

Infrastructure Investment in the Global Clean Economy

2023





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About the research

The **PAF Infrastructure Investment in the Global Clean Economy** report provides an insight into the Global Infrastructure Investment Sector's investment in the global clean economy. The findings of the report are based on primary and secondary research conducted by Pan American Finance ("PAF") and its research partner Alchemy Research and Analytics.

The report provides an overview of the global infrastructure investment market focusing on global and regional trends around capital raising, investment activity, exit markets, and available dry powder for further investment. It also explores the role of infrastructure investment in the global clean economy and analyses the trends in private investment in renewable energy over the years.

Major infrastructure GPs who have invested in renewable energy, or the broader clean economy have been profiled in the later part of the report. Data on the infrastructure industry has been sourced from established industry sources such as Preqin, Bain & Company, Bloomberg NEF and others. Information on Infrastructure GPs has been primarily sourced from Pitchbook and the companies' corporate materials. This has been supplemented by news articles and reports from industry associations, trade journals and national statistical agencies.

The report is an outcome of a collaboration between PAF and its research partner Alchemy Research and Analytics and was completed between January and February 2023.

We would like to thank the following executives for their contribution in preparing the report:

Pan American Finance

- L. Warren Pimm, Partner & Sr. Managing Director
- Rob Hays, Managing Director
- Pedro Obregon, Vice President
- Federico Fermin, Associate

Alchemy Research and Analytics

- Niladri Paul, CEO
- Souradeep Basu, Associate Manager

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Introduction

Globally, infrastructure investment in the global clean economy has continued to grow at significant pace, given a combination of increasing allocations to infrastructure by large asset owners generally, growing policy commitments by global governments towards net zero emissions economies by 2050, and an increasing focus on environmental, social, and governance features by all investors.

Investment in clean energy, the electrification of the global transportation system, and the built environment, specifically the underlying technologies, supply chains, and operating companies within those sectors, is expanding at a rapid pace. Global investment in clean growth and a clean economy is now mainstream, and no longer a niche area of investment by infrastructure.

The purpose of **PAF's Annual Infrastructure Investment in the Global Clean Economy Report** is to provide a high-level view of the demand drivers, opportunities, challenges and outlook prevalent in major markets for infrastructure investment in clean economy sectors of renewable energy, electric transportation, and the built environment. An understanding of global industry trends and country-specific market factors are critical to success for all potential market entrants.

We hope you will enjoy reading our report on the Global Infrastructure Investment the Clean Economy.

L. Warren Pimm, CFA
Partner & Senior Managing Director
PAF Investment Banking

1. EXECUTIVE SUMMARY



Executive Summary

Green Capex will be the dominant driver of global infrastructure

- ❖ Net Zero targets have emerged as a useful tool to indicate a country, company or asset manager's commitment to climate action, uniquely focused on carbon emissions or equivalents
- ❖ Around \$6.0 Tn of annual investment is required in 2020s to meet Net Zero, Clean Water and Infrastructure objectives, up from legacy \$3.2 Tn
- ❖ China, US and Europe represent more than half of required investment for Net Zero by 2050 pathway, consistent with weighting of overall emissions
- ❖ Meeting the Net Zero pathway objectives involves not only the expansion of power plant capacity, however also of transmission lines, batteries, charging infrastructure, and carbon capture/sequestration

Energy transition 2.0

- ❖ Global oil prices have returned to pre-2014 levels, with wholesale electricity prices in Europe rising accordingly
- ❖ However, not all assets will benefit if risk-conservative offtake structures are in place. Many merchant power developers, on the other hand, will reap the full upsides, with low-marginal-cost renewables investors seeing greater growth in free cash flows, having avoided the price effect in their cost base
- ❖ This has prompted both political and regulatory reactions, and calls to cap energy suppliers' prices in some regions could limit these gains, but still at up to three times more than some investors' best-case scenarios

Pressure on performances

- ❖ Sustained strong performance by unlisted infrastructure means it has yet to witness the drops seen in public markets, or in other private capital asset classes. The index climbed to 353 in the first quarter of the year, up 61 points since Q1 2021
- ❖ Longer-term, the asset class has a strong footing for expansion. US President Biden's recent legislation may have global impact by locking a leading nation into a once-in-a-generation program of infrastructure investment
- ❖ The energy sector's dominance across manager portfolios will also support returns, with expectations that high energy prices will persist well beyond the next 12 months

Outlook

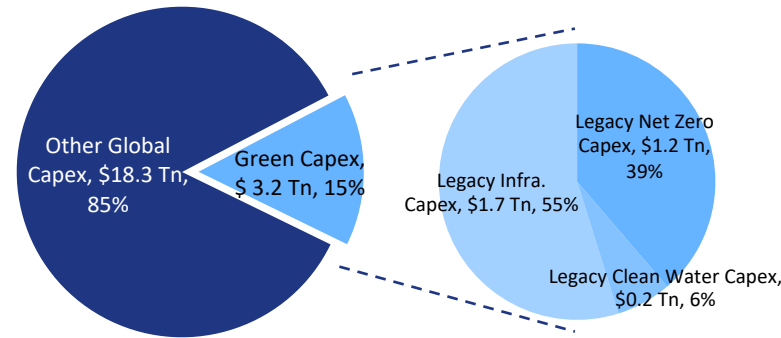
- ❖ It is forecasted that infrastructure will be the second-fastest growing in private capital in terms of AUM, with an expected 13.3% CAGR up to 2027, behind venture capital at 19.1% CAGR over the same period
- ❖ Despite a jump in North America-focused fundraising, to 68% as of Q3 2022 it is expected Europe-focused fundraising to dominate by 2027
- ❖ The need for both renewable and conventional energy investment in that region to deliver long-term energy security, if not independence, will help underpin the asset class's future growth
- ❖ In terms of renewable technologies, solar PV and wind power continue to dominate new investment in renewable energy. At the same time, water treatment facilities and/or e-recycling have emerged as a key additional choice of area for investment

2. OVERVIEW OF GLOBAL INFRASTRUCTURE MARKET



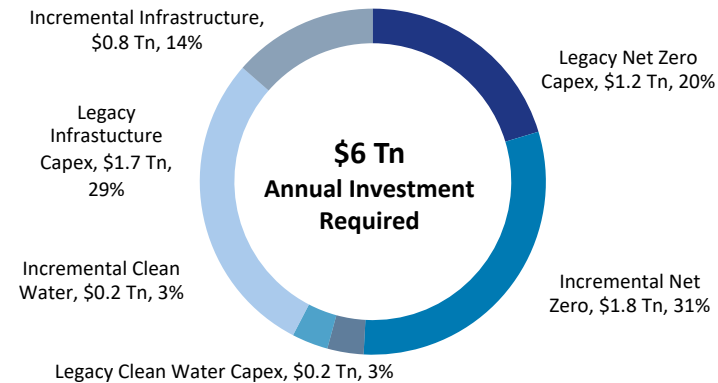
Green Capex Requirement to Meet Sustainable Development Goals

Green Capex toward Net Zero, infrastructure and clean water vs. 2016-19 annual global capital investment



Source: World Bank, IEA, McKinsey, OECD, Goldman Sachs Global Investment Research

Green Capex requirement in the Net Zero scenario



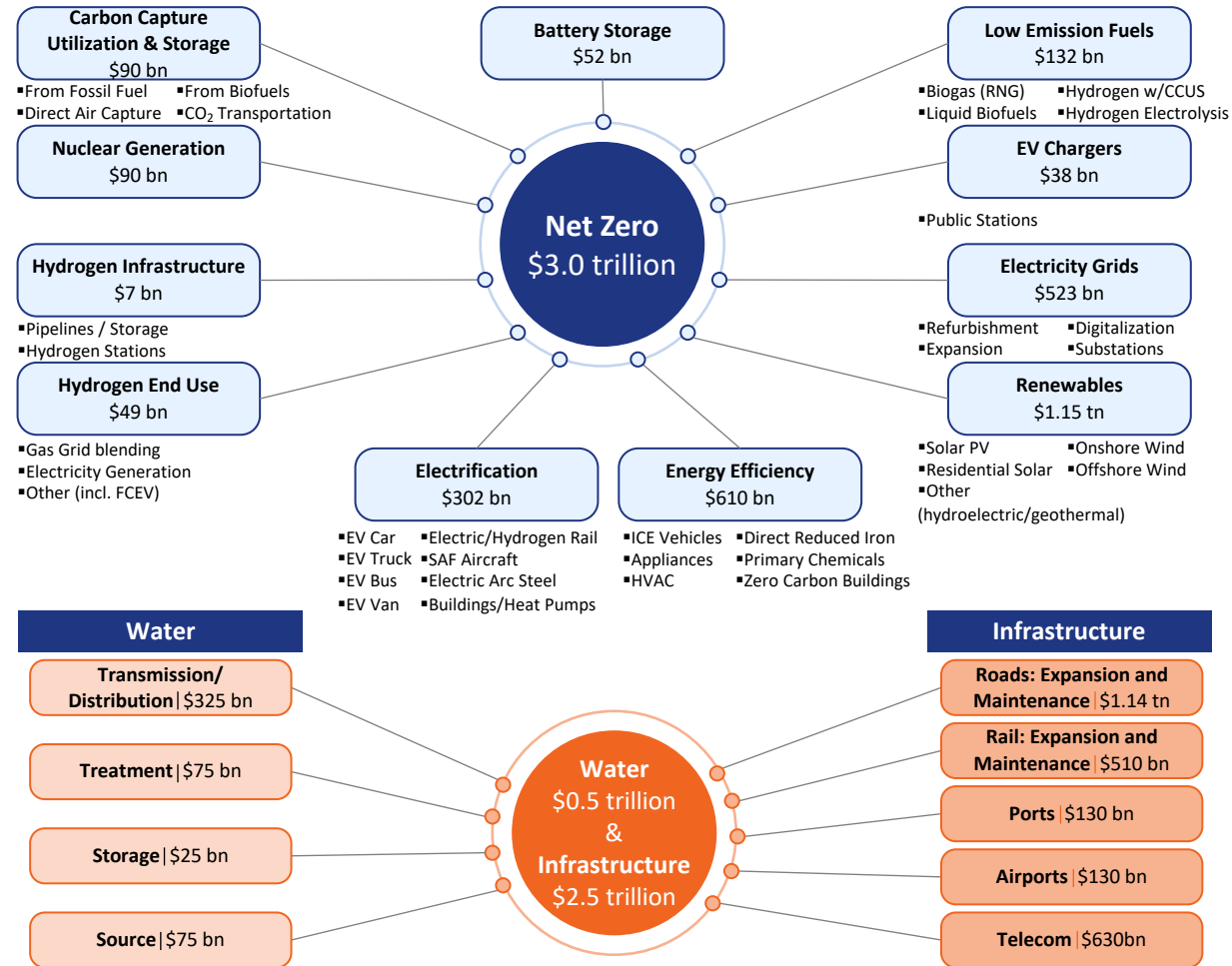
Source: World Bank, IEA, McKinsey, OECD, Goldman Sachs Global Investment Research

- Estimated **\$6 Tn** of annual investment is required through 2020 – 2030, to meet Net Zero, Clean Water and Infrastructure objectives and other Sustainable Development Goals (SDGs), up from legacy **\$3.2 Tn** per annum
- As per Goldman Sachs Research and FactSet, growth in investment in global CAPEX + R&D (not solely Green) in 2022 is expected to be **3% - 4%** vs. 2021
- Geographically **China and the US** should represent the greatest percentage of overall and incremental Net Zero/infrastructure investment needs. In 2019, China emitted around 28% of global CO₂, while the US emitted about 15%
- The incremental **\$2.8 Tn** of annual investment needed each year, though this decade represents approximately **2.7%** of global annual GDP. Currently only one third of this incremental \$2.8 Tn annual investment requirement is on track from the private sector
- With continued inflationary pressures, there is a potential upside risk to the \$6.0 trillion annually that is required for this decade. At the same time, the potential for greater deployment of solutions could increase the pace of innovation in areas like hydrogen, battery storage and energy efficiency

Annual Capital Investment in Global Energy Transition

- It is estimated (GS 2022) that *annual capital investment of c.\$6 trillion is needed each year* between now and 2030, in order to be on a pathway to Net Zero by 2050
- Need for *capital investment of c.\$1.15 trillion in renewables alone – 4x more* than c\$0.3 trillion invested in renewables globally in 2020

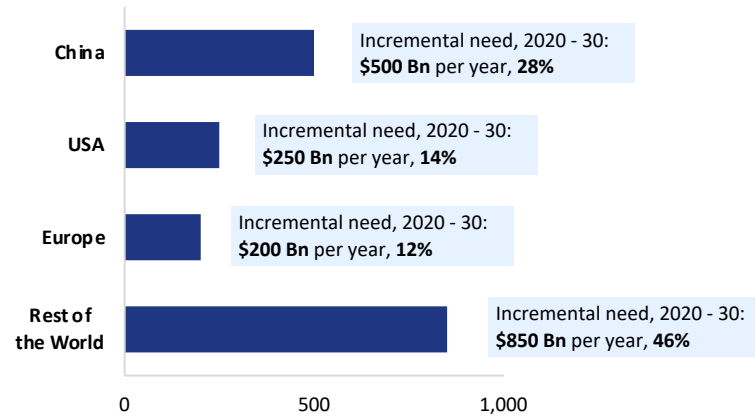
Green Capex Mosaic



Source: Goldman Sachs Global Investment Research

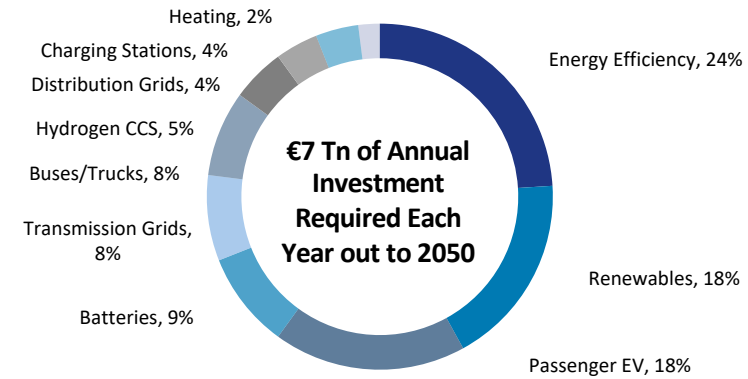
Capex Requirement by Region & Sector

Incremental annual investment through the 2020s, needed to meet the Net Zero by 2050 pathway (\$ Bn)



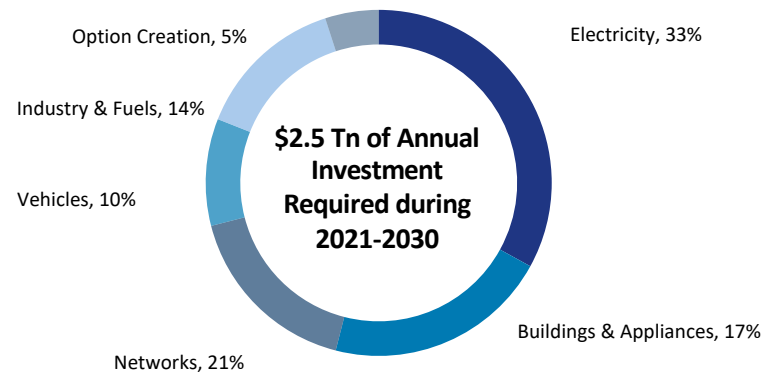
Source: Princeton University, EU Commission, IEA, Goldman Sachs Global Investment Research

EU Net Zero costs by investment category by 2050



Source: Goldman Sachs Global Investment Research, Princeton University, European Commission

US Net Zero costs by investment category during 2021-2030

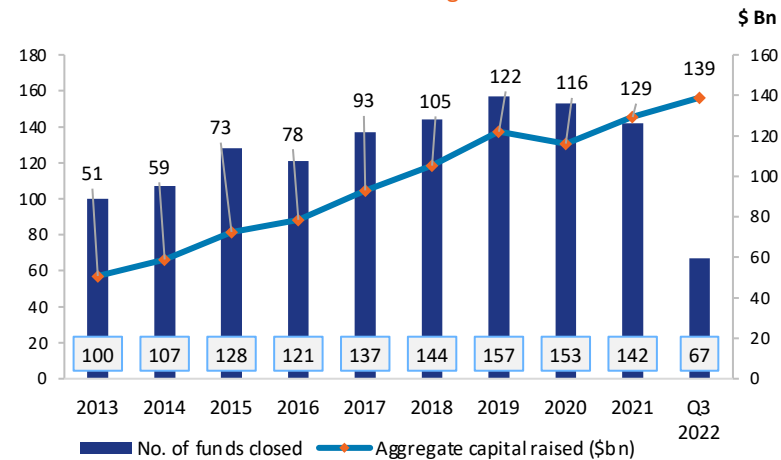


Source: Princeton University, EU Commission, IEA, Goldman Sachs Global Investment Research

- China, US & Europe represent more than half of the required investment for the Net Zero by 2050 pathway, consistent with a weighting of overall emissions. Meeting Net Zero objectives will likely require capex of about \$11 Tn in the EU by 2050 and \$16 Tn in China by 2060 (as China is pursuing a Net Zero Path by 2060, which means spending will be less in the 2020s than what would have been required to reach Net Zero by 2050)
- In the US, a combination of demand efficiency and increased deployment of additional clean generation capacity is needed to accomplish the goal set by President Biden to reduce US greenhouse gas emissions 50%-52% by 2030 vs. 2005 levels
- Meeting the Net Zero pathway objectives involves not only the expansion of power plant capacity but also of transmission lines, batteries, charging infrastructure, and carbon capture/sequestration, supported by an investment-friendly policy framework ahead of aggressive capex increases

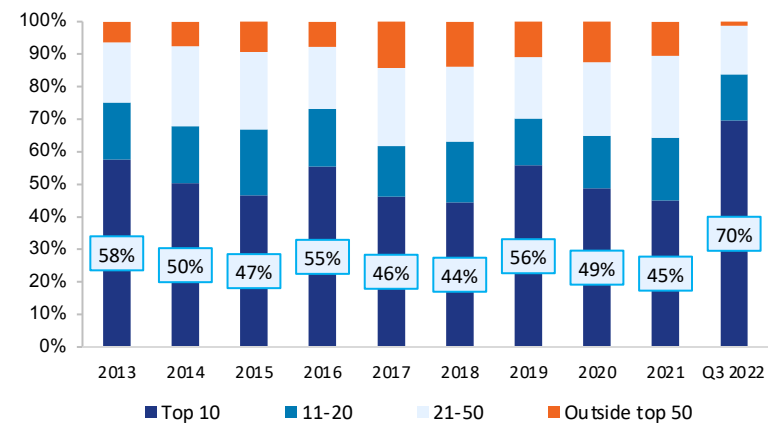
Global Infrastructure Fundraising

Global unlisted infrastructure fundraising



Source: Preqin Global Infrastructure Report - 2023

Proportion of aggregate capital raised by the largest unlisted infrastructure funds closed

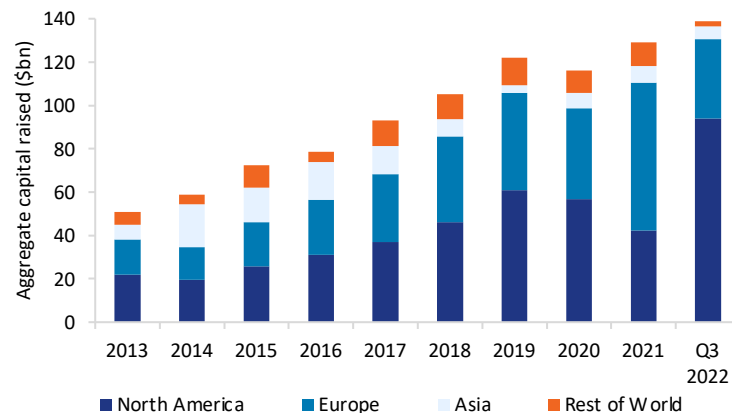


Source: Preqin Global Infrastructure Report - 2023

- Infrastructure has recently become one of the fastest-growing asset classes, with total assets under management (AUM) topping \$1 tn by March 2022. Dry powder in the asset class continued to rise between the end of 2021 and Q3 2022 and was up by 17% over the nine months. As unrealized values have risen strongly, dry powder's share of AUM has reduced from 38% in 2020 to less than 30% in 2022
- 2022 has been infrastructure's most active year of fundraising by far. Data to Q3 reveals \$138.8bn was raised by just 67 funds. Most of this fundraising came in the first six months of the year, with over \$126bn raised by the end of the second quarter
- President Biden's legislative program has been a major driver behind this increased activity level. The sector has also benefited from infrastructure's ability to provide inflation hedge resulting from the contractual structures that many assets utilize
- In terms of total capital raised, the top 10 unlisted infrastructure funds have historically been responsible for the lion's share and the trend continues. Until Q3 2022, 70% of the total capital raised has been allocated to the top 10 infrastructure funds
- 13-18 months span seems to be the sweet spot at which 80% of funds currently secure above-target closes. For this group, the average fund size is over \$3.8bn. This is where the mega funds tend to settle in terms of time on the road
- Brookfield stands as the clear leading fundraiser in the asset class based on funds raised in the last 10 years, having raised 22% of the total value raised by the 10 largest fundraisers in this period

Global Infrastructure Fundraising by Primary Geographic Focus

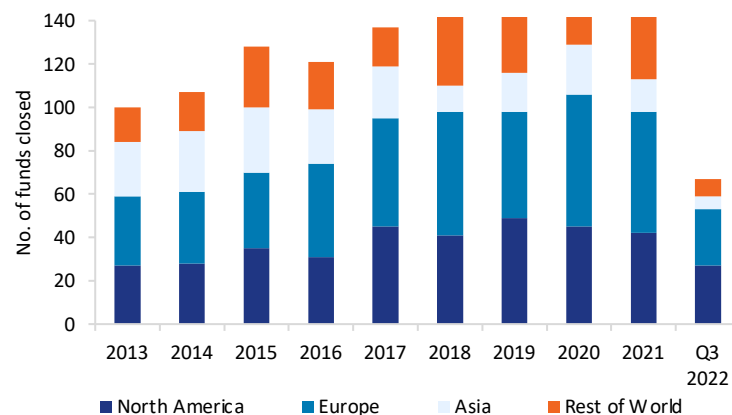
Aggregate capital raised by unlisted infrastructure funds closed by primary geographic focus



Source: Preqin Global Infrastructure Report - 2023

- Of the total capital raised by unlisted infrastructure funds until Q3 2022, North America-focused funds held 68% share
- The last time North America-focused funds held above 50% share was in 2008, during which it was 58%. In comparison, this measure has averaged 42% between 2011 and 2021
- The Infrastructure Investment and Jobs Act (IIJA) of 2021 and the Inflation Reduction Act (IRA) in 2022 combine to provide c.\$1.6tn of funding over the long term, but their signal for investment is as influential as the direct funding they mandate

Unlisted infrastructure funds closed by primary geographic focus

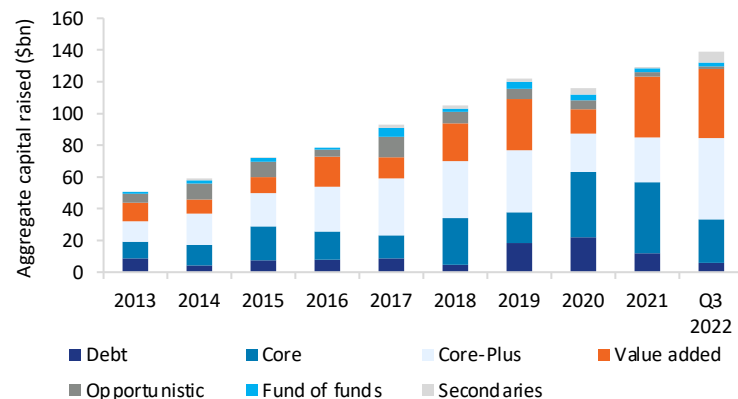


Source: Preqin Global Infrastructure Report - 2023

- In terms of the total number of funds closed, Europe has historically held the leading position among all regions. Although in 2022, until Q3, North America had a slight edge over Europe, where 27 funds have been closed in comparison to 26 in the latter
- Central banks are still catching up in terms of taming surging prices. The inflation breakdown by region differs, with a larger share in Europe driven by energy components of CPI
- In the US, despite high global oil prices, other factors like household rent and mortgage payments are having more influence on general price increases

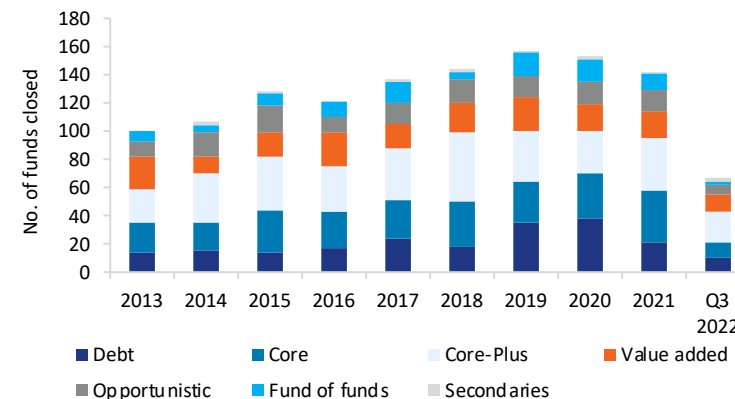
Global Infrastructure Fundraising by Strategy & Largest Funds Closed

Aggregate capital raised by unlisted infrastructure funds closed by strategy



Source: Preqin Global Infrastructure Report - 2023

Unlisted infrastructure funds closed by strategy



Source: Preqin Global Infrastructure Report - 2023

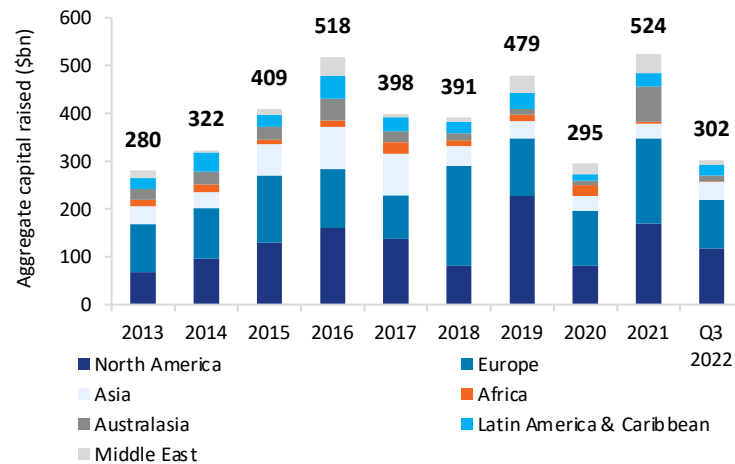
10 largest unlisted infrastructure funds closed to Q3 2022

FUND	FIRM	FUND SIZE (BN)	PRIMARY STRATEGY	GEOGRAPHIC FOCUS	FINAL CLOSE DATE
KKR Global Infrastructure Investors IV	KKR	USD 17	Core-Plus	North America	Mar-22
ISQ Global Infrastructure Fund III	I Squared Capital	USD 15	Value added	North America	Apr-22
Brookfield Global Transition Fund	Brookfield Asset Management	USD 15	Core	North America	Jun-22
Stonepeak Infrastructure Partners IV	Stonepeak	USD 14	Value added	North America	Feb-22
Partners Group Direct Infrastructure 2020	Partners Group	USD 8.5	Core-Plus	Europe	Feb-22
DigitalBridge Partners II	DigitalBridge Investment Management	USD 8.3	Value added	North America	Jan-22
InfraVia V	InfraVia Capital Partners	EUR 5.0	Core-Plus	Europe	Mar-22
ASF VIII Infrastructure	Ardian	USD 5.3	Secondaries	North America	Apr-22
Macquarie Asia Infrastructure Fund III	Macquarie Asset Management	USD 4.2	Core-Plus	Asia	May-22
iCON Infrastructure Partners VI	iCON Infrastructure	USD 3.6	Core-Plus	Europe	Jun-22

Source: Preqin Global Infrastructure Report - 2023

Global Infrastructure Deals

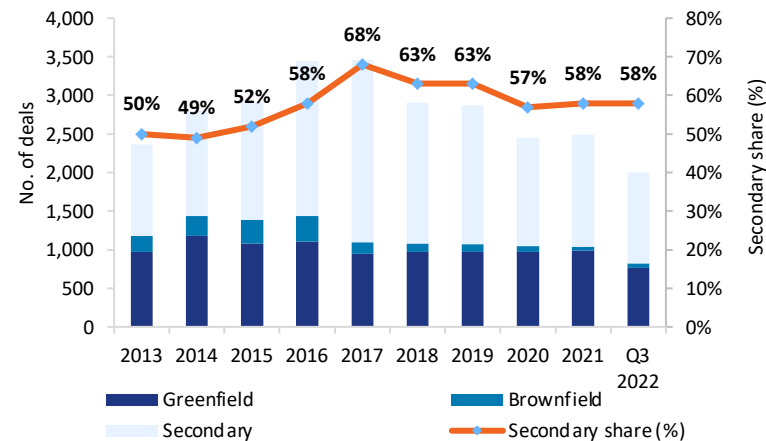
Annual aggregate infrastructure deal value by region (\$bn)



Source: Preqin Global Infrastructure Report - 2023

- The deals market in recent years has been increasingly volatile. After a peak in aggregate deal value in 2019, the market went down during the pandemic in 2020, resurging in 2021, fuelled by fiscal and monetary loosening. This has been followed by an inflation-driven correction in 2022
- Despite this turmoil, the asset class is cementing its grip on the central sector for all economies. But beyond sector breakdowns, regional deals by number and aggregate values show less discernible trends because of the influence of infrequent mega deals
- The telecoms sector has grown within the asset class, buoyed by the demands of home working and online retail amid pandemic lockdowns. The sector has quickly increased its share of aggregate deal values, overtaking utilities and even transport in the data to Q3 2022

Number of infrastructure deals by project stage

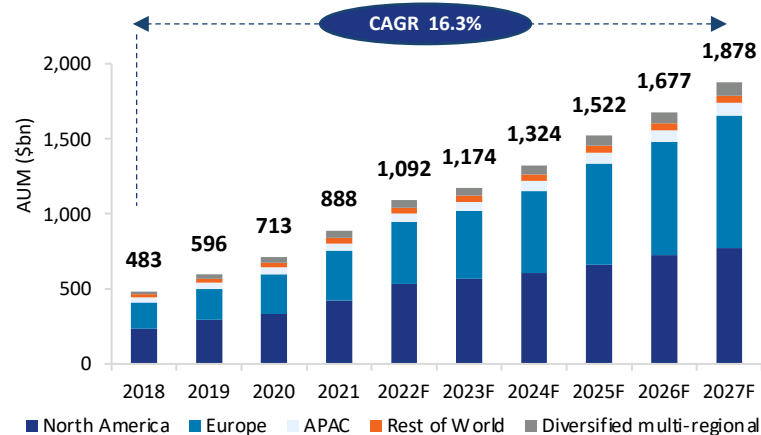


Source: Preqin Global Infrastructure Report - 2023

- In terms of project stage, secondaries' share of total deals has waned as greenfield has shown more resilience to falling numbers of deals recently
- The peaks in activity in recent years are driven by the secondary market, with 2019 and 2021 notable for increases in the aggregate deal value off the back of secondary transactions, reflecting the more heated markets in those periods
- In terms of the performance of the asset class, investors may be reassured by the resilience of the index to Q1 2022. Against sharp drops in venture capital and the S&P 500, infrastructure has bucked the trend to deliver a 19-point increase to reach 353

Infrastructure Asset Under Management

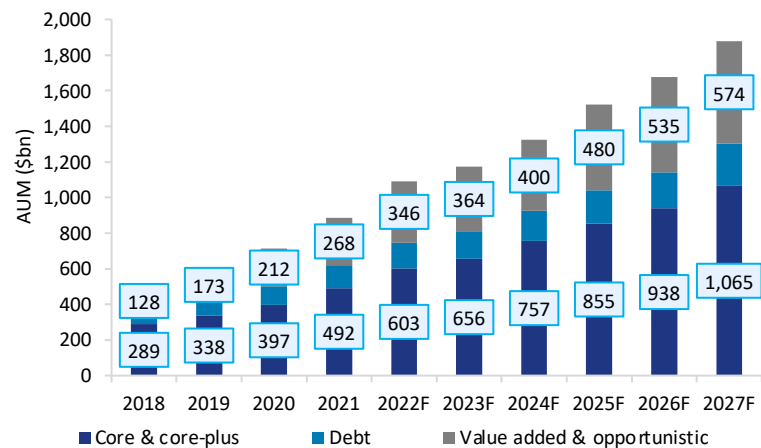
Infrastructure assets under management by primary region focus



Source: Preqin Global Infrastructure Report - 2023

- Global infrastructure investment is currently lagging from where it needs to be. It's estimated that \$23tn worth of investment is required to meet the Sustainable Development Goals by 2030 & stay on track to net zero by 2050
- Unlisted infrastructure AUM is forecasted to catch up to that of real estate, reaching \$1.9 tn in 2027. This entails AUM in the asset class from 76% of real estate AUM in 2022 to 88% by the end of 2027 as the emerging tighter monetary environment will have a more significant impact on real estate
- Although North America has maintained its lead over Europe in terms of total AUM so far, the latter is forecasted to be ahead from 2025 onwards

Infrastructure assets under management by sub strategy



Source: Preqin Global Infrastructure Report - 2023

- Core and core-plus as a strategy remains in the leading position for the forecasted period followed by value added & opportunistic
- Core infrastructure performance in North America correlates with real disposable income. With inflation expected to remain high there might be downward pressure on performance as real incomes are constrained
- However, given that surging energy prices and the subsequent abnormally high profits for energy companies are core drivers of inflation, some infrastructure investors in private markets will benefit from the energy squeeze

Notable Infrastructure Asset Deals in 2022 (1/2)

ASSET	DEAL SIZE (MN)	BUYER(S)	SELLER(S)	PRIMARY ASSET LOCATION	PRIMARY INDUSTRY	DEAL DATE
Sangley Point International Airport	USD11,000	Samsung C&T Corporation, Munich Airport, Cavite Holdings, Arup, House of Investments		Philippines	Transport	Sep-22
Switch	USD11,000	IFM Investors, DigitalBridge Partners II		US	Telecoms	May-22
South Jersey Industries	USD8,100	JP Morgan Infrastructure Investments Fund		US	Energy	Feb-22
Pembina Pipeline KKR Joint Venture	CAD9,800	KKR, Pembina Pipeline Corporation		Canada	Energy	Mar-22
GD Towers	EUR6,600	Brookfield Asset Management, DigitalBridge Investment Management		Germany	Telecoms	Jul-22
Con Edison Clean Energy Businesses	USD6,800	RWE Group	ConEdison	US	Renewable energy	Oct-22
Goshawk Aviation	USD6,700	SMBC Aviation Capital	NWS Holdings, Chow Tai Fook Enterprises	Ireland	Transport	May-22
Bolloré Africa Logistics	EUR5,700	MSC Group	Bolloré	Ivory Coast	Other	Apr-22
National Grid Gas	GBP4,200	Macquarie Asset Management, British Columbia Investment Management Corporation, Pantheon	National Grid	UK	Energy	Mar-22
Hornsea Two	GBP3,000	AXA IM Alts, Crédit Agricole Assurances	Ørsted	UK	Renewable energy	Mar-22

Source: Prequin Global Infrastructure Report - 2023

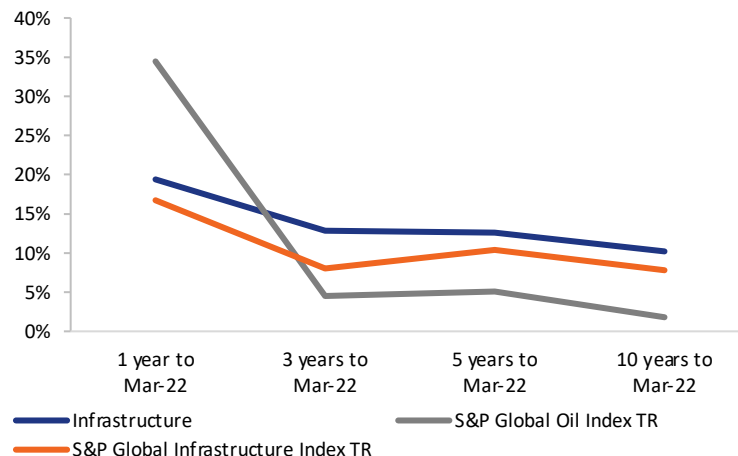
Notable Infrastructure Asset Deals in 2022 (2/2)

ASSET	DEAL SIZE (MN)	BUYER(S)	SELLER(S)	PRIMARY ASSET LOCATION	PRIMARY INDUSTRY	DEAL DATE
LUCID Energy	USD3,550	Targa Resources Partners	Riverstone Global Energy and Power Fund VI, West Street Capital Partners VII, West Street Energy Partners, West Street Infrastructure Partners III	US	Energy	Jun-22
Renewable Energy Group	USD3,150	Chevron Corporation		US	Renewable energy	Mar-22
Invenery Renewables	USD3,000	Blackstone Group		US	Renewable energy	Jan-22
Reden Solar	EUR2,500	Macquarie GIG Global Renewables Fund ii, Macquarie Global Infrastructure Fund, Green Investment Group, British Columbia Investment Management Corporation, MEAG - A Munich Re Company	Eurazeo, InfraVia III	France	Renewable energy	Mar-22
Uniti Group	AUD3,620	Commonwealth Superannuation Corporation, H.R.L Morrison & Co, Brookfield Infrastructure Fund IV		US	Telecoms	Apr-22
Axicom	AUD3,580	Australia Tower Network	UniSuper, Macquarie Asia Infrastructure Fund, UBS International Infrastructure Fund II	Australia	Telecoms	Apr-22
Lyntia Networks	EUR2,400	AXA IM Alts, Swiss Life Asset Managers	Antin Infrastructure Partners	Spain	Telecoms	May-22
CoreSite	USD2,500	Stonepeak	American Tower Corporation	US	Telecoms	Jul-22
India Power and Transport Assets Portfolio	USD2,400	ArcelorMittal, Nippon Steel	Essar Group	India	Other	Aug-22
ContourGlobal	GBP1,750	KKR Global Infrastructure Investors IV		UK	Other	May-22

Source: Preqin Global Infrastructure Report - 2023

Infrastructure Performance

Horizon net IRRs: unlisted infrastructure vs. public markets



Source: Preqin Global Infrastructure Report - 2023

- The infrastructure asset class continues to recover from the global pandemic, with one-year returns to Q1 2022 riding high at 19.4%, well above the longer-term average of 10.3% for vintages between 2007 and 2019
- The resurgence in oil prices, as demand quickly bounced back after lockdowns, saw the S&P Global Oil index one-year return to Q1 2022 soar well above even unlisted infrastructure at 34.5%. However, these high oil prices are benefiting the asset class as wholesale energy prices ride high on the back of resurgent demand and constrained supply caused by Russia's invasion of Ukraine
- In terms of successful strategies, the data shows continuing outperformance by value-added funds, while larger Europe-focused funds also broadly outperform

Infrastructure fund performance since inception by size (vintages 2009 - 2019)

QUARTILE	FUND SIZE(\$ MN)	3-YEAR IRR	STD. DEVIATION	5-YEAR IRR	STD. DEVIATION	LIFETIME IRR	STD. DEVIATION	AVG. AGE SINCE INCEPTION
1	10-350	7.90%	71.50%	8.50%	79.70%	8.00%	54.90%	6.3
2	350-900	11.80%	10.10%	10.10%	11.50%	8.20%	10.80%	6.5
3	900-2,200	8.10%	14.10%	9.90%	6.50%	8.40%	8.70%	6.3
4	>2,200	10.90%	13.20%	10.80%	8.90%	11.00%	19.50%	6.5

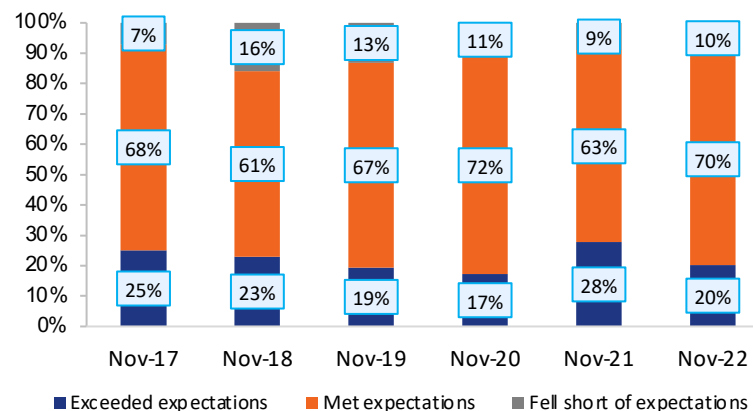
Infrastructure fund lifetime performance by region, strategy, and quartile (vintages 2009 - 2019)

	CORE	CORE PLUS	VALUE ADDED	EUROPE	NORTH AMERICA	TOTAL PERFORMANCE
1st Quartile	7.7%	9.5%	6.8%	9.0%	7.1%	8.0%
2nd Quartile	7.3%	8.2%	9.6%	10.2%	6.3%	8.2%
3rd Quartile	8.4%	8.4%	8.8%	9.4%	6.4%	8.4%
4th Quartile	11.0%	10.6%	12.9%	12.6%	10.5%	11.0%
Total Performance	8.8%	9.5%	9.2%	10.3%	8.0%	

Source: Preqin Global Infrastructure Report - 2023

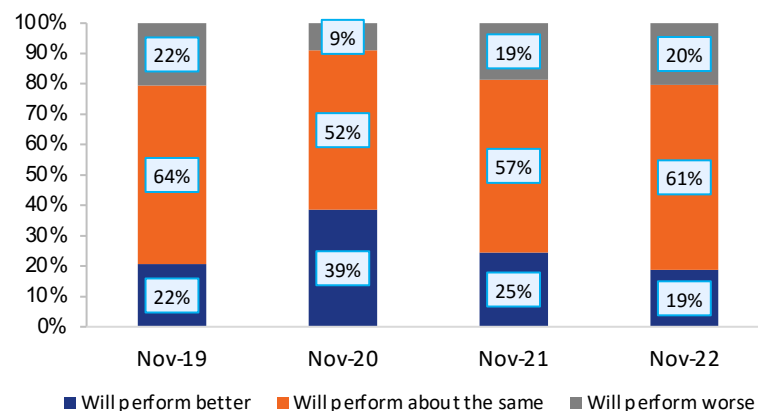
Infrastructure Performance – Investor’s Expectation

Extent to which investors feel their infrastructure investments have lived up to expectations over the past 12 months, 2017 - 2022



Source: Preqin manager survey, November 2022

Extent to which investors feel their infrastructure investments have lived up to expectations over the past 12 months, 2017 - 2022



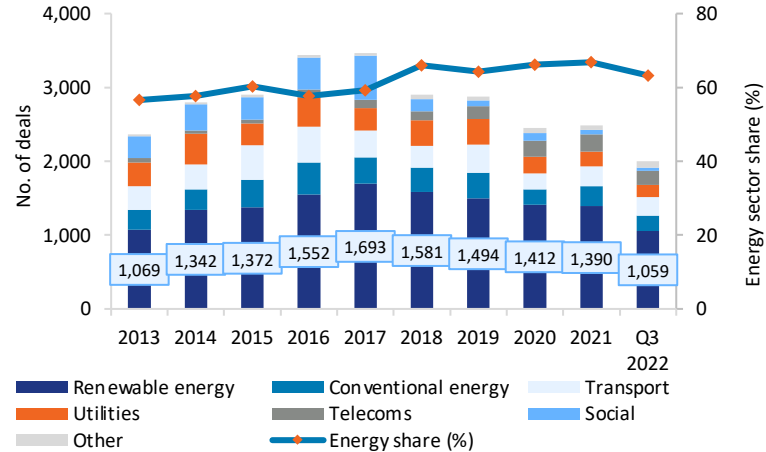
Source: Preqin manager survey, November 2022

- Investors are more optimistic about the near term than managers, with fundraising competition and exit concerns playing on GPs’ minds
- As investors review the last year, many will be reeling from the prolonged bear market in stocks alongside an almost equally dismal performance in fixed income
- As per Preqin survey, 70% of investors reported their infrastructure investments had lived up to expectations over the past 12 months, slightly higher than the 67% average of 2017
- The second highest proportion of investors cite a reduction in portfolio volatility as a reason for allocation to infrastructure (36%) after private debt (42%)

- Investor expectations for the performance of their infrastructure portfolios compared with the last 12 months have returned to pre-COVID norms
- There is a near-equal balance of those expecting better performance (19%) and those who expect worse (20%)
- Infrastructure’s one-year net IRR to Q1 2022 was 19.4%. This still includes recovery from the impact of COVID-19 and will have waned somewhat since, as the economic climate bears down
- Expectations aside, investors are planning to dial down on previous commitments in the coming year

Energy Transition – Role of Infrastructure

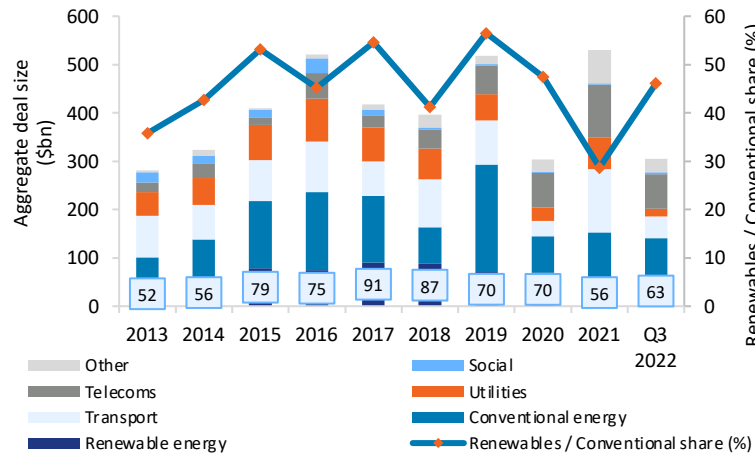
No. of infrastructure deals by sector and energy sector share (%)



Source: Preqin Global Infrastructure Report - 2023

- The global energy transition is underway, with an estimated \$275 tn of investment needed across economies to reduce carbon emissions to net zero by 2050. Much of this is required to decarbonize energy generation. The need for investment in renewables has never been so immediate. This underpins the scale of the opportunity
- Energy has always been at the center of the global infrastructure asset class, but its long-term prominence has risen even further. Long-term deal data reveals its share of deals by number has steadily increased from below 40% in 2006 to above 60% in recent years

Annual aggregate infrastructure deal value by sector

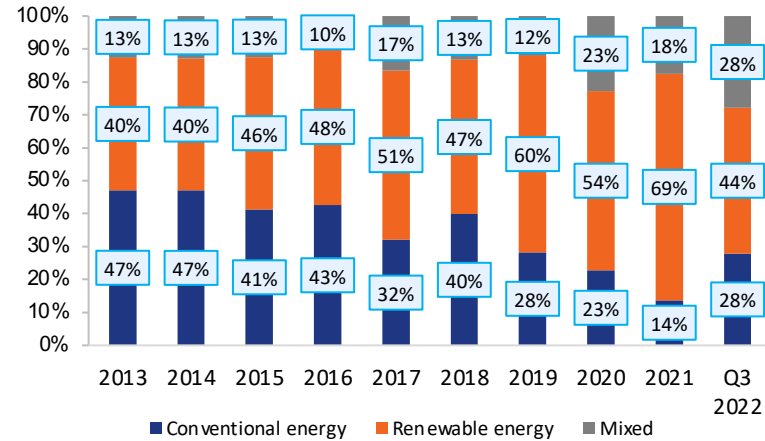


Source: Preqin Global Infrastructure Report - 2023

- The dominance of energy as an asset class is mainly attributed to a growing number of renewable deals. Although despite their growing share of total deals, they do not absorb nearly as much capital as conventional energy deals
- Renewables fundraising in the last few years has risen dramatically. 2020 saw the aggregate capital raised by renewables-focused funds increase by 69% to \$60bn and remain at this level since
- Recent events have demanded a reconsideration of the energy transition, with many being forced to acknowledge that carbon-intensive conventional energy can not simply be substituted by renewables mainly because intermittency of renewables and insufficient energy storage currently leaves grids exposed, threatening the reliability of supply

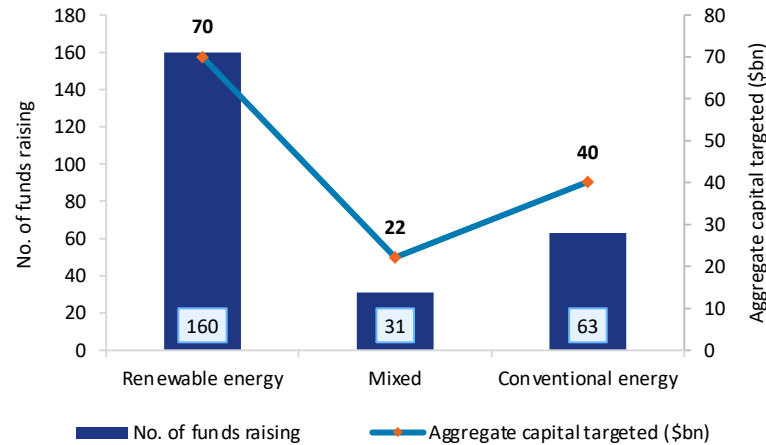
Energy Transition – Key Recent Trends

Unlisted energy funds closed by type



Source: Preqin Global Infrastructure Report - 2023

Unlisted energy funds in market by type, Q3 2022



Source: Preqin Global Infrastructure Report - 2023

ESG commitment in the asset class is on the rise

- Fundraising data on the split between energy funds focused on renewable and conventional sources shows a clear reversion. Since around 2016, renewables-focused fundraising has tended to displace that of conventional energy, with 2021 recording 69% of capital raised for renewables compared with just 14% for conventional energy
- Investors hoping to green their portfolios toward ESG targets have driven much of this medium-term trend. However, Q3 2022 data on this mix reveals a rebound in commitments to conventional energy funds, with the share of fundraising doubling to 28% compared with 2021. This is in response to higher gas and oil prices and the returns they deliver

Volatility drives demand for price stability from corporates

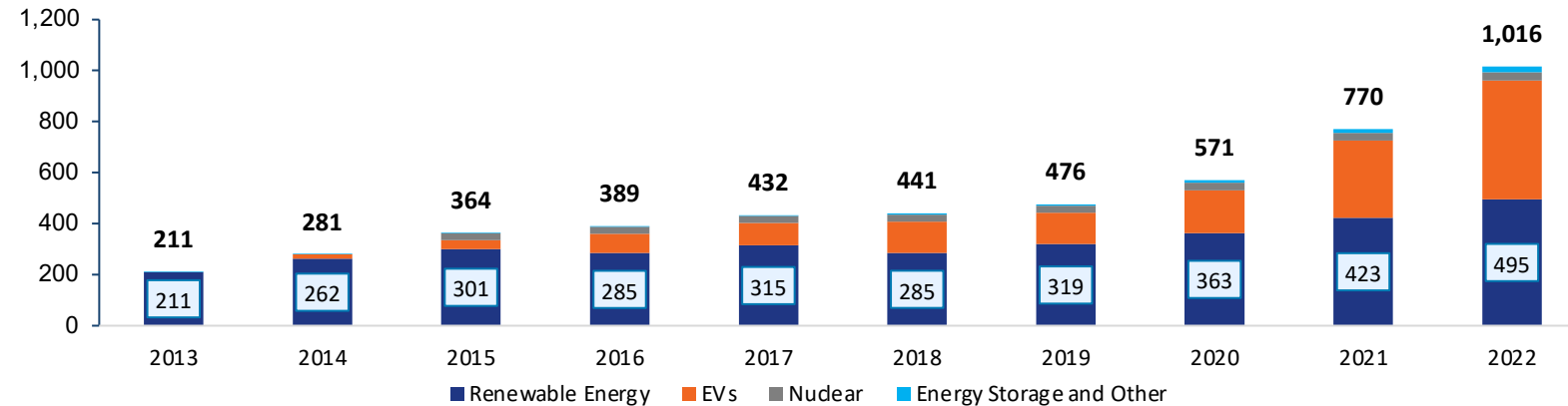
- The volatility in energy prices last year has cemented a longer-term growth trend of corporate power purchase agreements. However, as interest rates and construction costs have risen, challenges have emerged for some developers in meeting these agreements and driving re-negotiations
- Developers securing PPAs may restrict their upside gains. However, it helps ensure greater leverage, hence reducing capital outlays for the fund. In the US, the PPA market is more advanced
- In Europe, the long-term contracted revenue models include auctions or contracted PPAs. Recent years have seen keen interest in auctions, including the UK

Hydrocarbons and renewables are complements, not substitutes

- Although Governments have been effective at scaling up the renewables rollout, hydrocarbons are unlikely to be pushed out as quickly as anticipated. The challenge will be to make the transition away from carbon-intensive sources seamless

Investment in Energy Transition

Global investment in sustainable technologies (\$ Bn)



Source: BNEF Energy Transition Investment Trends 2023

- According to BNEF, global investments in the clean energy transition hit \$1.1 trillion in 2022, roughly equal to the amount invested in fossil fuel production. This is the first time that annual investment in sustainable technologies surpassed the \$1 trillion mark. Although the amount represents a 31% jump from 2021, it's still just a fraction of the requirement to meet net-zero emissions by 2050
- In terms of technology, the majority of the investments in clean energy were driven by solar and wind, reaching \$495 billion, a 17% increase from 2021. Electric vehicles come close second with \$466 billion of investment, marking a stiff 54% increase over the previous year
- In terms of region, nearly half of all global energy transition investments - \$546 billion were in China, followed by European Union and US with \$180 billion & \$141 billion of investment, respectively
- In 2022, US renewable energy growth slackened due to rising costs and project delays driven by supply chain disruption, trade policy uncertainty, inflation, increasing interest rates, and interconnection delays. But growth will likely accelerate powered by robust demand and the record-breaking raft of clean energy incentives in the Inflation Reduction Act (IRA)
- EU saw a remarkable acceleration in the energy transition, partly because of the energy crisis, with record renewable energy installations and electric vehicle sales. The outlook for low-carbon transition continues to look extremely bright. The EU has reached an agreement on the FiT for 55, RePowerEU and carbon border adjustment mechanism. All these together are setting the scene for faster decarbonization across the bloc

3. PAF OVERVIEW



PAF Overview

Pan American Finance provides high quality, independent strategic advisory, capital raising, and M&A services to businesses and their owners across the Americas and Europe

Introduction	Team	Leadership	Experience
<ul style="list-style-type: none"> Pan American Finance was founded to advise our clients in achieving their objectives for growth and value creation – through acquisition, investment and capital raising transactions Via PAF Securities LLC, we are a member of FINRA/SIPC 	<ul style="list-style-type: none"> Team of investment banking professionals with diversified backgrounds and extensive transaction experience in investment banking, capital raising, private equity, and corporate finance & operations Complemented by a prestigious group of highly experienced Senior Advisors 	<ul style="list-style-type: none"> Directorial and executive leadership positions in the private and public sectors across the Americas and Europe, including with banks and leading financial institutions 	<ul style="list-style-type: none"> Deep operating and industry experience, including in power and renewable energy, EV transport, climate finance and sustainable living across Europe and the Americas

Focus

<p>1</p> <p>M&A and strategic advisory transactions, often private, complex or cross-border, across the Americas and Europe</p>	<p>2</p> <p>Debt and equity capital raising for businesses, projects and highly differentiated fund managers</p>	<p>3</p> <p>Sector expertise in infrastructure, power and renewable energy. \$1.6 billion in M&A advisory across 43 transactions. \$1.5 billion in project finance & debt advisory across 25 transactions</p>
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Transactional Track Record

Pan American Finance and members of the firm have completed **87** transactions with over **US\$5.0 billion** in total transaction value. Our firm has an extensive and successful track record in M&A advisory and capital raising for clean energy and infrastructure

<p>\$1.6 billion</p> <p>M&A and strategic advisory across 43 transactions</p>	<p>\$1.5 billion</p> <p>Project finance, debt advisory and restructuring across 25 transactions</p>	<p>\$1.0 billion</p> <p>Capital advisory across 12 transactions</p>	<p>\$0.8 billion</p> <p>Capital placement transactions across 7 fund transactions</p>
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Investment & Merchant Banking (Core Sectors)

We partner and guide industry-leading companies who have unique visions for building successful Sustainable Investment businesses within core infrastructure sectors of energy, water, and transport, alongside the climate finance, and sustainable living sectors

New Energy Infrastructure	<ul style="list-style-type: none">PAF's focus on the onshore wind, solar PV, waste-to-energy, and energy storage covers the transition to a low carbon energy system. Across every market globally, climate change policy is being drawn down into government policy, asset owner and investor policy, and ultimately into power companies business strategy. We continue to operate at the central point of capital formation and investment into new energy across each of our core markets in Europe & Americas
Water Infrastructure	<ul style="list-style-type: none">Water desalination represents an increasingly important element in the world economy. Desalination plants will continue to become more efficient and membranes will be more fouling resistant. As well, solar powered desalination may provide massive change for the developing nations in providing both drinking water and water for irrigation and agriculture useWater infrastructure is a highly sought after investment for large infrastructure and strategic investors given its utility like nature and quality long term investment cash flows
Climate Finance	<ul style="list-style-type: none">Within the global economy, the commitment to a net-zero 2050 carbon environment is now set across all governments, investors, and sectors. With that commitment comes a material change in finance, and movement to climate based financings (both equity and debt)We advise governments, financial institutions, and investors on their transition towards financing and investing in a net-zero 2050 future
Sustainable Transportation	<ul style="list-style-type: none">The "third leg" of the low carbon economy is the electrification of transportation. Globally governments are applying a similar approach taken to the energy sector in regulating transportation towards being electrified – covering both public and private sector transportationThe challenge and opportunity is a \$Tn dollar opportunity over the next 25 years as all forms of transport move to electrification
Sustainable Living	<ul style="list-style-type: none">As part of transitioning to a low carbon, net-zero economy over the next 30 years, the world is moving to a more sustainable approach to living in that transition. From developing new agriculture technologies and techniques that will feed an estimated 8.5 billion people by 2030, to innovation in healthcare, fitness, nutrition, and vitality, people are looking to new sustainable ways of supporting a long and vital lifeWe work to be at the heart of the sustainable living movement in advising and financing some of the best companies supporting the life transition that is underway in the world

Investment & Merchant Banking (Core Services)

PAF is a leading specialist advisor on strategic advisory, capital advisory (equity and debt), mergers, acquisitions, and related strategic matters within sustainable investment markets. Our Strategic Advisory, Capital Advisory, and M&A practice is distinguished by senior banker involvement, deep industry sector expertise and global reach. We are regularly involved in large, complex and industry-defining transactions, often across national borders

Equity & Capital Advisory	<ul style="list-style-type: none">▪ Our capital advisory services leverage our expertise on capital structure, capital formation and capital raising. Our professionals work closely to source and advice on corporate finance options, in helping tailor financing strategies to clients' unique situations, with an especially well established track record of finding innovative solutions for challenging market conditions▪ We advise clients on a broad range of strategic and tactical issues, including capital structure optimization, capital allocation, equity and debt positioning and issuance▪ We leverage our ecosystem of specialist investment counterparties including large asset owners, sponsors, corporates, and strategics in bringing best execution forward for our mandates
Debt Advisory	<ul style="list-style-type: none">▪ Our team of senior bankers advises and negotiates on behalf of clients regarding alternatives for existing debt and the issuance of new debt. We also provide guidance on all aspects of the credit and non-recourse project finance process, including interactions with the ratings agencies, assembly of credit memos, financial modelling, and due diligence support▪ We retain key relationships with over 20+ global non-recourse project finance banks in ensuring best execution on arranging non-recourse project finance for our clients and their projects▪ Support project developers in structuring and arranging non recourse debt for their projects, and provide transaction support for greenfield, brownfield, acquisition financing and refinancing
M&A & Strategic Advisory	<ul style="list-style-type: none">▪ We evaluate potential targets or merger partners as well as financial and strategic alternatives. We advise on strategy, timing, structure, financing, pricing, and we assist in negotiating and closing transactions.▪ Complete suite of M&A advisory services including modelling and valuations, transaction services and due-diligence relating to acquisition or divestment of stakes in infrastructure projects
Private Capital Advisory	<ul style="list-style-type: none">▪ Our group is a leader in raising capital, and providing capital solutions for private investment funds. Members of our team have been involved in over 50 private capital raising assignments, aggregating more than \$20 billion. Our group has built one of the broadest institutional investor coverage networks in the industry and has cultivated relationships with over 150 investing institutions globally. Our practice is consistent with PAF approach of delivering highly experienced, senior-level execution capabilities, with senior professionals managing all aspects of the capital raising process

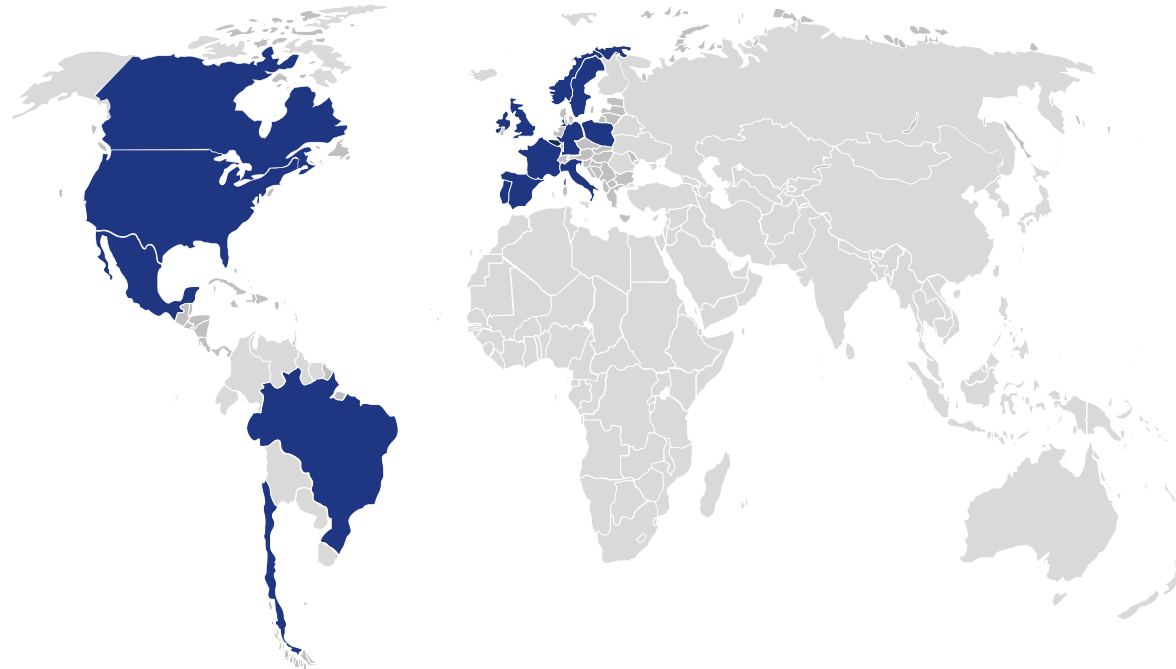
PAF – Key Global Infrastructure Markets

Energy, water, sustainable transportation, climate finance, and sustainable living are global themes, within investment flows covering multiple world markets.

PAF covers key European and Americas markets where its institutional investment clients are active.

The group's sector and product specialization, and "one team" platform with global P&L, global performance compensation pool, and global client and institutional investor coverage, ensures we bring the full resources of our group forward to clients across markets, including:

- Europe
- Americas



Contact Information

 PAN AMERICAN FINANCE

Ben Moody
President & CEO, Partner
Direct: +1 (305) 722 – 7245
Mobile: +1 (786) 556 – 2273
ben@panamfinance.com

 PAN AMERICAN FINANCE

Jeffery A. Safford
Managing Director
Direct: +1 (305) 722 – 5528
Mobile: +1 (786) 769 – 8315
jsafford@panamfinance.com

 PAN AMERICAN FINANCE

Pedro Obregon
Vice President
Direct: +1 (305) 722 – 7255
Mobile: +1 (786) 200 – 0464
pobregon@panamfinance.com

 PAN AMERICAN FINANCE

Edmund R. Miller
Senior Managing Director, Partner
Direct: +1 (305) 722 – 7244
Mobile: +1 (305) 987 – 0995
emiller@panamfinance.com

 PAN AMERICAN FINANCE

Robert Hays, CFA
Managing Director
Direct: +1 (305) 722 – 7254
Mobile: +1 (305) 433 – 0347
rhays@panamfinance.com

 PAN AMERICAN FINANCE

Alex Medina
Associate
Direct: +1 (305) 722 – 7260
Mobile: +1 (305) 431 – 6638
amedina@panamfinance.com

 PAN AMERICAN FINANCE

Mariano Montaner
Analyst
Direct: +1 (305) 722 – 7243
Mobile: +1 (786) 343 – 7552
mmontaner@panamfinance.com

 PAN AMERICAN FINANCE

L. Warren Pimm, CFA
Senior Managing Director, Partner
Mobile: +44 (0)7593593539
wpimm@panamfinance.com

 PAN AMERICAN FINANCE

Sina Guenther
Vice President
Direct: +49 (151) 11301321
sguenther@panamfinance.com

 PAN AMERICAN FINANCE

Federico Fermin
Associate
Direct: +1 (305) 722 – 7250
Mobile: +1 (786) 354 – 6401
ffermin@panamfinance.com

Contact us

Pan American Finance, LLC and PAF Securities, LLC

Miami Office - 601 Brickell Key Drive, Suite 604, Miami, Florida 33131

Tel: +1 (305) 577 – 9799 • Fax: +1 (305) 577 – 9766

London Office - 48 Dover Street, London, United Kingdom W1J 8HS

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