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MEMORANDUM

TO: Members of the Investment Committee, CalPERS
FROM: Meketa Investment Group
DATE: March 17, 2025
RE: Semi-Annual Infrastructure Performance Review, as of December 31, 2024

In our role as the Board Infrastructure Consultant, Meketa Investment Group ("Meketa") conducted a semi-annual performance review of the Infrastructure Portfolio ("the Portfolio") for the California Public Employees' Retirement System ("CalPERS") Real Assets Program (the "Program") for the period ended December 31, 2024, based on data provided by Wilshire Associates and selected CalPERS reports.[1] This memorandum provides the following: Portfolio performance data; implementation summary; status of key policy parameters; and a summarized market commentary provided as an attachment.

Performance[2]

CalPERS' Infrastructure Portfolio outperformed its policy benchmark for all reporting periods.

Net Returns as of December 31, 2024	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Infrastructure Portfolio Returns	13.1	8.8	8.1	9.6
Infrastructure Policy Benchmark[3]	(7.9)	(1.0)	2.0	3.7
Over (under) Performance[4]	21.0	9.8	6.0	5.9
Consumer Price Index (For Reference Only)	2.4	4.8	4.2	2.9

Comparing the above December 2024 returns to those posted a year ago, on an absolute basis, the one- and five-year trailing returns are up from 5.2% and 6.9%, respectively. At the same time, the three- and ten-year trailing period returns are down from 9.4% and 10.6%, respectively. However, all four trailing periods posted better relative performance over the benchmark compared to a year ago, when over (under) performance was 18.0%, 3.2%, 2.3%, and 5.4%, respectively, for the one-, three-, five-, and ten-year trailing periods.

All trailing period returns exceed CalPERS' expectations for the asset class of 5.3% and 5.5%, set by the Capital Market Assumptions ("CMA") for Real Assets for the near- and long-term (five and 20 years), respectively. With the exception of the one-year return that is showing a pop at 13.1% (discussed on following page), the other periods fall in the 7% to 10% range that we have seen across many previous quarters. We note that it appears the several down COVID-impacted quarters are moving past the near period returns into later history; however, the five-year return sitting at 8.1% below both the three- and ten-year return may still reflect some of those COVID-impacted quarters.

[1] CalPERS Real Assets Quarterly Performance Report, including underlying Allocation, Characteristics, and Leverage Reports (Excel files), for the period ending September 30, 2024.
[2] Per Wilshire for the period ended December 31, 2024, reported with a 1-quarter lag, so as of September 30, 2024 (State Street Bank data).
[3] CalPERS Custom Infrastructure Benchmark, with historical composition as follows: MSCI/PREA U.S. ACOE Quarterly Property Fund Index Net of Fees (April 1, 2018 forward); Consumer Price Index ("CPI") + 400 basis points (July 1, 2011 through March 31, 2018); and CPI + 500 basis points (October 1, 2007 through June 30, 2011).
[4] Calculated using more decimal places than shown, so result may not calculate exactly from the table data due to rounding.

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For consistency with prior reporting, we note that the Infrastructure Portfolio's comparison to its benchmark should be viewed in the context that, since April 2018, the benchmark has had underlying assets that are 100% real estate, which is now completely reflected in all trailing periods except the ten-year, with the ten-year benchmark being more than half real estate, with the balance CPI+400 or +500 basis points.

Relative to CPI, as seen above, returns for all trailing periods are coming in above CPI, which we provide for reference only, as it used to be part of the Portfolio's benchmark and continues to be used by other institutional investors, usually with a premium of anywhere from +300 to +500 basis points, depending on the risk-orientation of the portfolio. Also visible in the table above is the relatively higher CPI for the three- and five-year periods, reflecting prior elevated levels compared to more recent and longer historical periods. We note that the Portfolio's returns exceeded CPI by 390 to 1070 basis points over the reported periods.

The impressive 13.1% one-year return is attributed to a combination of factors including: mark-ups of new investments acquired at cost; valuation increases in a number of established assets; and appreciation of selected foreign currency hedges, including as occurred in Q4 2024 and reflected in Wilshire's reporting using State Street data and methods. In previous quarters, the one-year return has been lower than other periods, excepting, on occasion, the five-year COVID-influenced period. We attributed this to a combination of the following factors: J-curve effects for newer commitments, including vehicles with low, negative, or no (i.e., not yet meaningful) returns for one or more of the prior four quarters; lingering impacts from decreased economic activity and valuations associated with COVID impacts, particularly in the transportation sector; and continuing low net income levels (see below). We note that 65.9% of the Portfolio's Net Asset Value ("NAV") was acquired in the last four years, with 2021 at 23%, 2022 at 18%, 2023 at 14%, and 2024 (through Q3) at 10.6% of the NAV. As CalPERS continues to build out the Infrastructure Portfolio and increase its commitments to Value Add strategies, future one-year period returns may again be dampened by J-curve effects without the benefits of the positive factors identified above as present for Q3 2024.

Other aspects of performance drivers are consistent with prior reporting periods and recent market conditions, as highlighted below.[1] Please see the Market Activity Attachment for additional information on selected infrastructure sectors and related economic data.

All returns cited are for the trailing one-year period.

Risk Classification

→ Core, comprising 69.4% of the Portfolio, delivered low teens returns. Global Diversified Infrastructure comprised more than half of the Core portfolio at 60.3%, with 15.3% in US Power & Energy, 12.6% in Transportation (all geographies), and 11.8% in Communications (all geographies).

→ Non-Core: Value Add, comprising 28.9% of the Portfolio, posted low teens returns. These investments are predominantly diversified commingled funds, at approximately 75.1% of the Value Add portfolio, with two communications fund investments representing about a quarter of the funds' NAV, and some co-investments making up the other 24.9% of this sub-portfolio.

→ Non-Core: Opportunistic, comprising 1.7% of the Portfolio, posted negative double-digit returns. This category comprises one diversified commingled fund investment that is in wind-down mode.

[1] Real Assets QPR Q3 2024 Final.

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Sectors

- → Global Diversified Infrastructure comprises 62.4% of the NAV and delivered low teens returns.
- → US Power/Energy represents 13.5% of the Portfolio and delivered low teens returns.
- → Global Communications comprises 10.5% of the Portfolio and delivered high single-digit returns.
- → US Transportation accounts for 5.7% of the portfolio and posted high single-digit returns.
- → Global Transportation is 4.8% of the portfolio and posted mid single-digit returns.
- → International Communications is 2.4% of the portfolio and posted high single-digit returns.
- → Global Power/Energy is 0.7% of the portfolio and performance is not yet meaningful.

Net Income

- → The Portfolio's one-year net income was 1.8%, slightly up from 1.4% a year ago. We would expect yield levels to be in the low single-digit range based on several factors, including the increasing proportion of Non-Core investments, selected portfolio companies' retention of cash for growth and capex, and some lingering effects of asset positioning during COVID. We note the Core Portfolio NAV has decreased slightly to 69.4% of the total infrastructure portfolio compared to 70.6% a year ago.

Implementation

The Portfolio's NAV as of December 31, 2024, was $19.6 billion, an increase of $4.5 billion, or 29.3%, compared to the December 31, 2023, NAV of $15.2 billion. The current NAV represents 3.8% of the Total Fund and 28.1% of the Real Assets Program,[1] an increase compared to 3.1% and 22.4% a year ago.

The increase in NAV is the result of a combination of contributions to existing and new investments, distributions, and net realized and unrealized gains and losses. For the prior-year period, the Portfolio's annual contributions outpaced distributions $2.4 billion to $0.6 billion.[2] We continue to expect to see contributions outpace distributions going forward, given the number and size of new commitments made over the last several years compared to the remaining smaller size of legacy assets.

Through CalPERS' various investment vehicles, during the prior year period the Portfolio made 21 new investments representing $2.2 billion in NAV as of December 31, 2024.[3] Most of the capital (84.5%) was invested in the United States, with the balance in the UK, Europe, and Canada. About half was invested in the utility sector, with significant amounts also in digital infrastructure and energy infrastructure, and smaller amounts in power and transport assets.

As of December 31, 2024, Portfolio NAV distribution is as follows relative to investment type: Transportation was 31.0%; Utilities 21.9%; Data Infrastructure 21.5%; Renewable Power 15.2%; Conventional Power 5.1%; Energy 3.1%; Other 1.1%, Environmental Services 0.6%; and Social Infrastructure 0.4%.[4]

[1] The Total Fund market value was $523.4 billion, and the Real Asset Program NAV was $69.9 billion, as of December 31, 2024, per Wilshire.
[2] Real Assets QPR Q3 2024 Final.
[3] Asset values as of September 30, 2024 due to the one-quarter reporting lag.
[4] Web-based Real Assets Power BI analytics, Vital Statistics-Characteristics.

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Key Policy Parameters

The Portfolio is compliant with key parameters related to diversification and other limits applicable at the Portfolio level, as documented in the table below. We note that policy changes aimed at updating and harmonizing the Total Fund Policy as relates to Real Assets, approved effective as of June 2024, collapsed the previously separate Value Add and Opportunistic risk classifications into a single Non-Core classification (for all Real Assets portfolios) and increased the Infrastructure Non-Core upper limit to 50% (from 40%). Meketa believes the change is consistent with the Strategic Plan and was supportive at the First Reading and subsequent Second Reading.

Key Portfolio Parameter	Policy Range/Limit	NAV 9/30/24[1]
Risk Classification[2]	**(%)**	**(%)**
Core	50-100	69.4
Non-Core	0-50	30.6
Geographic Region[3]	**(%)**	**(%)**
United States	30-100	54.0
International Developed	0-70	43.7
International Developing	0-15	2.4
International Frontier	0-5	0.0
Manager Exposure[4]	**(%)**	**(%)**
Largest Partner Relationship	20 max	9.4
Investments with No External Manager	20 max	1.7
Leverage[5]		
Loan to Value	65% max	38.1%
Debt Service Coverage Ratio	1.25x min	2.64x

Conclusion

For the current reporting period ending December 31, 2024, the Infrastructure Portfolio outperformed the Infrastructure Policy Benchmark, CPI, and CalPERS' CMA for Real Assets for all trailing periods. Compared to a year ago, the absolute returns are mixed with the one- and five-year returns improved and the three- and ten-year returns somewhat lower; however, all four periods beat the benchmark by more than they did a year ago. And, while the one-year 13.1% trailing return is impressive, and a change from several quarters of a lower one-year return compared to longer periods, it is possible that future quarters' trailing one-year returns could once again be dampened due to the J-curve effect as the Portfolio increases in scale with recently made and future new commitments to Value Add infrastructure.

1 Private investment data are one quarter lagged, so effectively as of September 30, 2024.
2 2024.9.30 RA Characteristics Data Sheet.
3 2024.9.30 RA Characteristics Data Sheet.
4 2024.9.30 RA Allocation Data Sheet: calculated based on manager- and account-level NAV. Percent calculated using relevant NAV plus total unfunded commitments for relationships/investments and same for the Real Assets Program ($84.6 billion).
5 Web-based Real Assets Power BI analytics, Landing Page.

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The Portfolio's development and its current position remains appropriate and consistent with applicable policies and guidelines.

→ *Risk*—NAVs are within the classification policy ranges.

→ *Geography*—NAVs are within the categorical ranges.

→ *Partner Relationships and Direct Investments*—Exposures are well below the maximums allowed.

→ *Leverage*—Metrics are comfortably compliant.

The Portfolio continues to grow consistent with its Strategic Plan, now at 28.1% of the Real Assets Program and 3.8% of the Total Plan, compared to 22.4% and 3.1%, respectively, a year ago. Over the past year, new investments adding $2.2 billion to the NAV were made through a combination of existing and new commingled fund commitments, separate accounts, and co-investments. Relationships with key established managers have expanded, and new managers have provided important additional sourcing and capital deployment capacity to help CalPERS execute on its plan to invest at greater scale, target specific sectors and geographies, and increase exposure to non-core strategies. The Portfolio is well-diversified by sector, asset type, and geography. Overall, it is very well-positioned to continue adding scale—as evidenced in part by its year-over-year $4.5 billion NAV increase and provide diversification and enhanced, consistent return potential for the benefit of the Total Fund.

Please do not hesitate to contact us if you have questions or require additional information.

EFB/WP/SPM/jls

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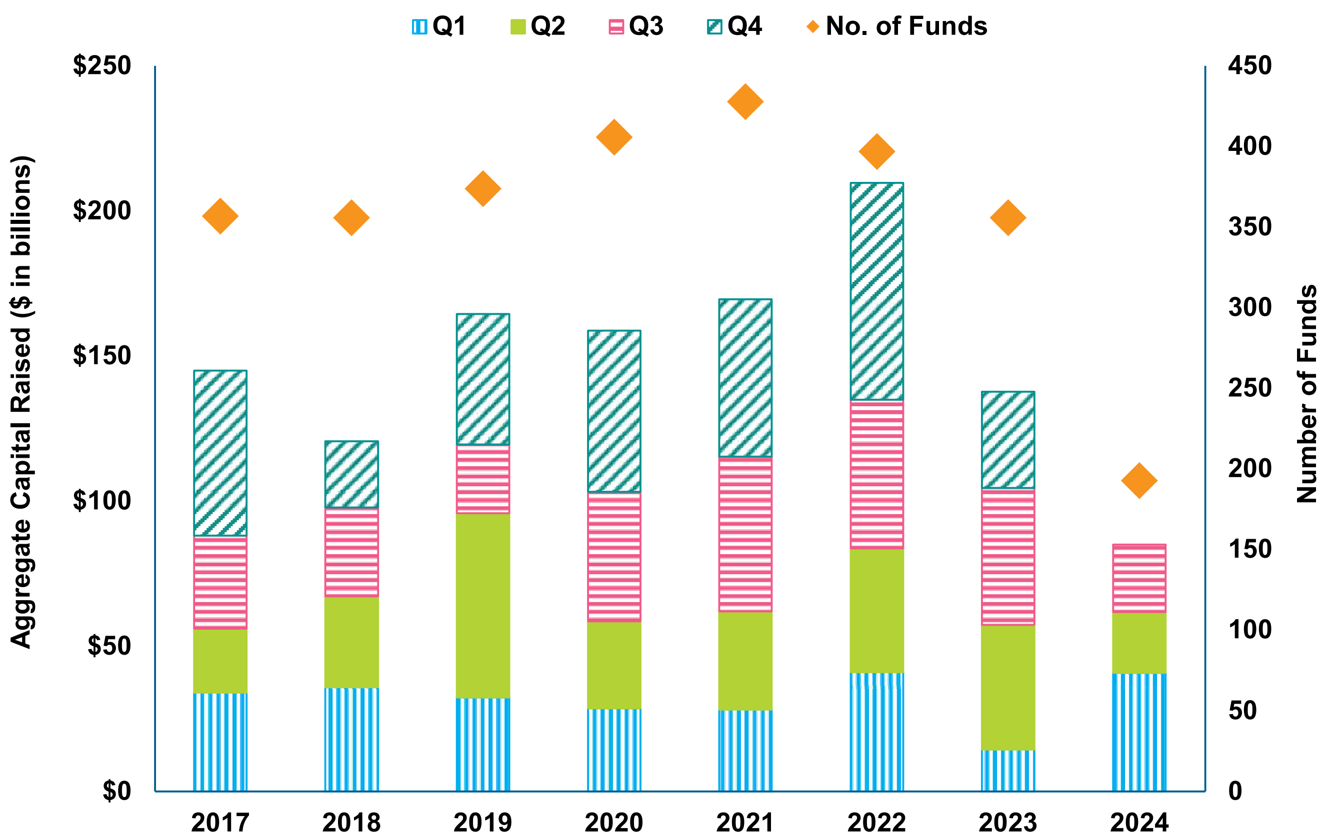
Attachment[1]

Infrastructure Market Commentary – Q3 2024

Global Quarterly Unlisted Infrastructure Fundraising[2]



After a brief recovery in fundraising pace for infrastructure, 3Q 2024 continued to slow raising $23 billion across 48 funds. The average fundraise size has remained consistent at approximately $0.4 million per fund, but the number of funds is much lower at under 200 funds through the first nine months of 2024.

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1 Commentary based on analysis of aggregated and deal-level data from Preqin, and other Preqin data, unless otherwise cited. Prior year data may have changed from figures shown in prior reports.

2 Source: Preqin 2Q 2024.

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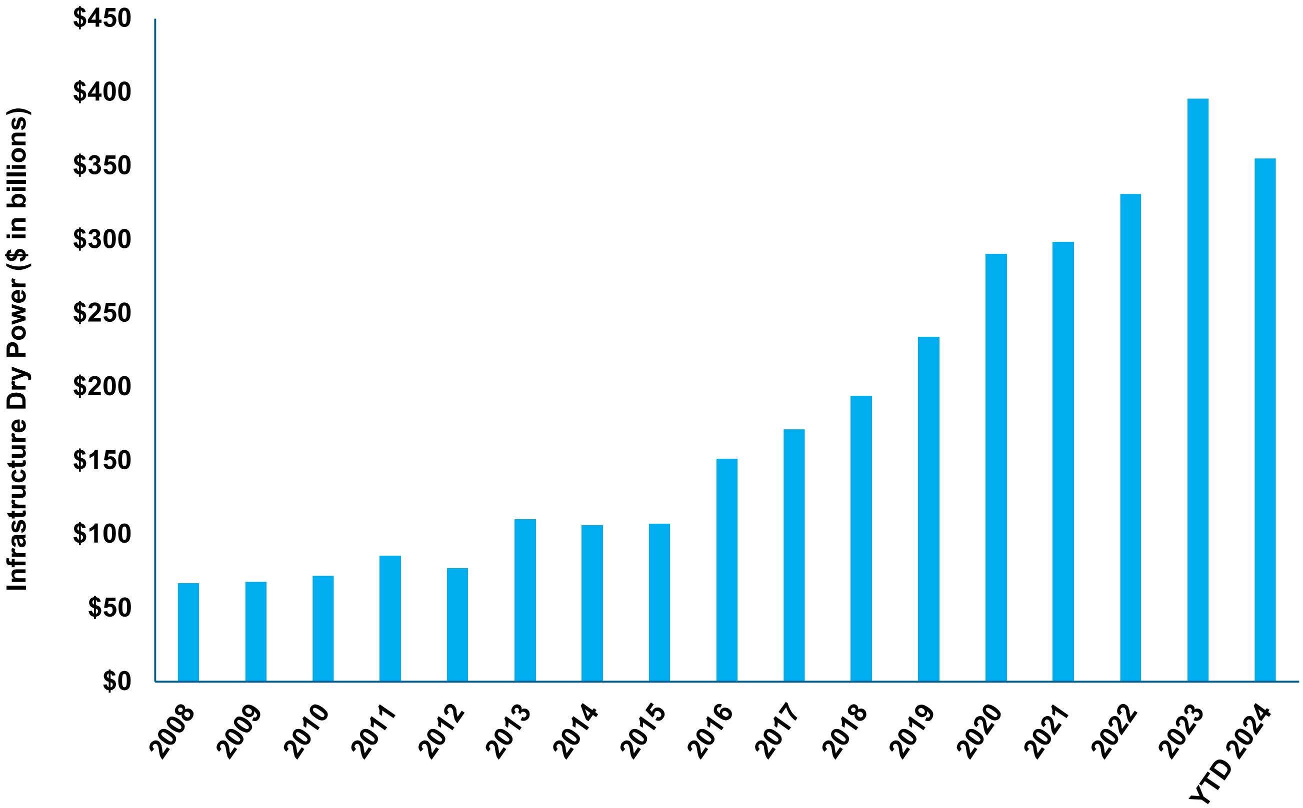
Global Infrastructure Dry Power[1]



After dry powder increased annually over the past decade, as of September 30, 2024, the level decreased to $355 billion. The combination of continued slow fundraising and increasing investment activity led to the decrease.

[1] Source: Preqin Dry Powder downloaded July 2024.

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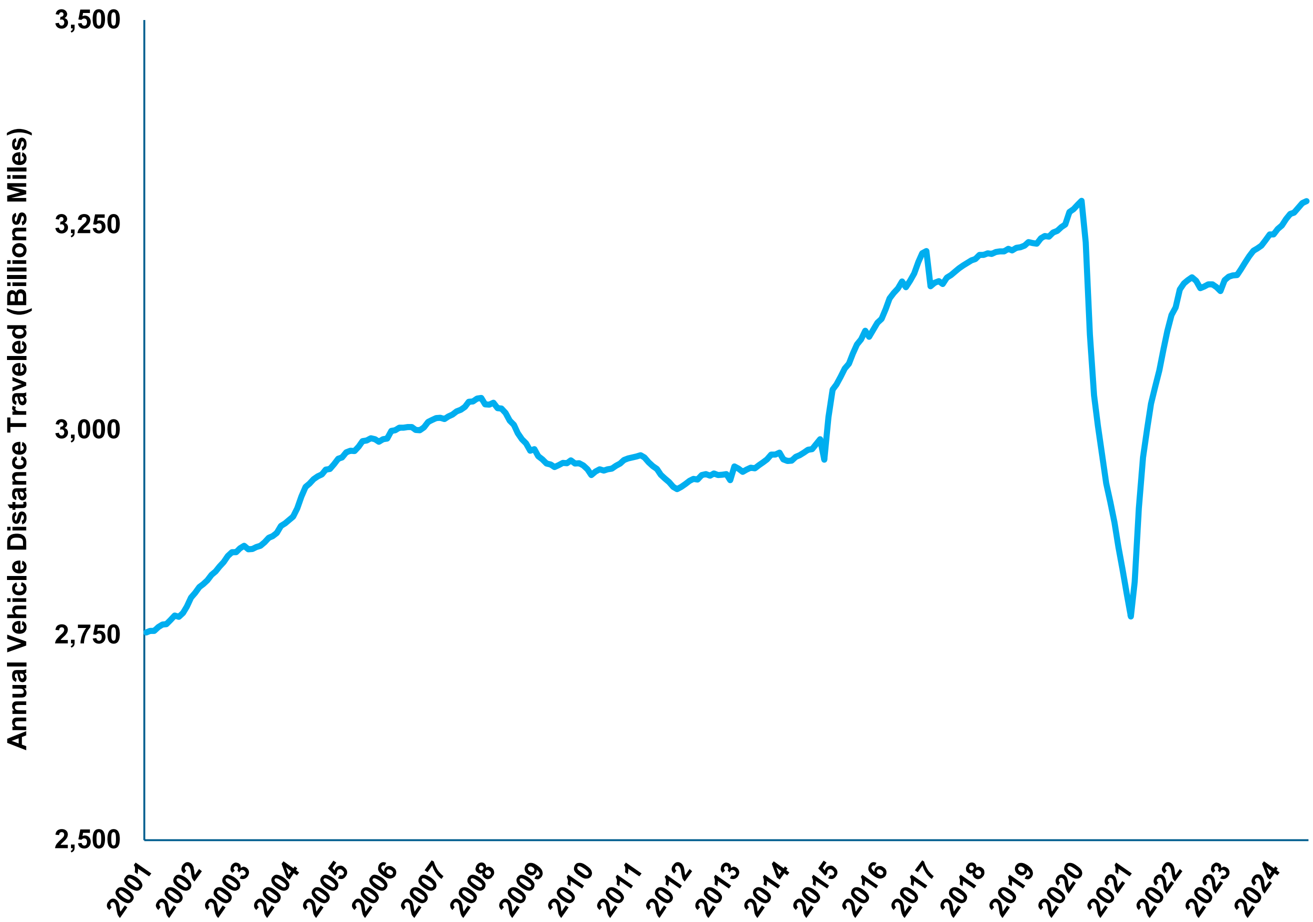
Trailing 12-month Annual Vehicle Miles on All US Roads[1]



The third quarter continued the steady increase quarter over quarter with a total of approximately 865 billion miles. This represented an increase of 1.7% over the same period in 2023 and represents the seventh straight quarterly increase. Also, the 12-month annual miles matched the February 2022 peak during the third quarter.

[1] Source: US Department of Transportation, Federal Highway Administration: Office of Highway Policy Information.

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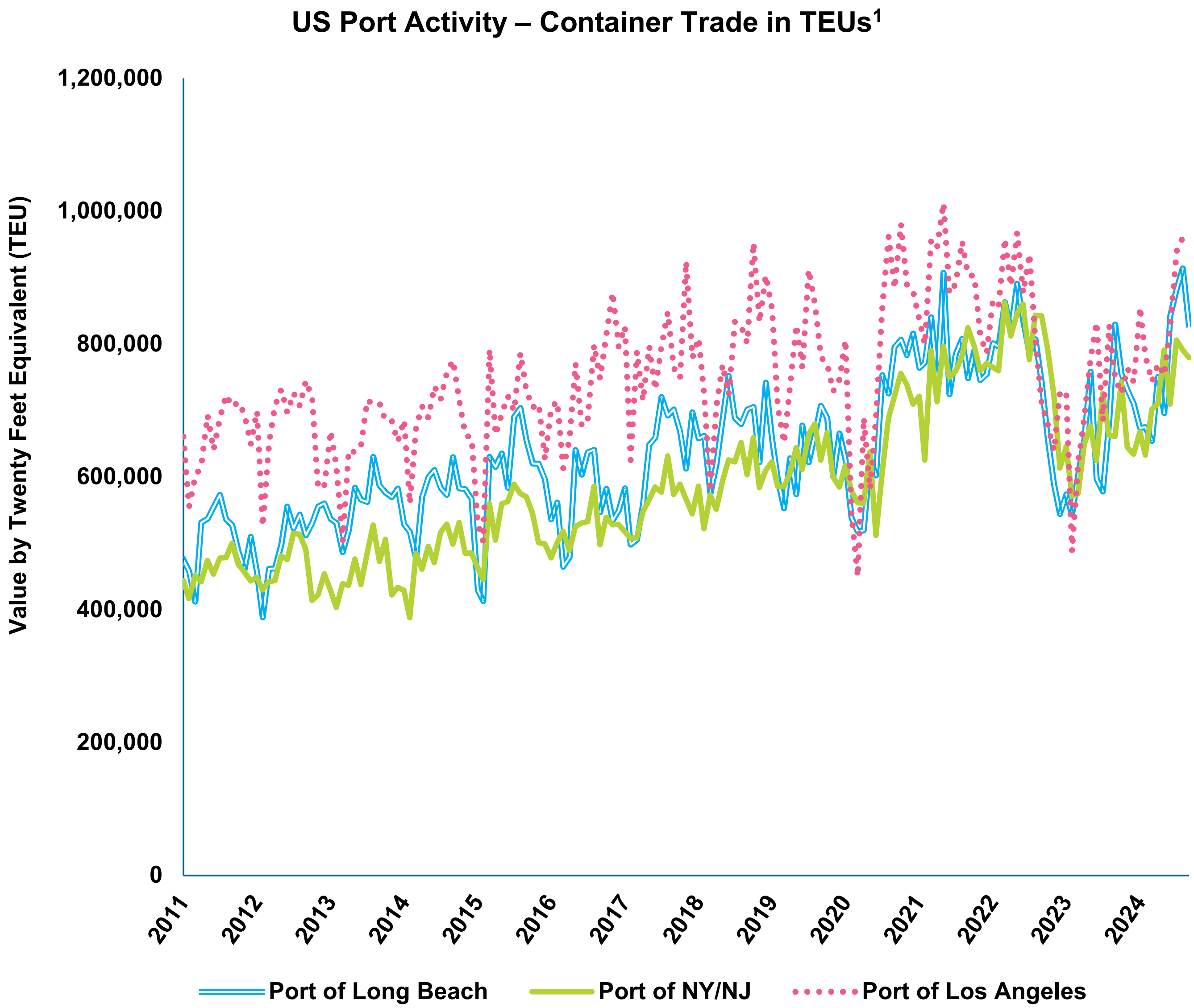

The chart presents the top three US ports by container volume, as measured by twenty-foot equivalent units ("TEU"). Activity at the three ports provides a high level representation of the volume at US ports more broadly.

During the third quarter, volumes across the three ports increased by 1.5 million units relative to the same period last year. On a year-over-year basis, the combined port volumes increased by 3.6 million TEUs, or 15%, over the prior 12-month period. The Port of Long Beach recorded an increase of 20% (1.5 million TEUs), the Port of NY/NJ reported a increase of 9% (1.4 million TEU), and the Port of Los Angeles recorded an increase of 16% (1.4 million TEUs) over the prior 12 months.

[1] Source: www.polb.com, www.panynj.gov and www.portoflosangeles.org

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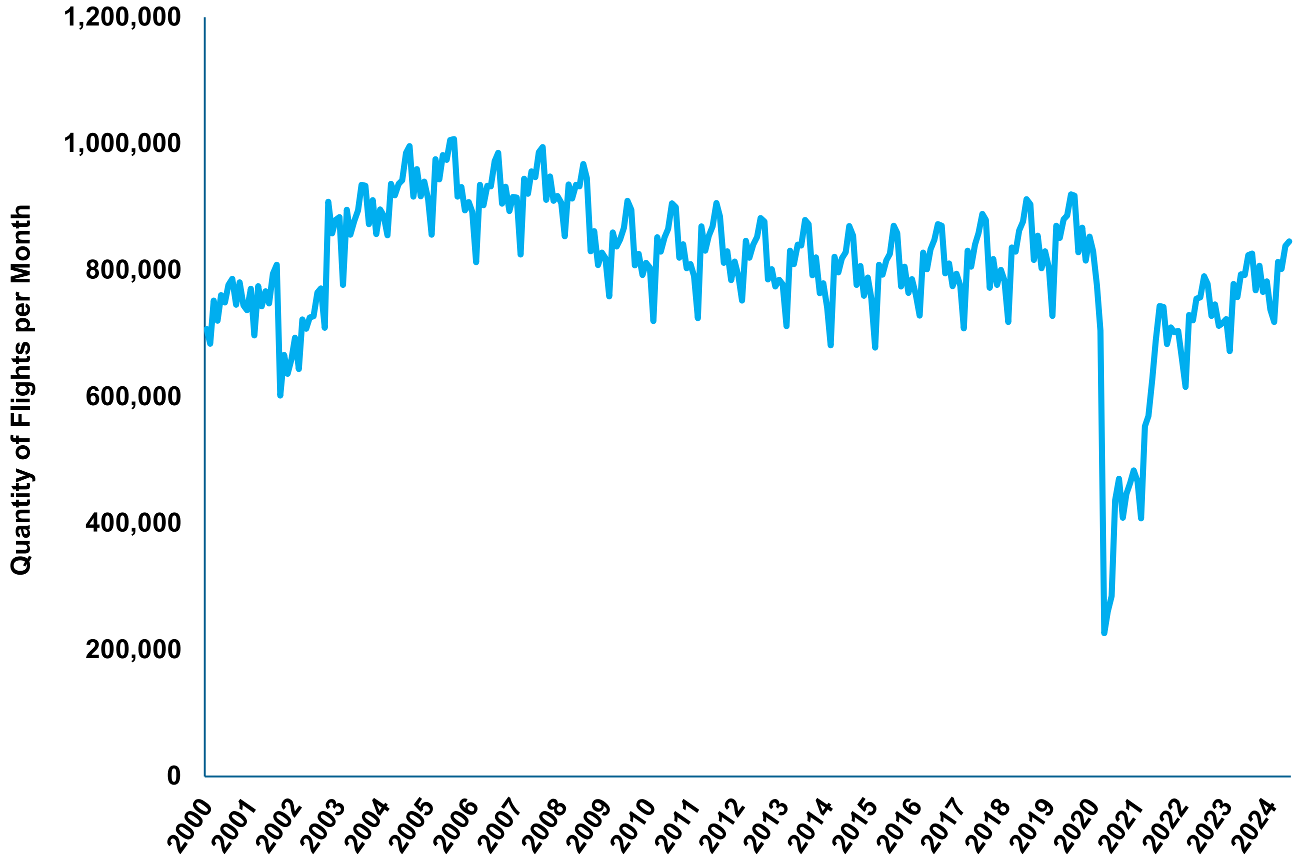
Total US Domestic and International Flights[1]



The chart above presents all US domestic and international flights, excluding foreign point-to-point flights by month. Historically, air traffic is cyclical with peaks in the summer months and troughs in the winter months.

There were 0.1 million more flights during the third quarter of 2024 over the same period in 2023, representing an 4.1% increase. In addition to the number of flights, the total number of passengers travelling on US and international airlines increased by 7% for the 12 months ended September 30, 2024.

[1] Source: Bureau of Transportation Statistics: Flights, All US, and Foreign Carriers.

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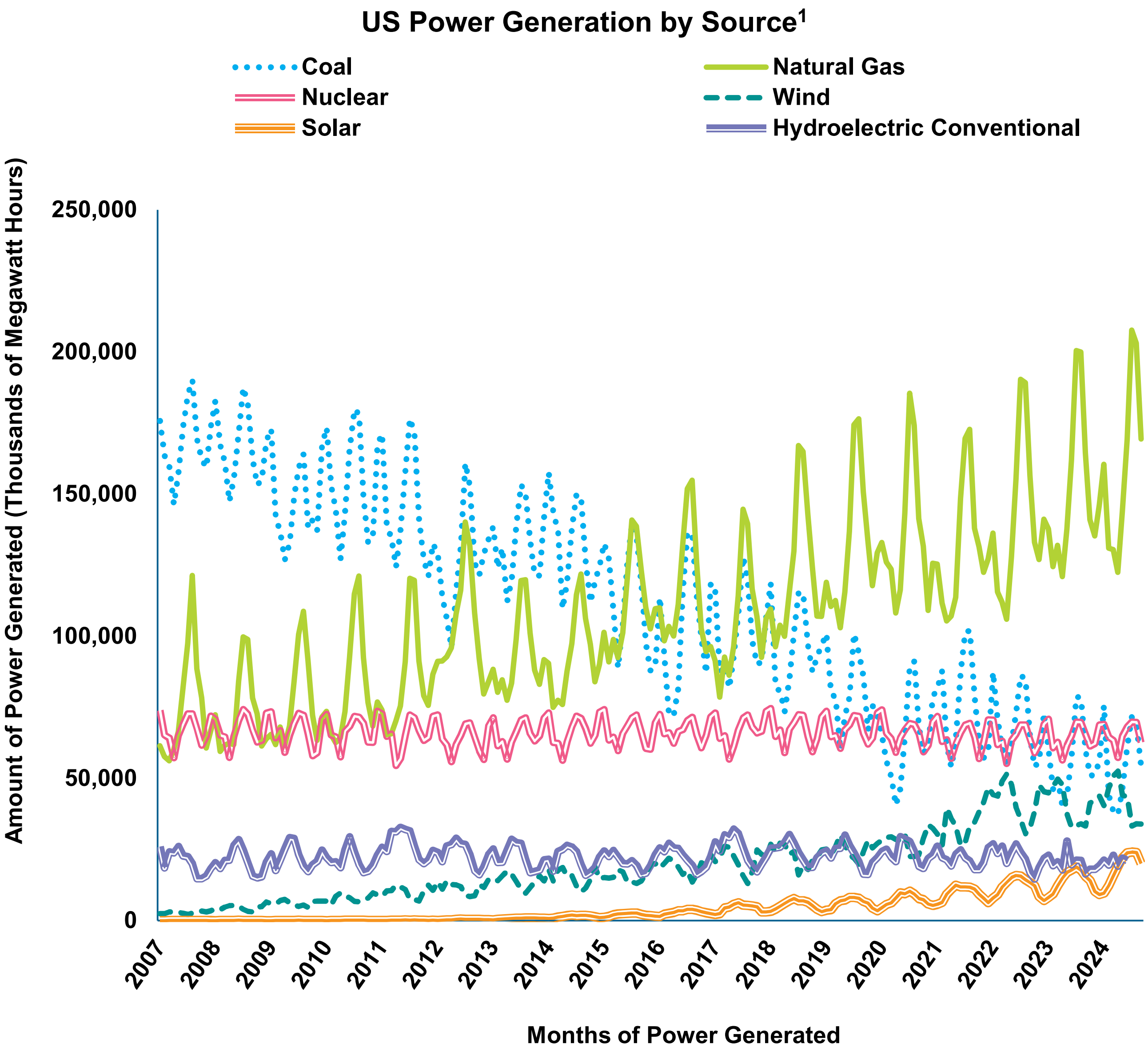

In the third quarter 2024, total Utility Scale US power generated increased by 5% over the same period in 2023. Wind and utility-scale solar continue to make up a small portion of total net energy generation in the US, accounting for only 12% and 5% of energy generation, respectively. Natural gas, coal, and nuclear accounted for 43%, 15%, and 18%, respectively.

[1] Source: US Energy Information Administration: Electric Power Monthly, June 2024.

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