



ASAP
(American Solar Action Plan)

PV-Wind Monthly Data Slideshow

December 2024

ASAP
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Highlights for September 2024 Data



- PV capacity additions are 2,749 MW; wind capacity additions are 139 MW.
 - MW = megawatts; GW = gigawatts (1000 MW); TW = terawatts (1000 GW)
- PV and Wind generated 15.6% of total U.S. electricity generation in July.
- PV panel imports are falling at \$1.1 billion, and PV cell imports are increasing at \$205 million. This trend is expected due to significant increases in U.S. PV manufacturing capacity, largely assembly.
- For the month of November, the TAN ETF (solar) share price declined 7.5%, and the FAN ETF (wind) share price declined 3.1%.

Slideshow Objectives



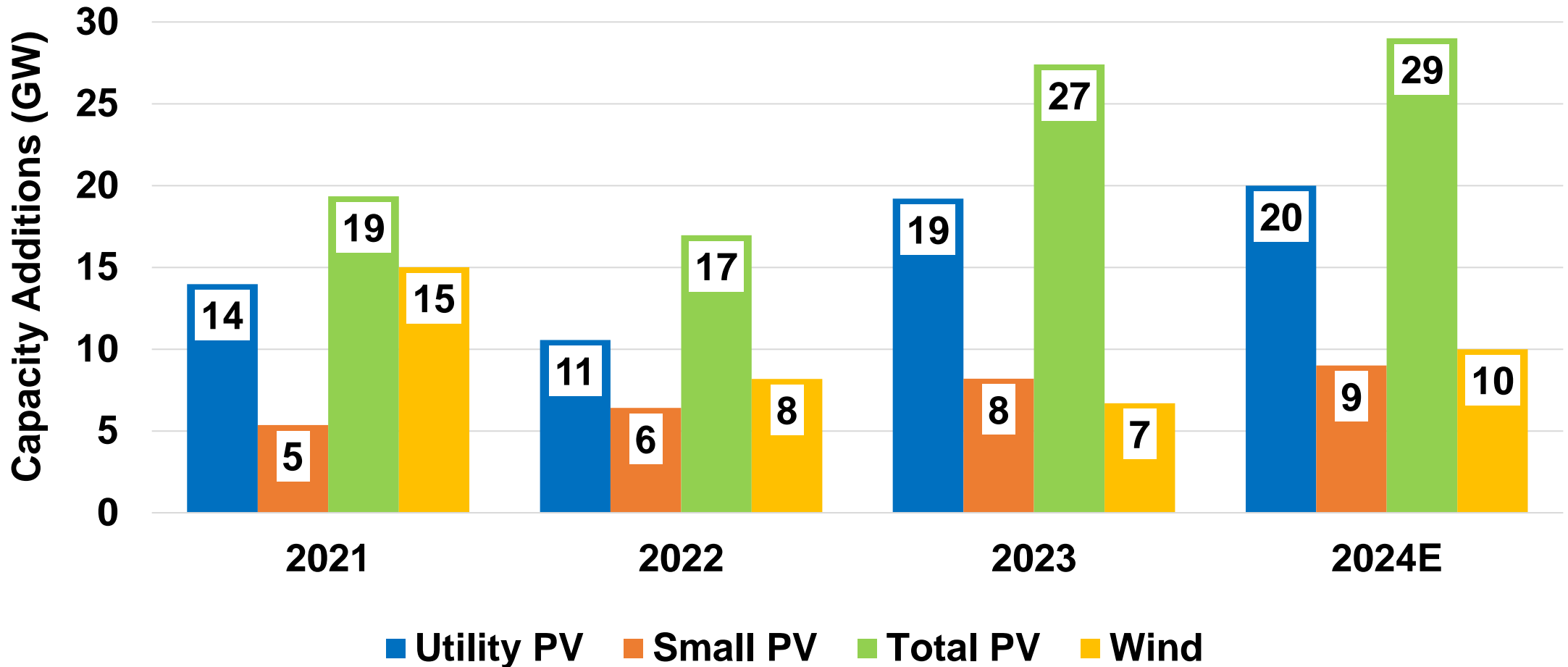
- To Document Monthly and Annual Growth in PV and Wind Capacity and Electricity Generation
 - MW = megawatts; GW = gigawatts; TW = terawatts; MT = thousand metric tons (polysilicon)
- PV and Wind Capacity Additions
 - The Graphs Show Current and Past Year Monthly PV and Wind Capacity Additions
 - For 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



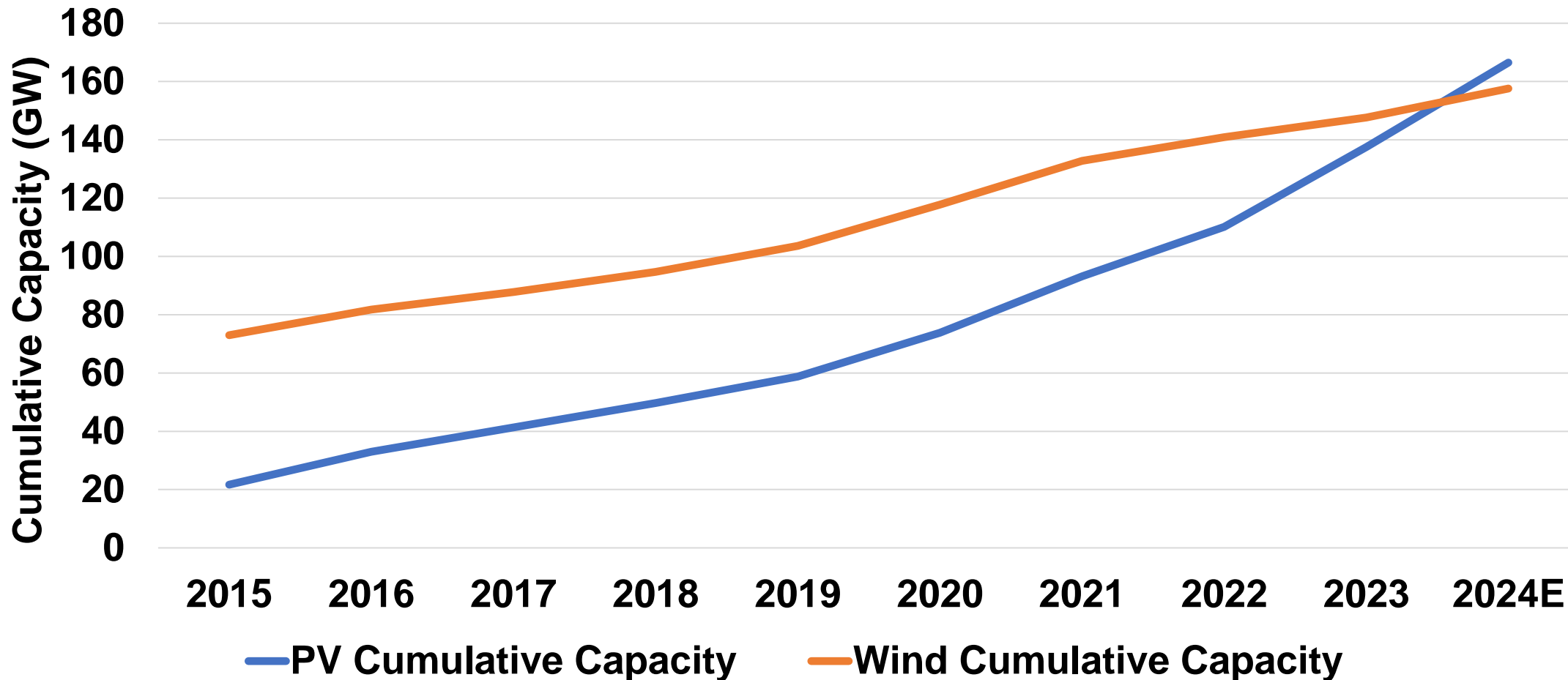
U.S. PV and Wind Capacities

2024 PV and Wind Forecast

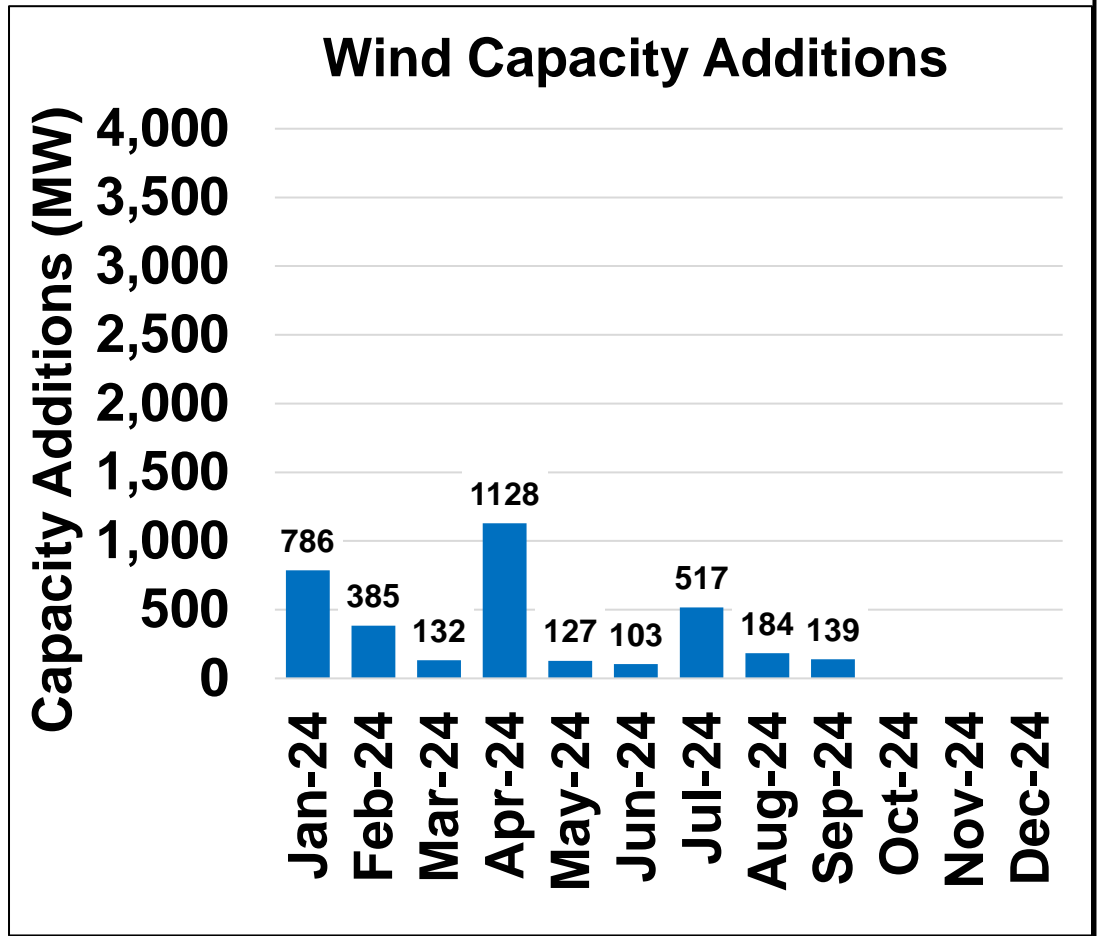
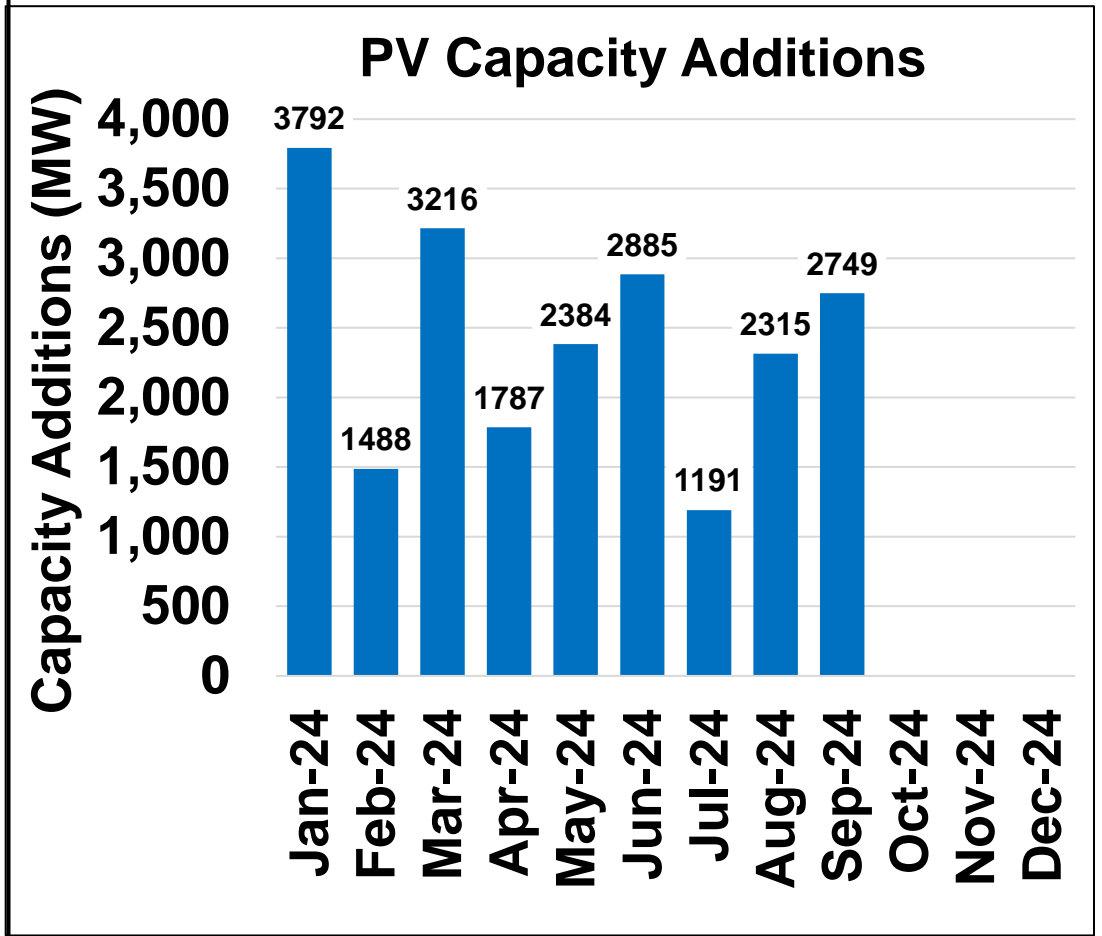
U.S. Annual PV and Wind Capacity Additions 2021-2023



PV and Wind Annual Cumulative Capacity Forecast



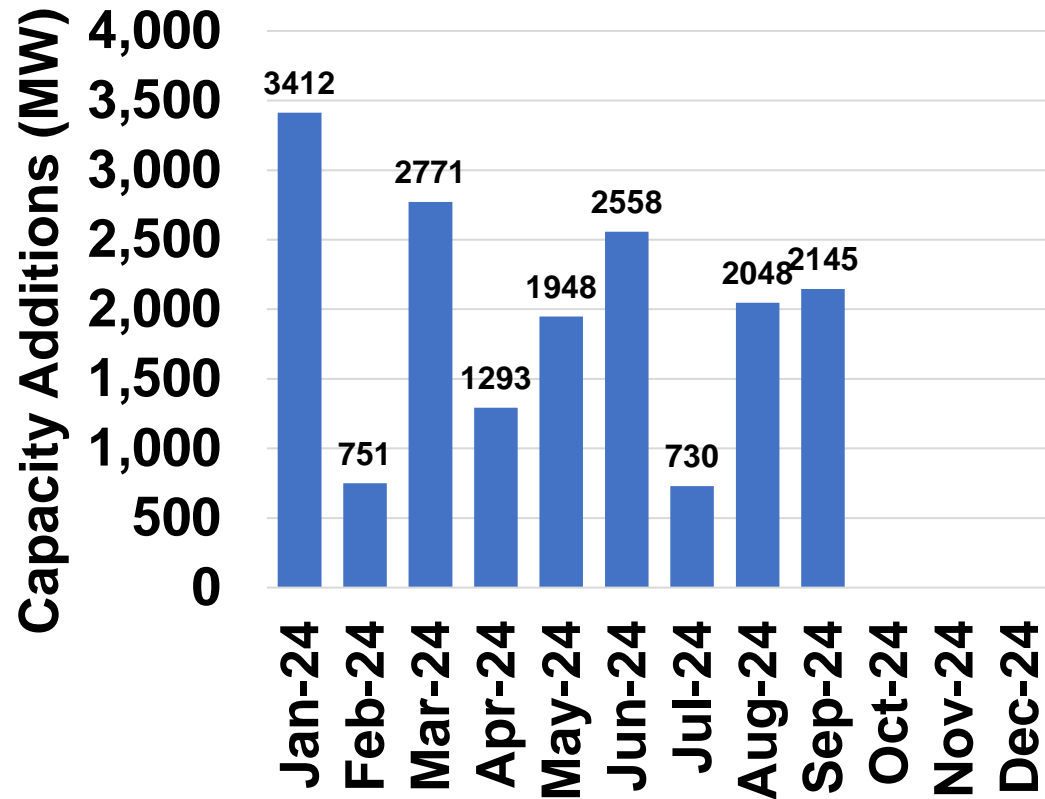
U.S. PV and Wind Monthly Net Capacity Additions 2024 (through September)



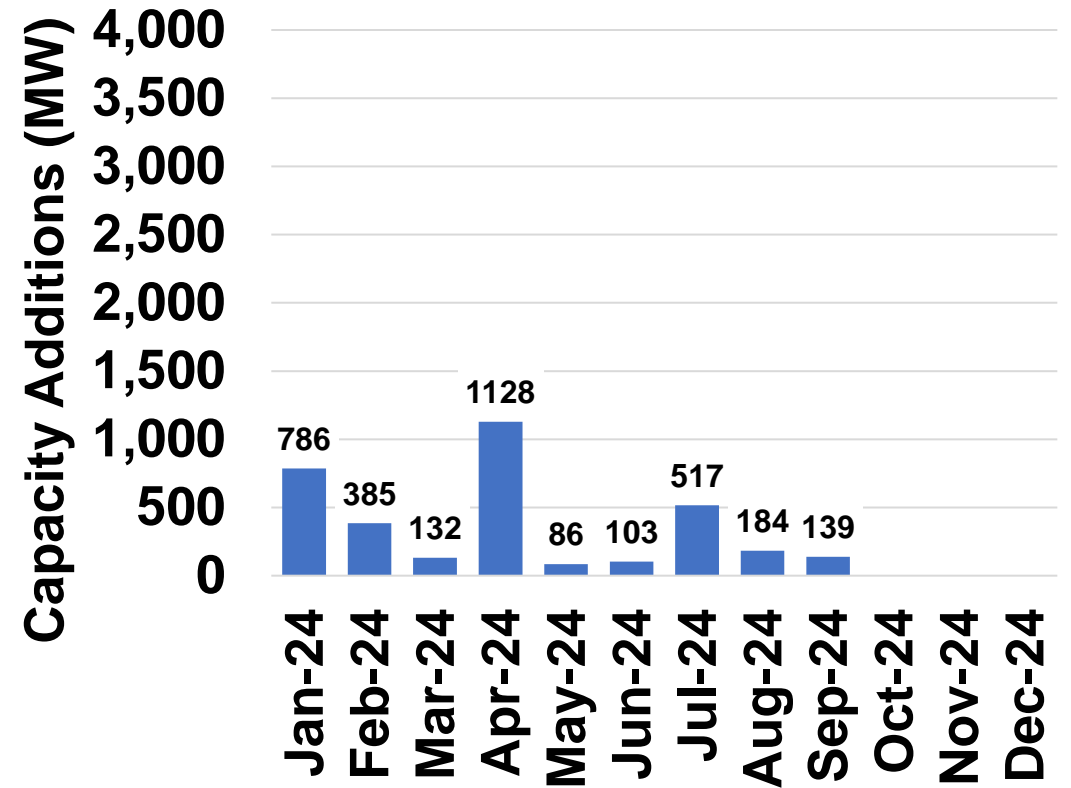
Monthly Utility and Small PV Net Capacity Additions 2024 (through September)



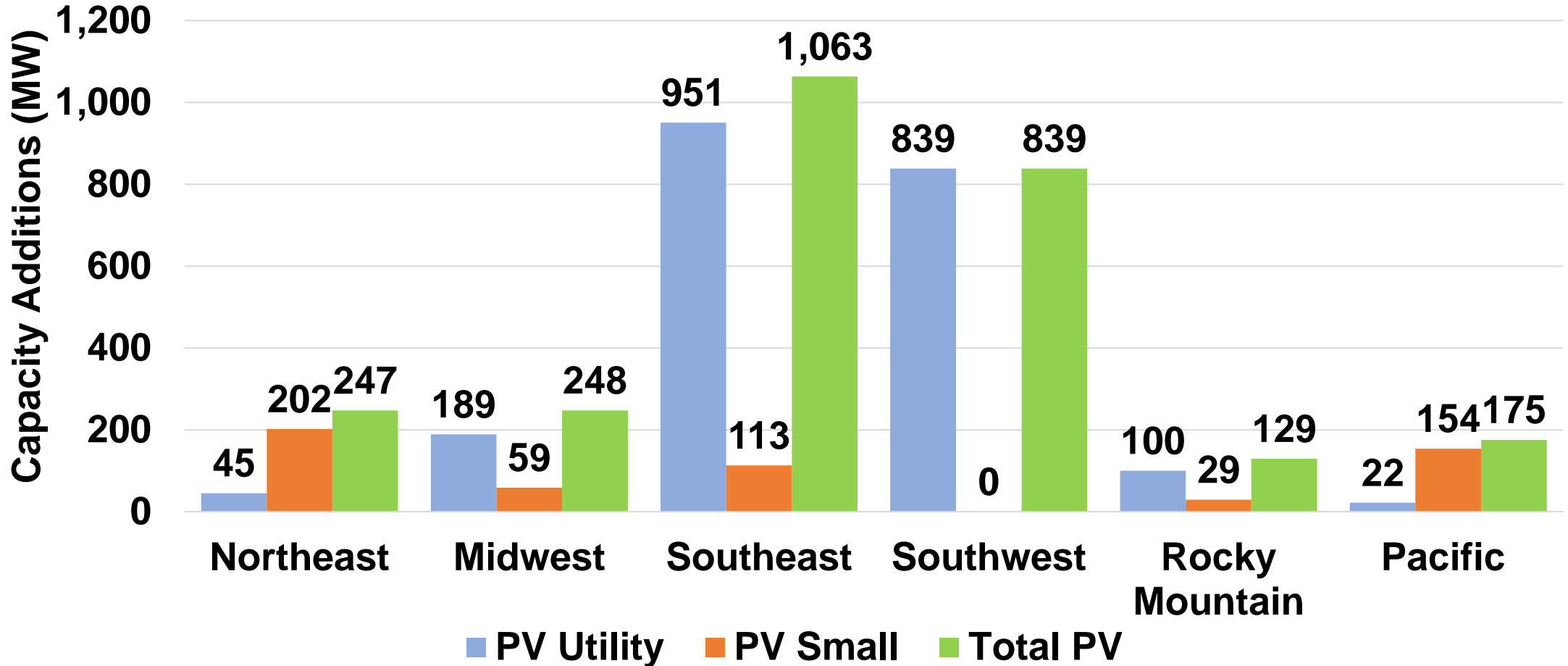
Utility PV Capacity Additions



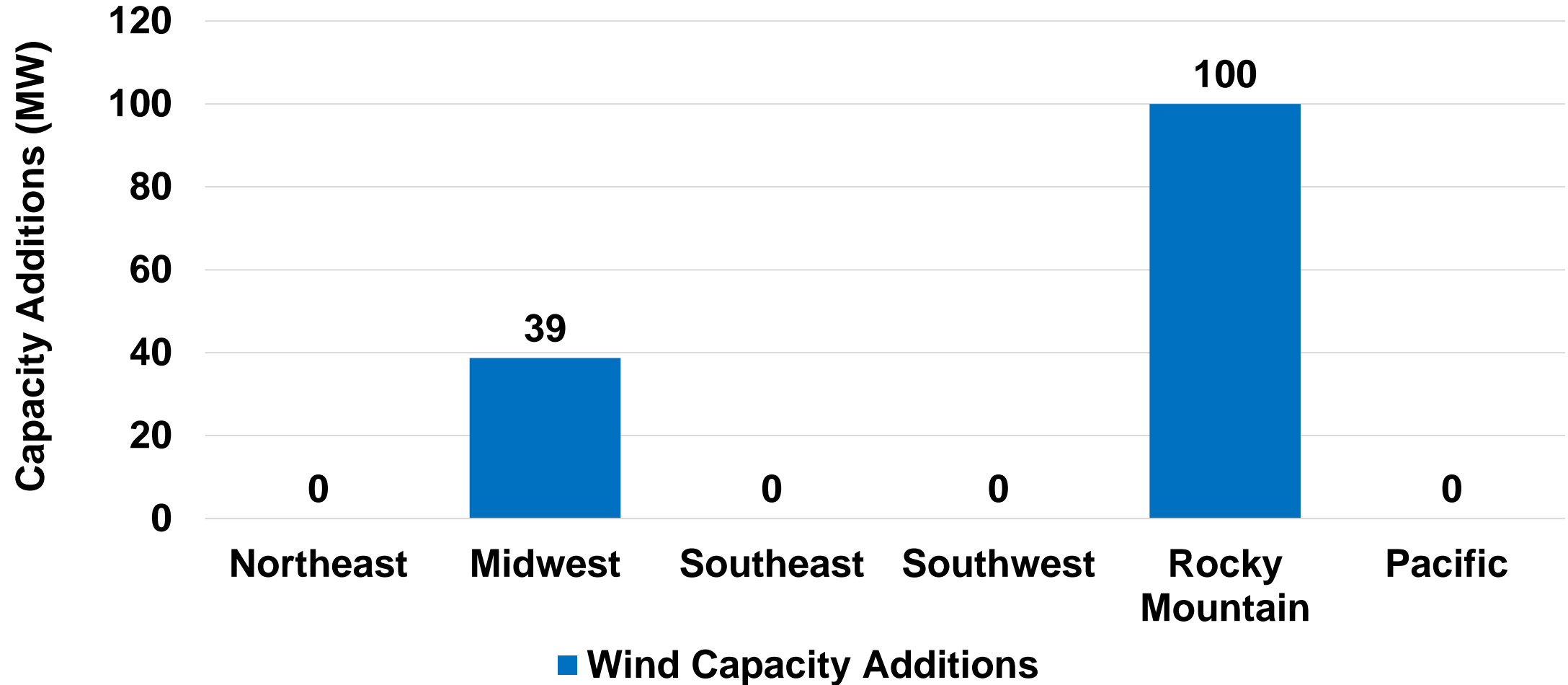
Small PV Capacity Additions



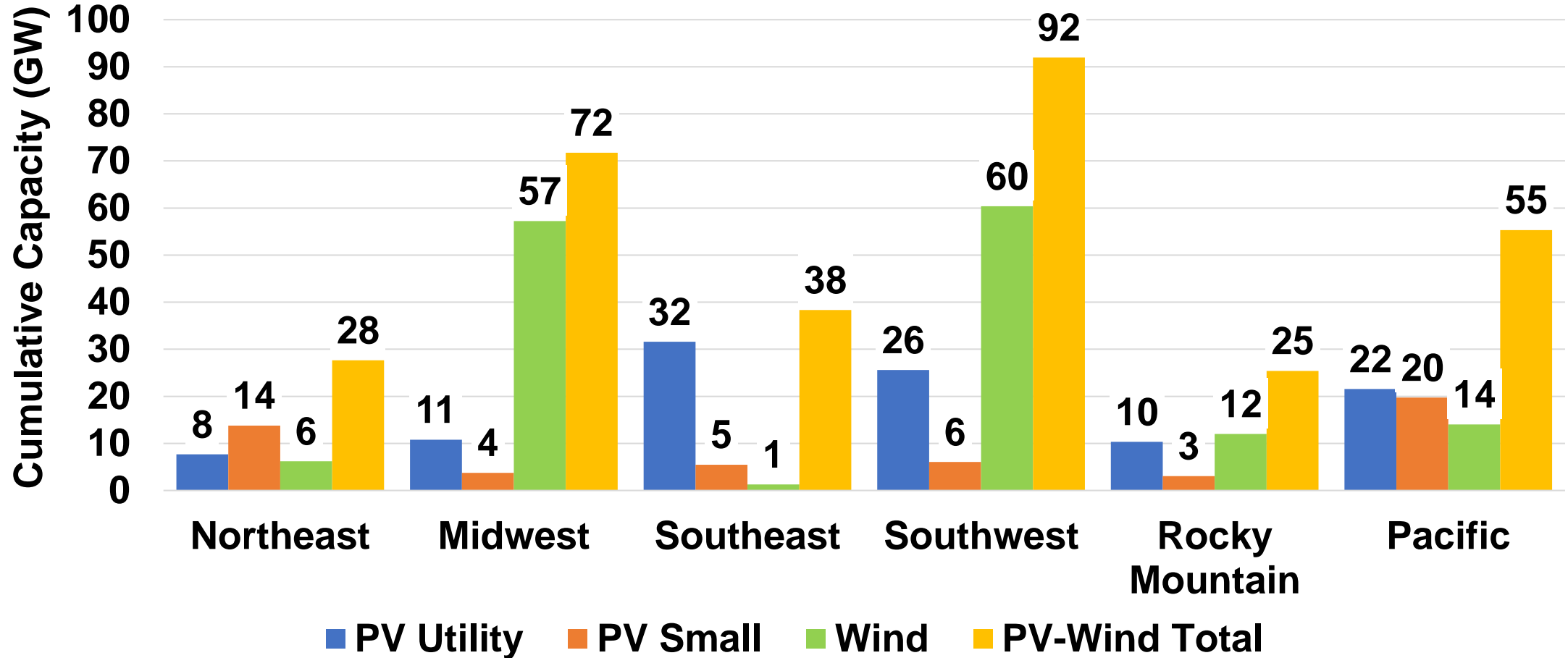
Regional PV Capacity Additions September 2024



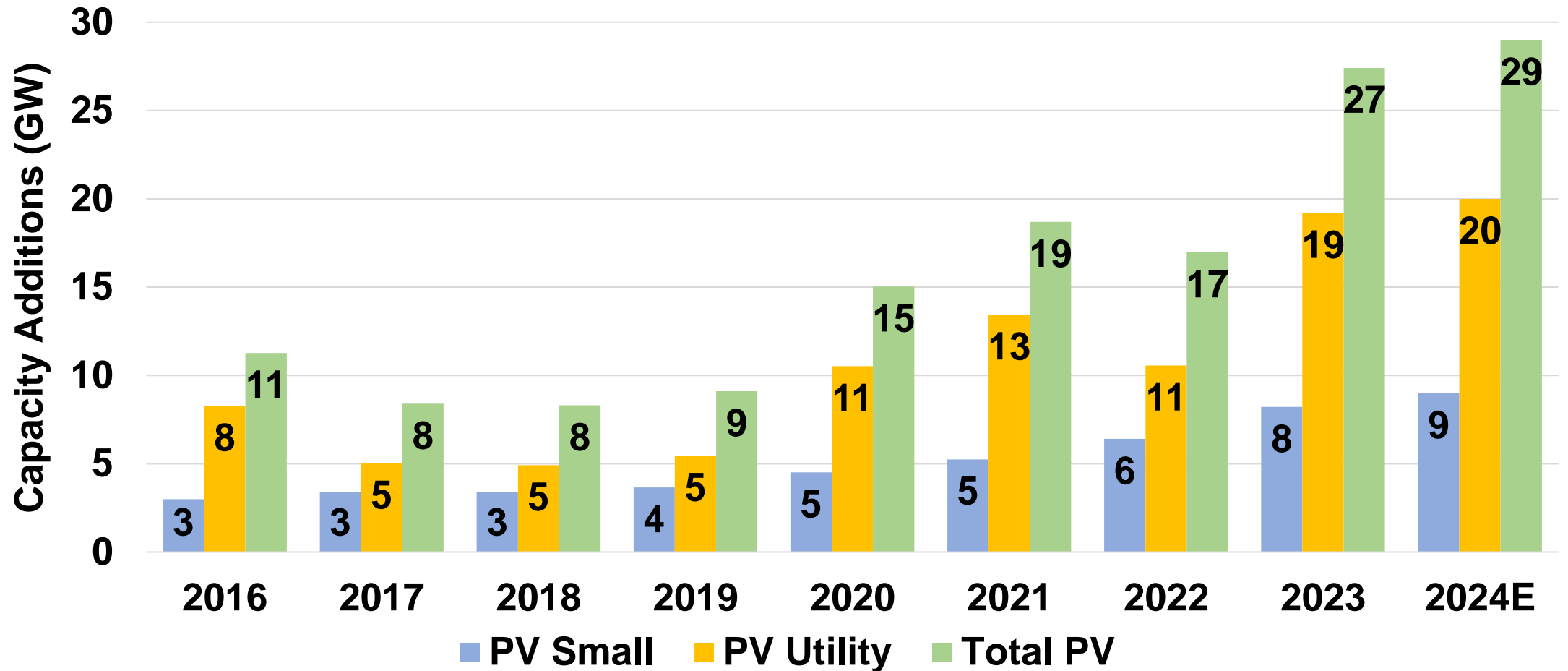
Regional Wind Net Capacity Additions September 2024



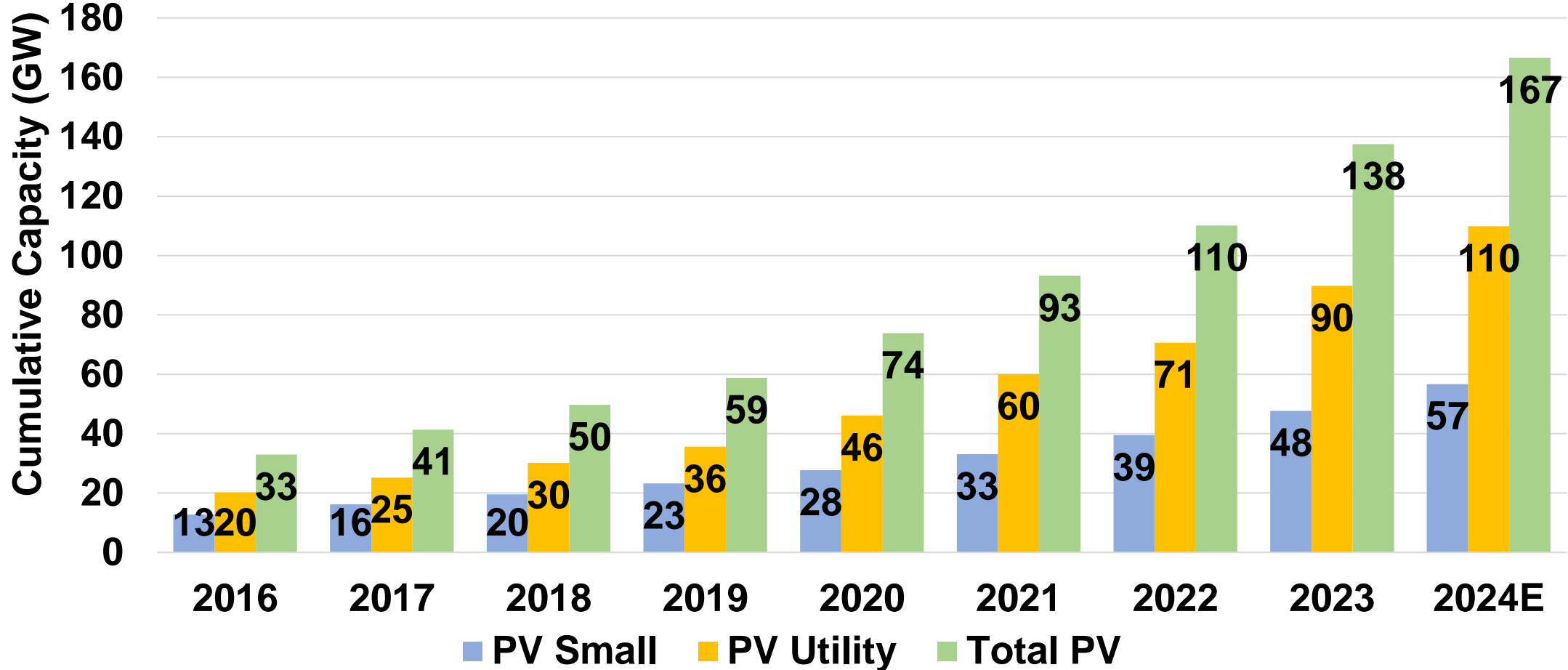
PV and Wind Cumulative Capacity by Region September 2024



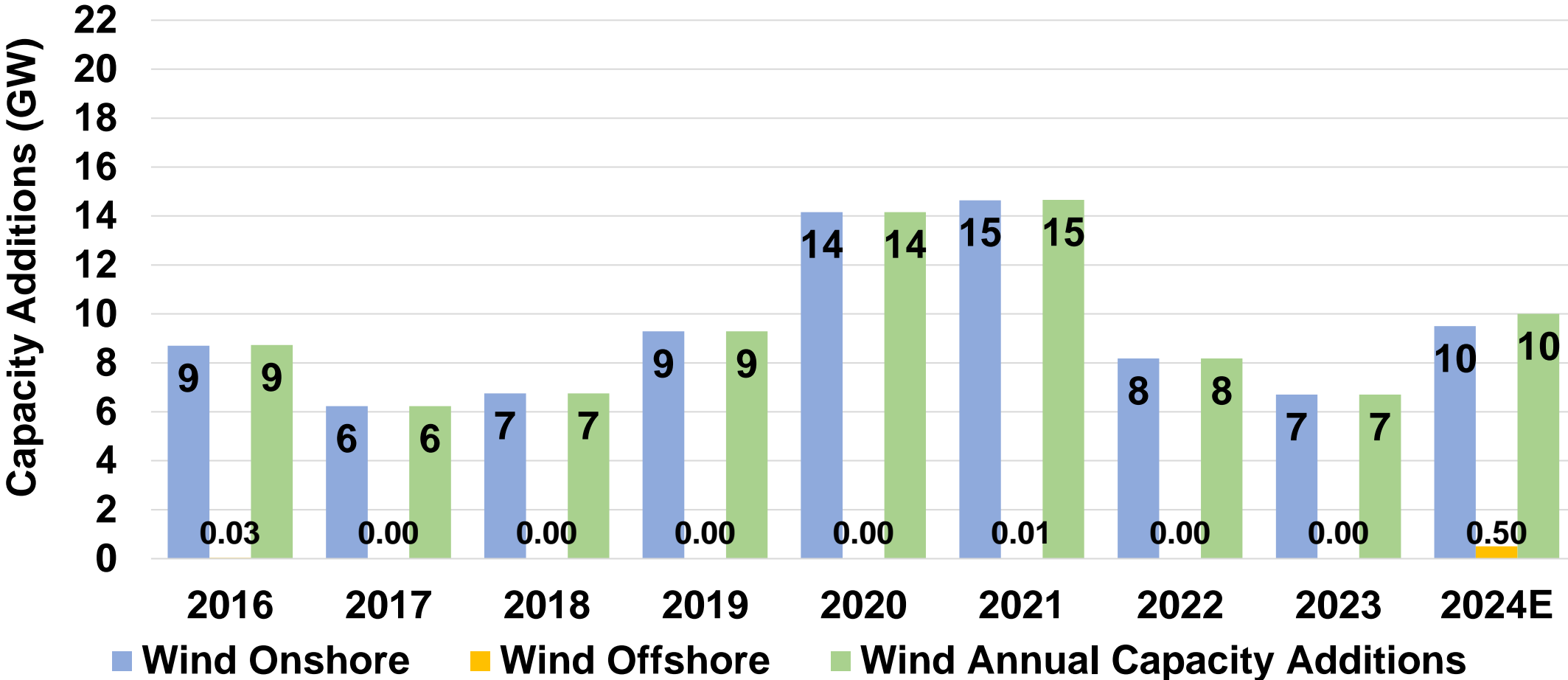
PV Annual Capacity Additions 2024 Forecast



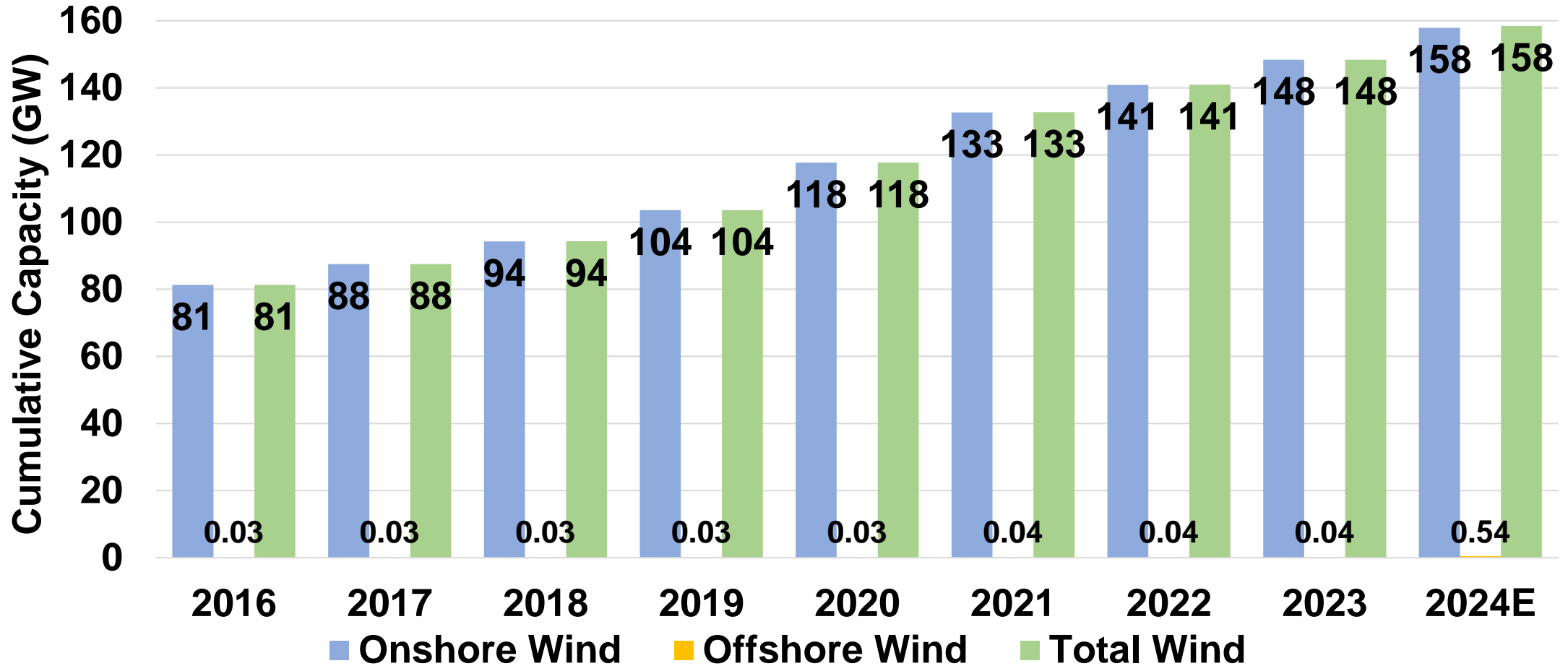
PV Annual Cumulative Capacity 2024 Forecast



Wind Annual Capacity Additions 2024 Forecast



Wind Annual Cumulative Capacity 2024 Forecast

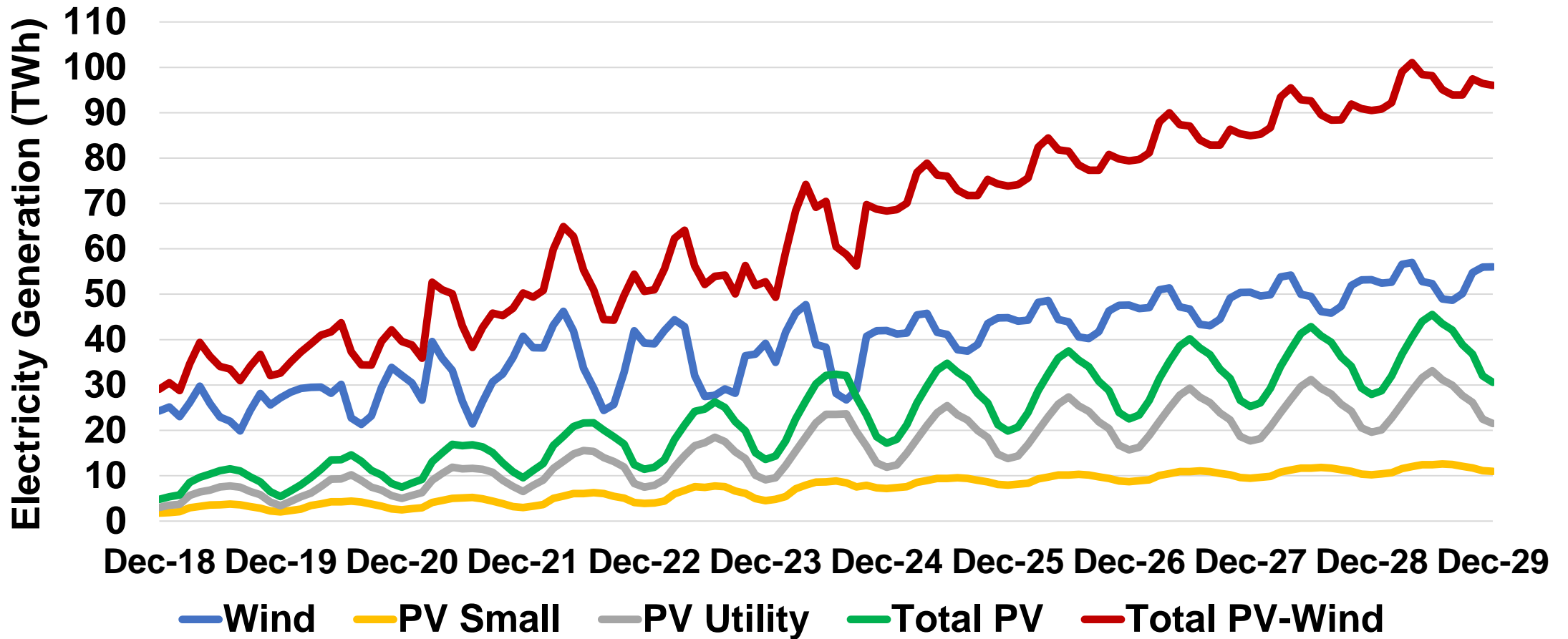




U.S. PV and Wind Electricity Generation

U.S. PV & Wind Monthly Electricity Generation

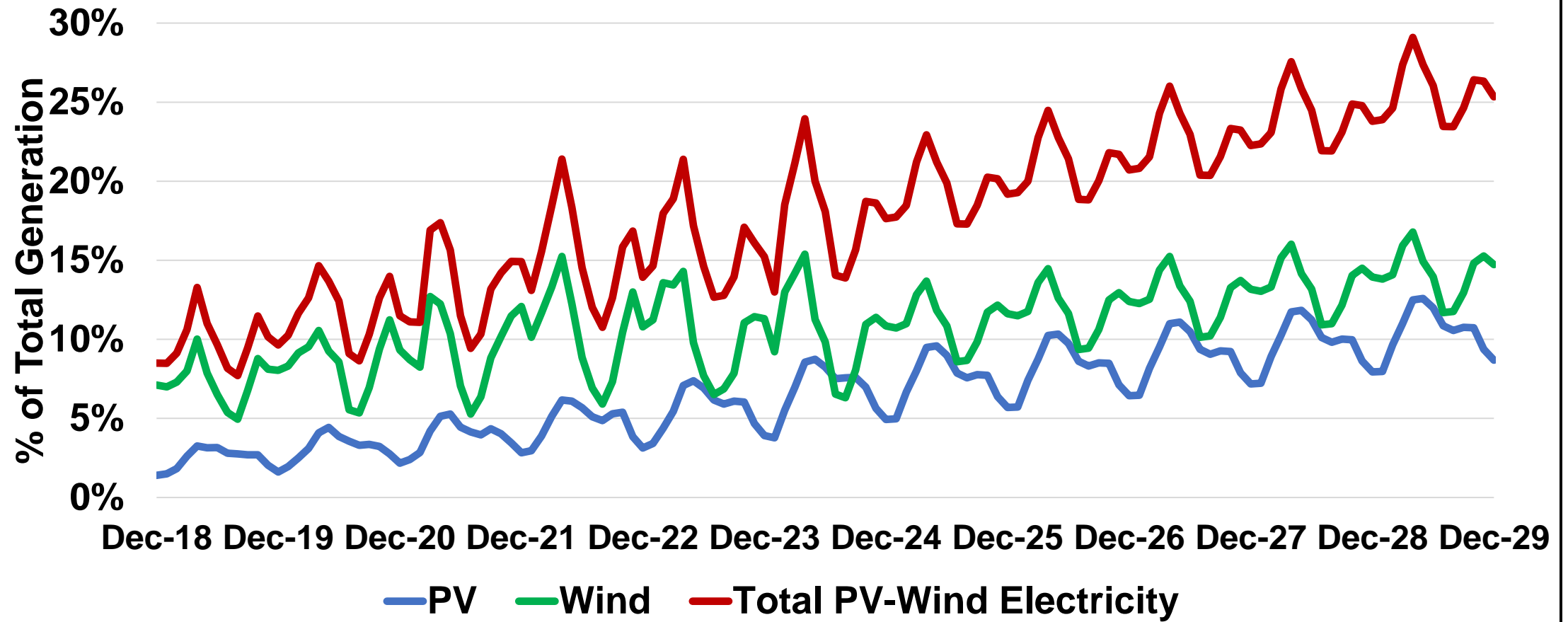
Actual through September 2024; Forecast through Dec. 2029



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

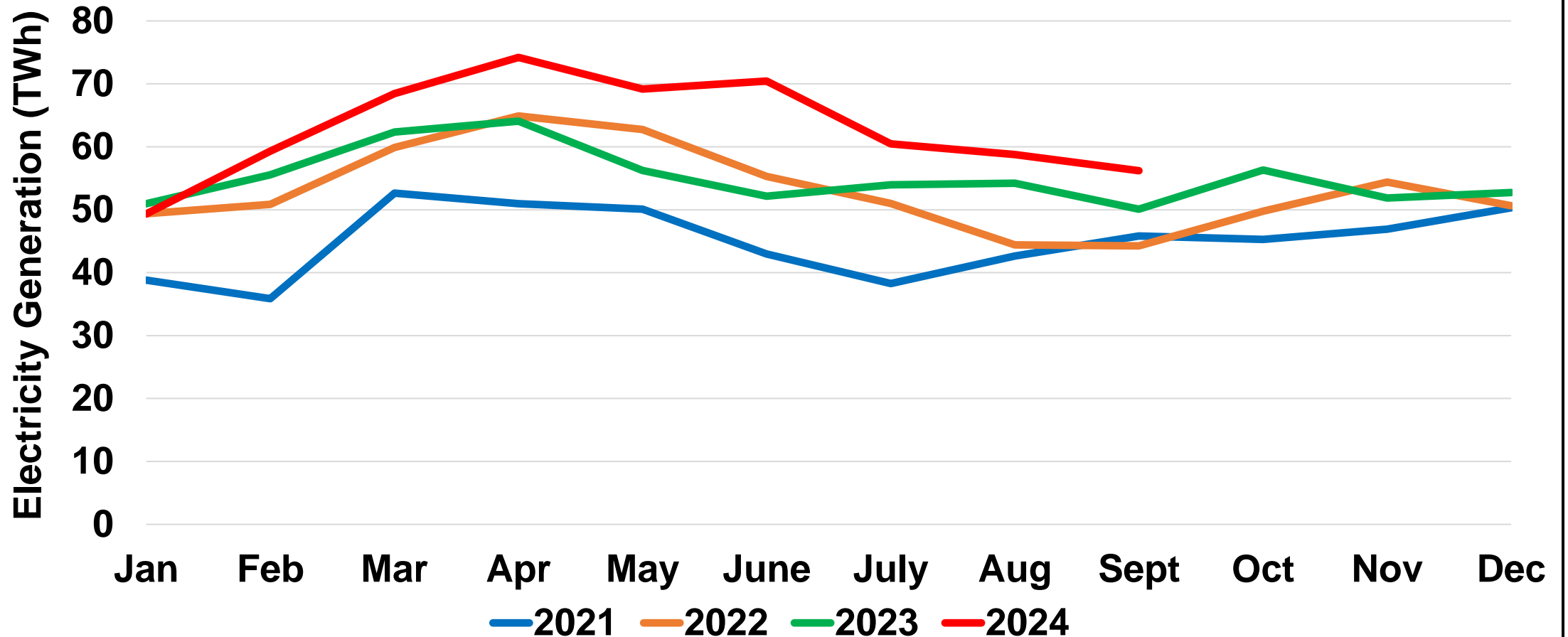
U.S. PV & Wind Electricity as % of Total Generation

Actual through September 2024; Forecast through Dec. 2029

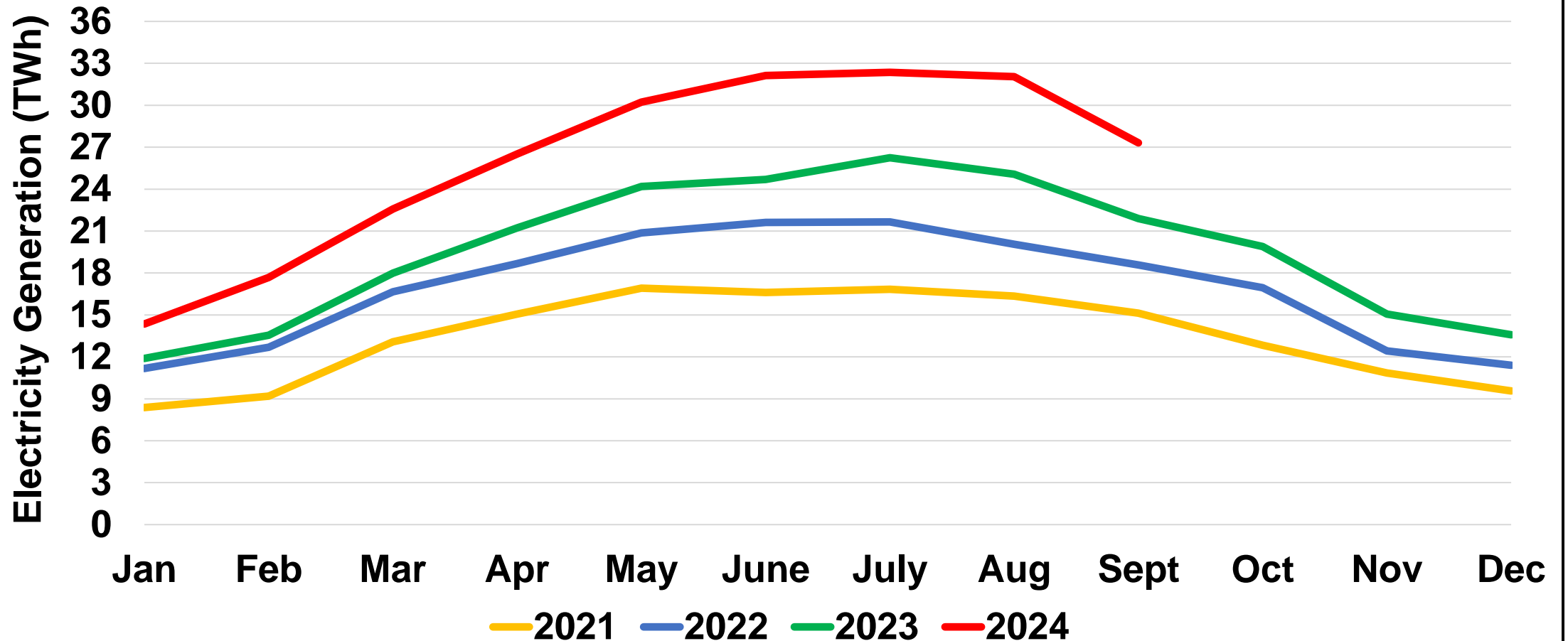


Note: Fossil fuel electricity generation was 60% of total 2022 electricity generation.

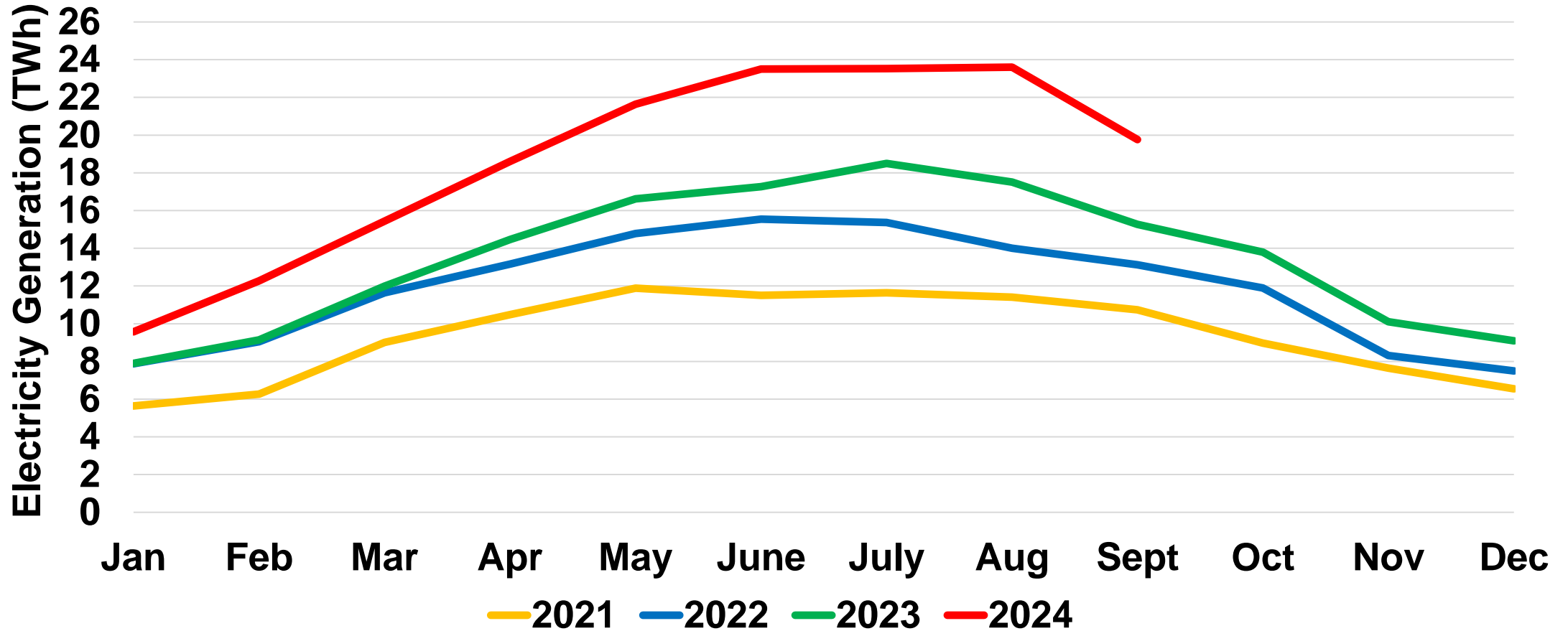
Combined PV and Wind Electricity Generation Year-on-Year (through September 2024)



PV Electricity Generation Year-on-Year (through September 2024)

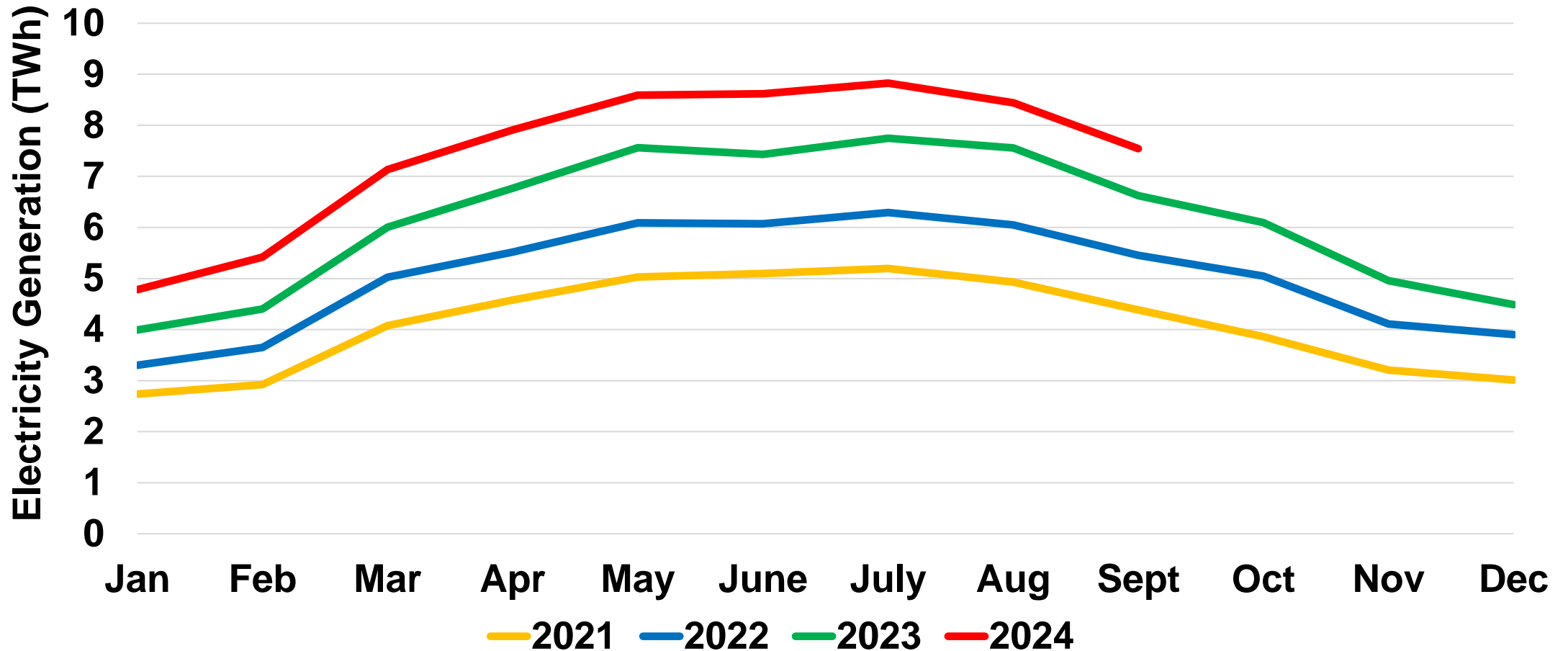


Utility PV Electricity Generation Year-on-Year (through September 2024)

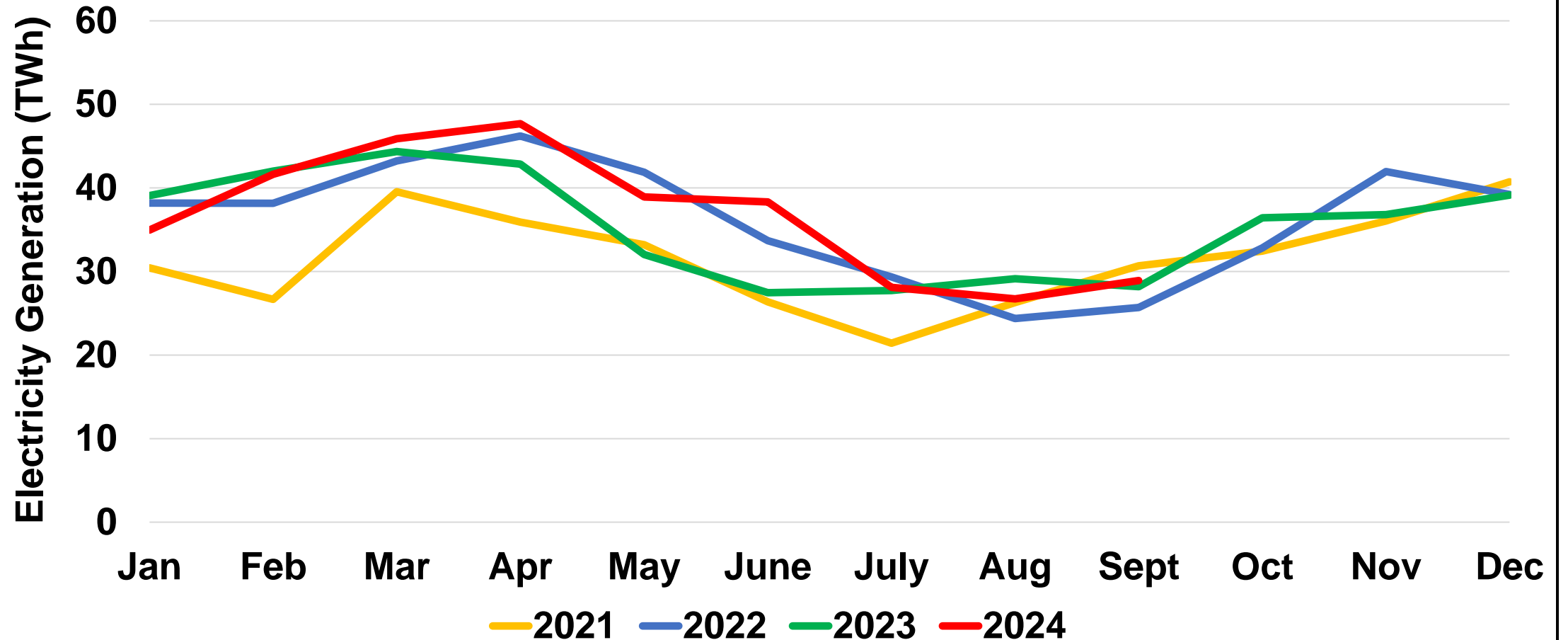


Note: PV Utility is greater than 1.0 MW

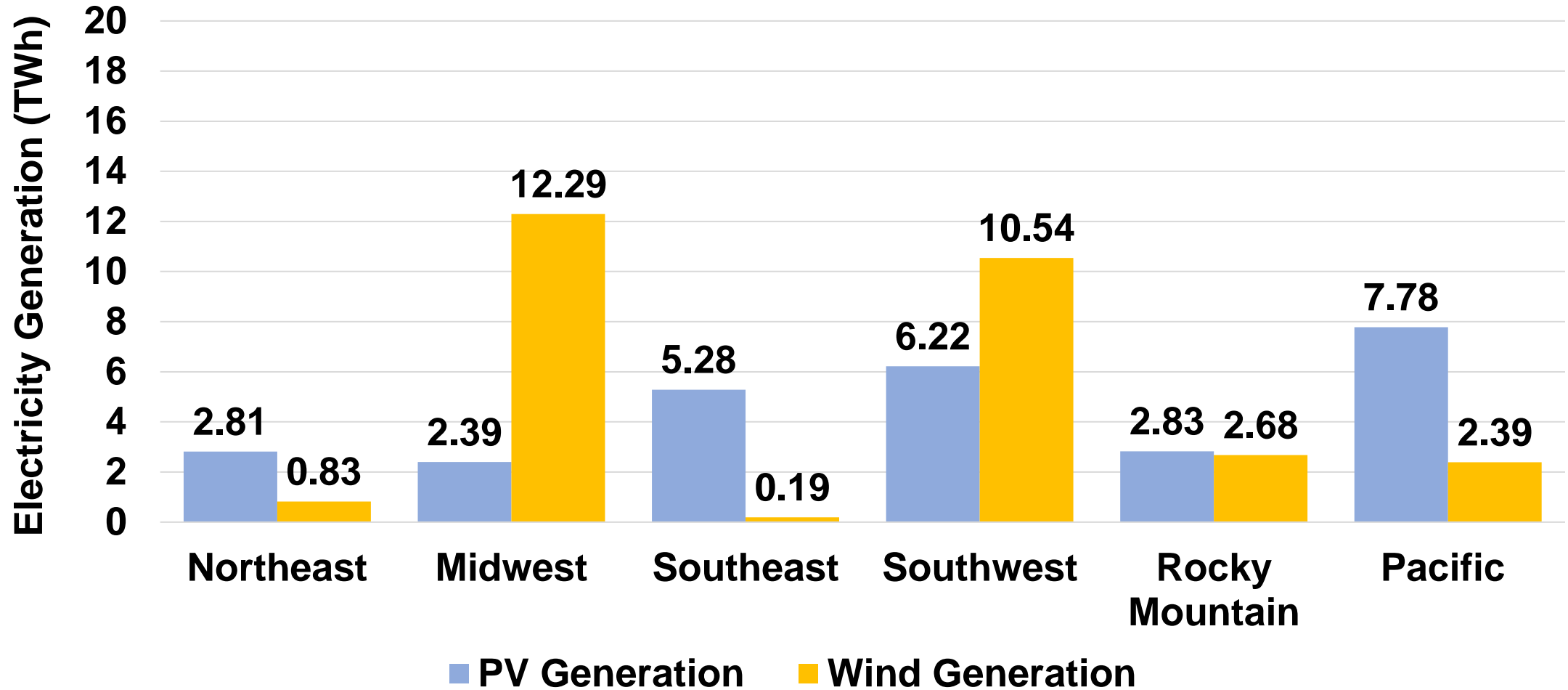
Small PV Electricity Generation Year-on-Year (through September 2024)



Wind Electricity Generation Year-on-Year (through September 2024)



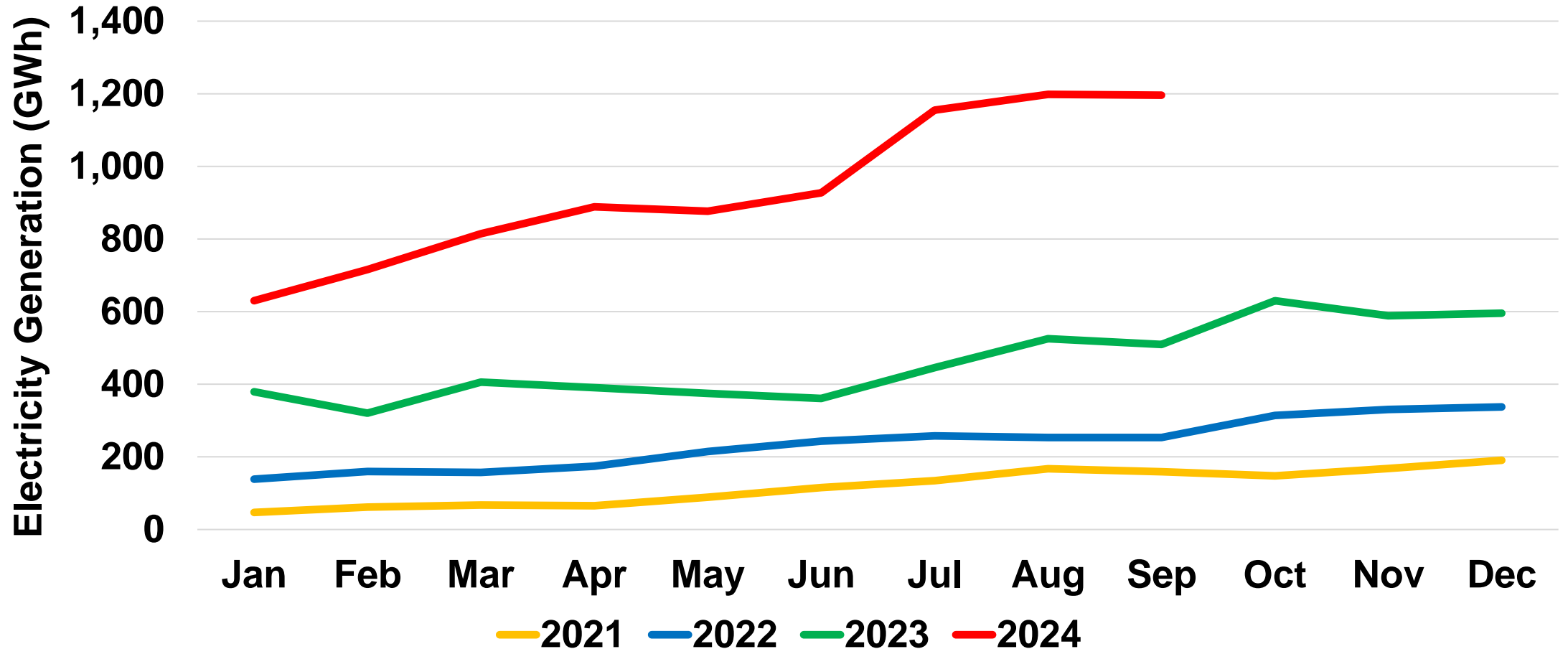
Regional PV & Wind Electricity Generation September 2024





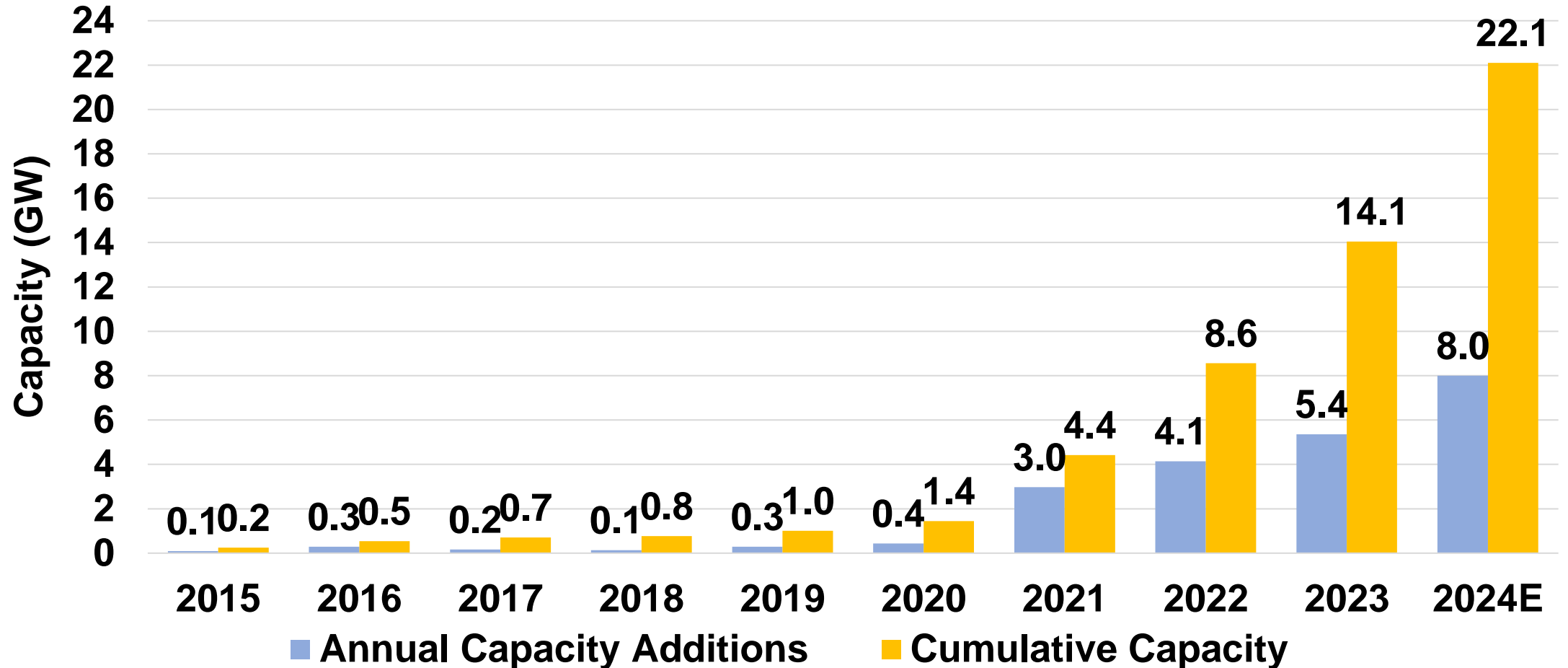
U.S. Battery Storage

Battery Electricity Generation Year-on-Year (through September 2024)



Battery Storage Forecast 2024

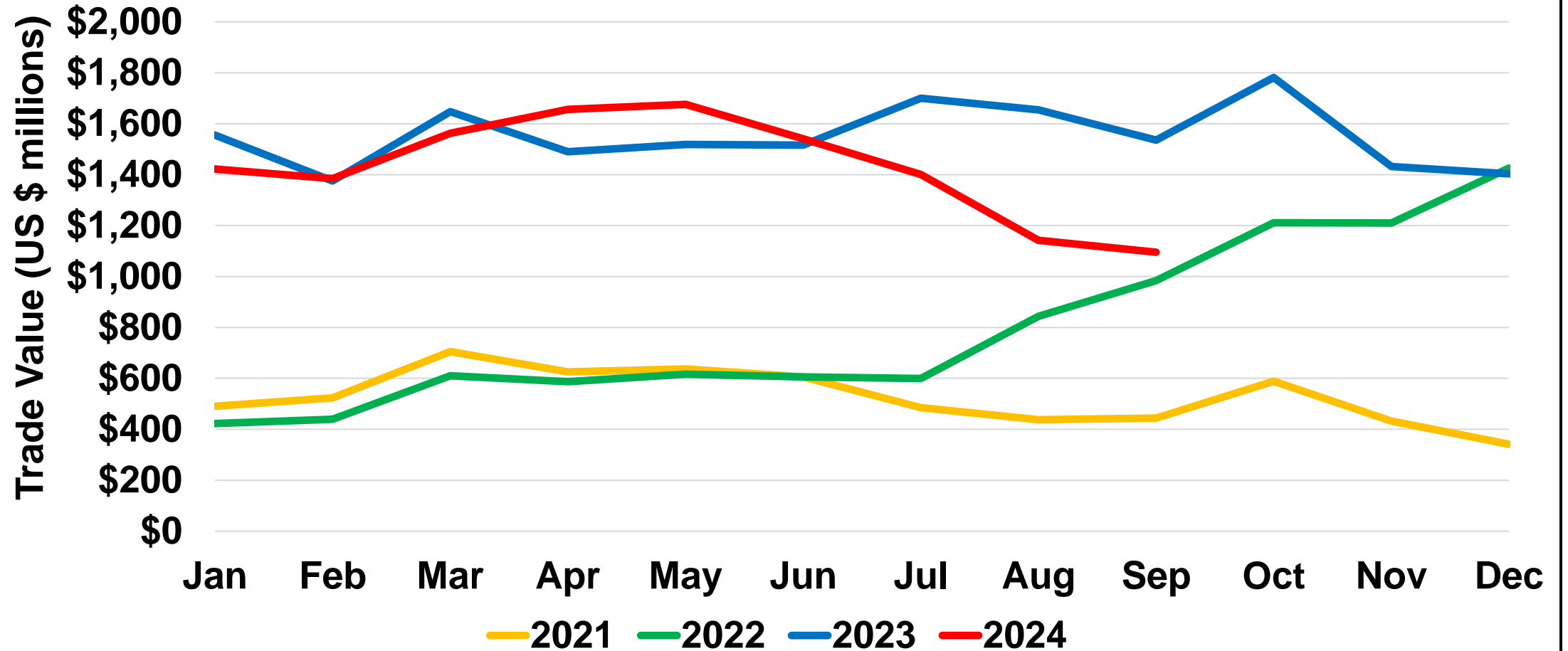
Annual Capacity Additions and Cumulative Capacity



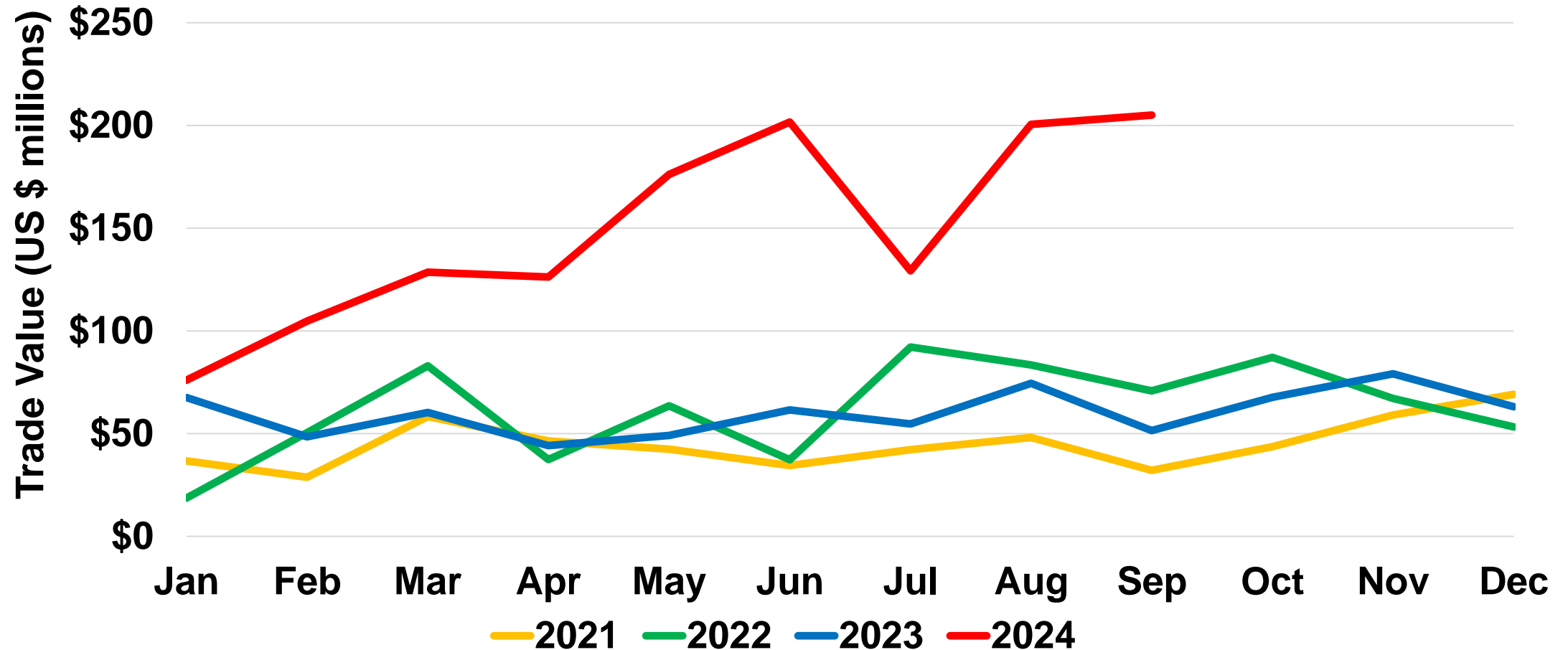


U.S. PV Trade (Cells and Modules)

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



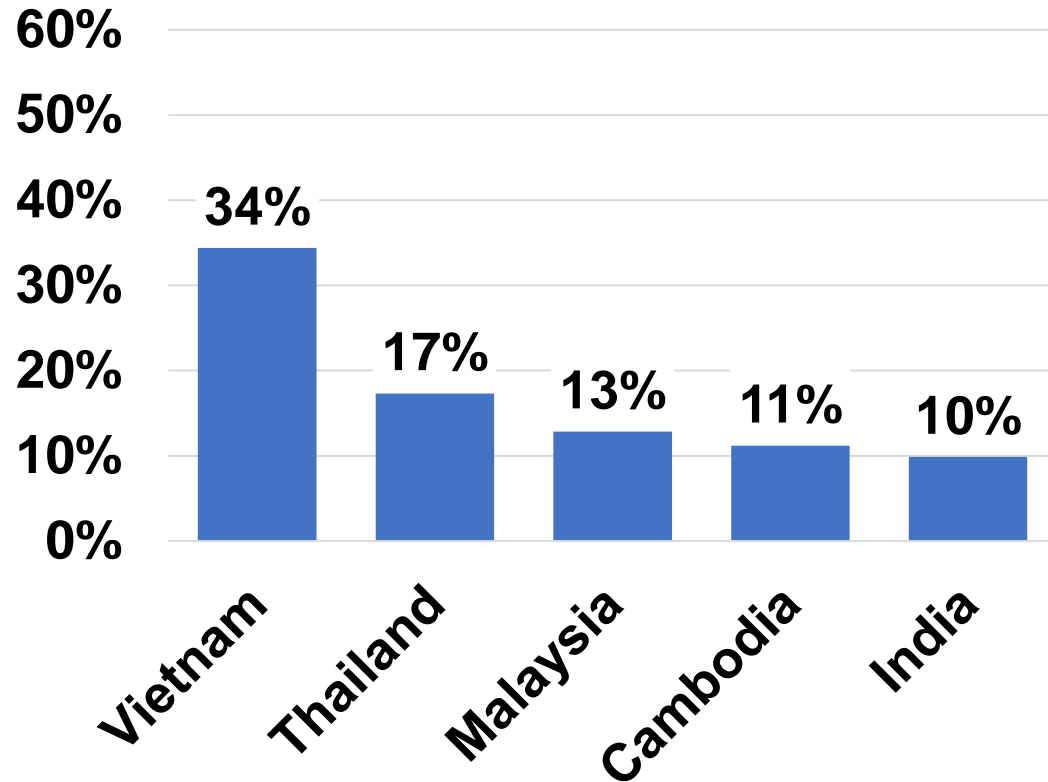
U.S. Year-on-Year PV Cell Imports (through September 2024)



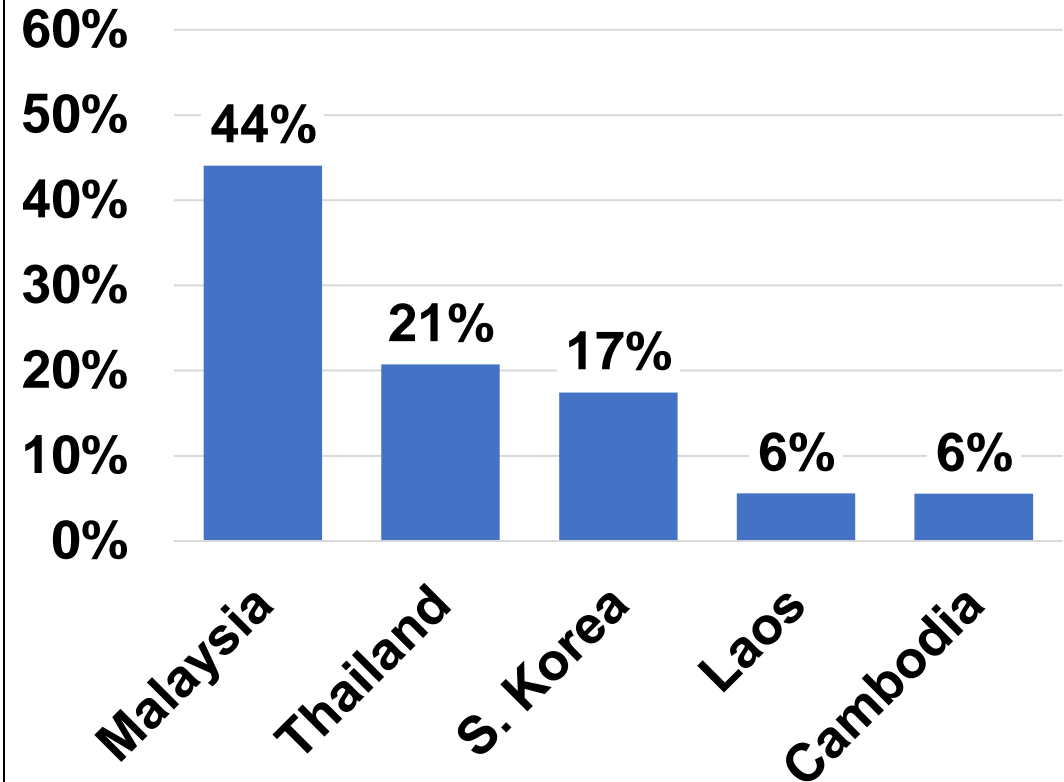
Monthly U.S. PV Panel and Cell Imports by Country September 2024



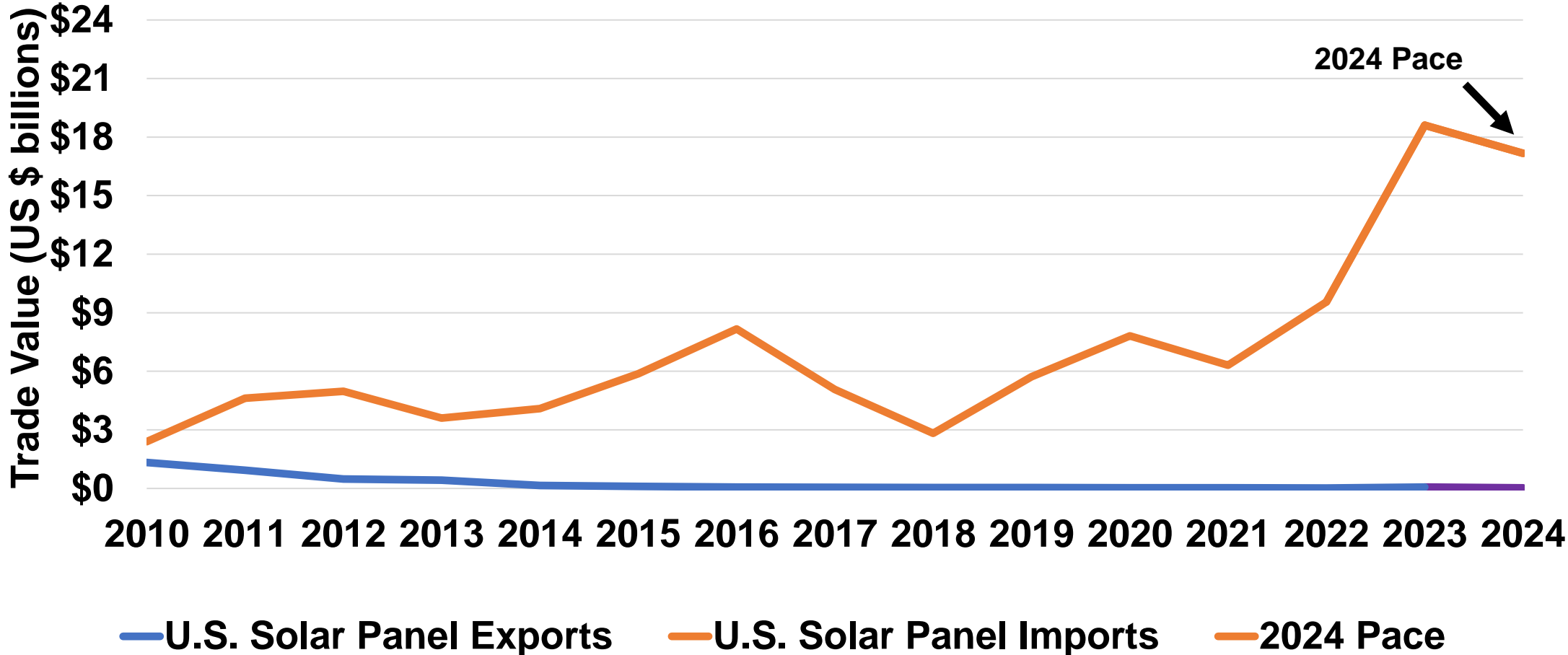
U.S. PV Panel Imports by Country



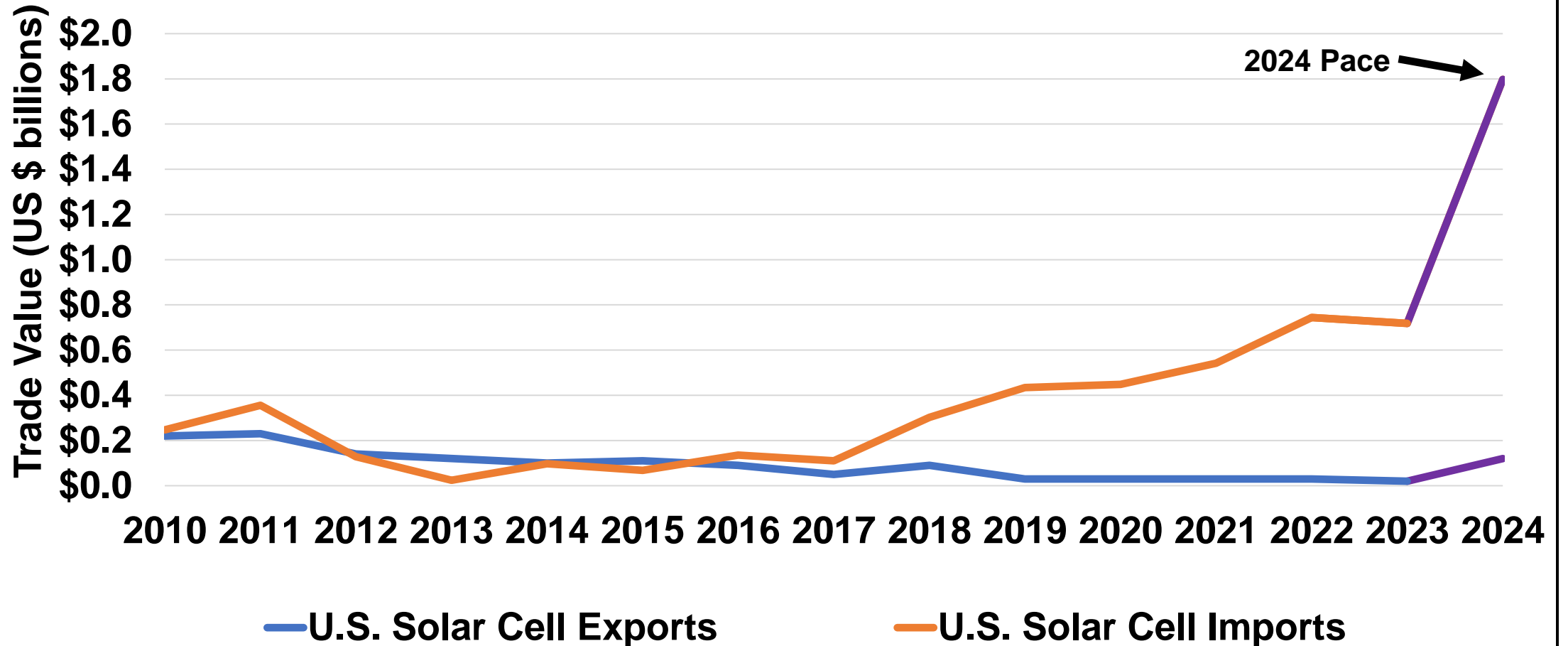
U.S. PV Cell Imports by Country



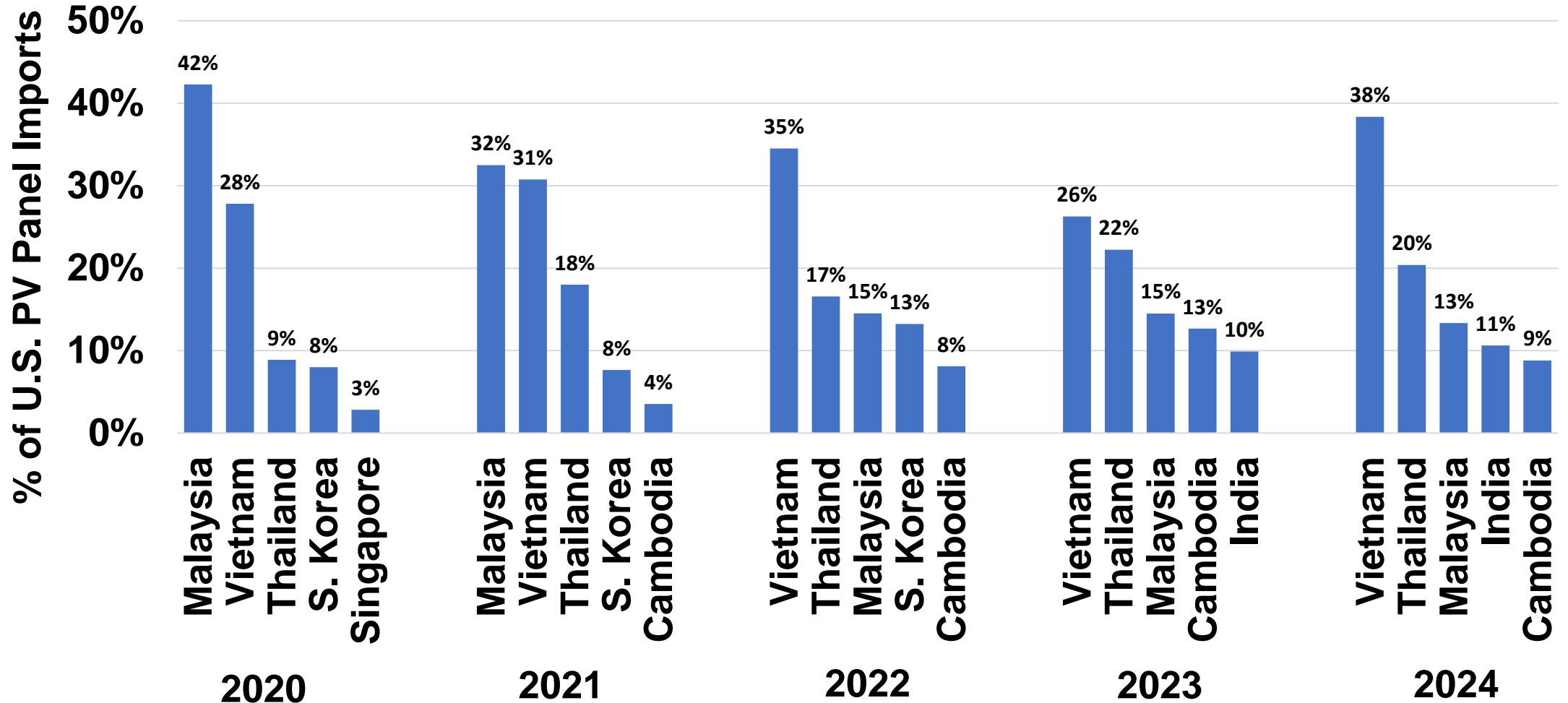
Annual U.S. PV Panel Trade through September 2024



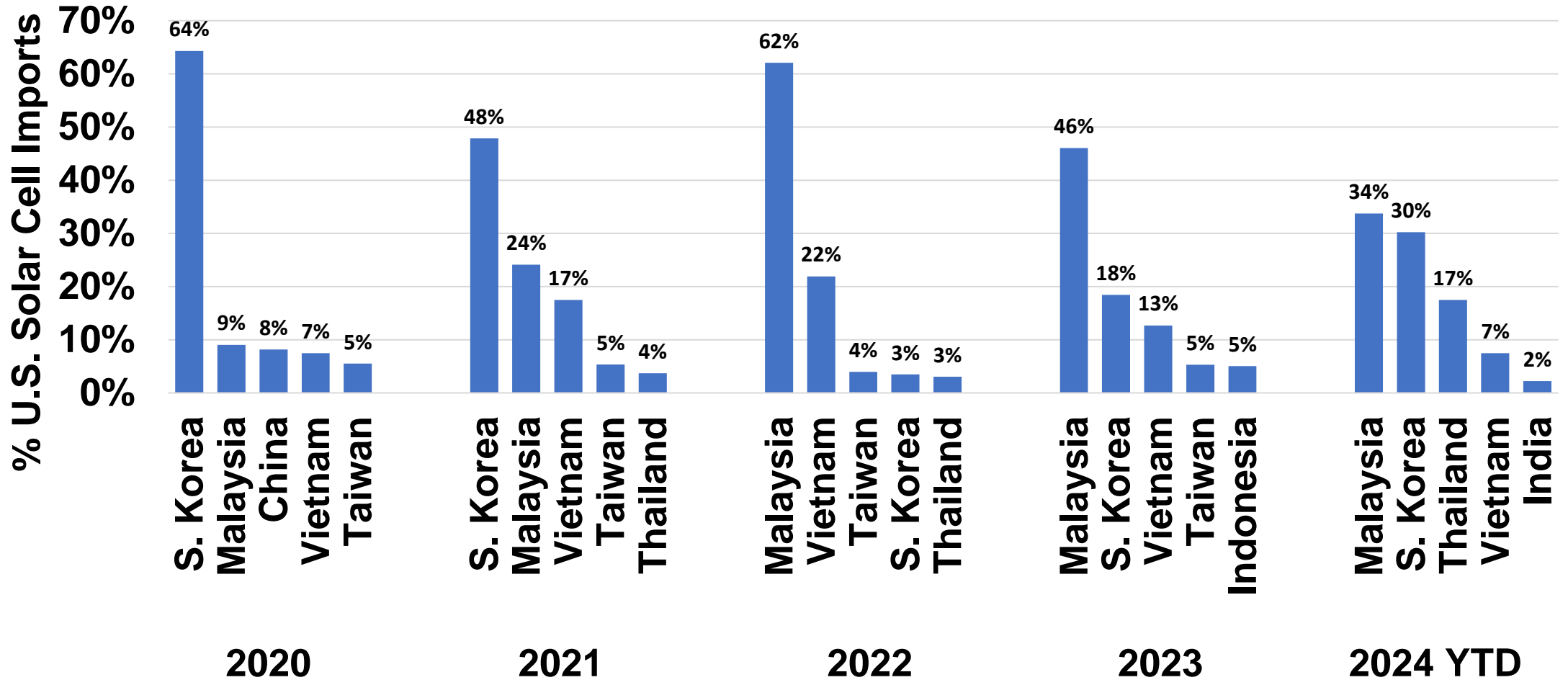
Annual U.S. PV Cell Trade through September 2024



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



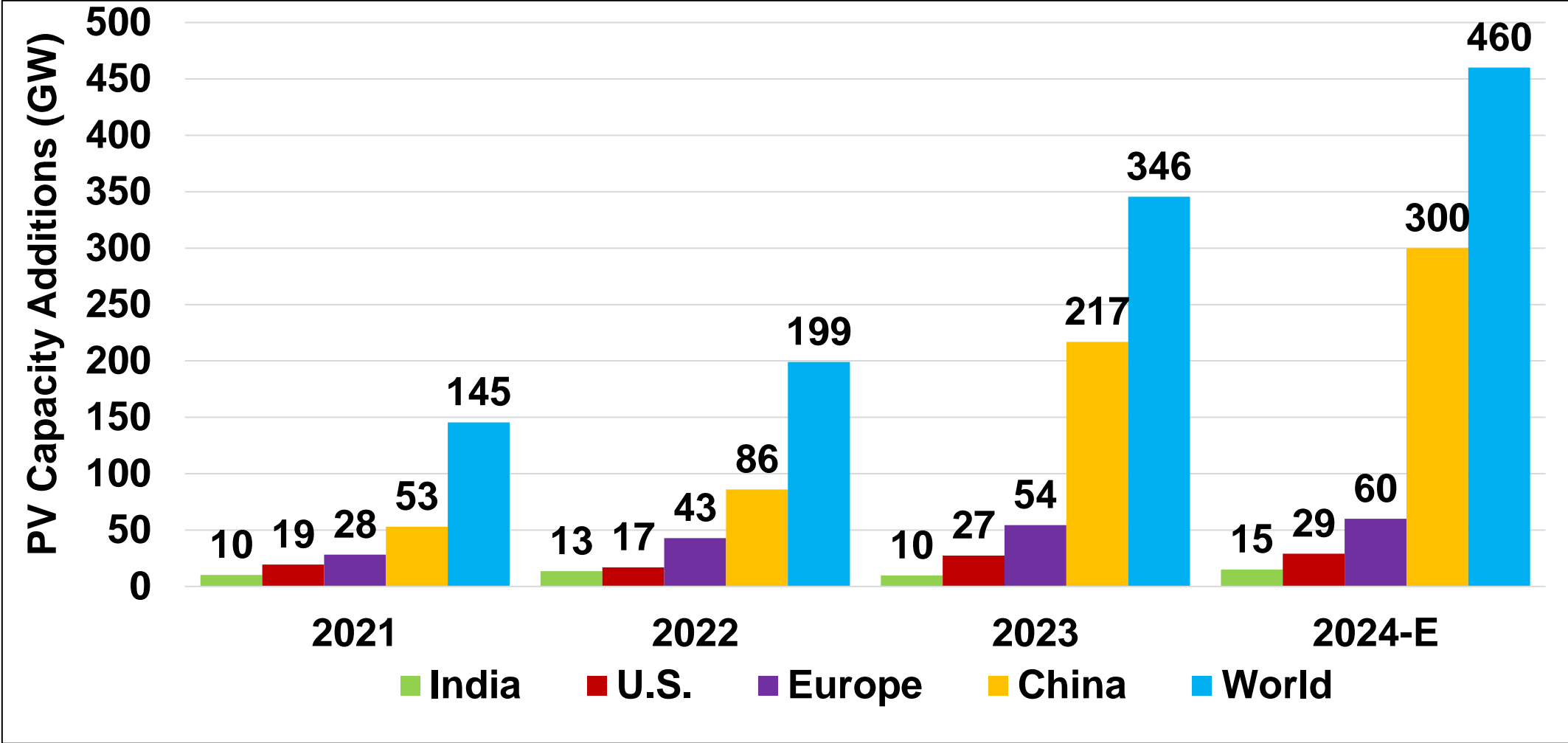
Annual U.S. PV Cell Imports Rank Order of Countries Year-to-Date through September 2024



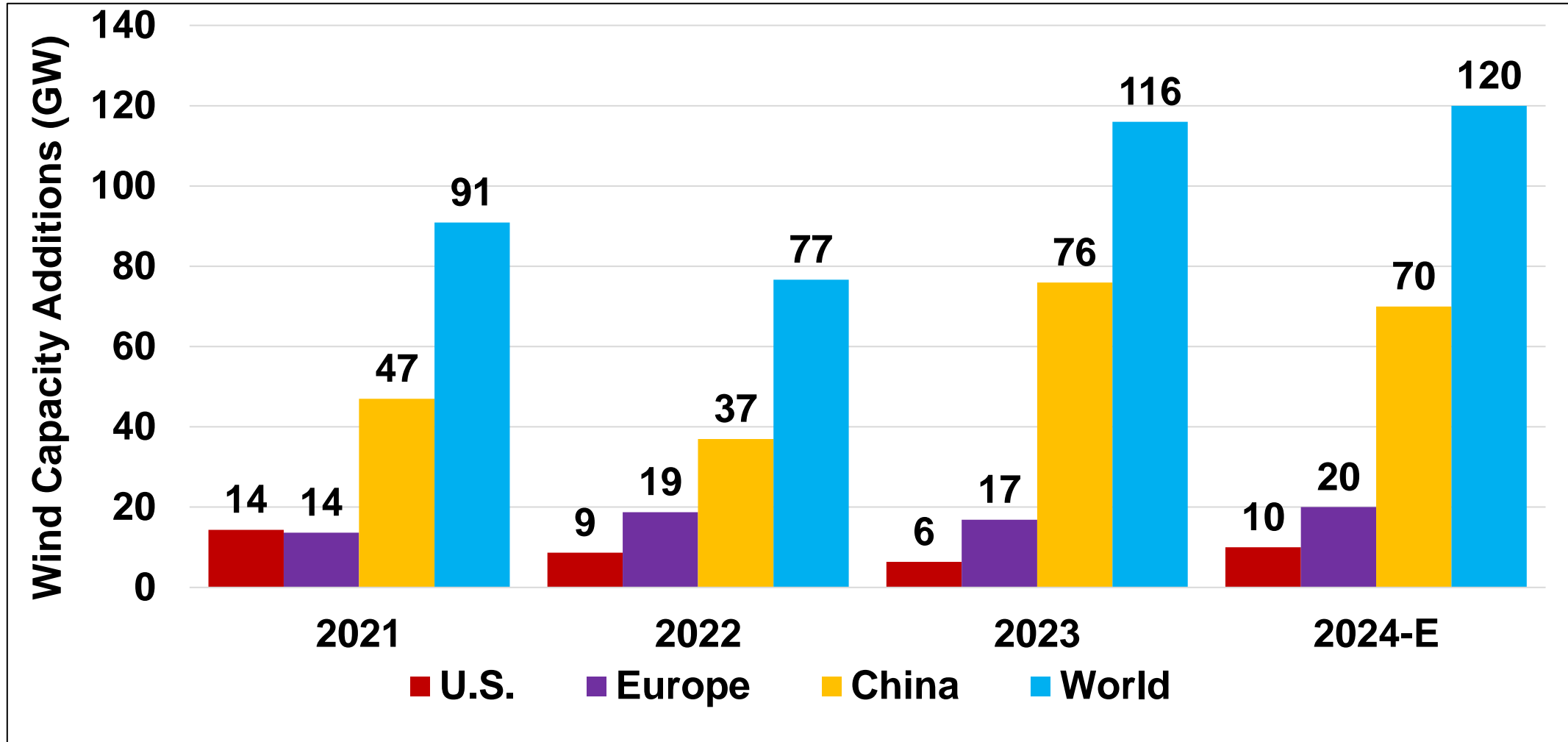


World PV and Wind

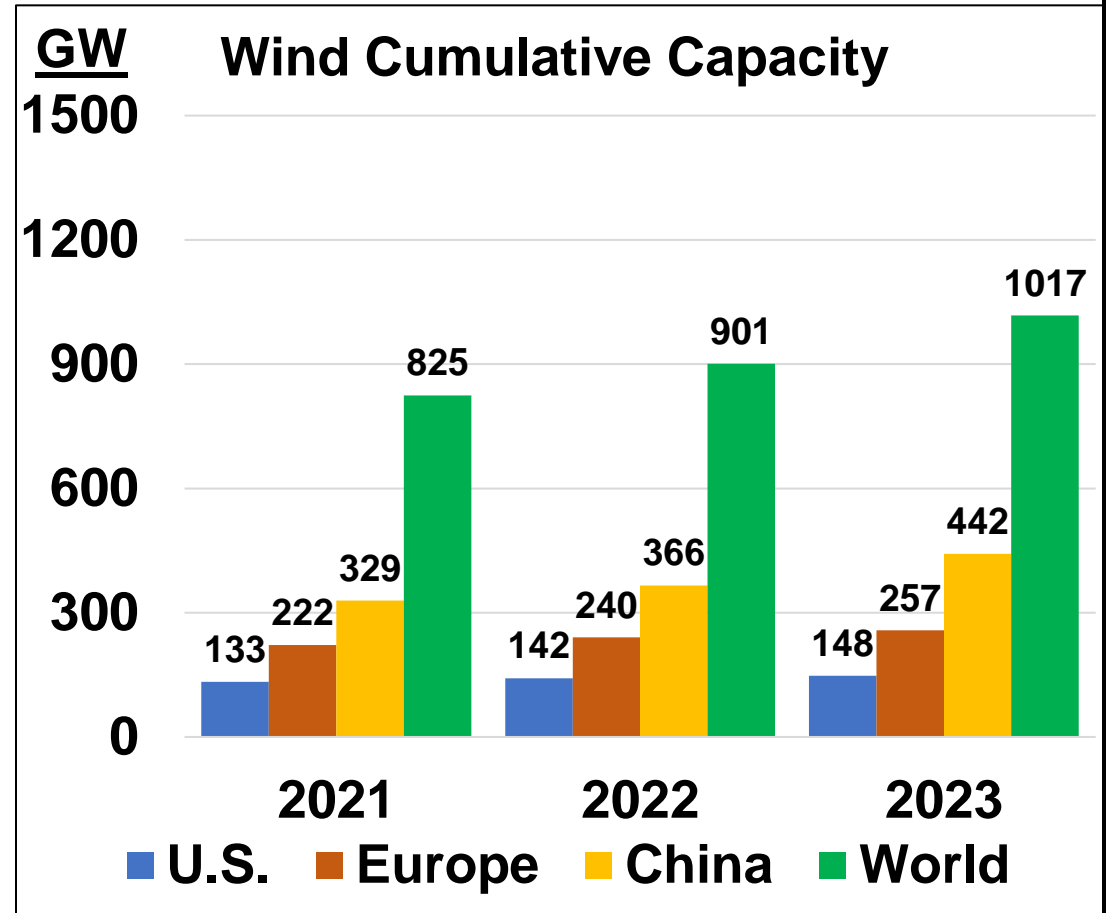
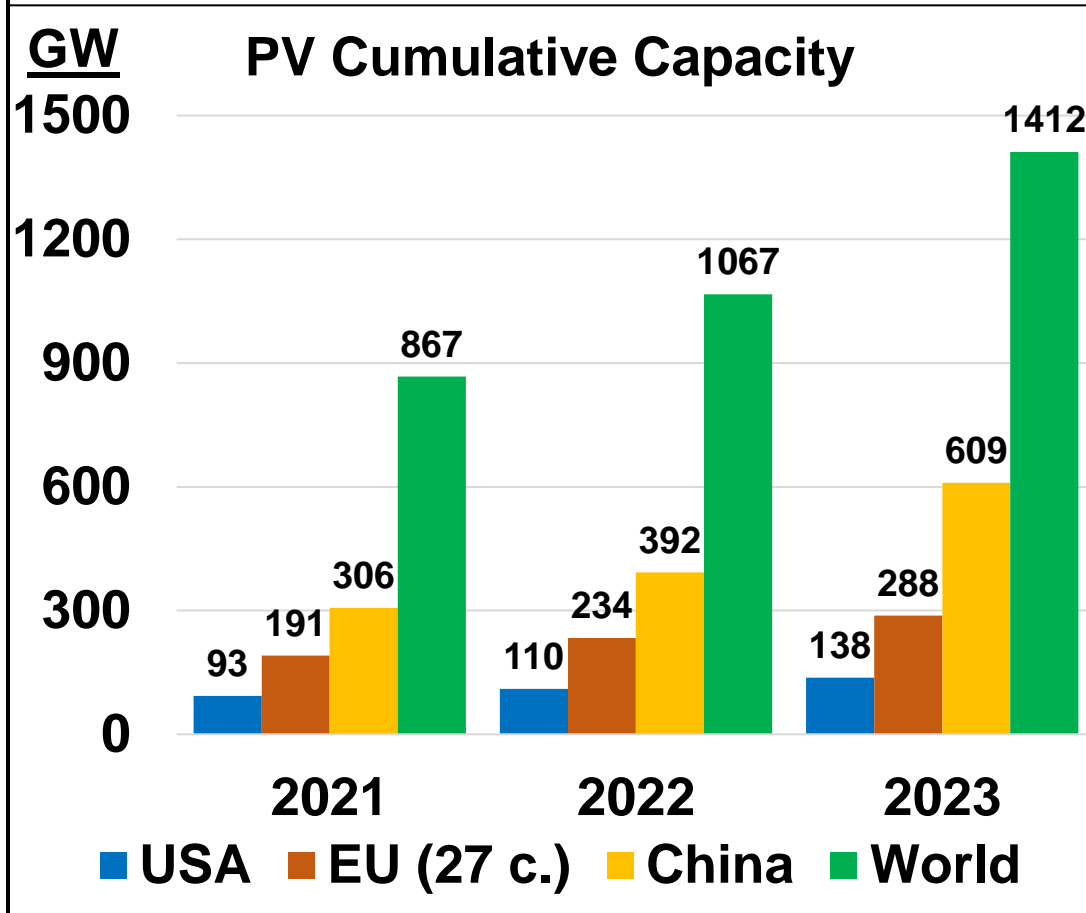
World PV Capacity Additions, 2021-2023 2024 Forecast



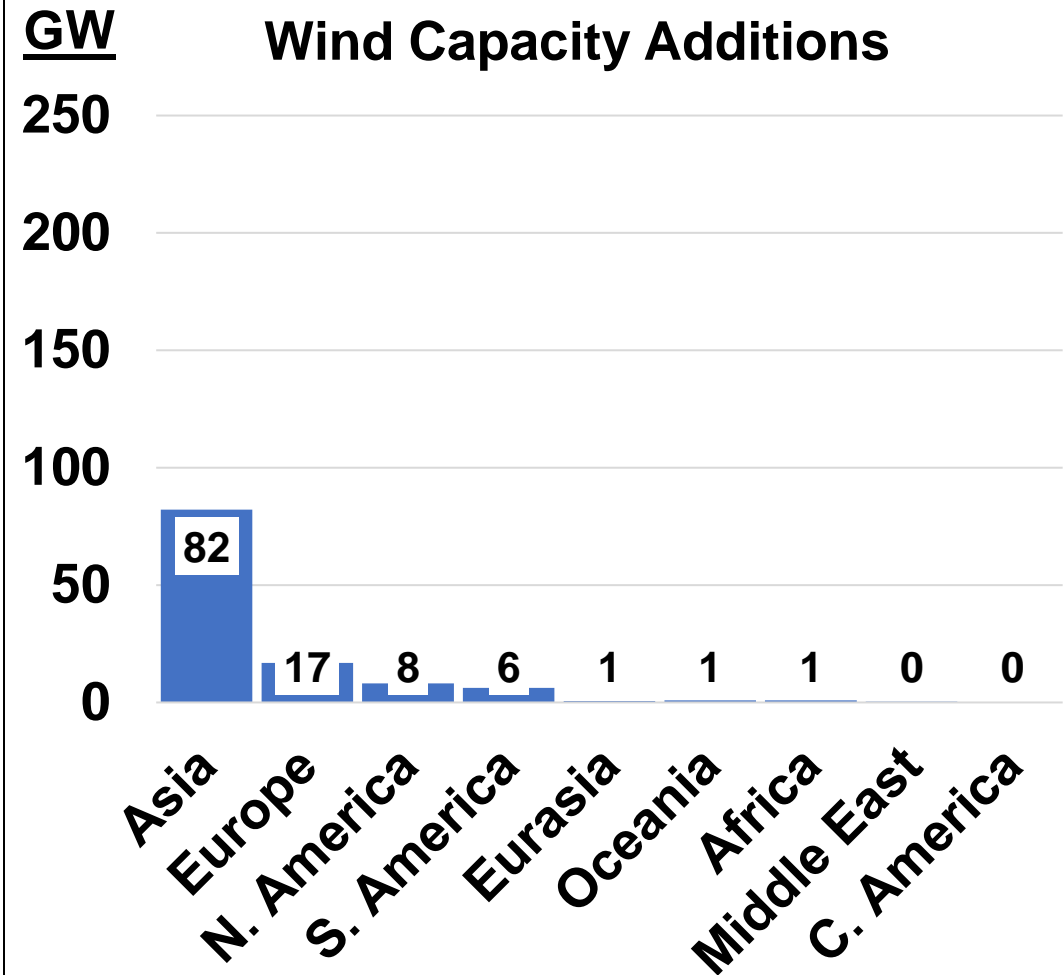
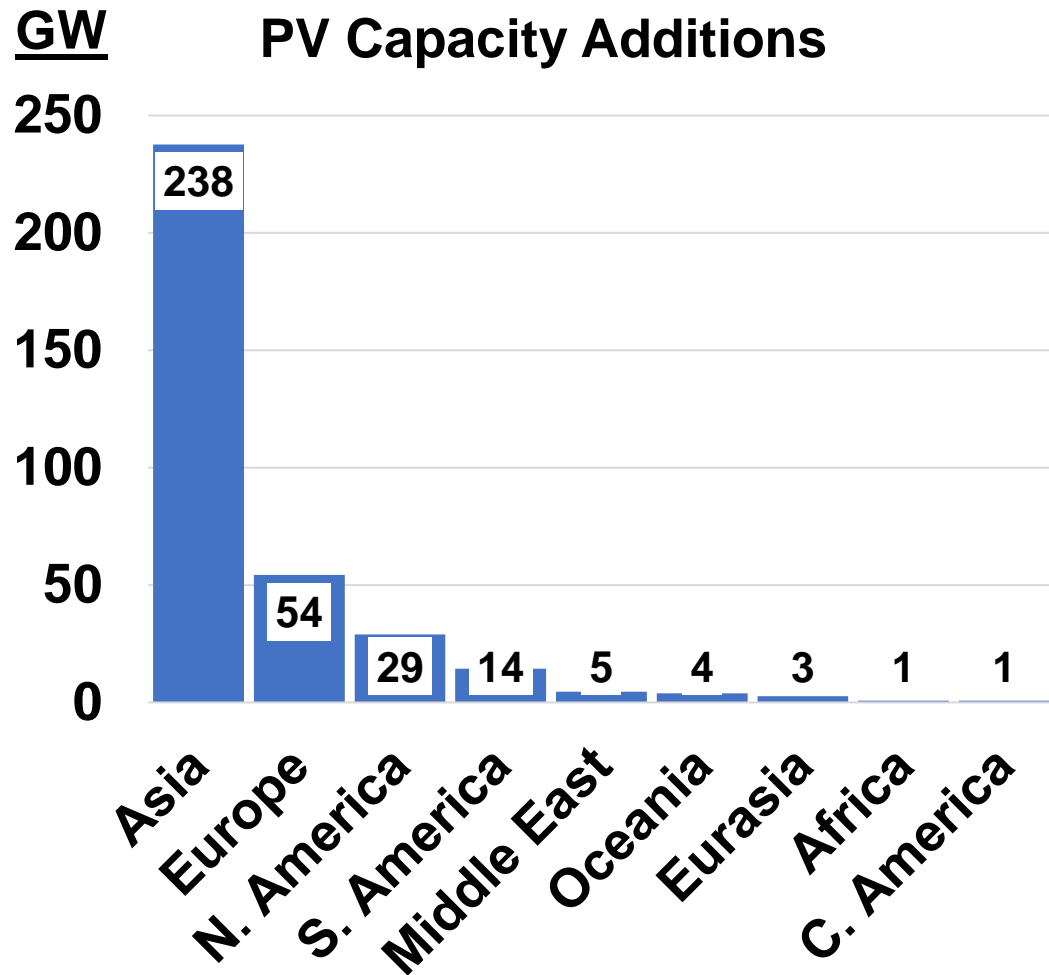
World Wind Capacity Additions, 2021-2023 2024 Forecast



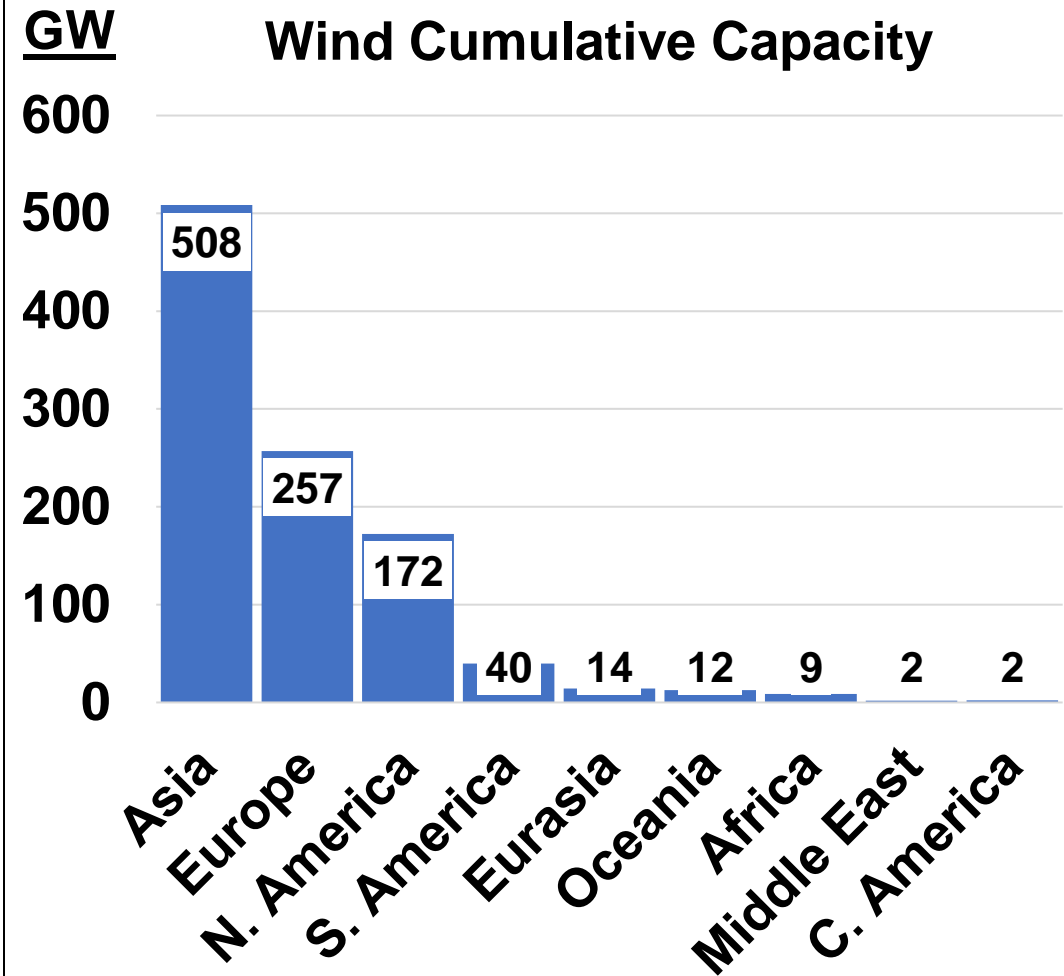
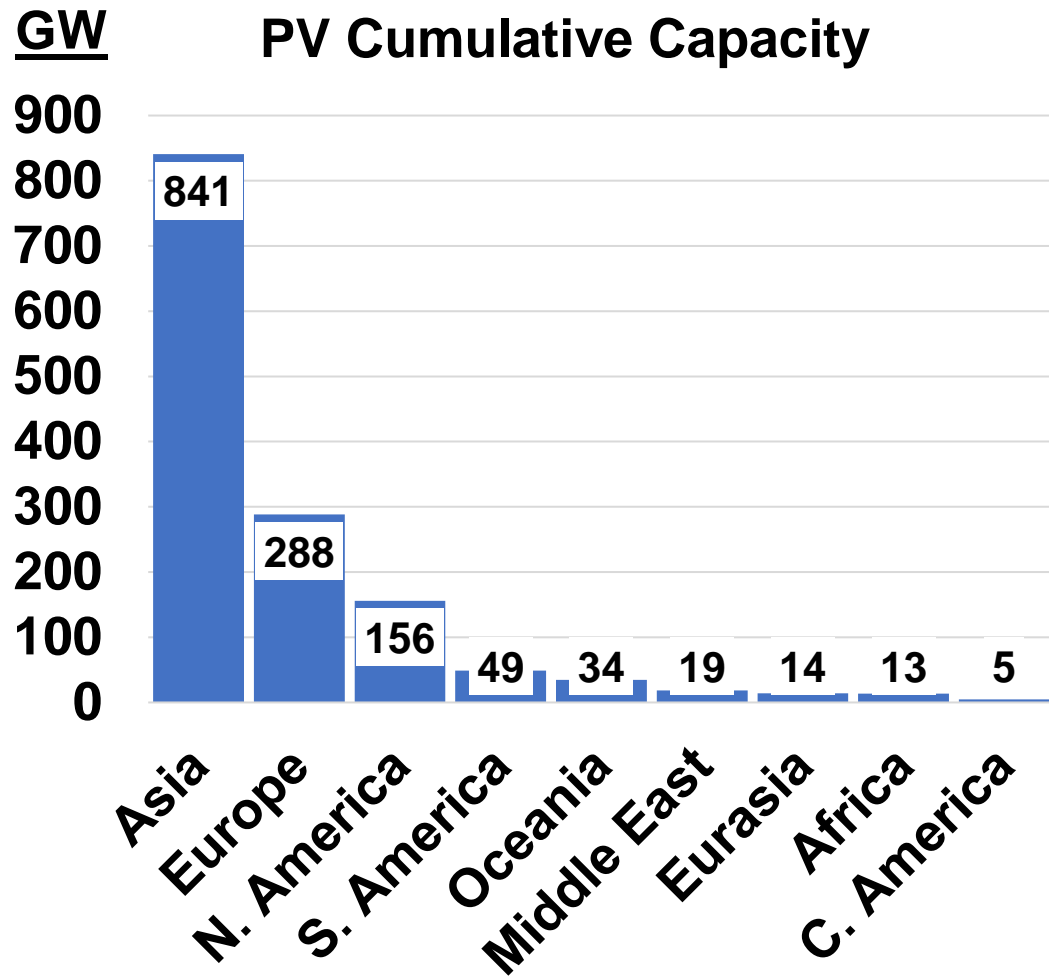
2023 PV and Wind World Cumulative Capacity



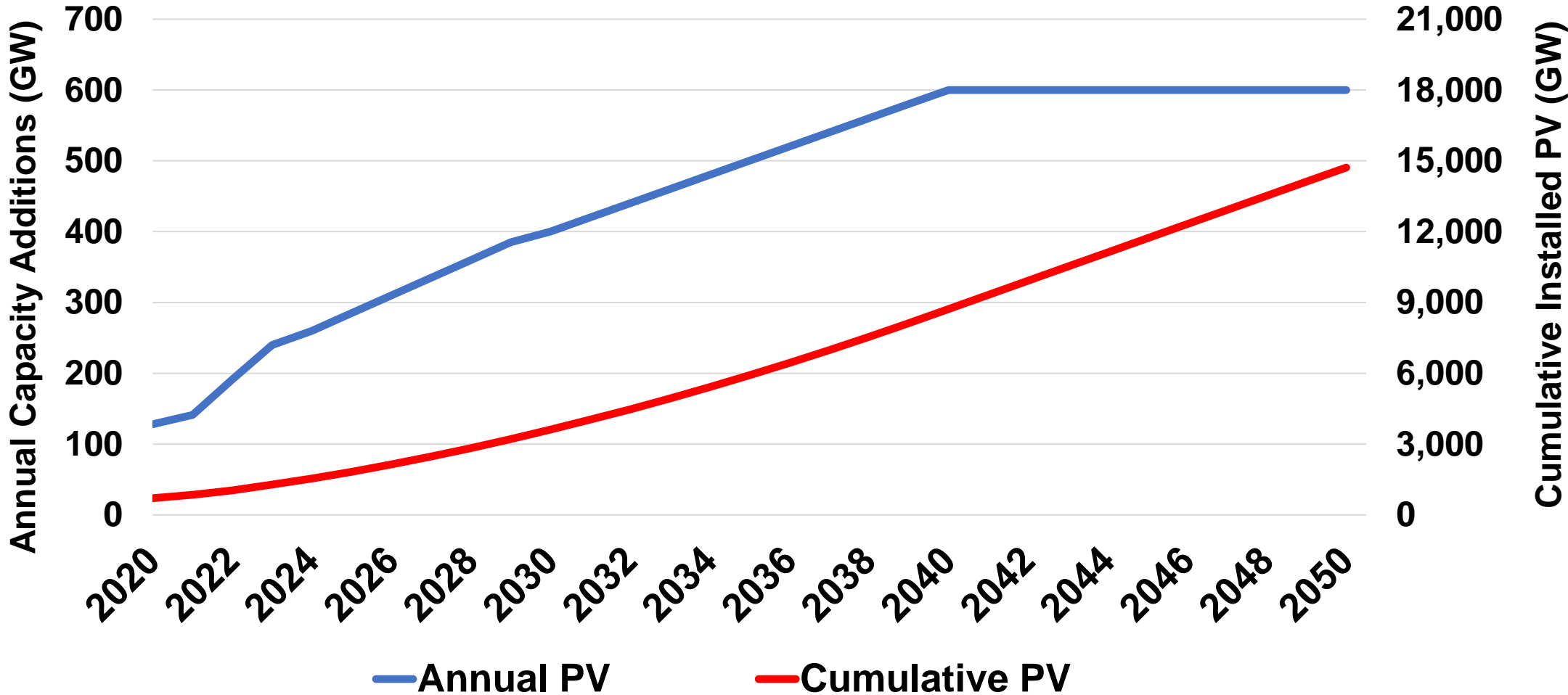
2023 World Regional PV and Wind Capacity Additions



2023 World Regional PV and Wind Cumulative Capacity



ASAP's World PV Forecast through 2050

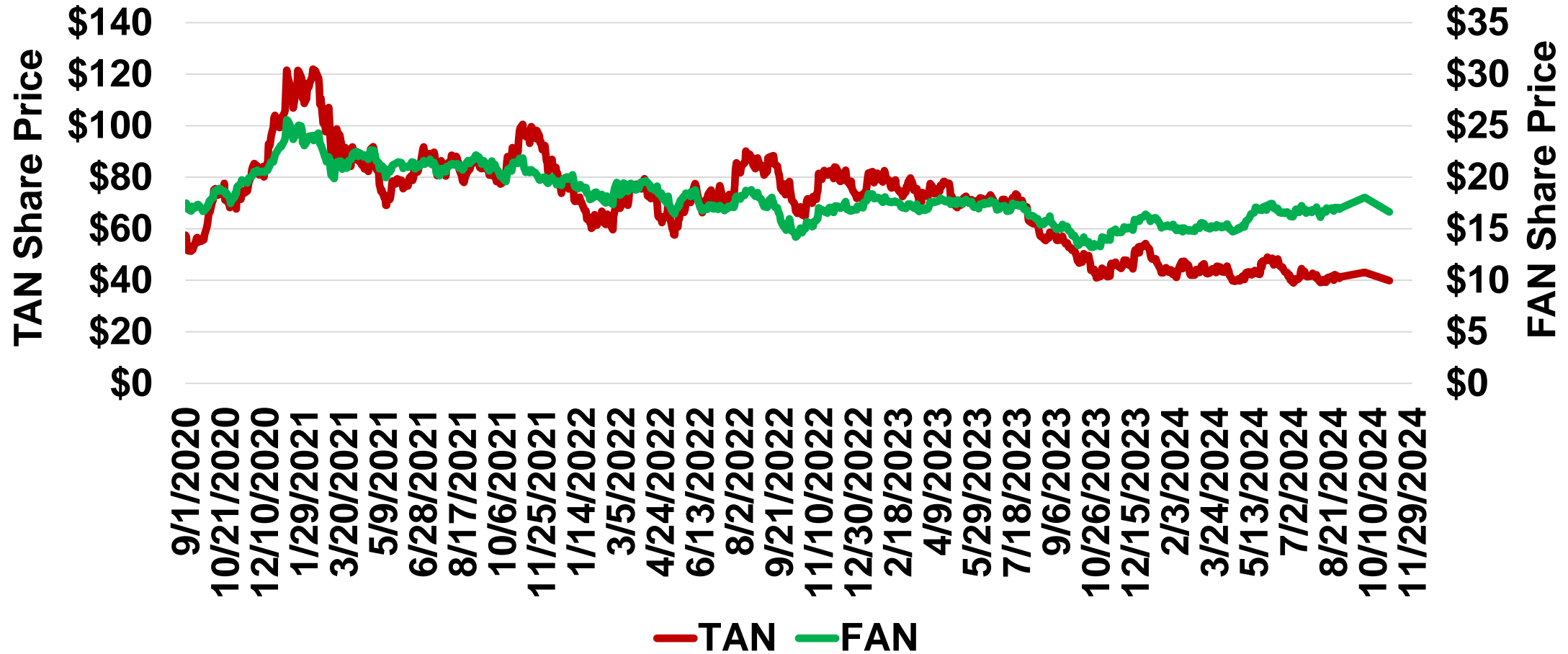




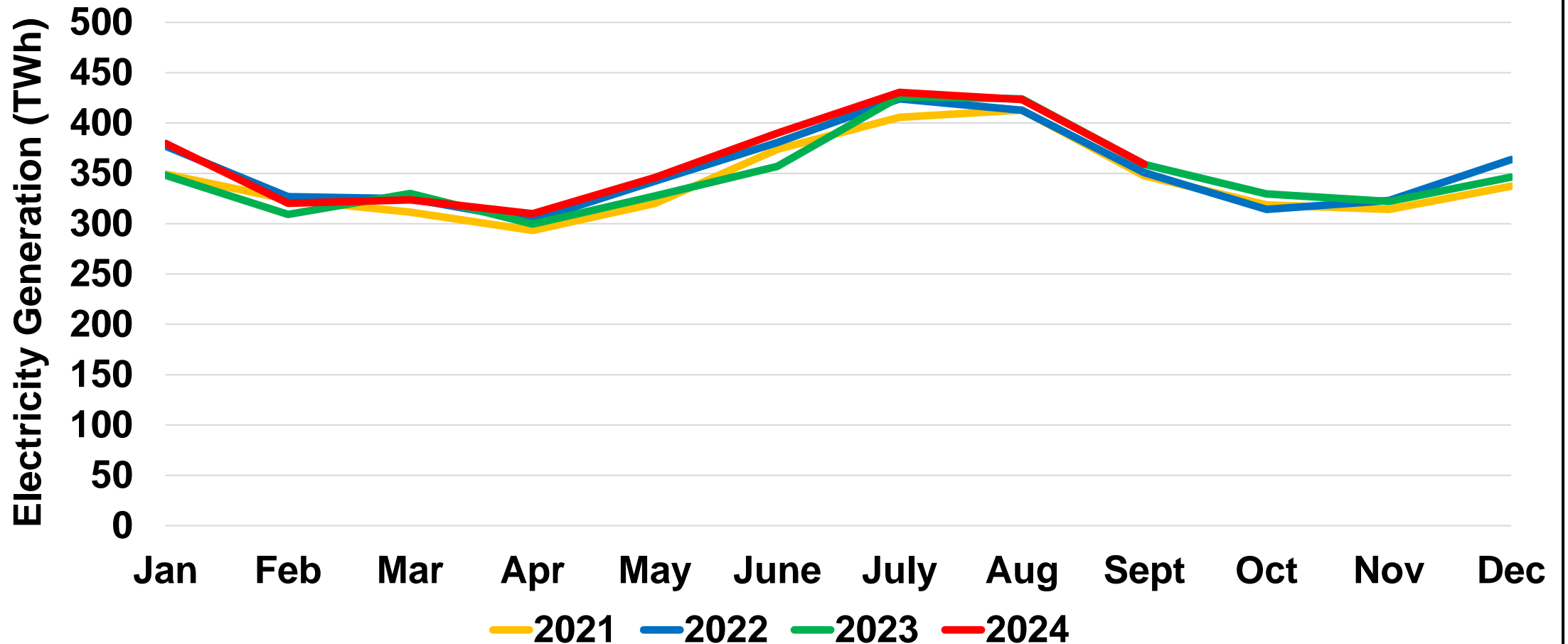
U.S. Electricity Market Overview

TAN and FAN Stock Prices
Monthly Electricity Supply and Demand
Electricity and Energy CO₂ Emissions

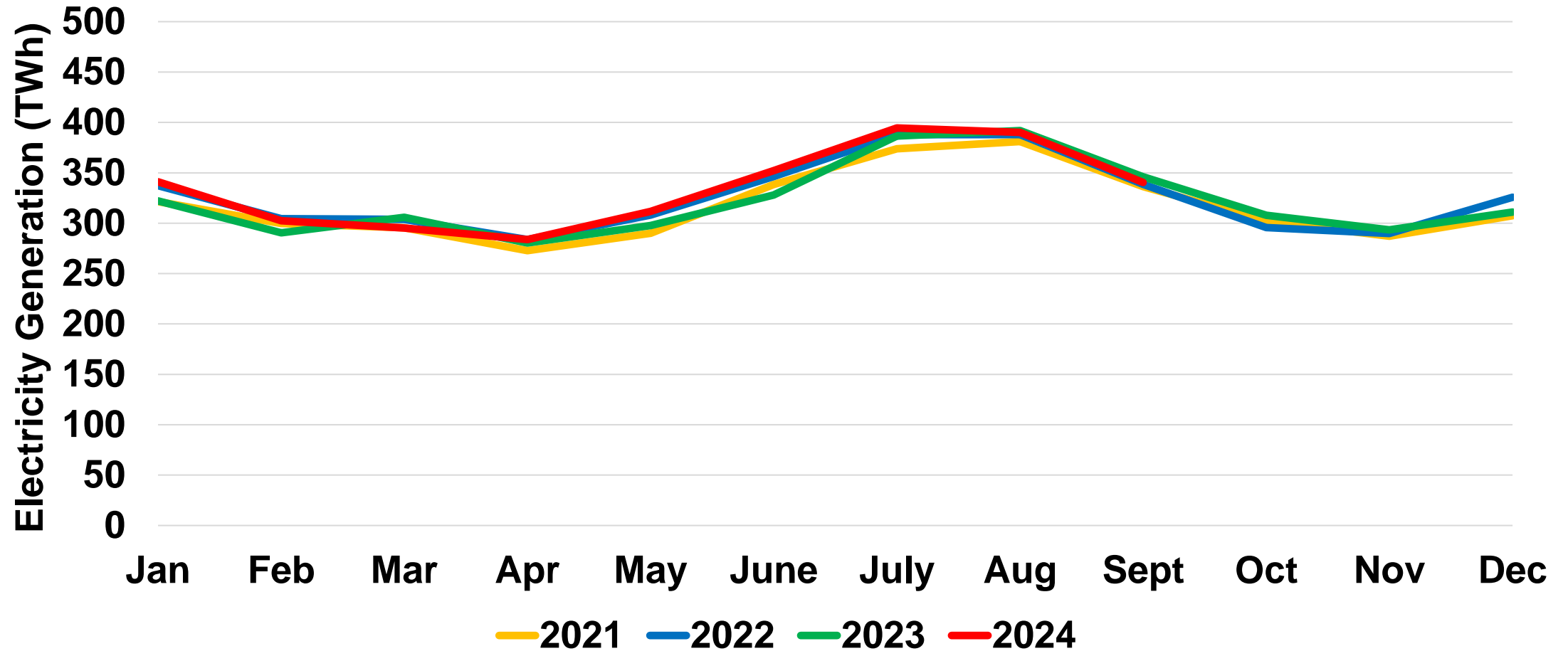
TAN (Solar) and FAN (Wind) ETF Share Prices Adjusted Close Prices through November 29, 2024



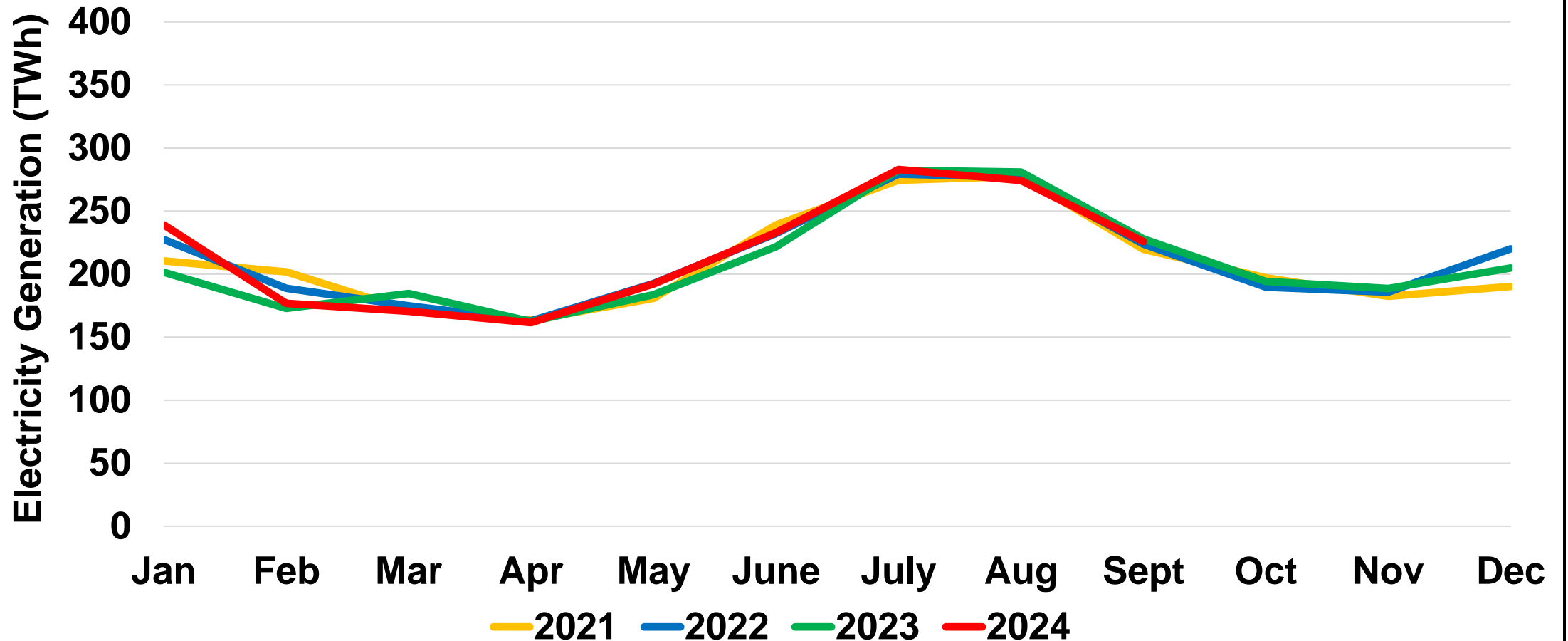
U.S. Total Electricity Generation Year-on-Year (through September 2024)



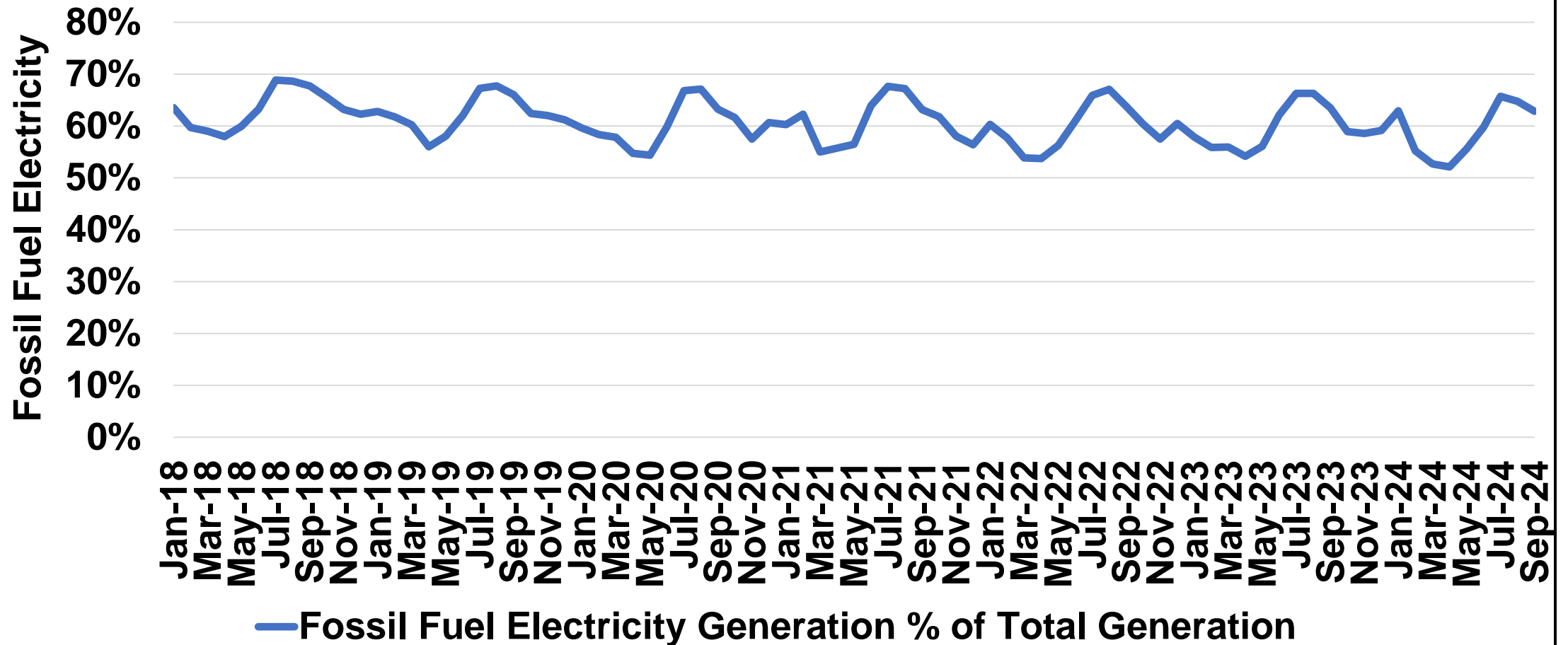
U.S. Total Electricity Demand (Retail Sales) Year-on-Year (through September 2024)



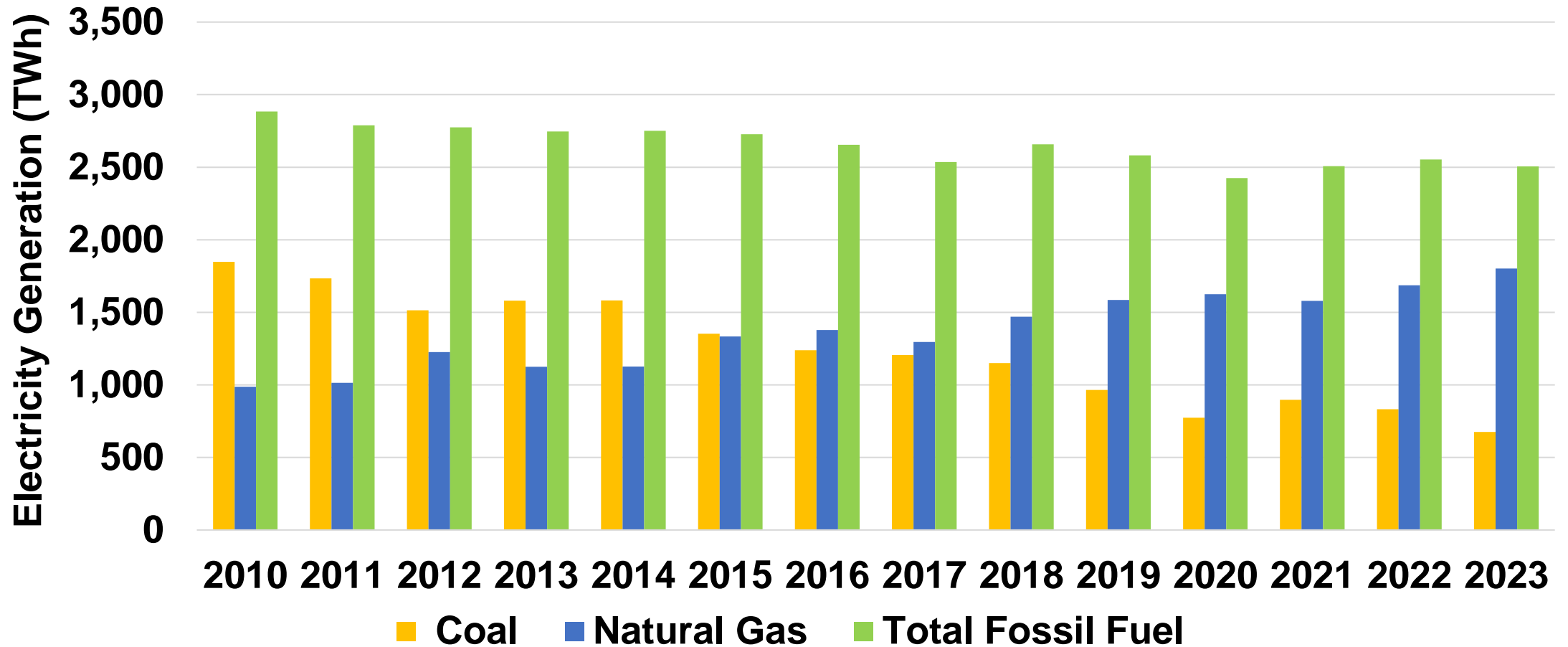
U.S. Fossil Fuel Electricity Generation Year-on-Year (through September 2024)



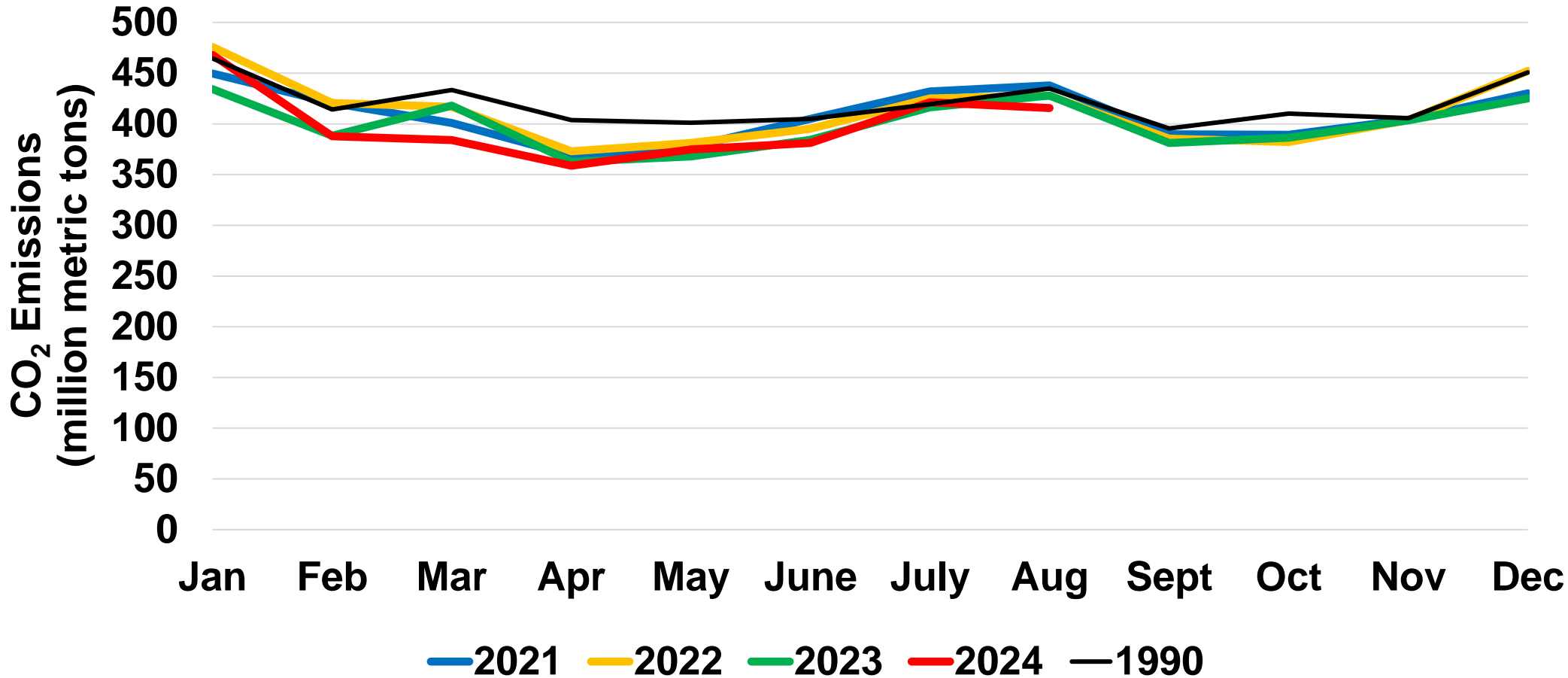
U.S. Fossil Fuel Electricity % of Total Generation through September 2024



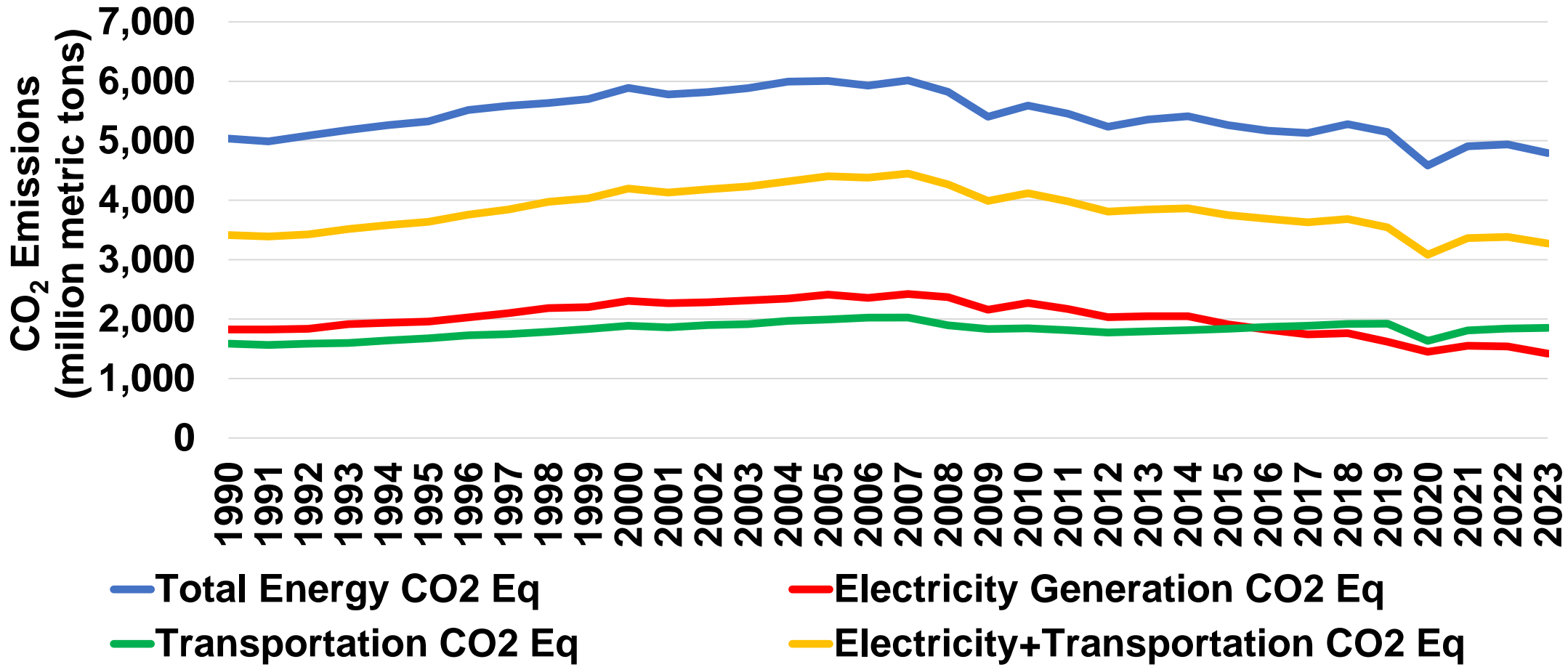
U.S. Annual Fossil Fuel Electricity Generation (2010-2023)



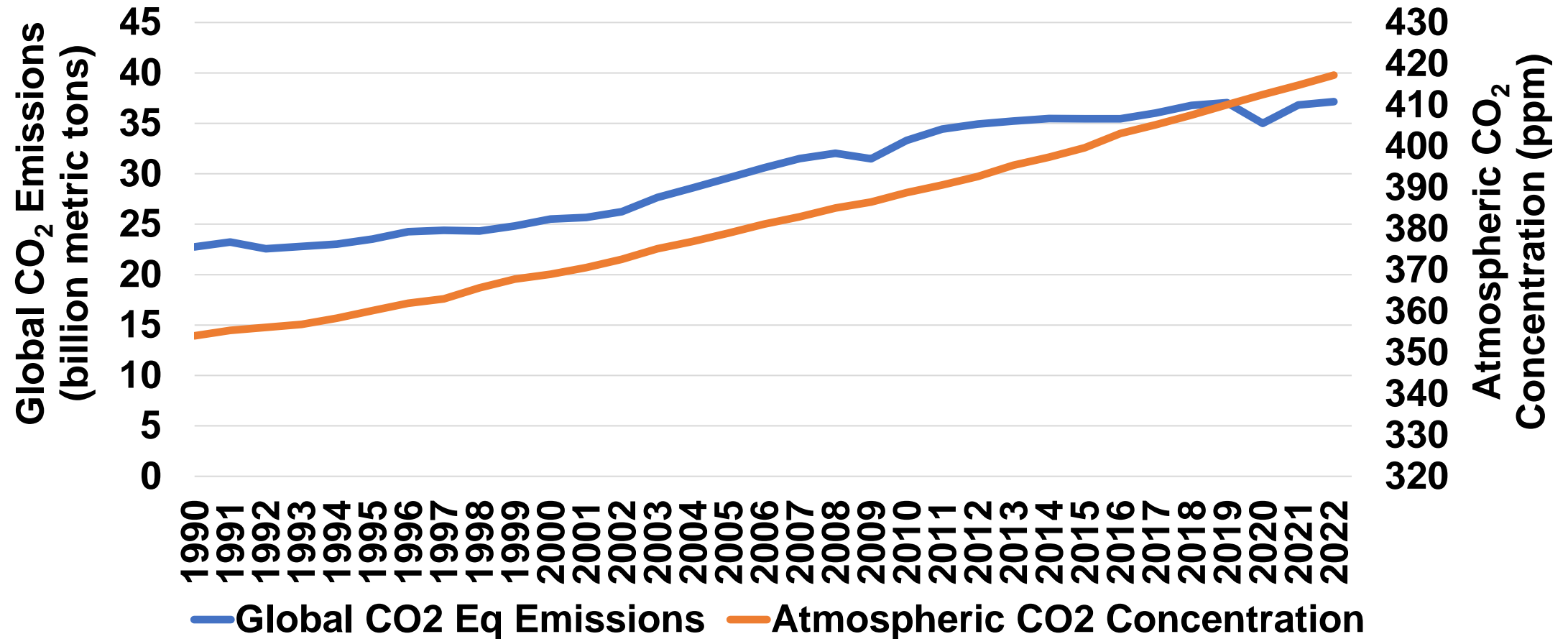
U.S. Monthly Energy Use CO₂ Equivalent Emissions (through August 2024)



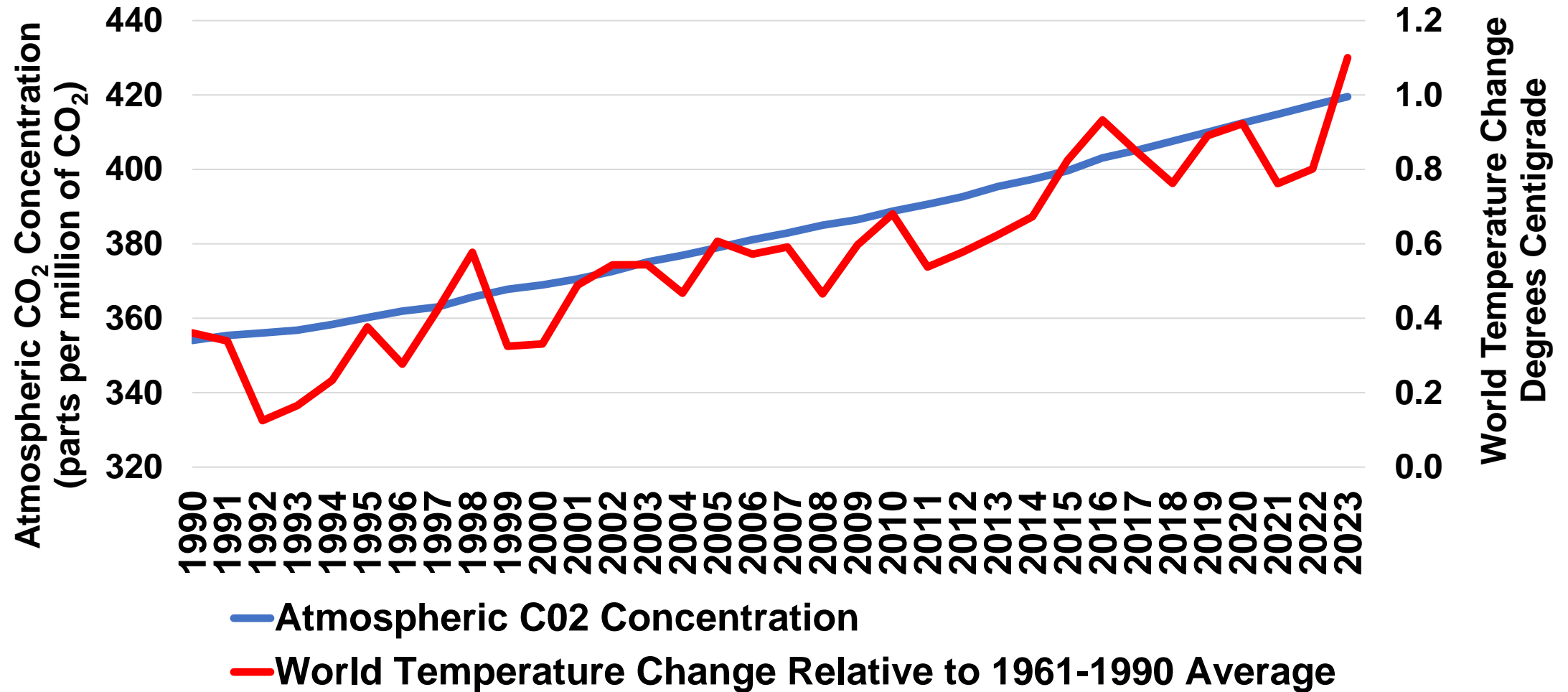
U.S. Fossil Fuel CO₂ Equivalent Emissions (1990-2023)



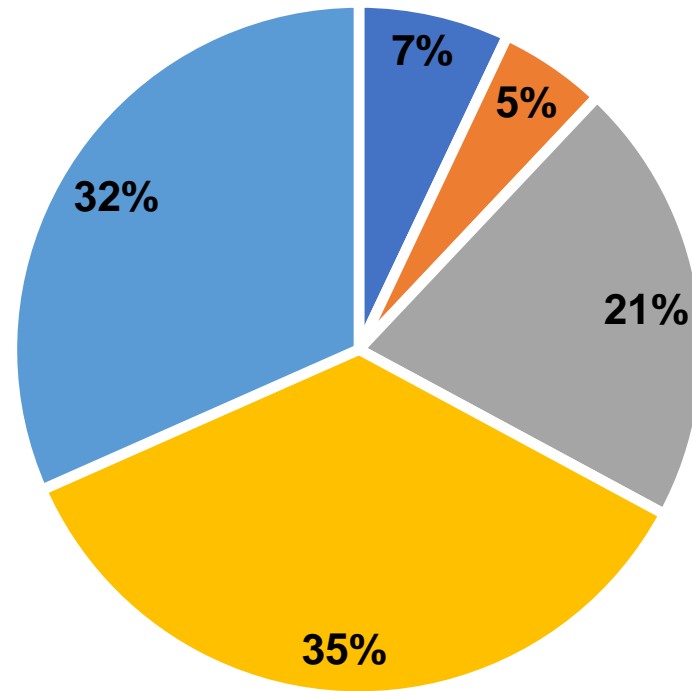
World CO₂ Emissions and Atmospheric CO₂ Concentration (1990-2022)



World Temperature and Atmospheric CO₂ Concentration (1990-2023)



U.S. Energy CO₂ Emissions by Sector (2020)



■ Residential ■ Commercial ■ Industrial ■ Transportation ■ Electric Power

ASAP Regional Map

