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MEMORANDUM

TO: Members of the Investment Committee, CalPERS
FROM: Meketa Investment Group
DATE: March 18, 2024
RE: Semi-Annual Infrastructure Performance Review as of December 31, 2023

In our role as the Board Infrastructure Consultant, Meketa Investment Group ("Meketa") conducted a semi-annual performance review of the Infrastructure Portfolio ("the Portfolio") based on data provided by Wilshire Associates for the California Public Employees' Retirement System ("CalPERS") Real Assets Program (the "Program") for the period ended December 31, 2023, and selected CalPERS reports.[1] This memorandum provides the Portfolio performance data and information on key policy parameters, with 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, 2023	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Infrastructure Portfolio Returns	5.2	9.4	6.9	10.6
Infrastructure Policy Benchmark[3]	(12.8)	6.2	4.7	5.2
Over (under) Performance	18.0	3.2	2.3	5.4
Consumer Price Index (For Reference Only)	3.7	5.7	4.0	2.8

Looking back six months, the above trailing one- and three-year returns are both up slightly compared to 4.8% and 8.8%, respectively, while the above five- and ten-year returns are down slightly compared to 7.5% and 11.2%, respectively. The absolute level of overperformance is higher than it was six months ago as the benchmark continues to underperform in recent quarters (see also below).

As we have noted in recent quarters, the trailing one-year return, while beating its benchmark—this quarter by a substantial margin, is meaningfully below prior periods, but up 40 basis points over six months ago, in part due factors described on the following page. Additionally, it has come in just shy of 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. The three other trailing

[1] CalPERS Real Assets Quarterly Performance Report, including underlying Allocation, Characteristics, and Leverage Reports (Excel files), for the period ending September 30, 2023.
[2] Per Wilshire for the period ended December 31, 2022, reported with a 1-quarter lag, so as of September 30, 2023 (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).

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period returns as of December 31, 2023 are all comfortably above the CMA targets. We observe that the three- and five-year returns continue to fall in a range of approximately 7% to 10% over the last year, partly reflecting the down COVID quarters moving through the periods, while the trailing ten-year return has been consistently in the 10.5% to 11.5% range for the last year.

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-year period, reflecting the recent elevated levels compared to the historical five- and ten-year periods, book-ended by the recent moderation reflected in the one-year period. We note that the Portfolio's returns exceeded CPI by 150 to 780 basis points over the reported periods.

We continue to believe the lower trailing one-year return may be due to the following: 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 60% of the Portfolio's NAV was acquired in the last three years, with 2021 at 26.9%, 2022 at 19.5%, and 2023 at 13.9% 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 also be dampened by J-curve effects.

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.

By Risk Classification

→ **Core,** comprising 70.6% of the Portfolio, delivered mid single-digit returns. Global Diversified Infrastructure comprised more than half of the Core portfolio, with 16% in US Power & Energy, 14% in Transportation (Global plus US), and 11% in Communications (Global plus International).

→ **Value Add,** comprising 27.01% of the Portfolio, posted low single-digit returns. These investments are predominantly diversified commingled funds, at approximately two-thirds of the Value Add portfolio, with a new communications fund investment representing about a quarter of the category and some co-investments making up the balance.

[1] Real Assets QPR Q3 2023 Final.

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→ **Opportunistic,** comprising 2.4% of the Portfolio, posted negative double-digit returns. This category comprises one diversified commingled fund investment.

Sectors

→ **Global Diversified Infrastructure** comprises 58.6% of the NAV and delivered mid single-digit returns.

→ **US Power/Energy** represents 15.0% of the Portfolio and delivered mid single-digit returns.

→ **Global Communications,** comprises 11.3% of the Portfolio and delivered high single-digit returns.

→ **US Transportation** accounts for 6.9% of the portfolio and posted low single-digit returns.

→ **Global Transportation** is 5.6% of the portfolio and posted low single-digit.

→ **International Communications** is 1.8% of the portfolio and performance is not yet meaningful.

→ **Global Power/Energy** is 0.8% of the portfolio and performance is not yet meaningful.

→ **U.S. Diversified Infrastructure** is 0.0% of the portfolio.

Net Income

→ The Portfolio's **one-year net income** was 1.4%, compared to 1.3% a year ago. Since before COVID, it has remained below Staff's long-term expectations of annual income between 3% and 5% over the long term. The low net income levels continue to be primarily due to lower levels of distributed income at certain transportation assets, including, in particular, airports, which experienced significant decreases in passenger traffic for a protracted period (distributed income is expected to increase in 2024). Other continuing asset- and fund-specific factors holding the Portfolio's net income down include those related to new funds' J-curves, foreign exchange effects, and variability of income production from selected businesses. In a newer development, Staff is intentionally increasing the Portfolio's non-Core exposure relative to Core, which will also tend to suppress net income. We note the Core Portfolio has decreased to 70.6% compared to 83.4% as of six months ago.

Implementation

The Portfolio's Net Asset Value ("NAV") as of December 31, 2023 was $15.2 billion, an increase of $0.6 billion, or 4.1%, compared to the June 30, 2023 NAV of $14.6 billion. The current NAV represents 3.1% of the Total Fund, and 22.4% of the Real Assets Program,[1] compared to 3.2% and 20.8%, respectively, as at six months 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 contributions outpaced distributions $3.0 billion to $628.2 million, respectively.[2] We would 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.

1 The Total Fund market value was $483.7 billion, and the Real Asset Program NAV was $67.8 billion, as of December 31, 2023, per Wilshire.
2 Real Assets QPR Q3 2023 Final.

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Through CalPERS' separate accounts and commingled funds, a significant number of new investments were made during the H2 2023 semi-annual period in North America, Latin America, Europe, and Asia Pacific in sectors including data/communications, energy, renewable power, transportation, and utilities.

Key Policy Parameters

The Portfolio is compliant with all key parameters related to diversification and other limits applicable at the Portfolio level, with the exception of the NAV Exposure to Value Add investments, as documented in the table below. Value Add exposures are 27.0% of the NAV, compared to a limit of 25.0%. As required, CalPERS' CEO notified the Board of the excursion on January 16, 2023, following Real Assets Staff's notification to the Acting CIO upon becoming aware of it the prior week when the September valuations were recorded in January. Staff also notified Meketa of this matter at that time and we discussed the actions to be triggered and the pending proposed policy change (see also below) with them.

Key Portfolio Parameter	Policy Range/Limit	NAV 12/31/23 Exposure[1]
Risk Classification	(%)	(%)
Core	60-100	70.6
Value Add	0-25	27.0
Opportunistic-All Strategies	0-25	2.4
Geographic Region	(%)	(%)
United States	30-100	51.3
International Developed	0-70	46.5
International Developing	0-15	2.2
International Frontier	0-5	0.0
Manager Exposure[2]	(%)	(%)
Largest Partner Relationship	20 max	5.8
Investments with No External Manager	20 max	1.7
Leverage[3]		
Loan to Value	65% max	35.9%
Debt Service Coverage Ratio	1.25x min	3.43x

Staff will discuss the specific circumstances of the excursion with the Board at the March meeting in Closed Session. Generally, as we have noted on other occasions, single infrastructure deals can be quite large, and/or several smaller ones can close in a short timeframe, creating the possibility of meaningful short-term changes in risk category valuations. Please also see Item 7 in the March meeting's Open Session agenda for Staff's proposal to modify the Real Assets risk classification policy ranges, which includes Item 7d, Meketa's opinion memorandum supporting the proposal.

[1] Private investment data are one quarter lagged, so effectively as of September 30, 2023.

[2] CalPERS Real Assets Portfolio Allocation Report, Period Ending September 30, 2023: 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 ($78.6 billion).

[3] CalPERS Real Assets Vital Statistics and Quarterly Management Report (web-based), Quarter Ending September 30, 2023.

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Conclusion

For all periods, the Infrastructure Portfolio is performing at or above expectations for the asset class and its still predominantly Core risk-return profile. Recent absolute performance is slightly up, while recent relative performance is very strong compared to a struggling benchmark with 100% underlying assets in real estate. Additionally, for all trailing periods the Portfolio is very close to or exceeding CalPERS' CMA for Real Assets, and beating CPI. As noted in prior reporting, it is likely that as the Portfolio continues to increase in scale with new commitments, near-term returns could be suppressed due to the J-curve effect.

The Portfolio's development and its current position remains appropriate and consistent with applicable policies and guidelines, with one exception as noted previously and below:

→ *Risk*—Exposures are within the classification policy ranges, with the exception of the NAV Exposure to Value Add infrastructure at 27.0%, compared to a limit of 25.0%;

→ *Geography*—Exposures are within the categorical ranges;

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

→ *Leverage*—Metrics are comfortably compliant.

The Portfolio continues to grow consistent with the Real Assets Strategic Plan, now comprising 22.4% of the Real Assets Program and 3.1% of the Total Fund, compared to 20.8% and 3.2%, respectively, as at six months ago. A meaningful amount of this growth is coming from new investments in Value Add infrastructure as recent commitments to new managers in this risk classification deploy CalPERS' capital. A slight excursion above the NAV limit for Value Add is noted and briefly discussed, along with a reference to Staff's proposed policy change and our endorsement thereof in Item 7 for this meeting. With thoughtful allocations to new and existing managers, and greater reliance on separate accounts and co-investment vehicles, Staff is expanding the opportunity set that CalPERS can access and taking advantage of its scale in fee negotiations. Meketa believes the Portfolio's continued evolution is consistent with the Strategic Plan and CalPERS' Investment Beliefs.

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

SPM/EFB/jls

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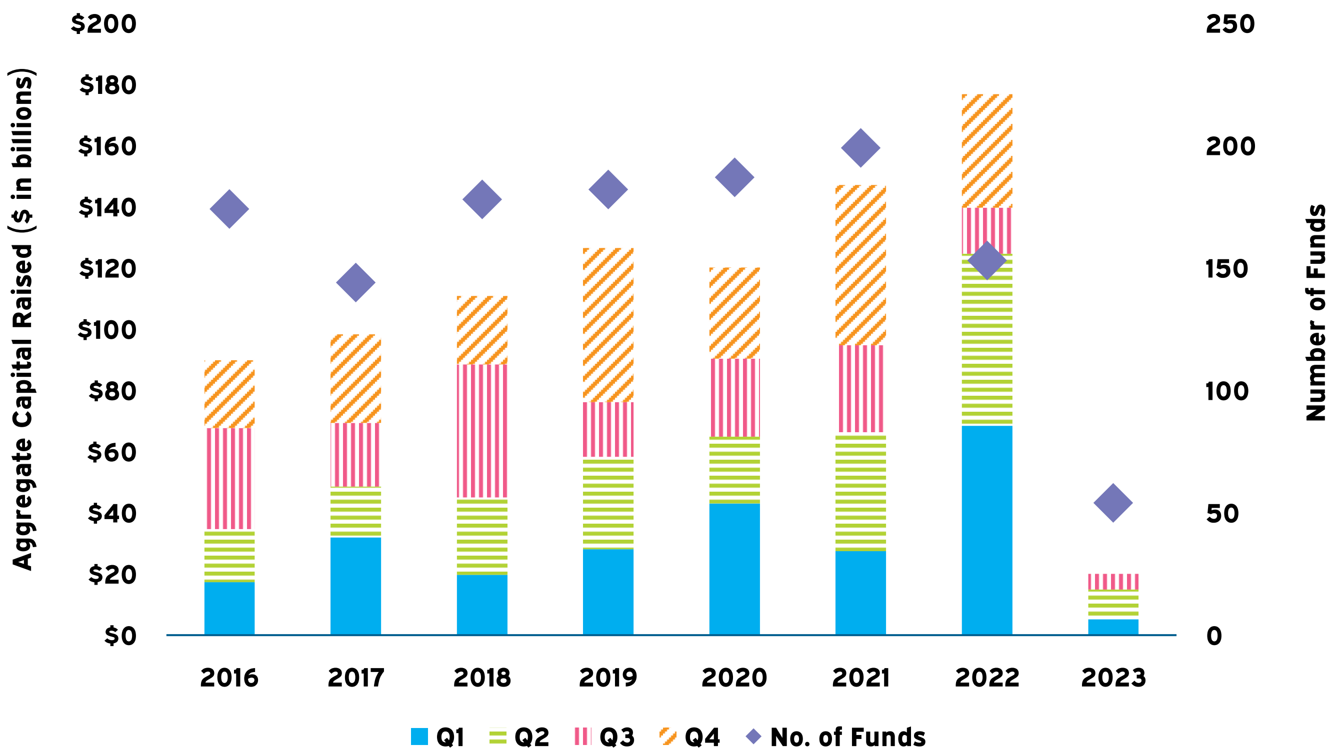
Attachment[1]

Infrastructure Market Commentary – Q3 2023

Global Quarterly Unlisted Infrastructure Fundraising[2]



After a strong 2022 that experienced record infrastructure fundraising of nearly $180 billion, 2023 has raised just raised just $20 billion. The graph represents funds reaching their final close, so the 2023 data is partially the prolonged fundraising periods as infrastructure funds seek fundraising extensions to reach their targets.

[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 3Q 20223.

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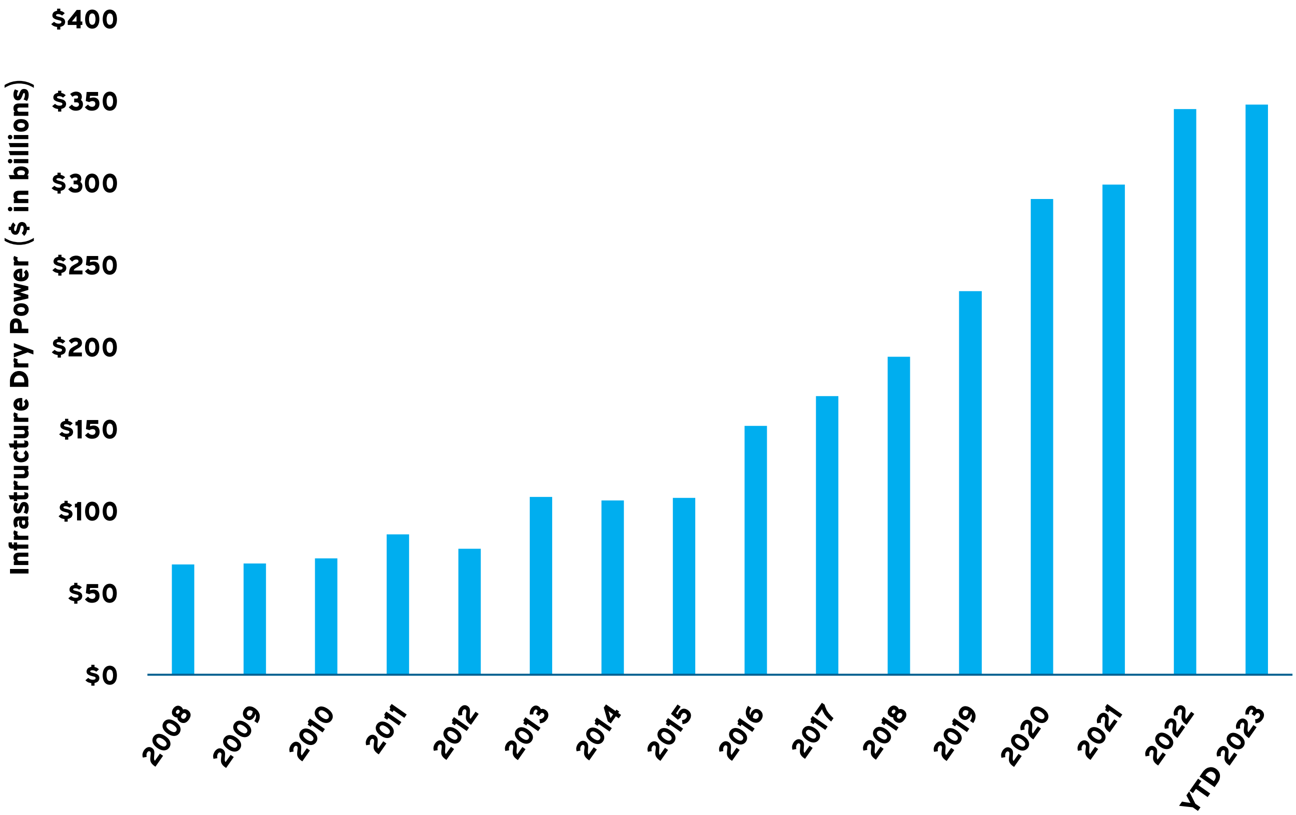
Global Infrastructure Dry Power[1]



The available infrastructure dry powder has steadily increased year-over-year increases since 2015. Dry powder is at a record high of nearly $350 billion.

[1] Source: Preqin Dry Powder downloaded October 2023.

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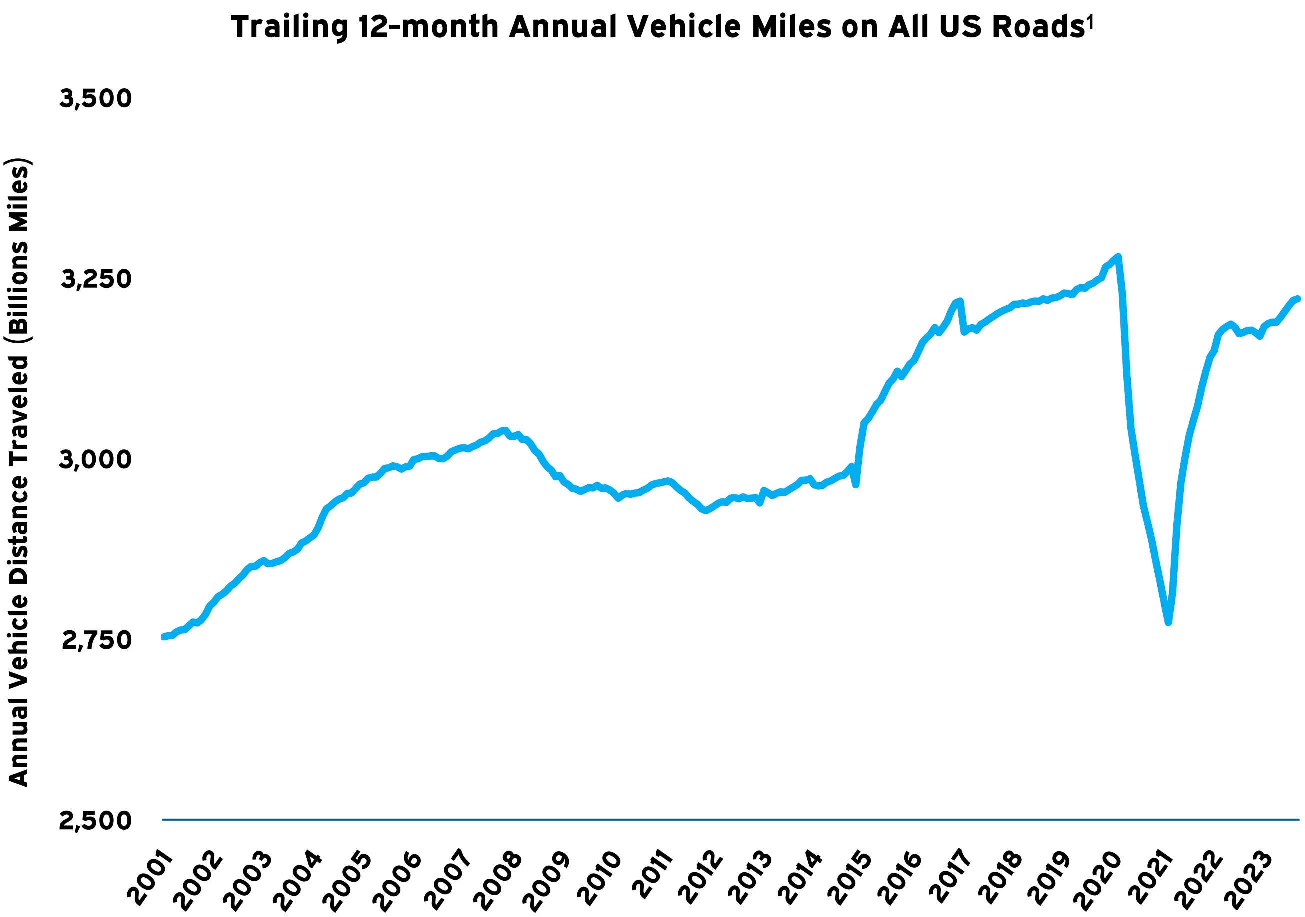

The third quarter continued post-pandemic travel recovery with a total of approximately 851 billion miles. This represented an increase of 2% over the same period in 2022. The trailing 12-month travel mileage is closing in on 2019 peak. The average monthly price of gasoline has decreased to $3.69 per gallon by the end of the third quarter.

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

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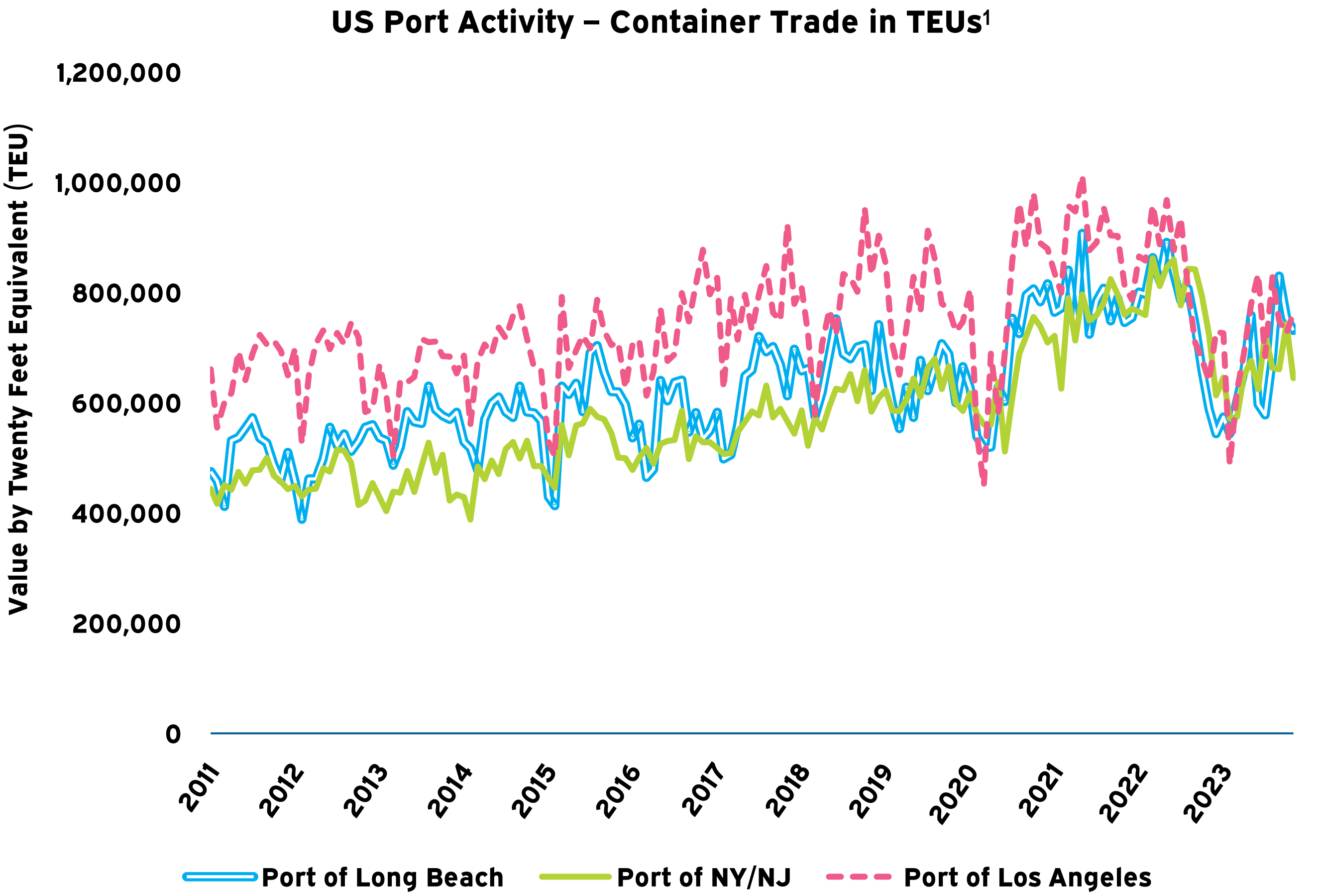

The chart presents the top three US ports by container volume, as measured by twenty-foot equivalent units ("TEU"). Activity at the three ports provides a high level representation of the volume at US ports more broadly.

During the third quarter, volumes at the three ports decreased by 0.8 million units relative to the same period in 2022. On a year-over-year basis, the combined port volumes decreased by 4.7 million TEUs, or -16%, over the prior 12-month period. The Port of Long Beach recorded a decrease of 16.0% (1.5 million TEUs), the Port of NY/NJ reported a decrease of 19.3% (1.9 million TEU), and the Port of Los Angeles recorded a decrease of 13.6% (1.4 million TEUs) over the prior 12 months.

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

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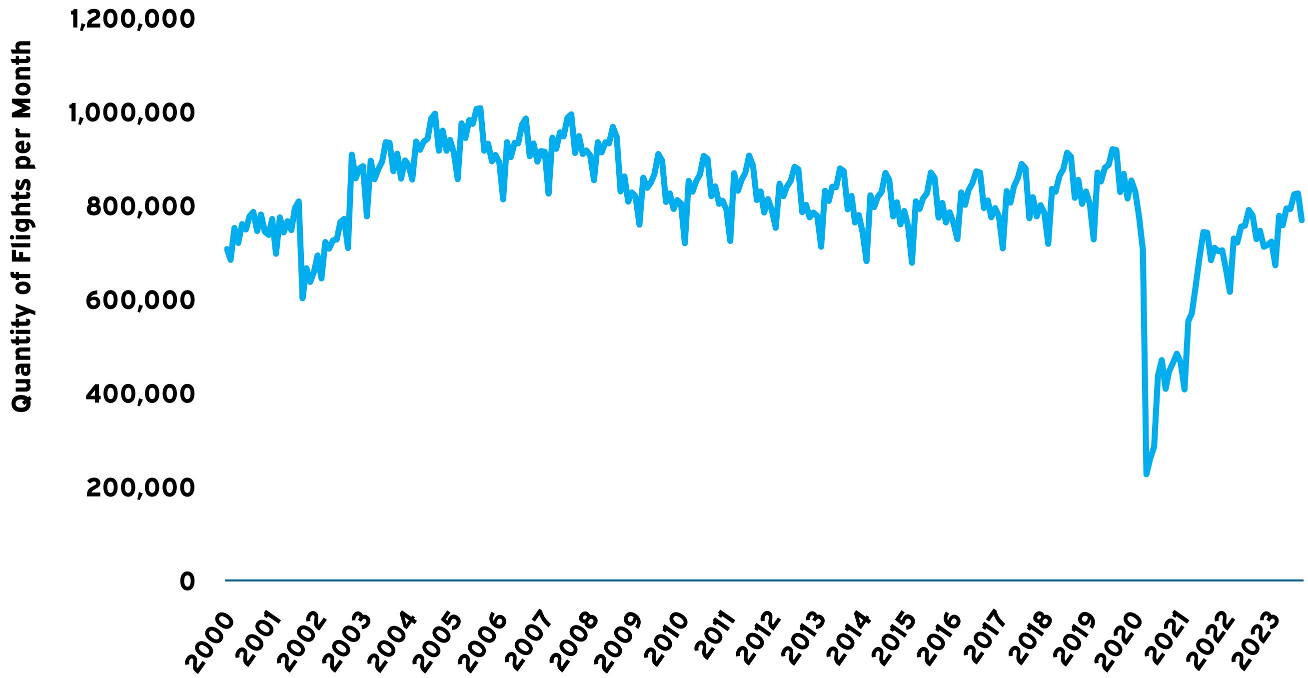
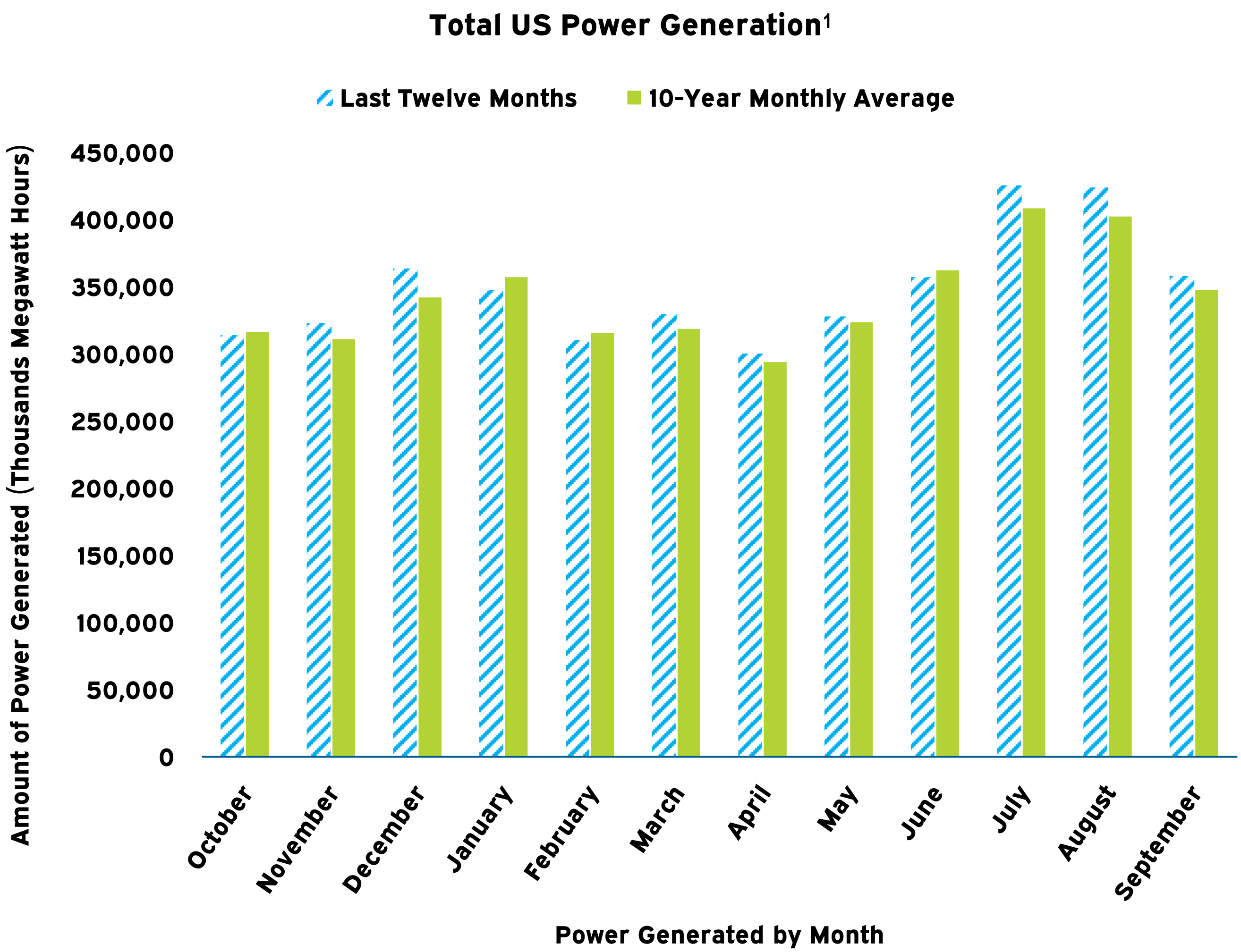
Total US Domestic and International Flights[1]



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 2023 over same period in 2022, representing a 5.3% increase. In addition to the number of flights, the total number of passengers travelling on US and international airlines increased by 13.8% for the 12 months ended September 30, 2023 over the prior 12 months.

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



The graph above presents the total net generation for the past 12 months compared to the 10-year average for each month. Net utility scale energy generation increased slightly in the third quarter up 2% compared to the same period in 2022.

[1] Source: US Energy Information Administration: Electric Power Monthly, September 2022.

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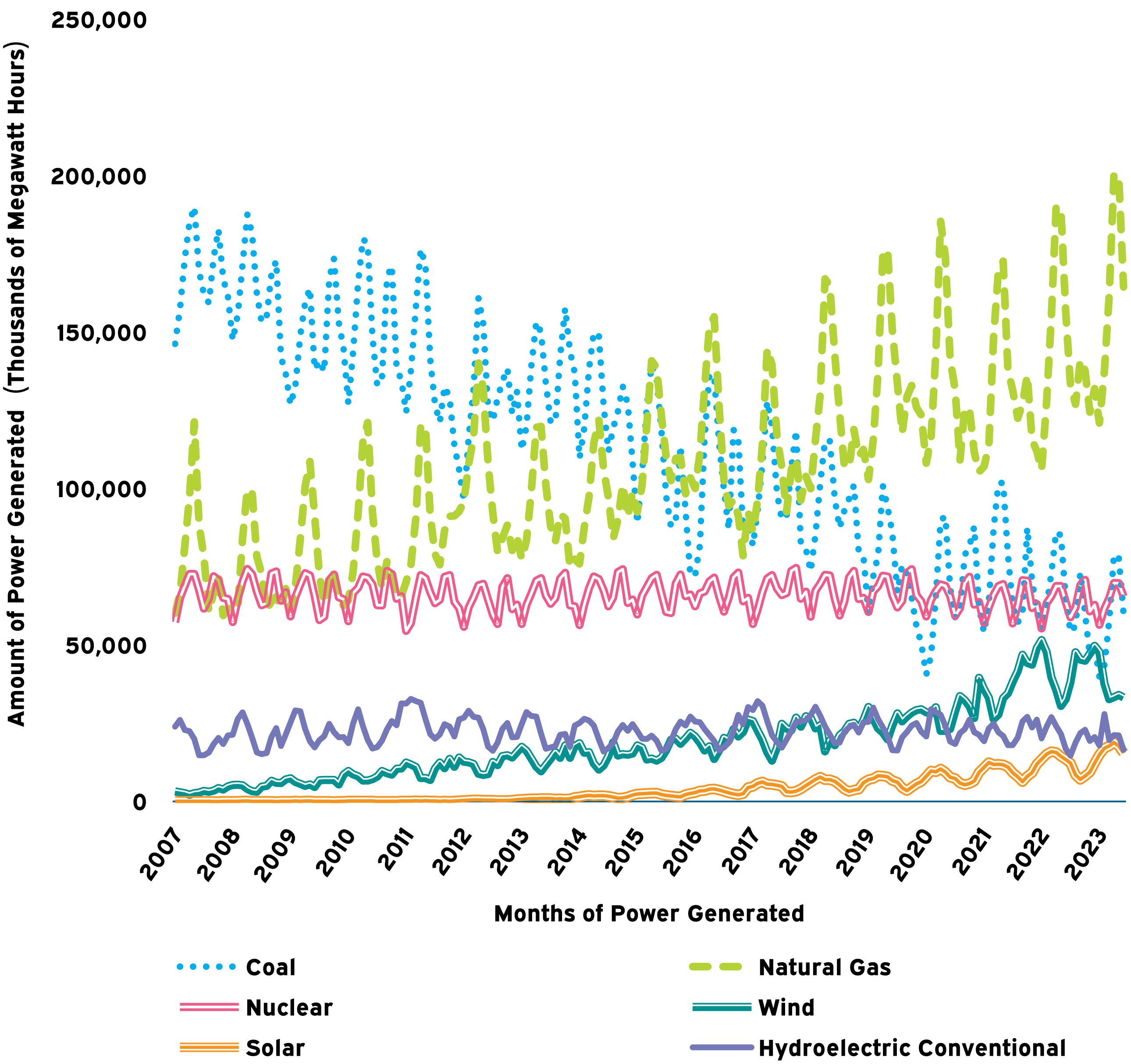
US Power Generation by Source[1]



In the third quarter 2023, total Utility Scale US power generated increased by 2% over the same period in 2022 with solar the largest contributor increasing by 20%. 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 4% of energy generation, respectively. Natural gas, coal, and nuclear accounted for 43%, 17%, and 18%, respectively.

[1] Source: US Energy Information Administration: Electric Power Monthly, September 2023.