5796 Armada Drive
Suite 110
Carlsbad, CA 92008
760.795.3450
Meketa.com

MEKETA
INVESTMENT GROUP

MEMORANDUM

TO: Members of the Investment Committee, CalPERS
FROM: Meketa Investment Group
DATE: February 15, 2022
RE: Semi-Annual Infrastructure Performance Review as of December 31, 2021

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, 2021, 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 continues to outperform its policy benchmark for all reporting periods.

Net Returns as of December 31, 2021	1 Year (%)	3 Year (%)	5 Year (%)	10 Year (%)
Infrastructure Portfolio Returns	14.9	7.1	10.1	11.0
Infrastructure Policy Benchmark[3]	13.4	6.0	6.2	5.8
Over (under) Performance	1.6	1.1	3.9	5.3

Compared to six months ago, the trailing one-year performance more than doubled, up to 14.9% from 7.2%; however, the margin of over-performance decreased to 1.6% from 5.9%. Trailing returns for three-, five-, and 10-year periods are all slightly up, 110 basis points ("bps"), 50 bps, and 40 bps, respectively, with over-performance margins less than posted six months ago. This represents a rebound well beyond pre-COVID performance levels, where one-year performance as of December 31, 2019 was 7.3%. The strong performance was driven by several factors, the biggest one being a significant write-up of one investment after a partial stake traded at a premium to the prior valuation. Two separate accounts with diversified and power investments, respectively, also posted impressive returns for the period. The

[1] CalPERS Real Assets Quarterly Performance Report, including underlying Allocation, Characteristics, and Leverage Reports (pdf and Excel files), for the period ending September 30, 2021.

[2] Per Wilshire for the period ended December 31, 2021, reported with a 1-quarter lag, so as of September 30, 2021 (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).

February 15, 2022

narrower margins of outperformance are the result of the strong performance of the Portfolio's real estate-based benchmark over the last two quarters.

Other aspects of performance drivers are consistent with prior reporting periods and recent market conditions, as highlighted below.[1] The referenced charts are provided in the Market Activity Attachment.

By Risk Classification: Once again, all categories improved over the returns as of six months ago.

- ***Core***, comprising 91.1% of the Portfolio, delivered solid double-digit returns for the trailing one-year period—the best among the risk categories, and almost three times that of Q2 2021. Essential and International Core investments comprise 65.1% of the total Portfolio.
- ***Value Add*,** comprising 2.7% of the Portfolio, posted high single-digit returns, roughly doubling that for the prior year as of Q2 2021. These investments are predominantly diversified commingled funds.
- ***Opportunistic***, comprising 6.2% of the Portfolio, also posted high single-digit returns, down somewhat from last period's low double-digit marks. This category comprises one commingled fund investment.

By Geography: The US recovery continues to be ahead of many other countries.

- ***Domestic*** investments, which make up 61.0% of the Portfolio, continue to perform well, with most posting similar returns to last period in aggregate. US Port Activity, one indicator of domestic recovery, posted strong increases over the prior year, as documented in the attached chart showing container trade volumes at three ports.
- ***International*** investments, which make up 39.0% of the Portfolio, continue to improve, posting mid single-digit returns, compared to the prior period slightly negative posting. Improving airline travel is one indicator of international economic recovery. See for example the attached chart showing the number of Total US Domestic and International Flights.

Other Selected Segments: Diversification continues to be important to the Portfolio's resilience. [2]

- ***Commercial*** investments are 13.5% of the Portfolio, including a US toll road investment which continues to show healthy returns as economic activity expands. For example, the attached chart showing the Moving 12-month Total Miles Traveled on All US Roads shows the number continuing to steeply trend upwards.
- ***Essential*** investments are 26.7% of the Portfolio and include a variety of conventional and renewable power generation assets. These were defensive positions during the pandemic and keep delivering solid returns. Nationally, power production levels are essentially flat compared to prior years as seen in the attached chart showing US power generation by

[1] Real Assets Quarterly Performance Report as of September 30, 2021.

[2] As per the 2021 Real Assets Strategic Plan approved July 12, 2021, we note that the Program will eliminate segments in the RA portfolios' hierarchy, and as such at some point in 2022 will no longer report data on a segment basis.

February 15, 2022

period. As previously noted, CalPERS' multi-source power portfolio reflects the aggregate US power generation by source with respect to the continuing importance of natural gas and the increasing importance of solar and wind, as evident in the attached chart.

- ***Specialized*** investments are 20.5% of the Portfolio and include mainly sector-diversified commingled funds. In aggregate, they posted high single-digit returns, but individually ranged from moderate negative territory to very solid positive marks. As previously noted, most of these funds are through their investment periods, and so not competing with other managers deploying dry powder, the level of which still has been steadily increasing over the years as seen in the attached chart.

Income: Returns are close to the target range.

- The Portfolio's one-year net income is down slightly at 2.5% compared to Q2 2021 (2.8%), primarily due to lower revenues at certain transportation assets, but it is still close to Staff's expectations of annual income between 3% and 5% over the long term. In contrast to recent periods, appreciation represents the bulk of the total return.

Implementation

The Portfolio's Net Asset Value ("NAV") as of December 31, 2021 was $9.0 billion, an increase of $2.9 billion, or 47.4%, compared to the June 30, 2021 NAV of $6.1 billion. The current NAV represents 1.8% of the Total Fund, and 16.4% of the Real Assets Program.[1] 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.

The Portfolio is well diversified by sector and subsector:[2]

- ***Transportation*** assets are 44.4% of NAV, including airports, seaports, and toll roads.
- ***Power*** assets are 35.7% of NAV, including conventional and renewable power generation.
- ***Other*** investments are 12.8% of NAV, including mainly sector-diversified commingled funds.
- ***Energy, Water, and Communications*** investments are each less than 5% of the Portfolio, and collectively total 7.1%.

Twelve new investments closed in the H2 2021 period, totaling almost $3 billion of NAV, including individual investments in existing separate accounts, a new commingled fund commitment, and a new co-investment. The capital went into communications, power, renewables, transportation, and other assets.

[1] The Total Fund market value was $500.7 billion, and the Real Asset Program NAV was $55.1 billion, as of December 31, 2021, per Wilshire.

[2] As of Q3 2021. Performance data are not yet available by sector and subsector.

February 15, 2022

Key Policy Parameters

The Portfolio is compliant with all key parameters related to diversification and other limits applicable at the Portfolio level, as documented in the table below.

Key Portfolio Parameter	Policy Range/Limit	NAV 12/30/21 Exposure[1]
Risk Classification	(%)	(%)
Core	60-100	91.1
Value Add	0-25	2.7
Opportunistic-All Strategies	0-25	6.2
Geographic Region	(%)	(%)
United States	40-100	61.0
International Developed	0-60	38.7
International Developing	0-15	0.3
International Frontier	0-5	0.0
Manager Exposure[2]	(%)	(%)
Largest Partner Relationship	20 max	6.5
Investments with No External Manager	20 max	1.9
Leverage[3]		
Loan to Value	65% max	41.6%
Debt Service Coverage Ratio	1.25x min	2.00x

[1] Private investment data are one quarter lagged, so effectively as of September 30, 2021.

[2] CalPERS Real Assets Portfolio Allocation Report (Excel), Period Ending September 30, 2021: 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 ($67.7 billion).

[3] CalPERS Real Assets Portfolio Leverage Report (pdf), Quarter Ending September 30, 2021.

February 15, 2022

Conclusion

The Portfolio has been resilient during economic disruptions caused by the coronavirus pandemic, having recovered to 2019 performance levels as of June 2021, and now for December 2021 showing the strongest performance for the trailing one-year period since June 2018. Performance for longer periods is marginally up from prior reporting periods.

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

- *Risk*—Exposures are within the classification policy ranges;
- *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 has participated in the continuing recovery from the economic impacts of the COVID pandemic and its diversification by sector and geography has been beneficial in providing both defensive postures and growth exposures. Selected transportation and power investments performed particularly well over the last six months, giving the trailing one-year returns an impressive boost. CalPERS' infrastructure managers' annual investment plans for 2022 are targeting investments that will further diversify the Portfolio to maintain and enhance its resiliency and return potential.

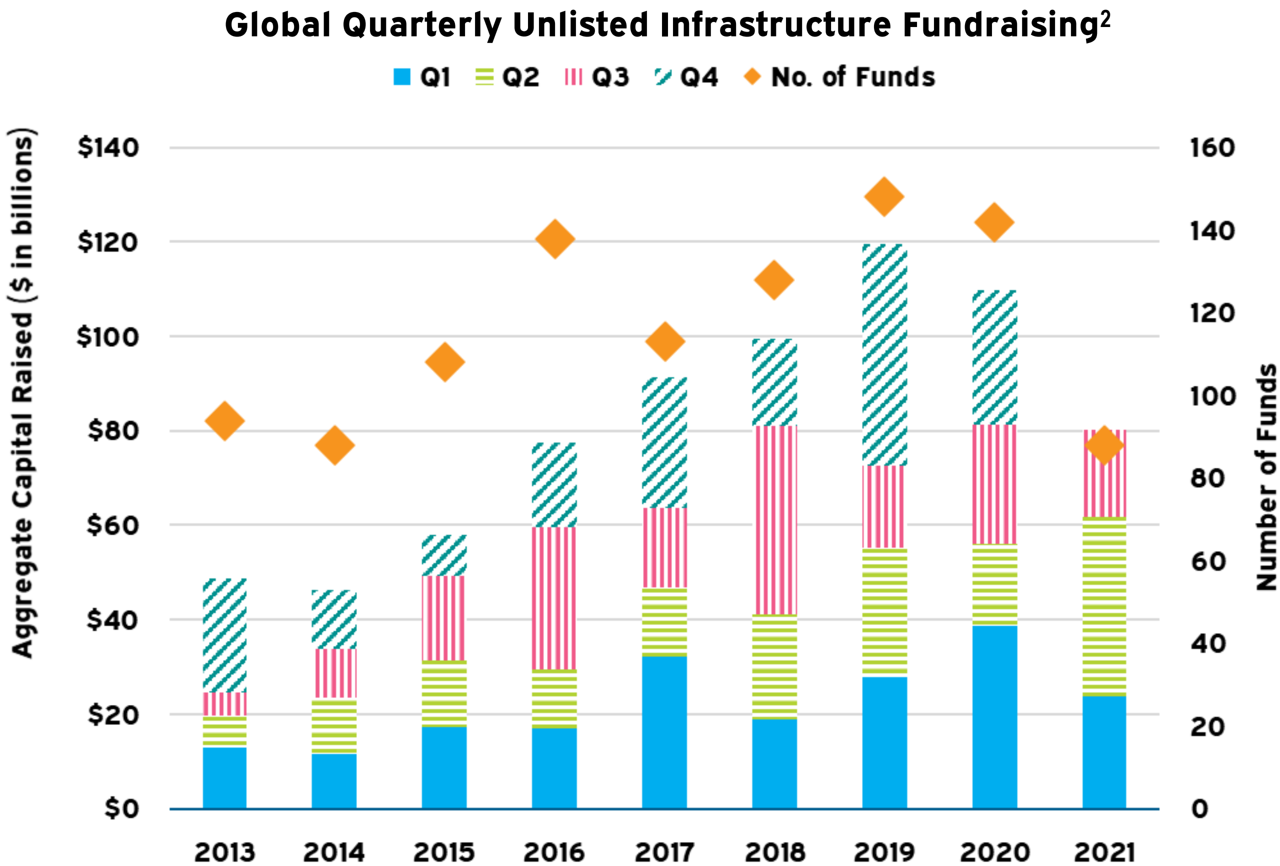
Please do not hesitate to contact us if you have questions or require additional information.

SPM/EFB/jls

February 15, 2022

Attachment[1]

Infrastructure Market Commentary – Q3 2021

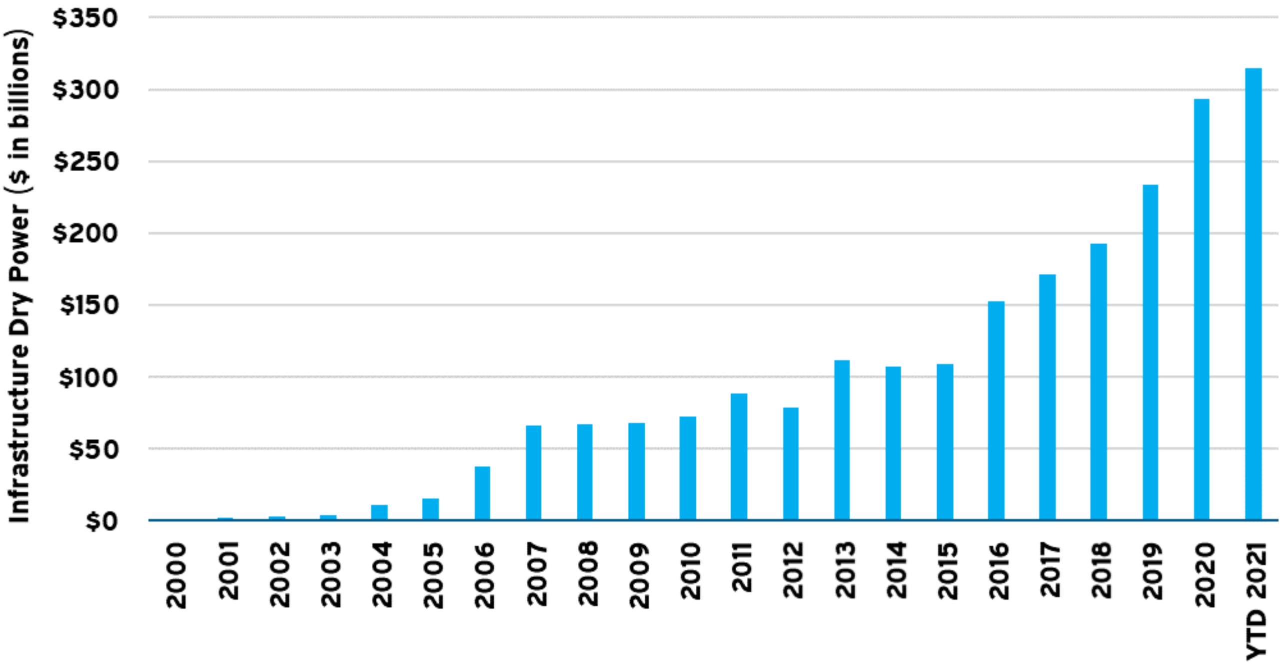


Capital raised in the third quarter of 2021 slowed down from compared to the first half of the year. The average fund raised so far in 2021 is $0.9 billion, which is similar to the 2020 average of $0.8 billion. As of September 30, 2021, a total of 337 unlisted infrastructure funds were in market, according to Preqin, with a combined fundraising target of approximately $235 billion.

[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 2021 Global Infrastructure Report.

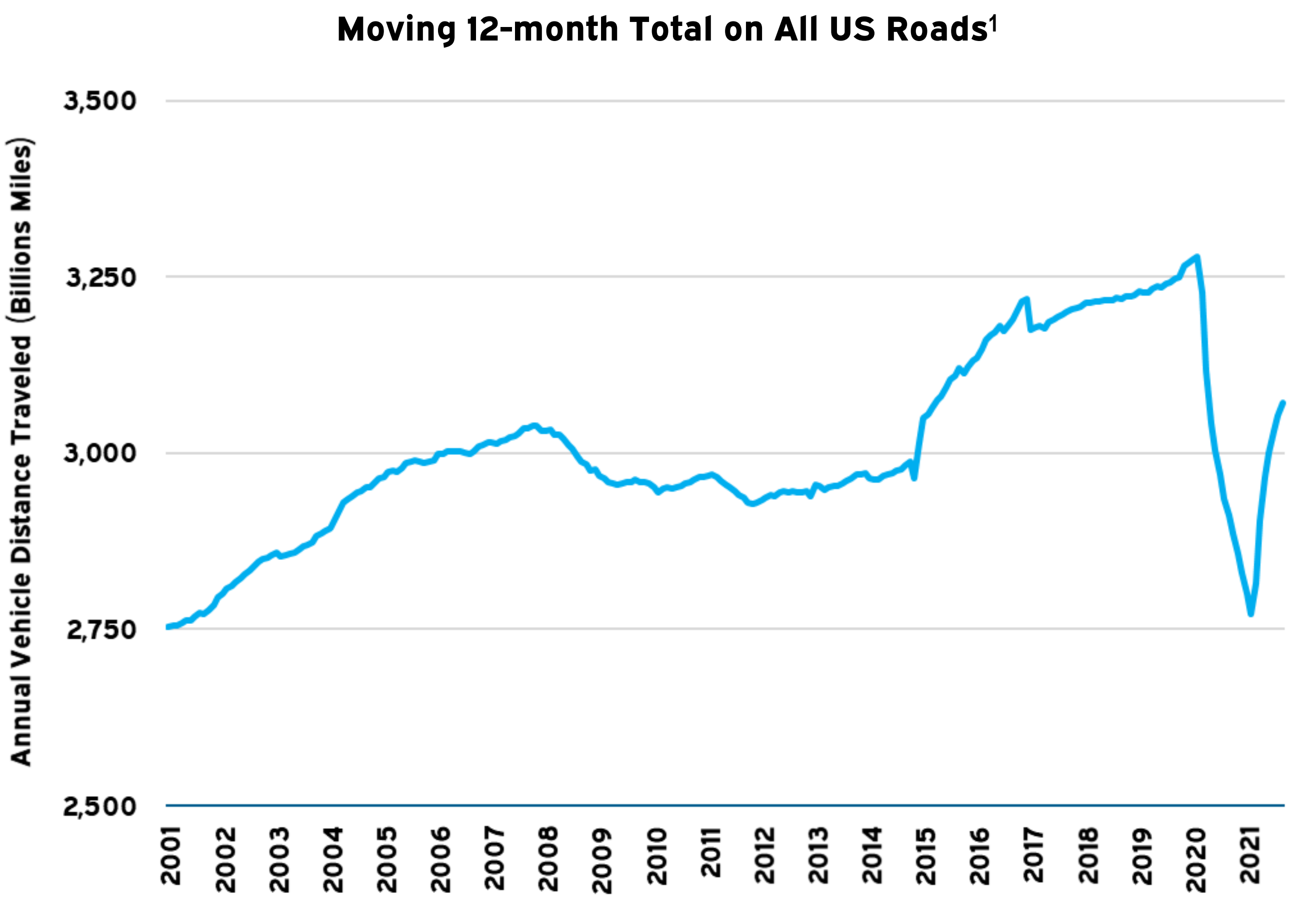
Global Infrastructure Dry Power[1]



Infrastructure dry powder remains at an all time high, with every year since 2015 increasing year-over-year. The early days of the asset class are evident in the sub-$50 billion levels until 2006, after which levels stayed between $50 billion and $100 billion until they reached $150 billion in 2016. After that, the level began to climb to the over $300 billion as of Q3 2021.

[1] Source: Preqin 3Q 2021 Global Infrastructure Report.

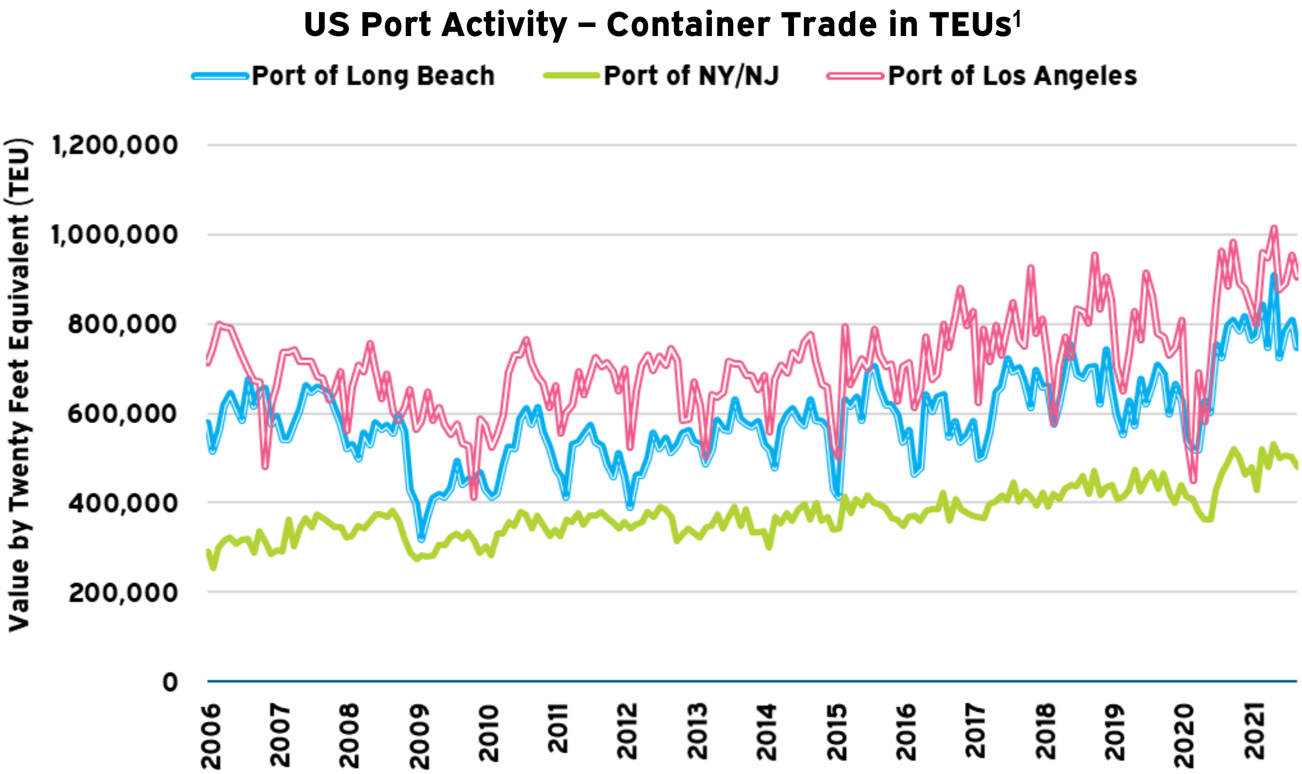
February 15, 2022



The third quarter showed the highest distance traveled on US roads since before the global pandemic, with a total of approximately 830 billion miles. This represented an increase of 9% over the same period in 2020. The travel data is trending back to higher values, indicating a natural return to travel as COVID-19 restrictions loosened. The third quarter continued to show an increase in the US price of a gallon of gas, which steadily increased to finish September at an average price of $3.27 per gallon. This compares to $2.26 per gallon average in 2020.

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

February 15, 2022

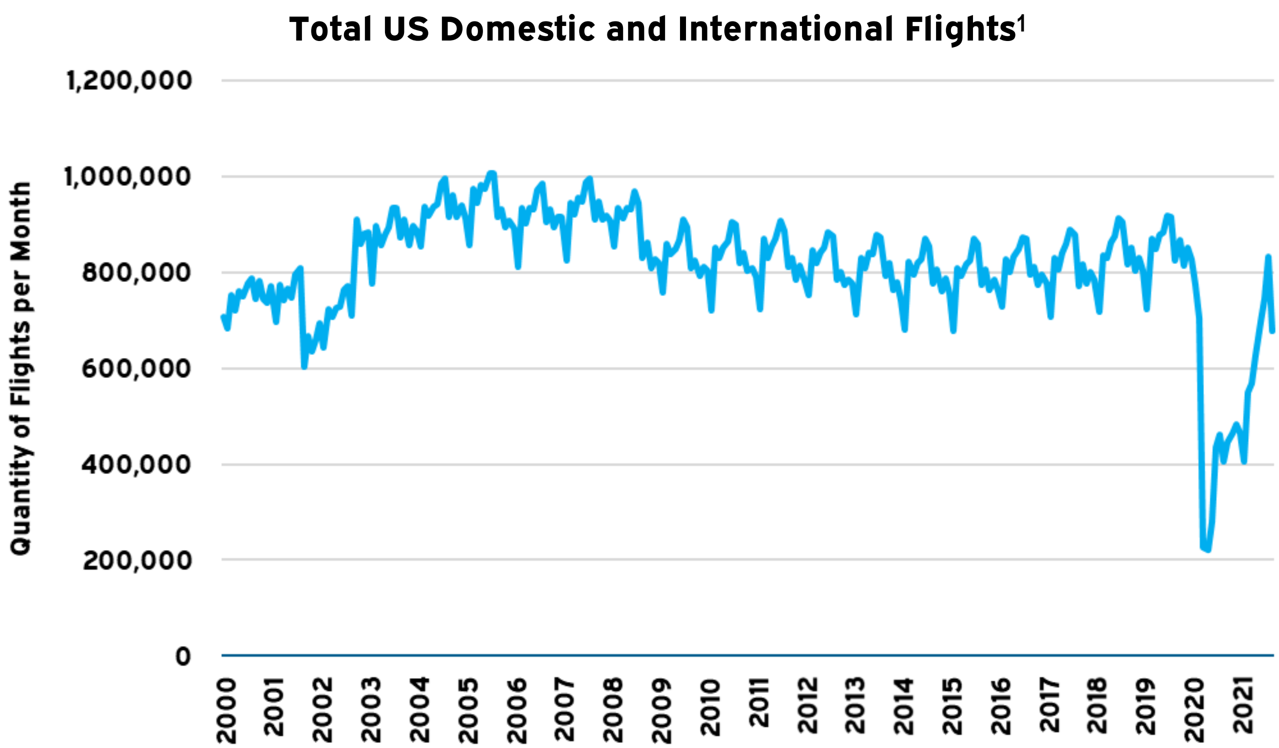


The chart presents the top three US ports by container volume, as measured by twenty-foot equivalent units ("TEU"). Activity at the three ports provides a high-level representation of the volume at US ports more broadly.

During the third quarter of 2021, volumes at the three ports increased by 0.2 million units relative to the same period in 2020. On a year-over-year basis, the combined port volumes increased by 4.9 million TEU, or 32%, over the prior 12-month period. The Port of Long Beach recorded an increase of 24% (1.8 million TEU), the Port of NY/NJ reported an increase of 17% (0.9 million TEU) and the Port of Los Angeles recorded an increase of 26% (2.2 million TEU) over the prior 12 months.

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

February 15, 2022

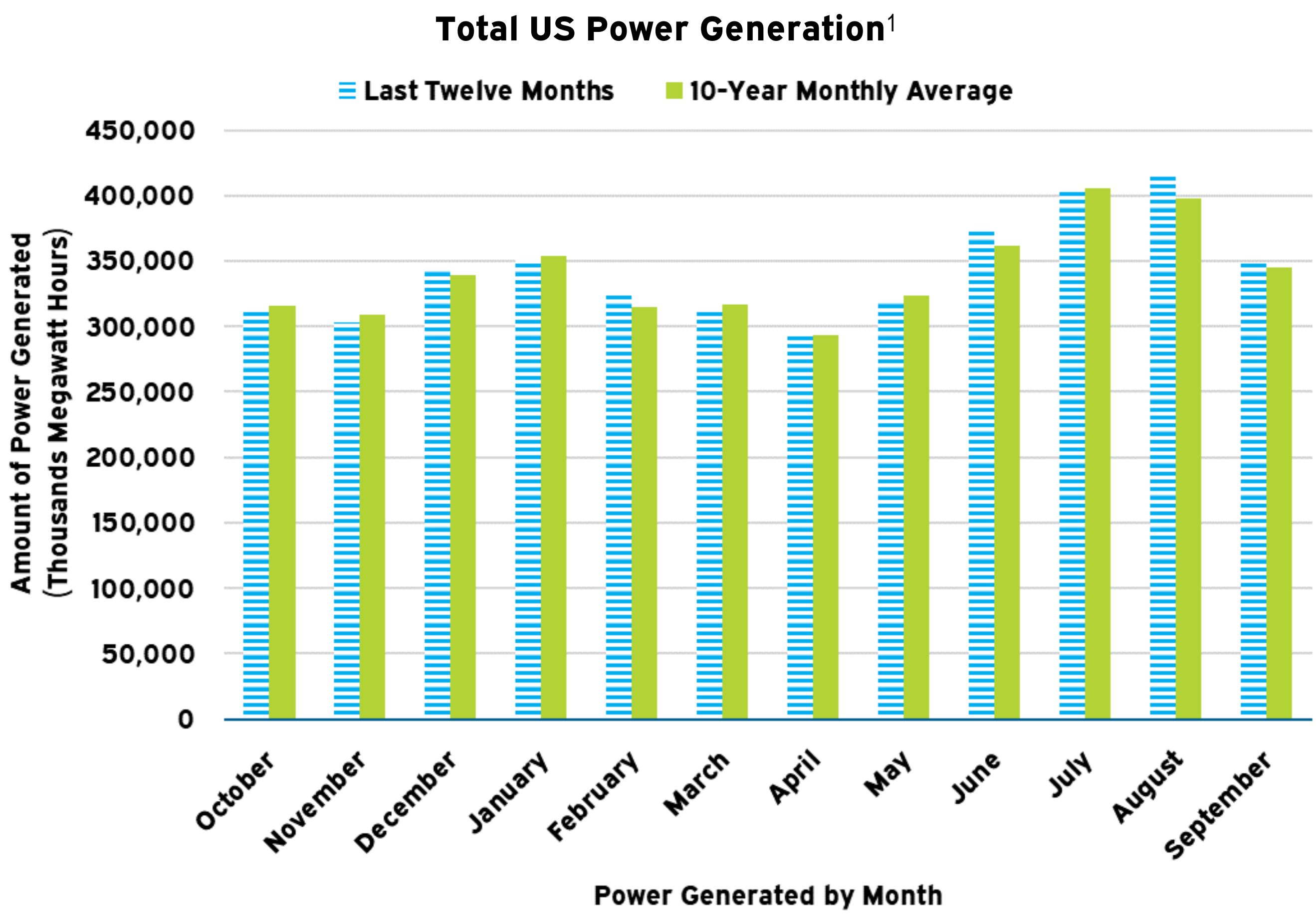


The chart above presents all US domestic and international flights, excluding foreign point-to-point flights by month. Historically, air traffic is cyclical with peaks in the summer months and troughs in the winter months.

There were 1 million more flights during the third quarter of 2021, representing a 73% increase compared to the same period in 2020. Air traffic activity increased by 1.3% over the 12-month period ending September 30, 2021 over the previous 12 months. In addition to the number of flights during the third quarter increasing year-over-year, the total number of passengers travelling on US and international airlines increased by 3% from 2020 to 2021.

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

February 15, 2022

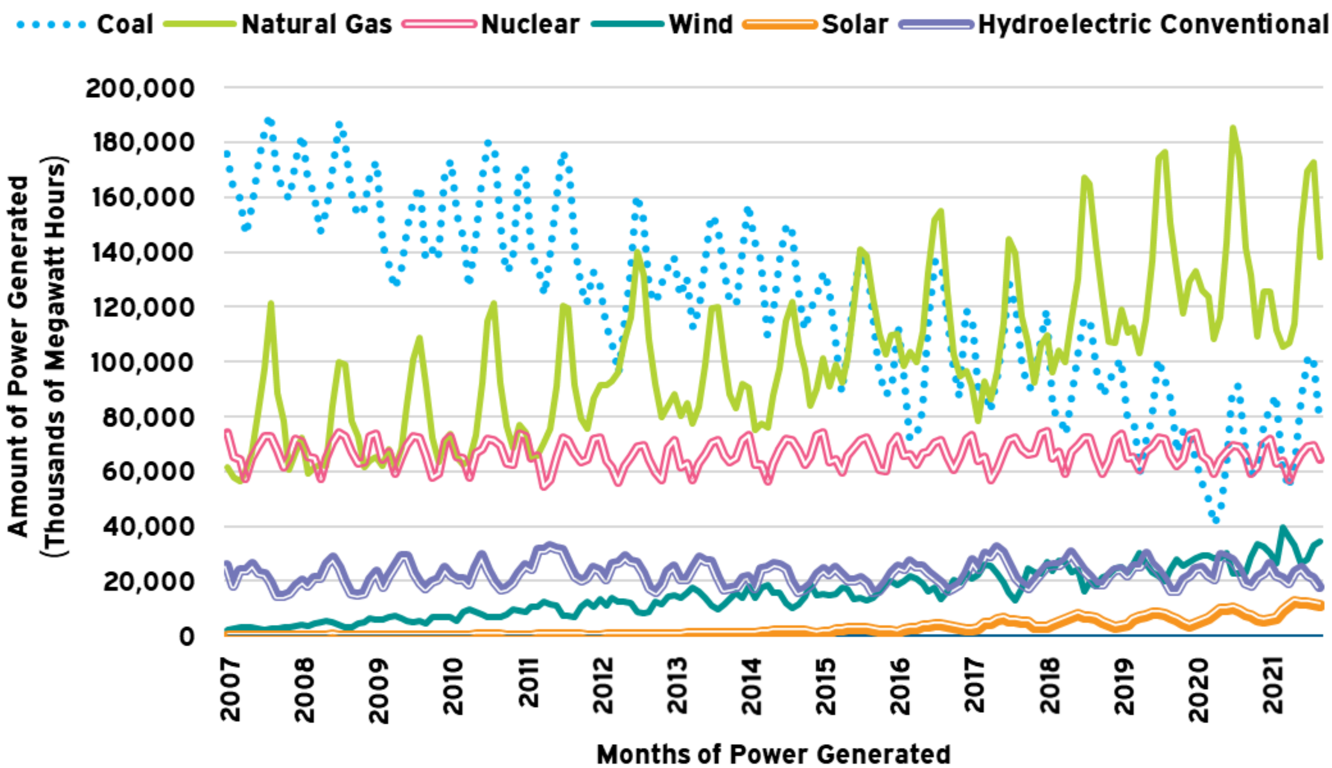


The graph above presents the total net generation for the past 12 months compared to the 10-year average for each month. Net energy generation in the US remained flat with a slight increase by 1.6% during the third quarter, compared to the same period in 2020.

[1] Source: US Energy Information Administration: Electric Power Monthly, September 2021.

February 15, 2022

US Power Generation by Source[1]



In the third quarter of 2021, versus the same period in 2020, total US power generated increased by 2% with the largest increase from coal, wind, and solar. Natural gas had the largest decrease at 20,650 thousands of megawatt hours. Wind and utility-scale solar continue to make up a small portion of total net energy generation in the US, accounting for only 9% and 3% of energy generation in the third quarter, respectively. Natural gas, coal, and nuclear accounted for 38%, 22%, and 19%, respectively. However, the growth of wind and solar as sources of energy generation continues to increase at a faster rate than coal and natural gas, especially over the last couple of years.

[1] Source: US Energy Information Administration: Electric Power Monthly, September 2021.