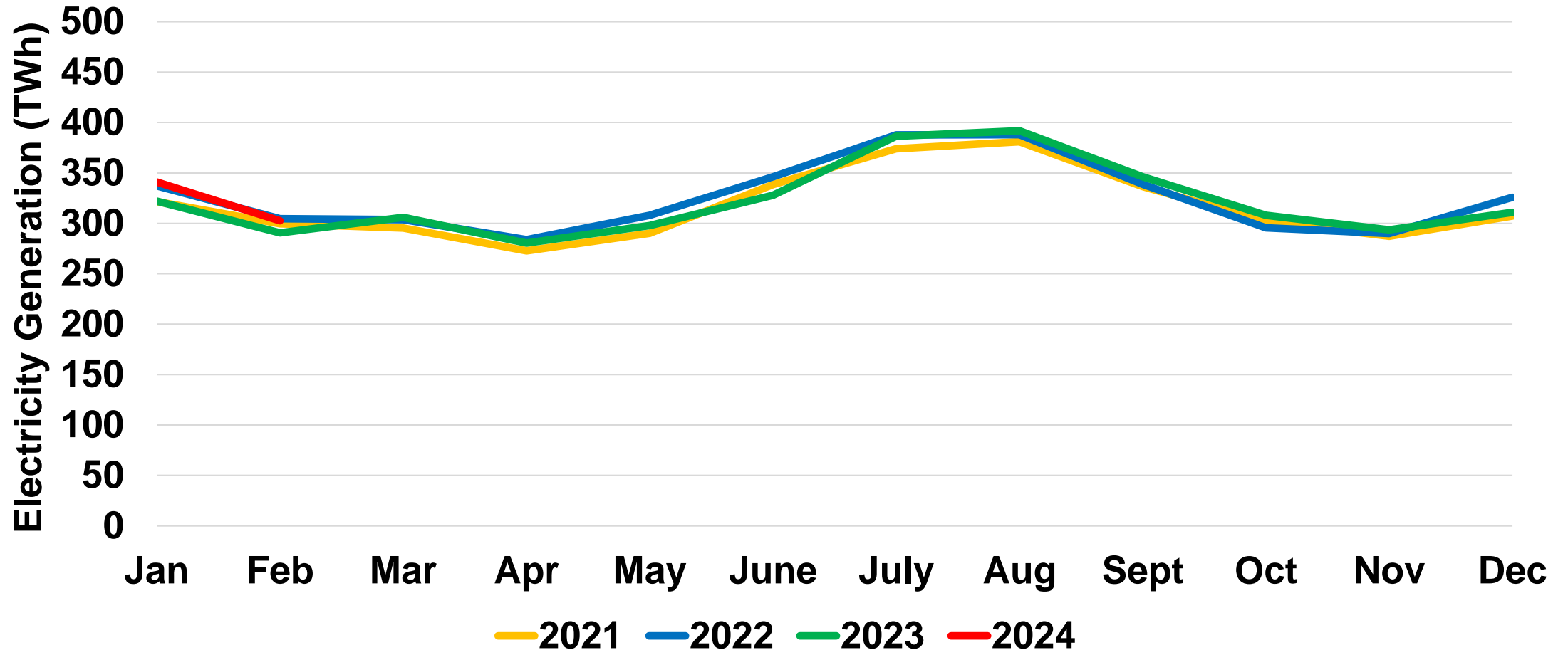
# TAN (Solar) and FAN (Wind) ETF Share Prices (Adjusted Close Prices through April 30, 2024)



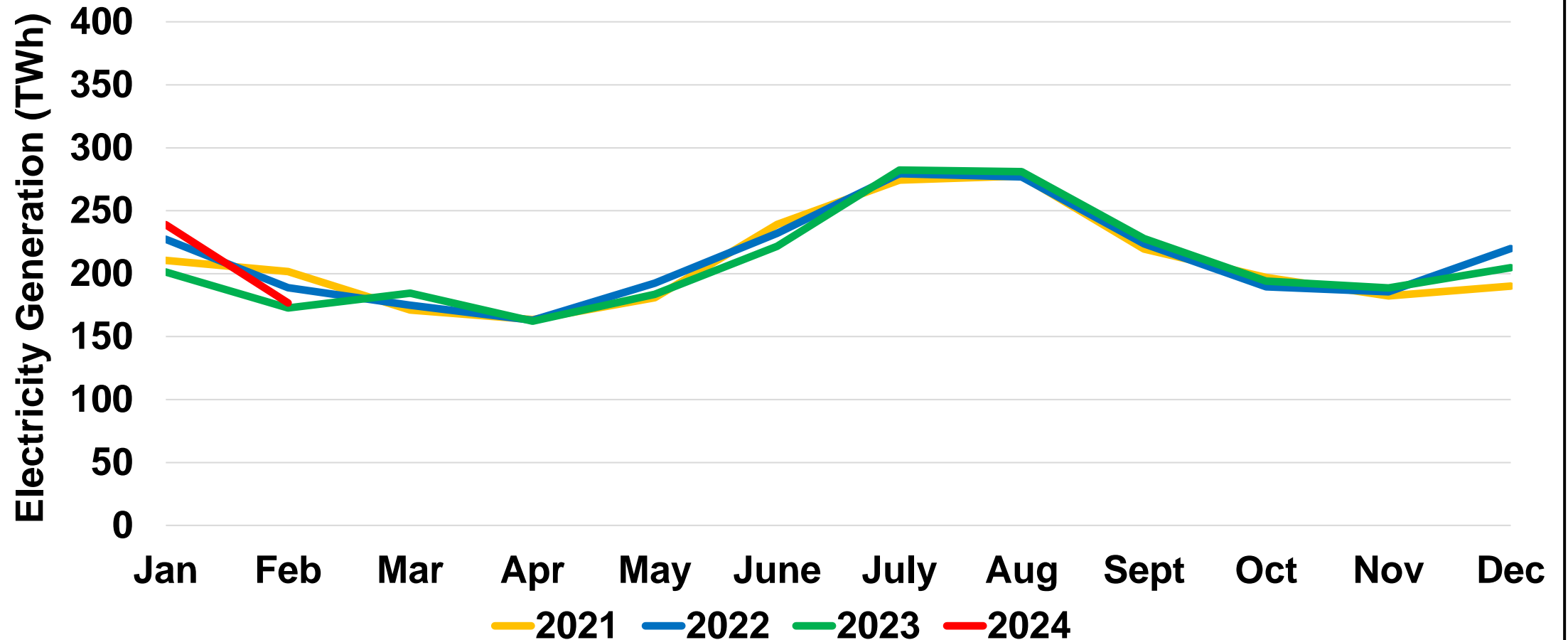
# U.S. Total Electricity Generation Year-on-Year (through February 2024)



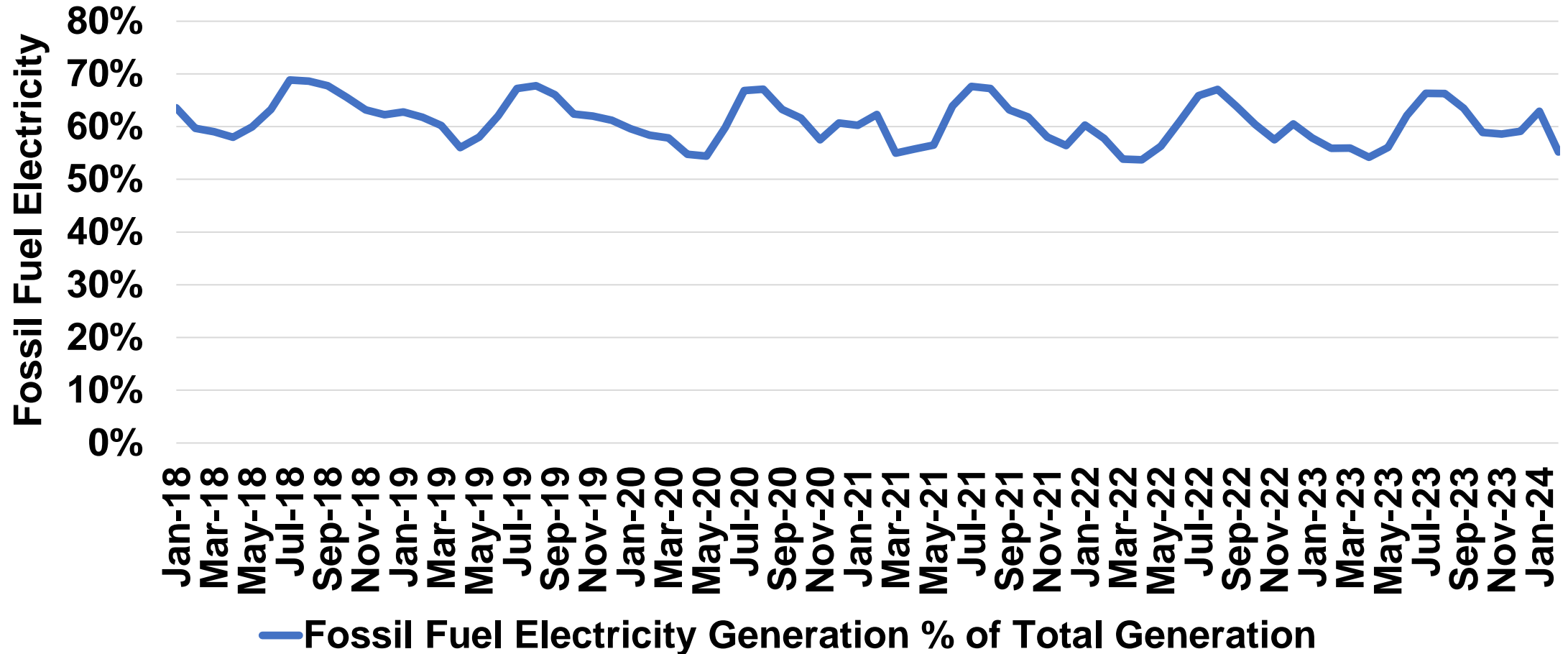
# U.S. Total Electricity Demand (Retail Sales) Year-on-Year (through February 2024)



# U.S. Fossil Fuel Electricity Generation Year-on-Year (through February 2024)

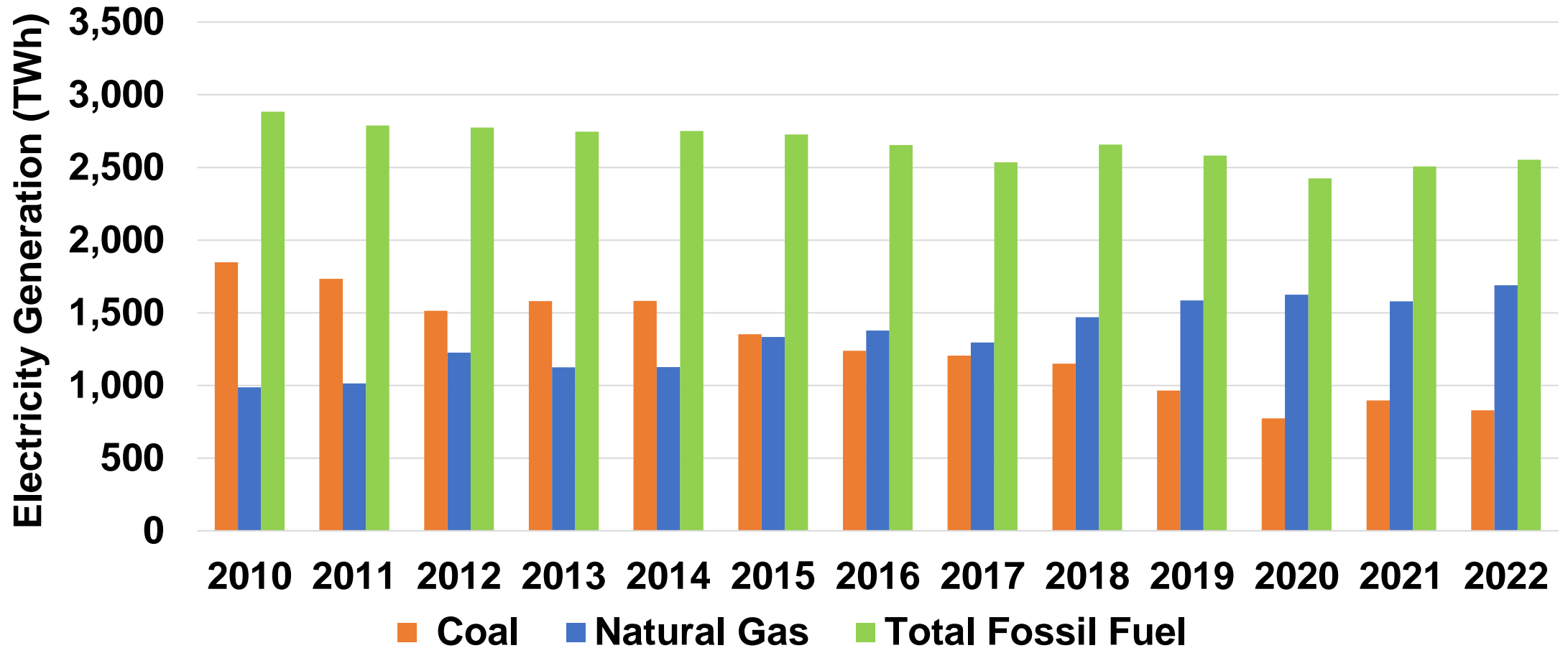


# U.S. Fossil Fuel Electricity % of Total Generation through February 2024

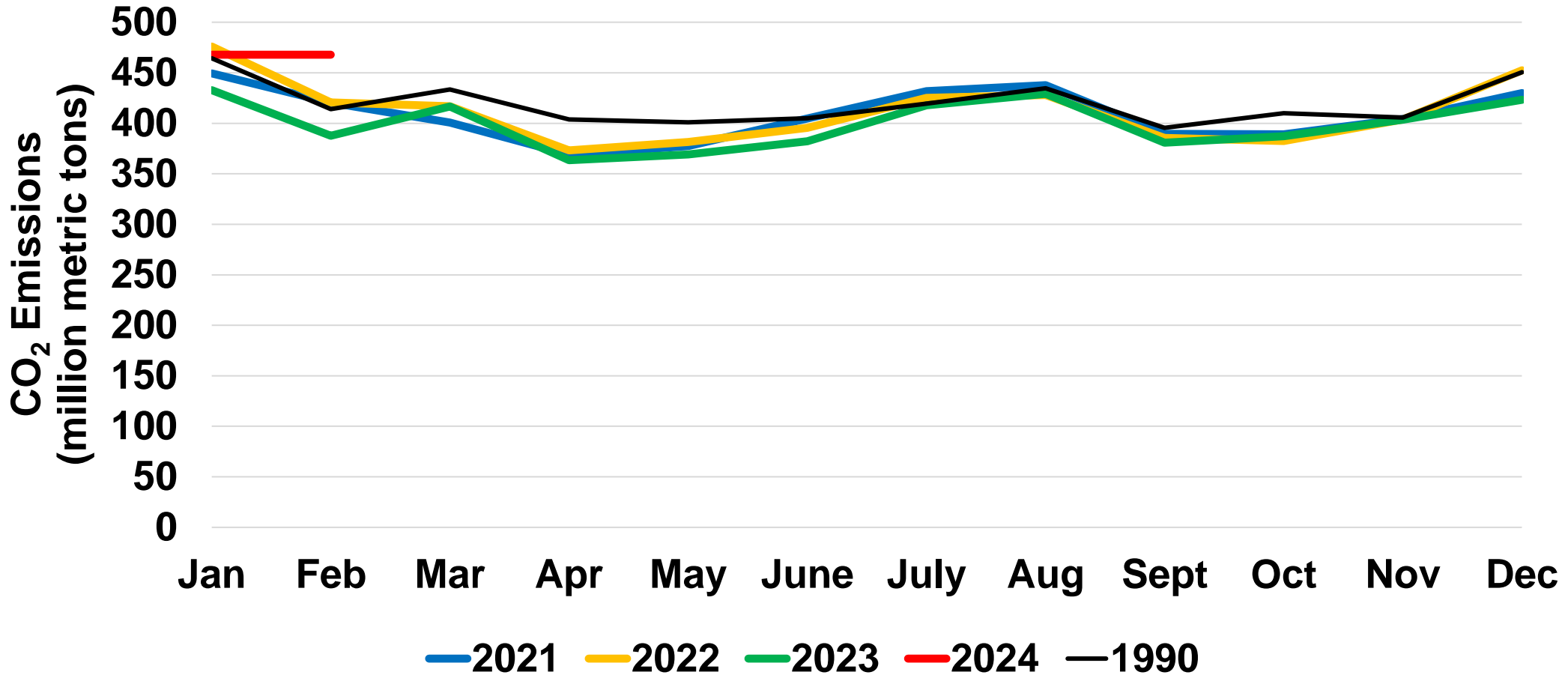




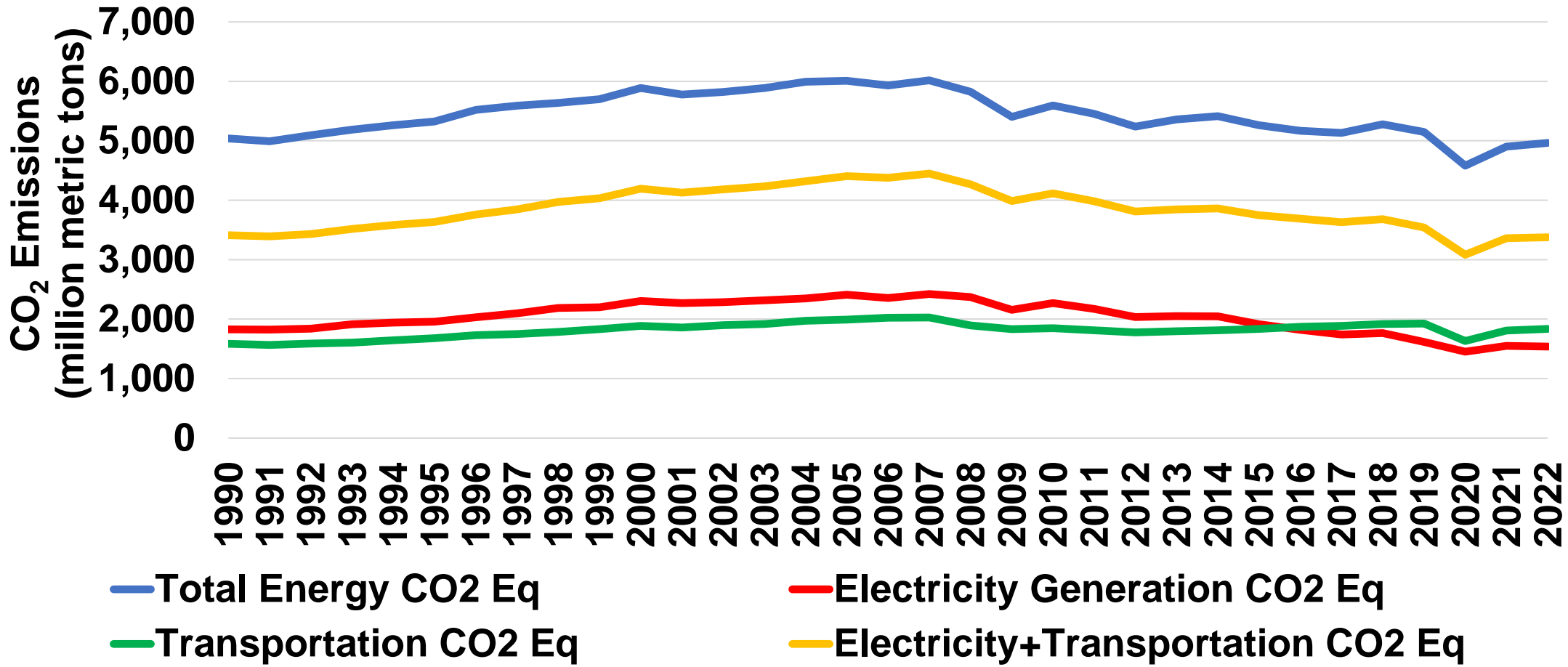
# U.S. Annual Fossil Fuel Electricity Generation (2010-2022)



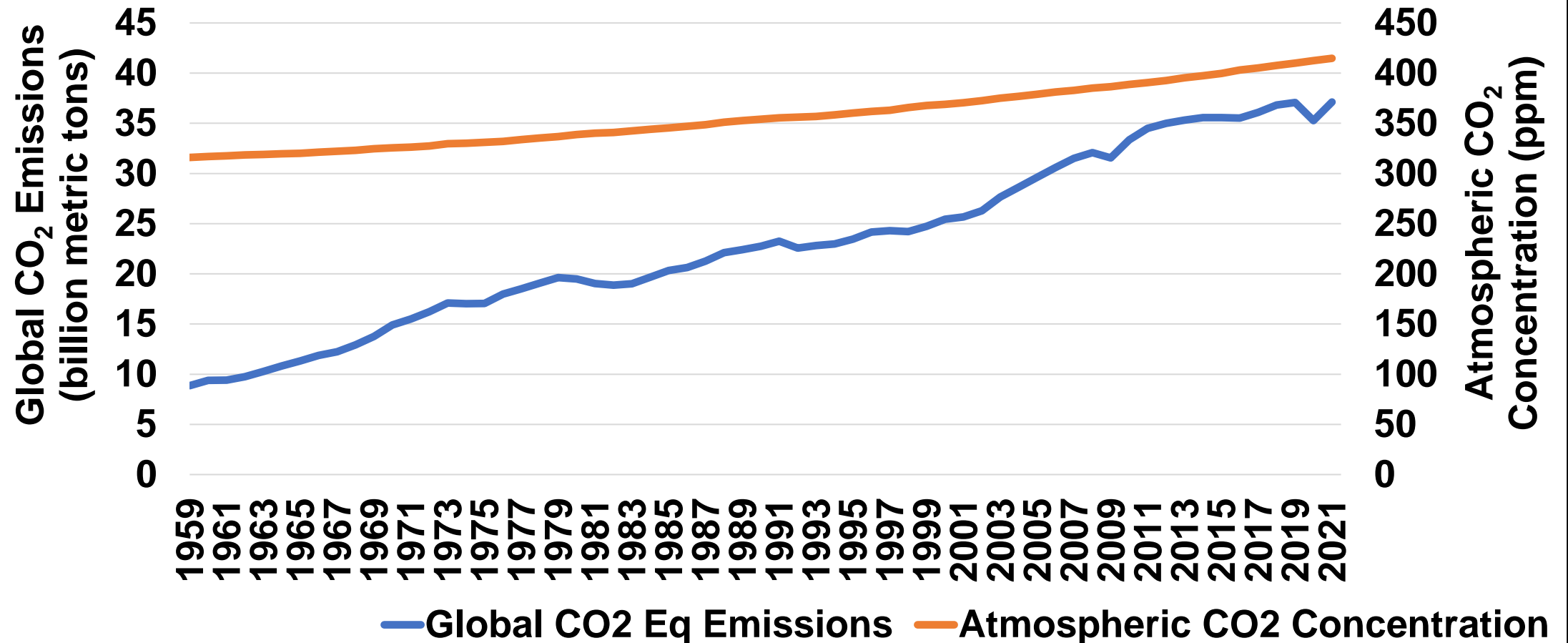
# U.S. Monthly Energy Use CO<sub>2</sub> Equivalent Emissions (through January 2024)



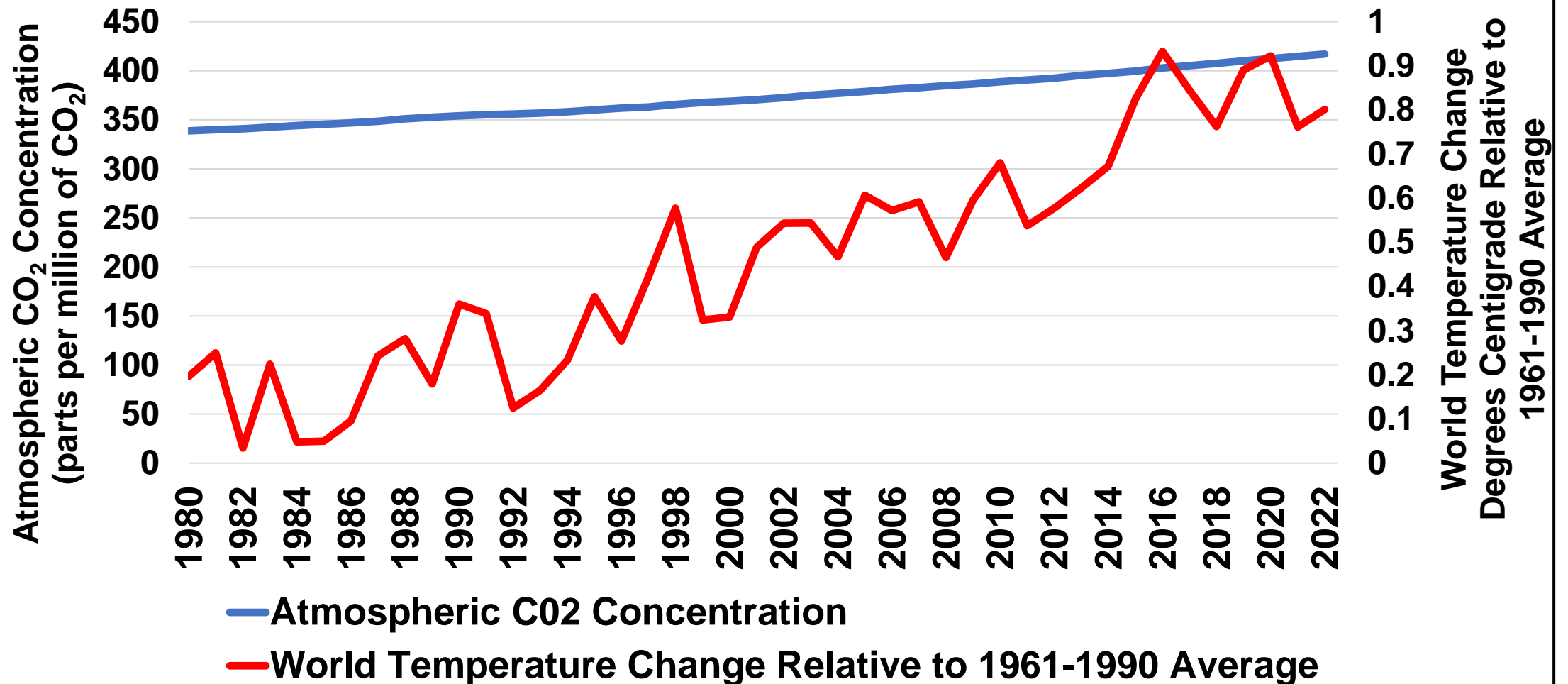
# U.S. Fossil Fuel CO<sub>2</sub> Equivalent Emissions (1990-2022)



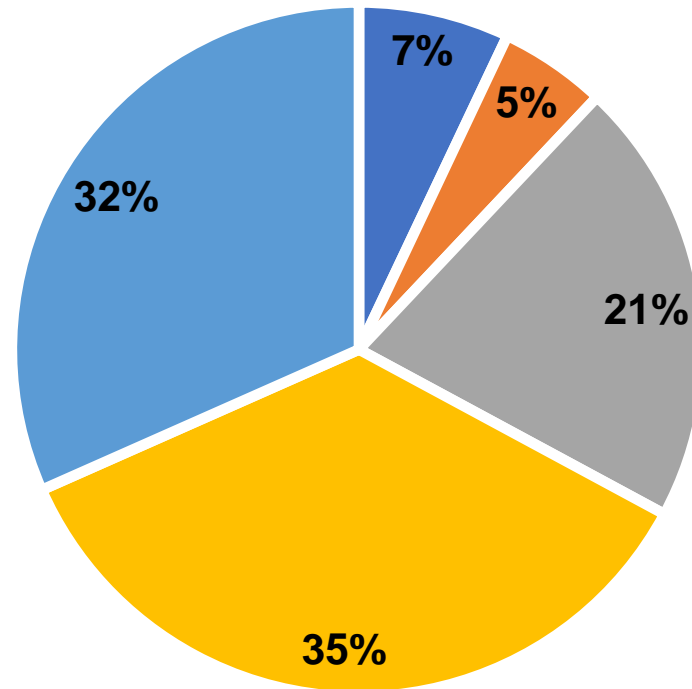
# World CO<sub>2</sub> Emissions and Atmospheric CO<sub>2</sub> Concentration (1959-2021)



# World Temperature and Atmospheric CO<sub>2</sub> Concentration (1980-2022)



# U.S. Energy CO<sub>2</sub> Emissions by Sector (2020)



■ Residential ■ Commercial ■ Industrial ■ Transportation ■ Electric Power

# ASAP Regional Map

