Building Bridges & Bandwidth

How European and Digital Infrastructure are Shaping the Future

SIAT Academy - 2025

MARKETING COMMUNICATION

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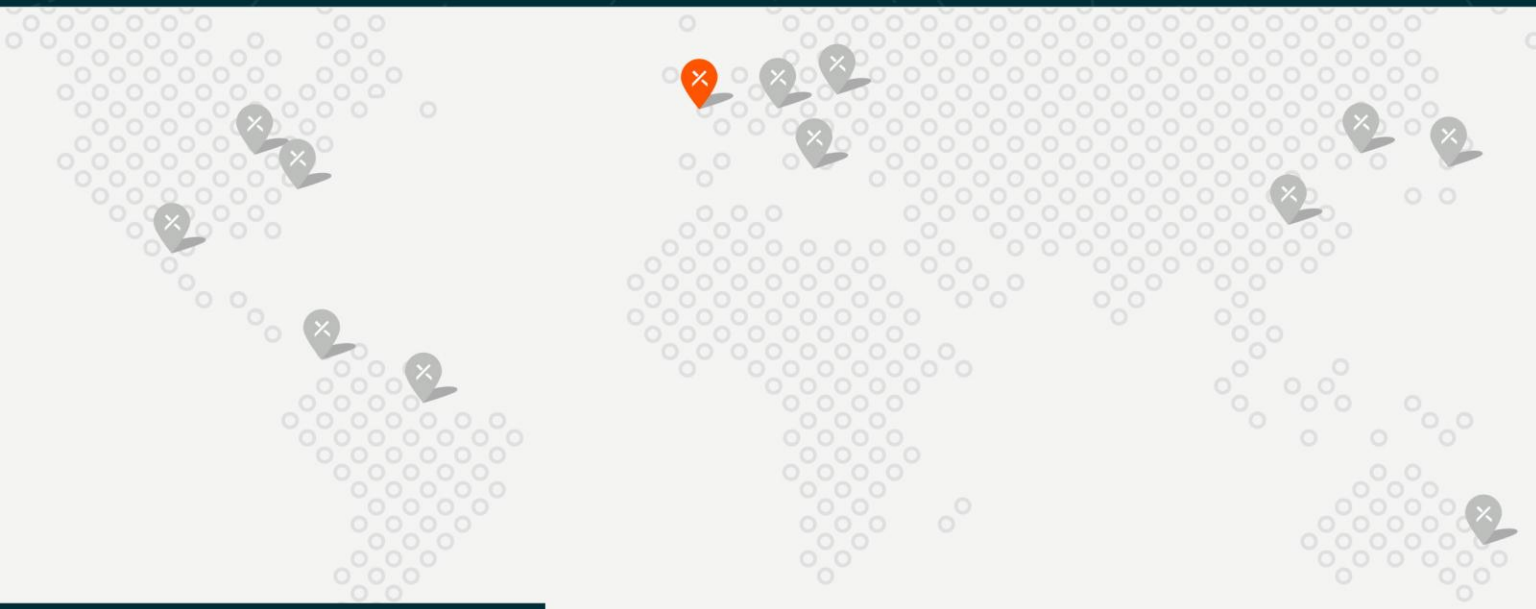
GLOBAL X
by Mirae Asset

Beyond Ordinary ETFs™

Since 2008, our mission has remained unchanged:
Empowering investors with unexplored and intelligent solutions.

$98bn in AUM across more than 300 ETF strategies[1]



Local European leadership backed by a global footprint spanning the United States, Canada, Asia, and Latin America.

MIRAE ASSET
Building on principles

Global X ETFs is a fully-owned subsidiary of Mirae Asset Financial Group, a global industry leader with 58 offices and over 12,000 employees worldwide. Founded in 1997 as one of Asia's pioneering fund management companies, the Group now oversees **$632bn in client assets** across a portfolio that includes real estate, insurance, private equity, and venture capital.[2]

Primary Listings by Office

Europe
42 UCITS ETF & ETP Listings

United States
98 ETF Listings

Canada
131 ETF Listings

Australia
41 ETF Listings

Hong Kong
40 ETF Listings

Latin America
32 ETF Listings in Brazil & Colombia[3]

Japan
50 ETF Listings

[1] As of January 31, 2025 [2] As of September 30, 2024 [3] Includes Brazilian Depository Receipt listings of U.S. ETFs

Global AUM by Product Category[1]

Income

135 ETFs

- Europe — 3 ETFs
- United States — 33 ETFs
- Australia — 10 ETFs
- Canada — 46 ETFs
- Hong Kong — 10 ETFs
- Latin America — 9 ETFs
- Japan — 23 ETFs

$40bn

Thematic Growth

136 ETFs

- Europe — 24 ETFs
- United States — 32 ETFs
- Australia — 13 ETFs
- Canada — 13 ETFs
- Hong Kong — 23 ETFs
- Latin America — 16 ETFs
- Japan — 15 ETFs

$28bn

Commodities

35 ETFs

- United States — 5 ETFs
- Europe — 5 ETFs
- Australia — 10 ETFs
- Other[2] — 15 ETFs

$12bn

International Access

30 ETFs — $3bn

Other Strategies

99 ETFs — $15bn

Differentiated Exposures by Region

Sustainable Investing

Defined Outcome

Risk Management

Digital Assets

[1] As of January 31, 2025 [2] Brazil, Canada, Hong Kong

Global X's UCITS ETF Suite[1]

Global X offers 26 thematic UCITS ETFs designed to target companies that may benefit from disruptive structural changes in technology and innovation, people and demographics, and the availability of resources

Disruptive Technology	Physical Environment	People & Demographics
Lithium & Battery Tech UCITS ETF (LITU LN)	U.S. Infrastructure Development UCITS ETF (PAVE LN)	E-commerce UCITS ETF (EBIZ LN)
FinTech UCITS ETF (FINX LN)	European Infrastructure Development UCITS ETF (BRIJ LN)	Genomics & Biotechnology UCITS ETF (GNOM LN)
Internet of Things UCITS ETF (SNSR LN)	Renewable Energy Producers UCITS ETF (RNRG LN)	Telemedicine & Digital Health UCITS ETF (EDOC LN)
Robotics & Artificial Intelligence UCITS ETF (BOTZ LN)	CleanTech UCITS ETF (CTEK LN)	
Defence Tech UCITS ETF (ARMR LN)	Clean Water UCITS ETF (AQWA LN)	
Artificial Intelligence UCITS ETF (AIQU LN)	Wind Energy UCITS ETF (WNDY LN)	
Autonomous & Electric Vehicles UCITS ETF (DRVE LN)	Solar UCITS ETF (RAYZ LN)	
Cloud Computing UCITS ETF (CLO LN)	Hydrogen UCITS ETF (HYGN LN)	
Video Games & Esports UCITS ETF (HERU LN)	AgTech & Food Innovation UCITS ETF (KROP LN)	
Cybersecurity UCITS ETF (BUG LN)	Disruptive Materials UCITS ETF (DMAT LN)	
Data Center REITs & Digital Infrastructure UCITS ETF (VPN LN)		
Blockchain UCITS ETF (BKCH LN)		
China Electric Vehicle and Battery UCITS ETF (CAUT LN)		

3 Commodities UCITS ETFs, 4 Income UCITS ETFs and 4 Defined Outcome UCITS ETFs

Commodities	Income	Defined Outcome
Copper Miners UCITS ETF (COPX LN)	SuperDividend UCITS ETF (SDIV LN)	S&P 500 Quarterly Buffer UCITS ETF (SPQB LN)
Uranium UCITS ETF (URNU LN)	Nasdaq 100 Covered Call UCITS ETF (QYLD LN)	S&P 500 Quarterly Tail Hedge UCITS ETF (SPQH LN)
Silver Miners UCITS ETF (SILV LN)	S&P 500 Covered Call UCITS ETF (XYLU LN)	S&P 500 Annual Buffer UCITS ETF (SPAB LN)
	Global X 1-3 Month T-Bill UCITS ETF (CLIP)	S&P 500 Annual Tail Hedge UCITS ETF (SPAH LN)

[1] As of December 31, 2024

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UCITS Infrastructure Offering

The convergence of multiple long-term structural trends could potentially unlock trillions of dollars in government funding and private investments for infrastructure development.

U.S. Infrastructure Development UCITS ETF

Companies that stand to potentially benefit from a potential increase in infrastructure activity in the United States, including those involved in the production of raw materials, heavy equipment, engineering, and construction.

Potential Catalyst

In 2021, U.S. infrastructure received a C- grade. In response, Congress passed three major laws, potentially allocating $1 trillion for improvements and incentives: the Infrastructure Investment and Jobs Act, CHIPS Act, and Inflation Reduction Act[1].

European Infrastructure Development UCITS ETF

Companies that are poised to potentially benefit from a potential increase in infrastructure activity in Europe, including those involved in traditional infrastructure, infrastructure networks, clean energy infrastructure, and digital infrastructure

Potential Catalyst

Europe faces a significant infrastructure investment gap estimated to reach $2 trillion by 2040, creating a compelling need for focused investment. This gap is believed to highlight the demand for modernising and expanding infrastructure spend across Europe[2].

Data Center REITs & Digital Infrastructure UCITS ETF

Companies that operate data centre REITs and other digital infrastructure supporting the growth of communication network

Potential Catalyst

Some forecasts suggests that demand for AI-ready data centre capacity will rise at an average rate of 33% per year between 2023 and 2030. Accelerated the development of physical infrastructure is necessary to support this growth[3].

Source: 1, American Society of Engineers, 2021 Report Card for America's Infrastructure; 2021. 2, Infrastructure Outlook, Global Infrastructure Outlook, 2024. 3, McKinsey & Co, Oct 2024.

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Exploring the EU Infrastructure Development Theme

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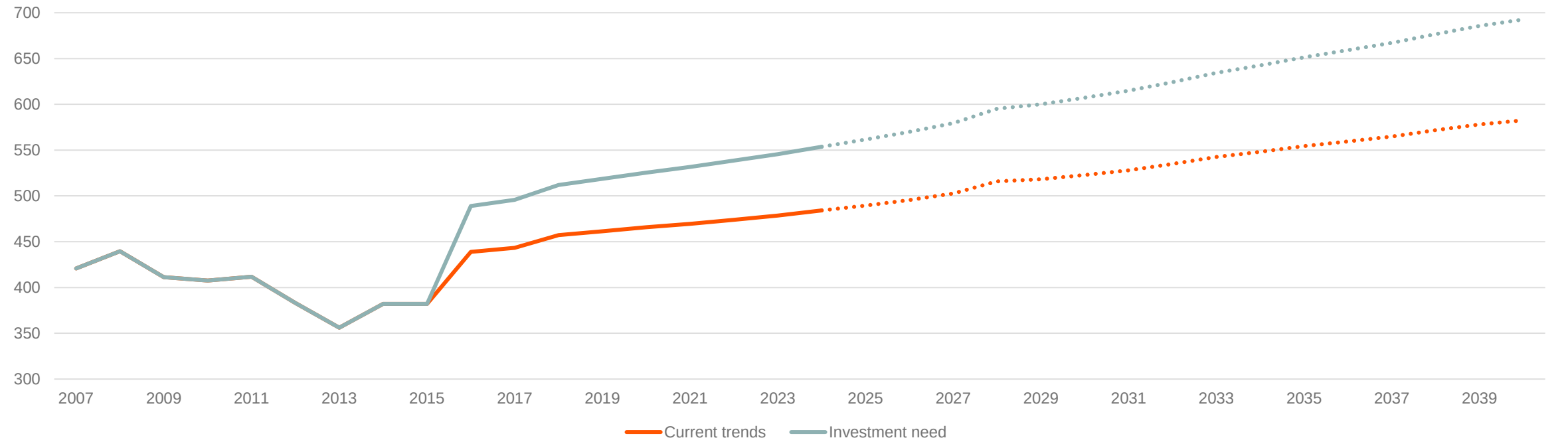
European Infrastructure Appears To Be Facing A Significant Investment Gap

Europe has a potential $2 trillion infrastructure gap by 2040, equating to an annual investment gap of 0.35% of GDP.[1]

Europe Infrastructure Gap ($USD billions)



Sources: 1. Infrastructure Outlook. Forecasting infrastructure investment needs and gaps.; Chart: Global X ETFs illustration with information derived from Infrastructure Outlook. Accessed on 18 July 2024.
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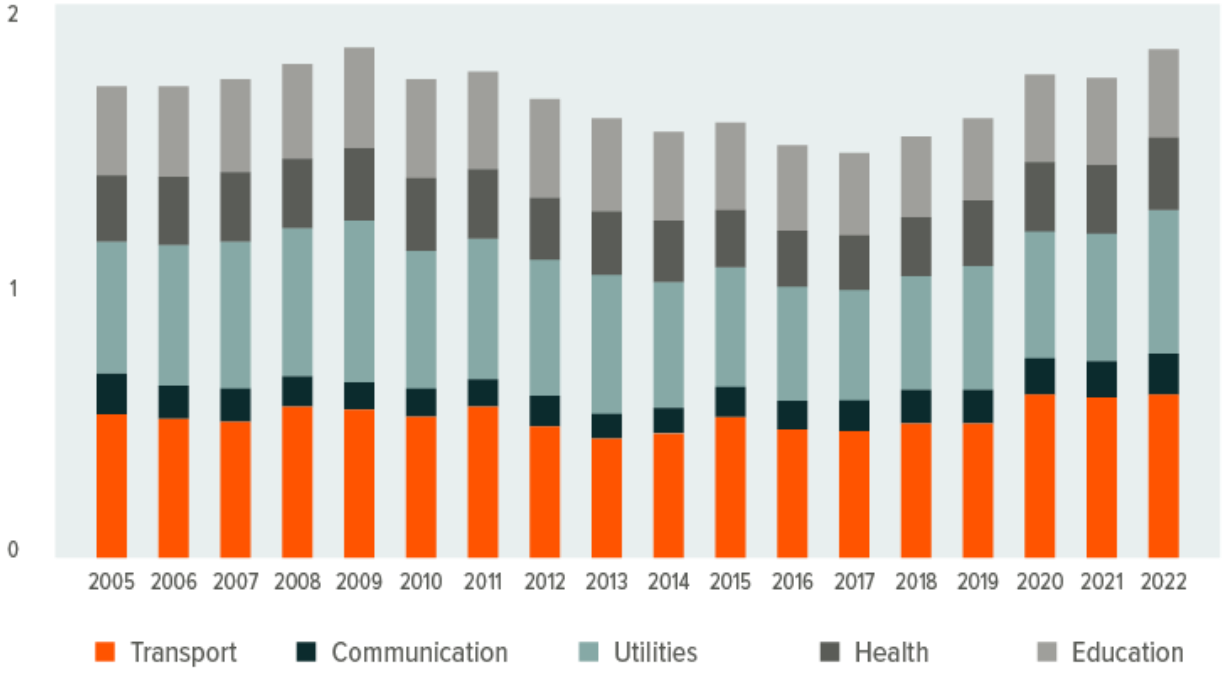
European Infrastructure Investment Spans a Broad Range of Sectors

The European Investment Bank (EIB) showed that an increase of 1% of GDP in European public investment in infrastructure is associated with a 1.1% increase in firms' investment as a share of assets.[1]

Increased investment driven by climate and digital goals.

- Infrastructure spending directly impacts competitiveness and is directly linked to better transportation networks, reduced logistics and transportation costs, and increased speed of production and delivery for all industries.[1]
- Infrastructure investment increased significantly in the European Union in 2022, returning to the highs reached before the global financial crisis. Infrastructure investment continued to grow in 2022, reaching 1.9% of GDP in the European Union.[2]
- Transport and communication infrastructure gained importance in recent years and government policies are also boosting investment driven by climate and digital goals.[3]
- The recent growth in infrastructure investment comes from the private and the public sector. Governments contributed more to the increase in Southern Europe and Central and Eastern Europe making use of Project financing through public-private partnerships (PPP) and other special purpose vehicles.[4]

Infrastructure finance in the European union (% GDP), by sector



Sources: 1, 2, 3, 4. European Investment Bank: Transforming for competitiveness. Investment Report 2023/2024. 7 February 2024.; Global X ETFs illustration with information derived from European Investment Bank: Transforming for competitiveness. Investment Report 2023/2024. 7 February 2024.

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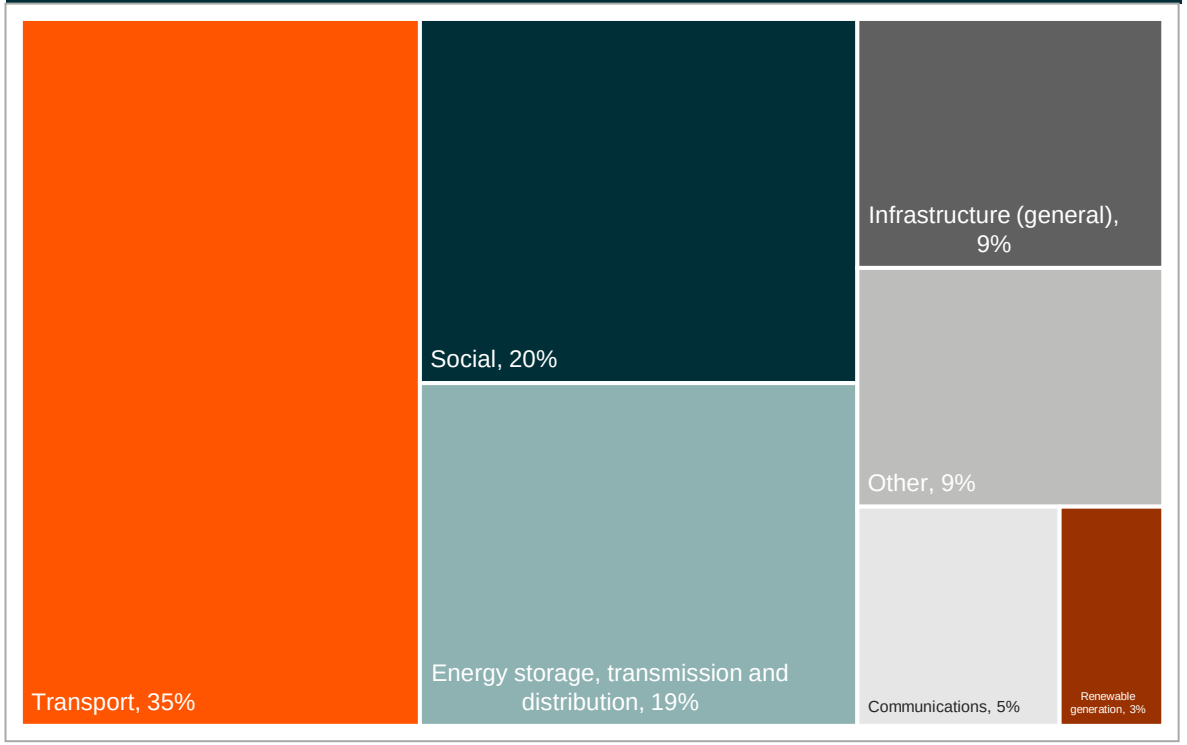
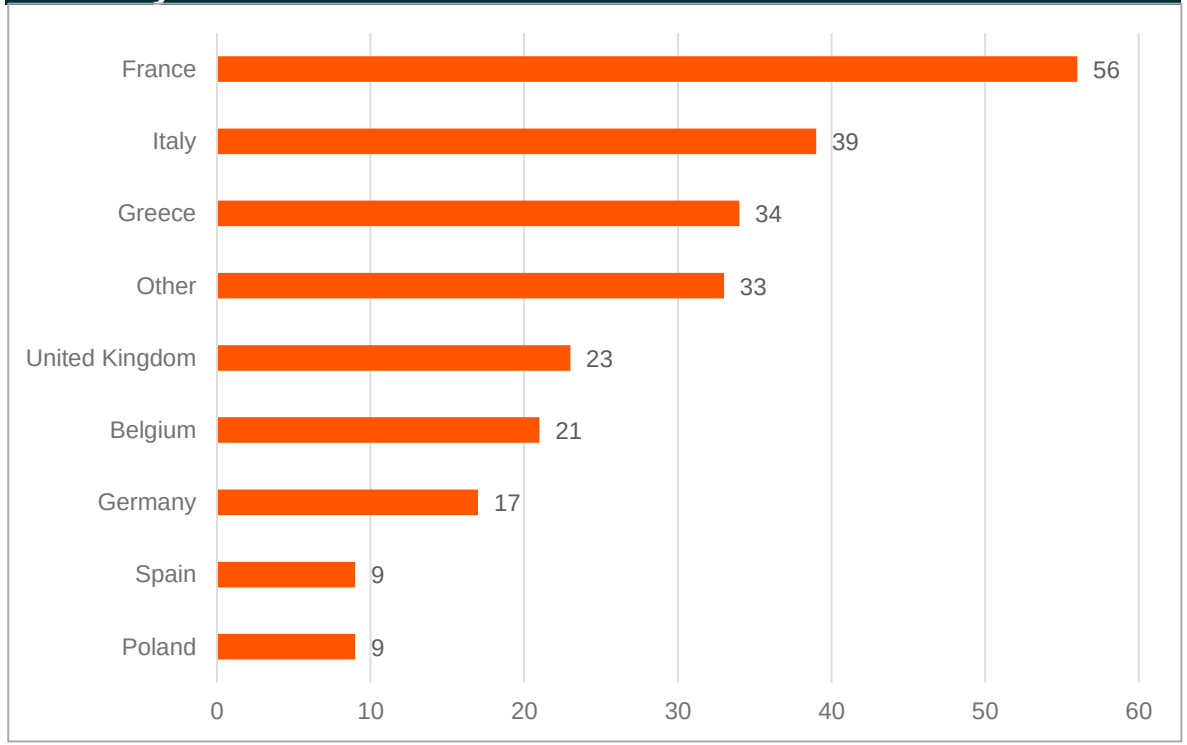
Public-Private Partnerships Appear to Be Driving Investment In Infrastructure

Public investment is underway, with $176 billion in investments in 2022 across a strong pipeline of projects, led by the Transport sector. There is a strong pipeline of Public-Private Partnership projects across Europe.

EU Public Investment in Infrastructure by Sector - 2022



Number of Public-Private Partnership Pipeline Projects by Country



Sources: Charts: Left: Global X ETFs illustration with information derived from Public-Private Infrastructure Advisory Facility (PPIAF) Infra Tracker, Accessed 18 July 2024; Right: Global X ETFs illustration with information derived from European Investment Bank, March 2024.

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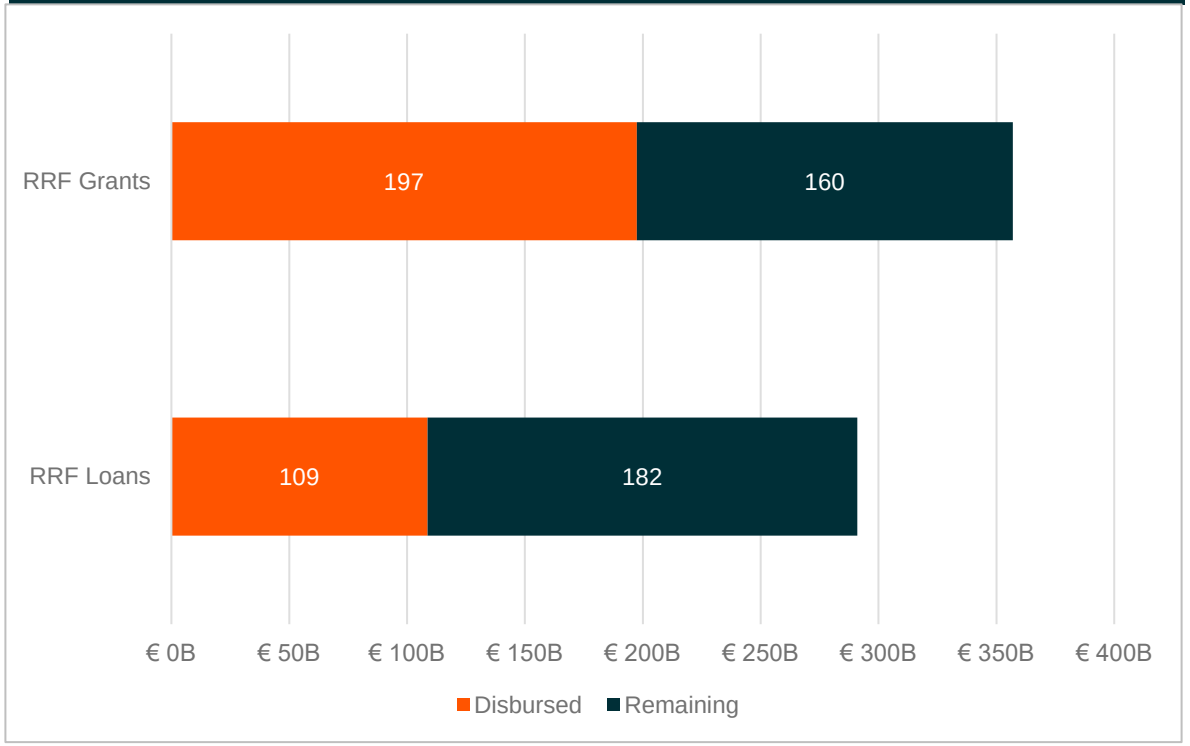
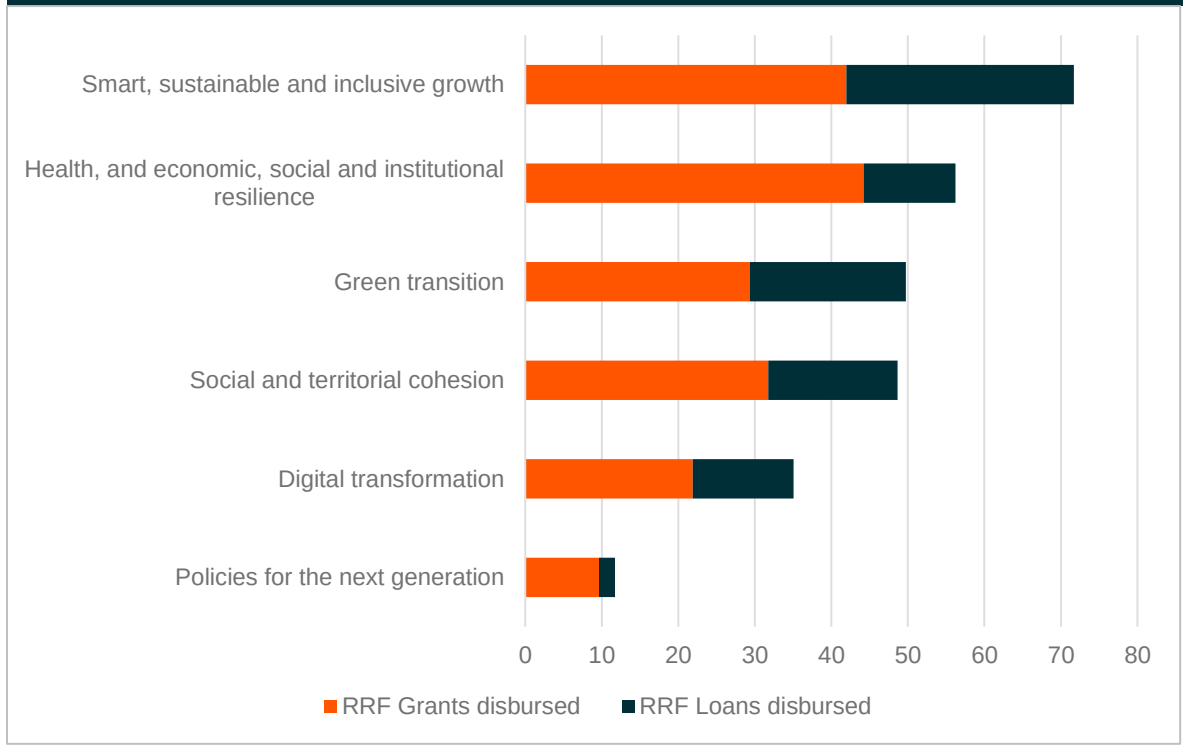
EU Infrastructure: Recovery and Resilience Facility (RRF)

The €648 billion Recovery and Resilience Facility (RRF) is the centrepiece of NextGenEU, the largest recovery project in Europe since the Marshall Plan.[1] It aims to support 6 focus areas through the disbursement of grants and loans to support reforms and investments in EU Member States.

Approximately €342 billion of the RRF remains to be disbursed.[2]



RRF Disbursements per pillar (€ billions)



Sources:1., 2. NextGenerationEU. Recovery and Resilience Facility, Accessed 10 February, 2025.; Charts Left and Right: Global X ETFs illustration with information derived from EU, NextGenerationEU, 2024

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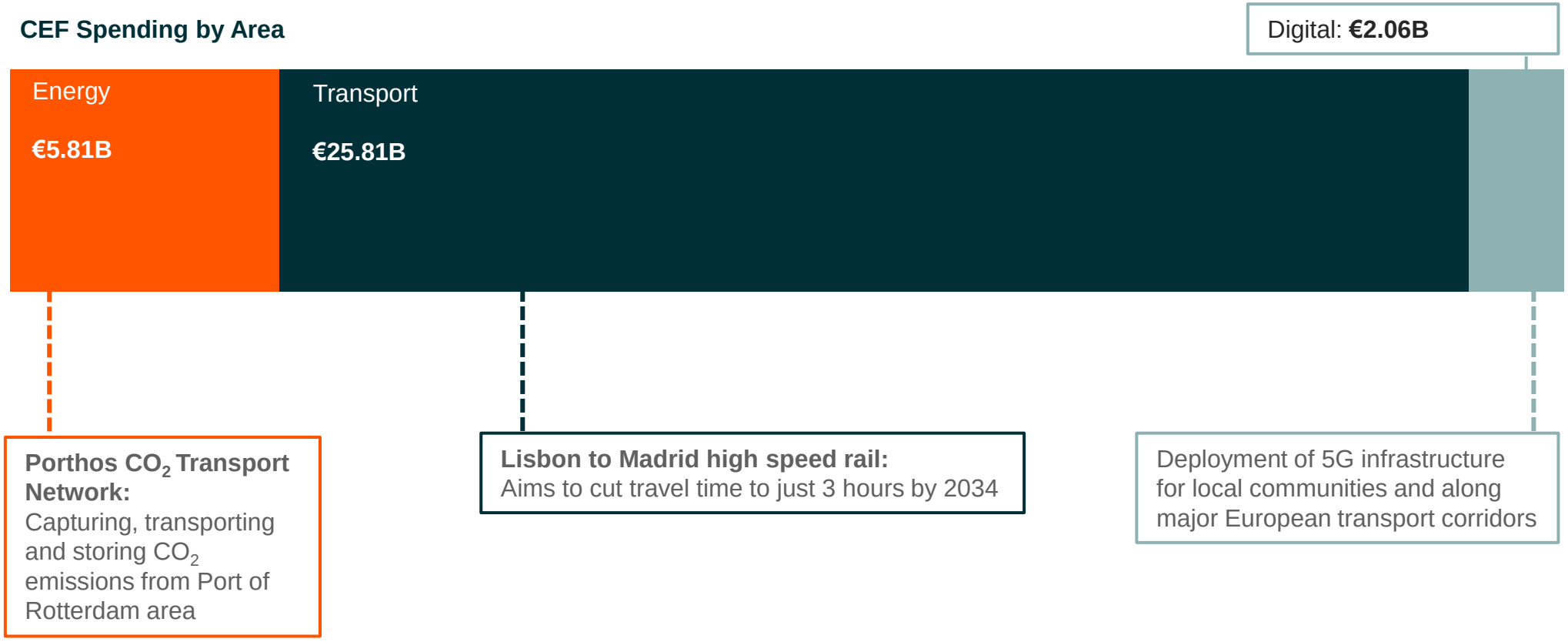
EU Infrastructure: Connecting Europe Facility (CEF)

The €33.71 billion Connecting Europe Facility (CEF) is a key instrument funding projects aimed towards enabling the EU's decarbonisation objectives and delivering the EU Green Deal in three areas: Energy, Transport and Digital. [1]



Sources: 1. European Commission, Connection Europe Facility, Accessed 18 July, 2024. Global X ETFs illustration with information derived from EU, Connecting Europe Facility, 2024.

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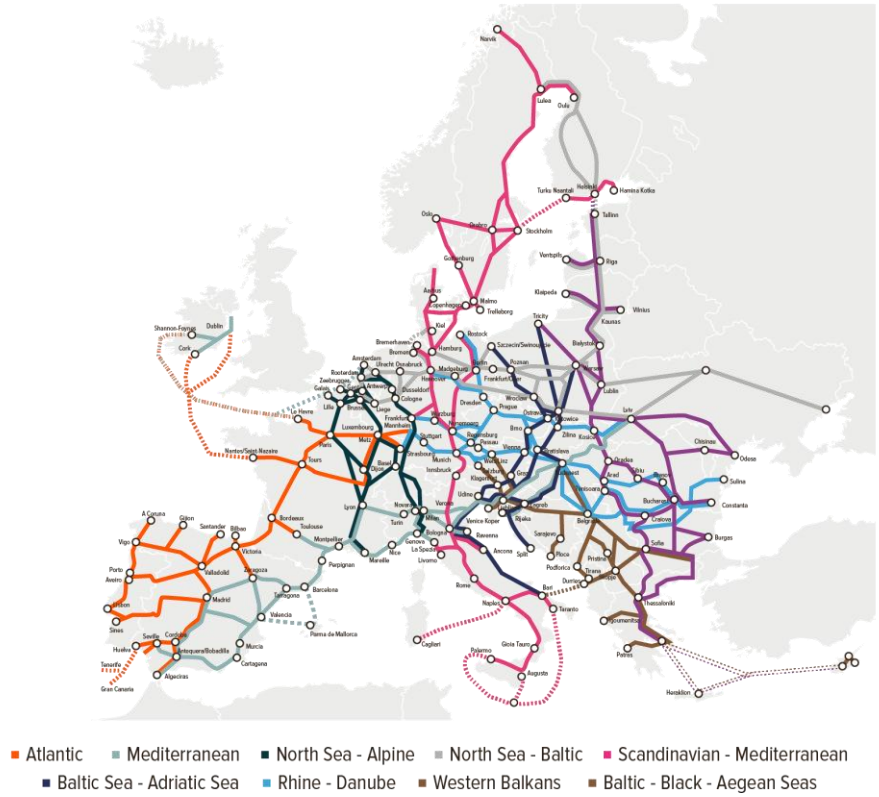
Strengthening Europe's Transport Network: The Objectives of the TEN-T Policy

Transport accounts for about 25% of EU greenhouse gas emissions, and the European Green Deal targets a 90% reduction by 2050.[1] Achieving this goal prioritises sustainable transport through digitisation and multimodal solutions.[2]

EU CORE TRANSPORT CORRIDORS

Source: Global X ETFs Illustration with information derived from European Commission, Map Finder Chart for European Transport Corridors. December 2023



1. Composed of a core network (completion by 2030), extended core network (by 2040), and comprehensive network (by 2050) to ensure EU-wide connectivity.[3]

2. Designed to optimise transport efficiency, reduce congestion, and lower environmental impact by facilitating seamless transitions between transport modes across the EU.[4]

3. Enforces rigorous infrastructure standards, including high-speed rail, airport connectivity, sustainable urban mobility, and alternative fuel infrastructure.[5]

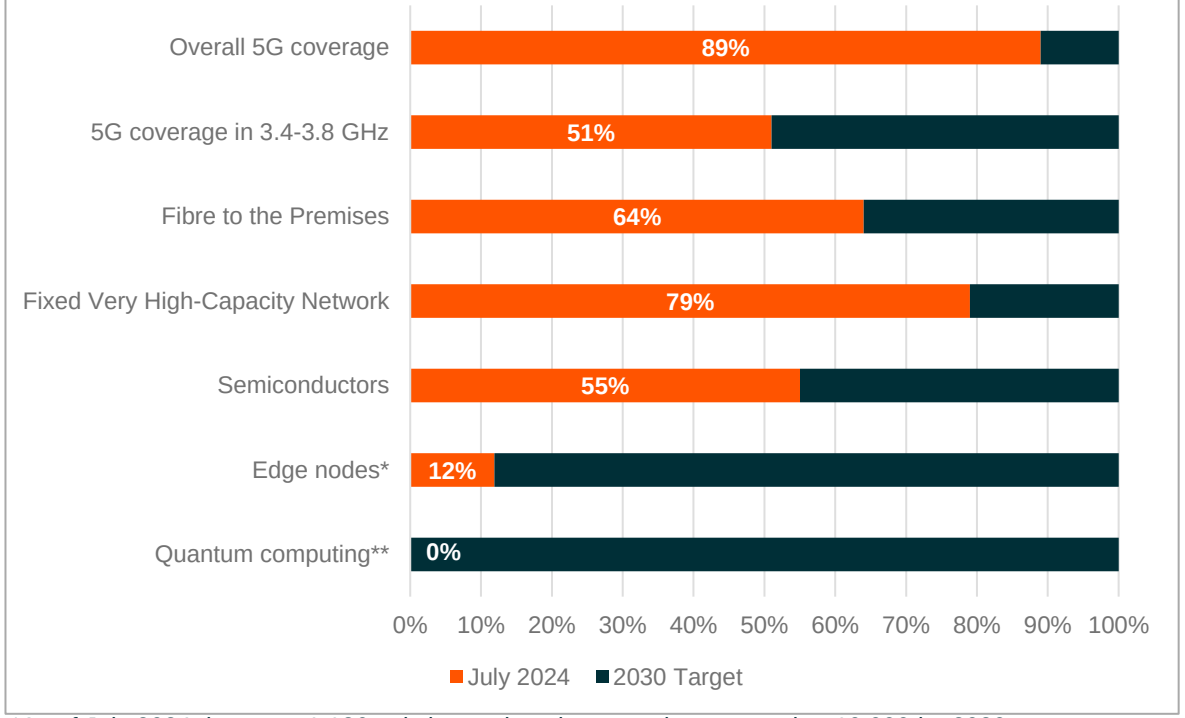
4. The main funding instrument for TEN-T is the Connecting Europe Facility (CEF), which, for the period from 2021 to 2027, allocates around €25.8 billion specifically for transport projects.[6]

Sources: 1. European Commission, Sustainable Transport. Accessed July 2024.; 2. European Commission, A sustainable and resilient transport network bringing Europe closer together. 13 June 2024.; 3, 4, 5. Access to European Union law, Regulation (EU) 2024/1679 of the European Parliament, 28 June,2024; 6. Access to European Union Law, Union guidelines for the development of the trans-European transport network, 13 June 2024.

Digital Infrastructure: Transformation under way, but there is still progress to be made

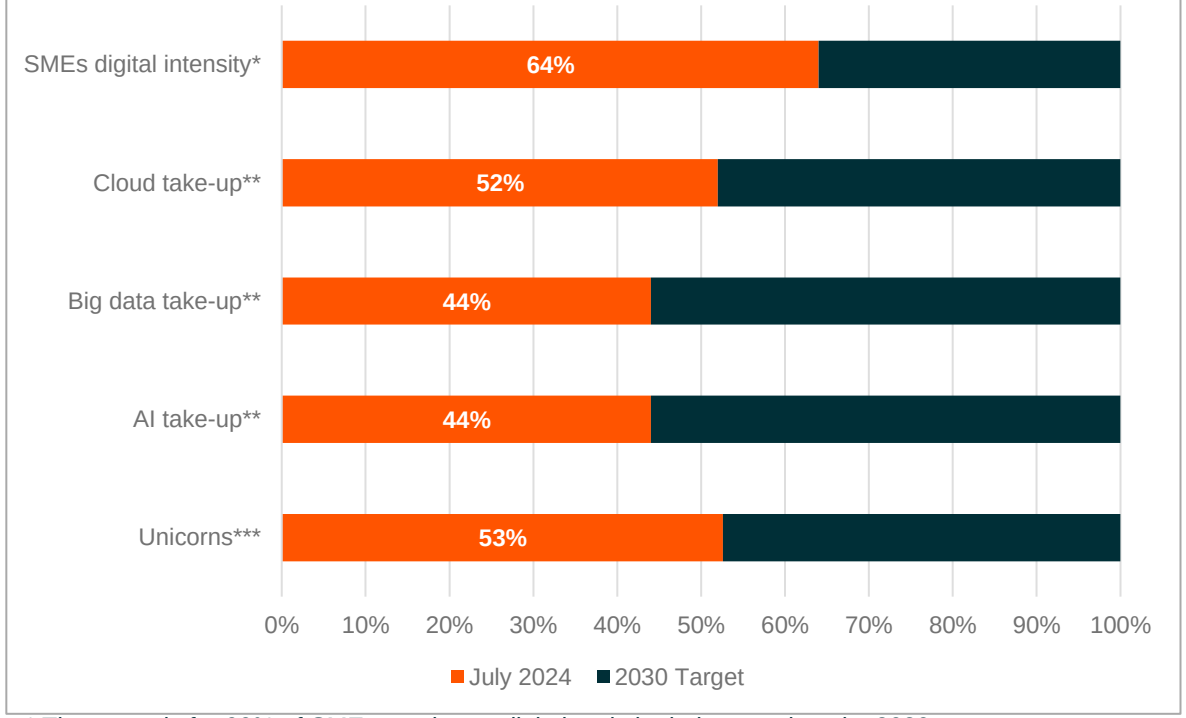
The EU Digital Decade Policy Programme 2030 set targets for 2030 across 4 key areas of digital infrastructure. The EU could contribute €165 billion towards these targets, with 70% of this funding possibly coming from the RRF.[1]

Digital Infrastructure - 2030 Targets



*As of July 2024 there are 1,186 existing nodes, the target is to expand to 10,000 by 2030.
**Target is to have 1 Quantum Computer by 2024 and 3 by 2030.

Digital Transformation Business - 2030 Targets



* The target is for 90% of SMEs to take-up digital tools in their operations by 2030.
** The target is for 75% of enterprises to take up Cloud, Big data and Artificial Intelligence by 2030.
*** The target is for Unicorns to approximately double by 2030.

Sources: 1. European Investment Bank. Massive investment needs to meet EU green digital targets. Charts: Left and Right: Global X ETFs illustration with information derived from European Commission. Accessed 18 July 2024.

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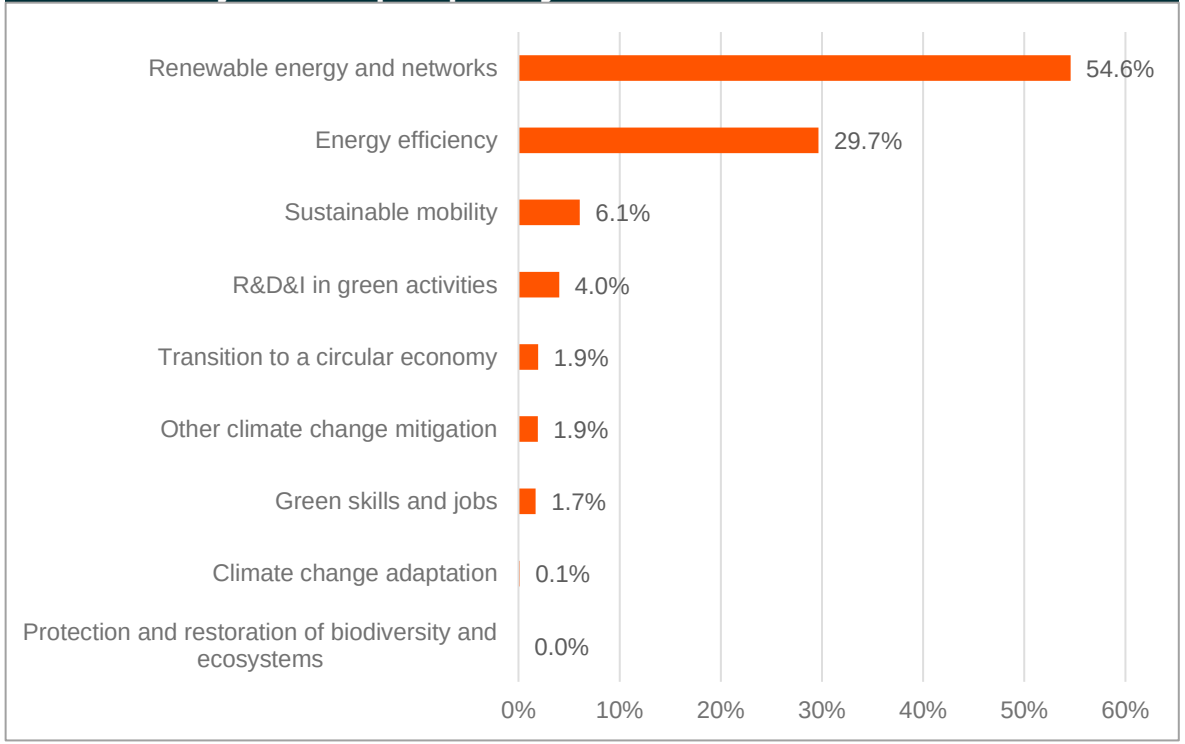
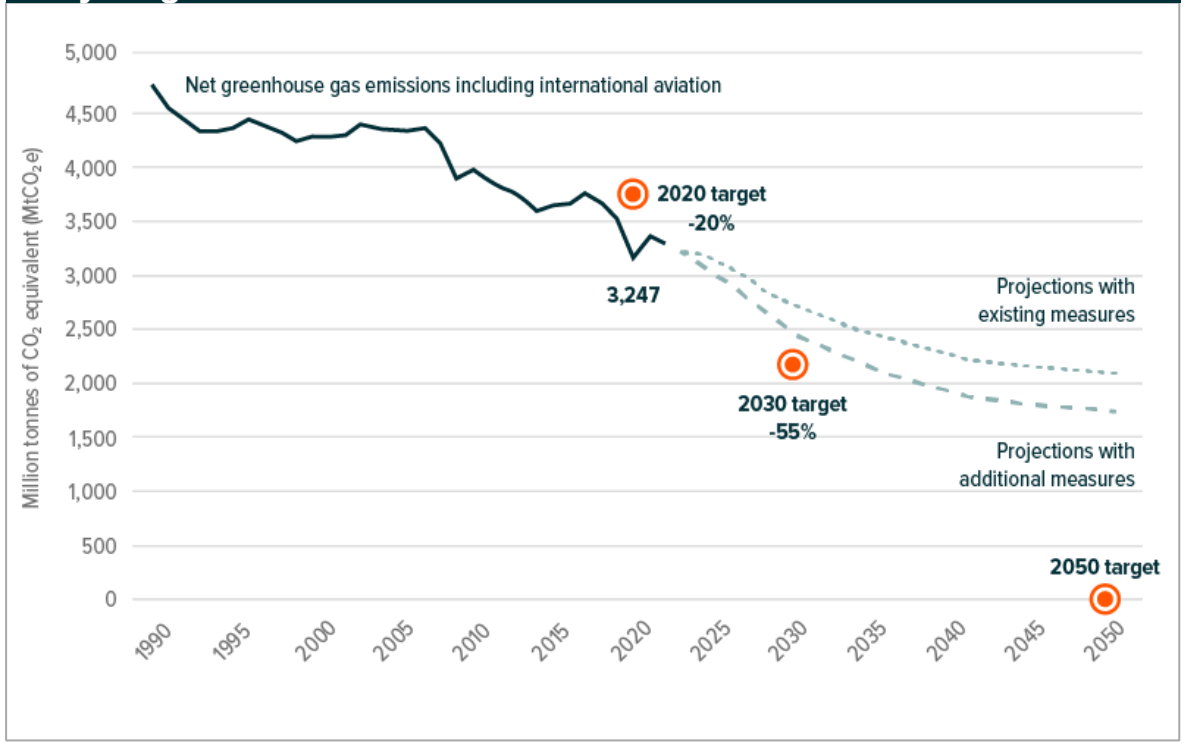
Clean Energy: European Green Deal and efforts under way to REPowerEU

The European Green Deal aims to make Europe climate-neutral by 2050, with €600 billion in funding going towards this goal, while the REPowerEU plan, launched in response to disruptions in the global energy market caused by Russia's invasion of Ukraine, could mobilise significant funding.[1]

Breakdown of expenditure in REPowerEU chapters towards climate objectives per policy area



Significant step towards EU's green goals, but still a long way to go



Sources: European Commission, The European Green Deal, Accessed 2024. Charts: LHS: Global X ETFs illustration with information derived from European Commission, Recovery and Resilience Scoreboard, 2024; RHS: European Environmental Agency, Total net greenhouse gas emission trends and projections in Europe, 2024.
Note: There is no guarantee that any trends observed in this material will continue. Any views and opinions are based on current market conditions and are subject to change.

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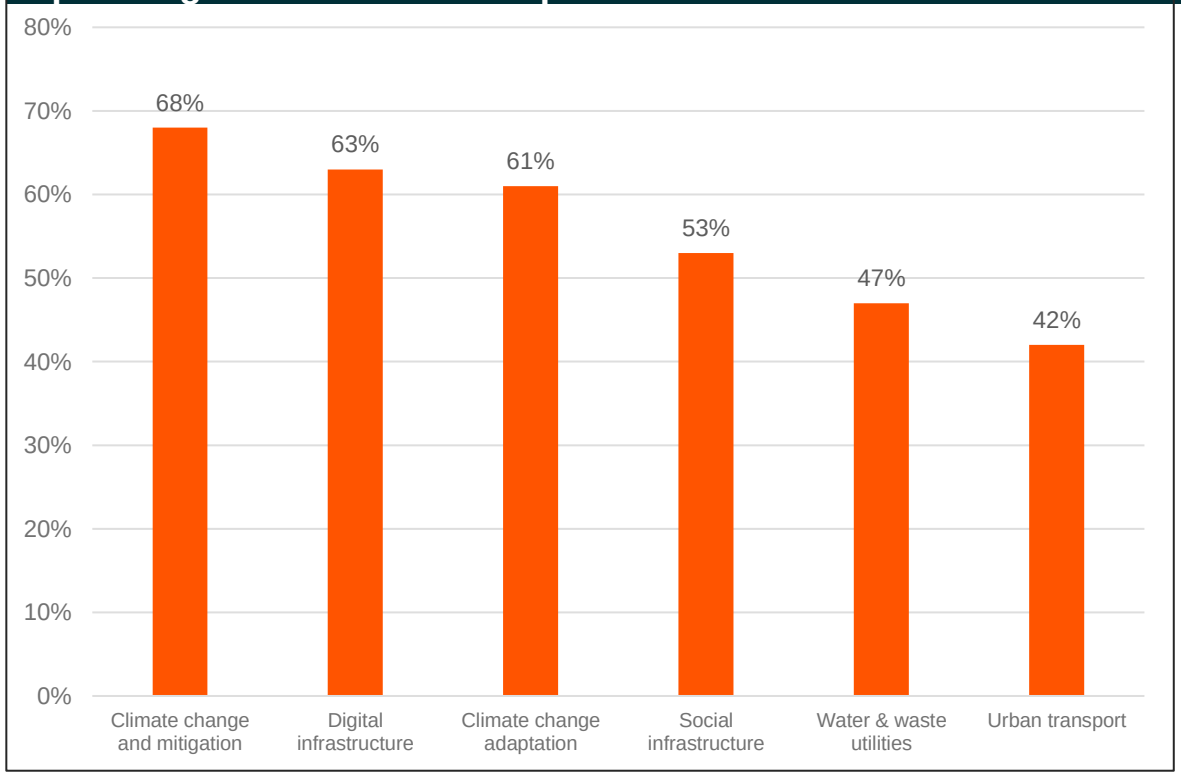
Municipalities intend to increase investments in climate change and digital infrastructure

Findings indicate that a significant majority of municipalities (90%) plan to increase their infrastructure investments in at least one area in the next three years.[1]

Municipalities' Investment Priorities in Infrastructure

- Most municipalities (88%) view their infrastructure investments in the past three years as insufficient in at least one investment area.
- 60% of all municipalities express dissatisfaction with their investments in climate mitigation and adaptation infrastructure during this period.
- Over 60% of municipalities plan to boost their investments in climate change mitigation and adaptation in the upcoming three years, in comparison to their investment levels in the previous three years.
- 63% of municipalities plan to increase their investments in digital infrastructure
- The proportion of municipalities defined as being ahead in "green" measures stands at 27%, which is considerably lower than the 45% of municipalities excelling in the digital agenda.

Municipalities planning on increasing Infrastructure Spending in 2022-2026 compared to 2019-2021



Sources: 1. European Investment Bank. The state of local infrastructure investment in Europe: EIB Municipalities Survey 2022-2023. 4 July 2023. Charts: Global X ETFs illustration with information derived from: European Investment Bank. The state of local infrastructure investment in Europe: EIB Municipalities Survey 2022-2023. 4 July 2023.

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Global X European Infrastructure Development UCITS ETF (BRIJ IM)

Global X European Infrastructure Development UCITS ETF (BRIJ LN)

BRIJ LN seeks to provide results that correspond generally to the total return of Mirae Asset European Infrastructure Development Index before fees and expenses.

Compelling Need
Europe faces a significant infrastructure investment gap estimated to reach $2 trillion by 2040, creating a compelling need for focused investment.[1]

Committed Spend
European governments are proactively addressing the infrastructure investment gap by committing over €1.38 trillion to funding programs like NextGenerationEU, the Cohesion Policy, and the Connecting Europe Facility.

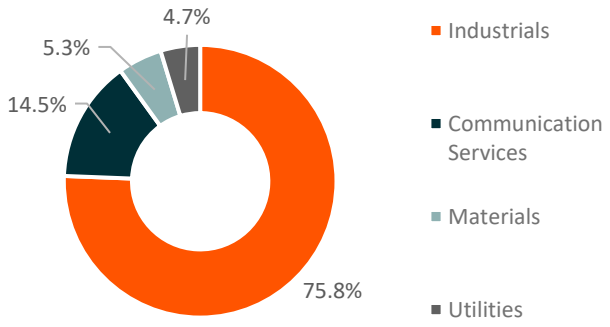
Differentiating Approach
As economies evolve, so do our infrastructure needs. The ETF seeks to capture this trend by investing in companies that provide exposure to European infrastructure development.

Key Facts[2]

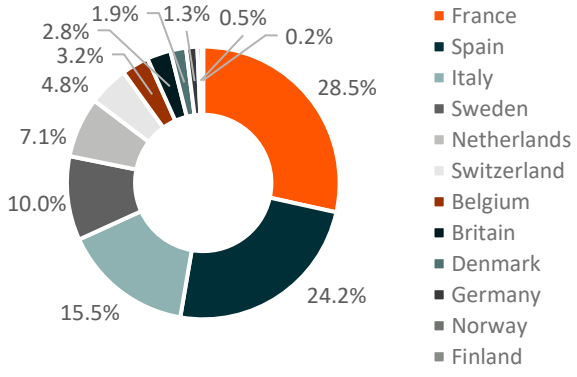
Inception Date:	3 September 2024		
Index:	Mirae Asset European Infrastructure Development Index	**Index Ticker:**	MAEUIDN
Total Expense Ratio:	0.47%	**Ongoing Charges:**	0.47%
Primary ISIN:	IE000PS0J481	**Domicile:**	Ireland
Registered Countries:	Austria, Denmark, Finland, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom	**Listing Exchanges:**	London Stock Exchange, Deutsche Börse Xetra, Borsa Italiana, SIX Swiss Exchange
		SFDR Classification	Article 6
Number of Holdings:[2]	35	**Management Style:**	Physical - Full Replication – Passively Managed – Index -Tracking

Key Characteristics[3]

Sector Breakdown[2]



Country Breakdown[2]



Top 10 Holdings[2]

Name	Weight %
Thales SA	10.92%
Vinci SA	8.12%
Aena Sme SA	7.88%
Ferrovial SE	7.07%
Telefonica SA	5.88%
Leonardo SPA	5.65%
Cellnex Telecom SA	5.15%
Eiffage	4.93%
Skanska AB-B	4.74%
Buzzi SpA	4.23%

Sources: 1. Infrastructure Outlook, Global Infrastructure Outlook. Accessed July 2024. 2. Bloomberg, as of 12/03/2025.

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Global X European Infrastructure Development UCITS ETF (BRIJ LN)

The Global X European Infrastructure Development UCITS ETF (BRIJ LN) seeks to invest in companies that stand to potentially benefit from a potential increase in infrastructure activity in Europe, including companies involved in construction and development of large-scale economic, social and digital infrastructure projects across Europe.

Underlying Index Selection Process

1 Initial Universe

- Primary listing on European exchanges
- Market Cap ≥ $300 million
- 6-Month ADTV ≥ $2 million

2 Sub-Theme Revenue Criteria

- Index provider narrows universe to companies that generate ≥ 50% of revenue from one or more of the **core businesses of the sub-themes** in aggregate & ≥ 40% of revenues from Europe

3 Final Composition

- Top 50 pure-play companies by market cap

4 Annual Reconstitution (in April) / Quarterly Rebalance

- Index components are weighted according to modified market cap-weighting approach:
  - Max weight = 8.0%
  - Floor = 0.3%

BRIJ LN Sub-Themes

TRADITIONAL INFRASTRUCTURE

Companies involved in the sub-themes: Construction and Maintenance, Civil Engineering and Design, Construction Materials, and Industrial Equipment.

TRANSPORT NETWORK

Companies that provide airport, rail tracks, highways and marine port operation and management services.

CLEAN ENERGY INFRASTRUCTURE

Companies involved in the following sub-themes: Clean Energy Production and Distribution, Power Generation, and Clean Energy Technology

DIGITAL INFRASTRUCTURE

Companies that set up and maintain data centres for digital infrastructure. Companies that develop and maintain infrastructure and related services pertaining to 5G, fibre, and quantum networks.

Full Index Methodology: Mirae Asset European Infrastructure Development Index

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Exploring the Data Centre Theme

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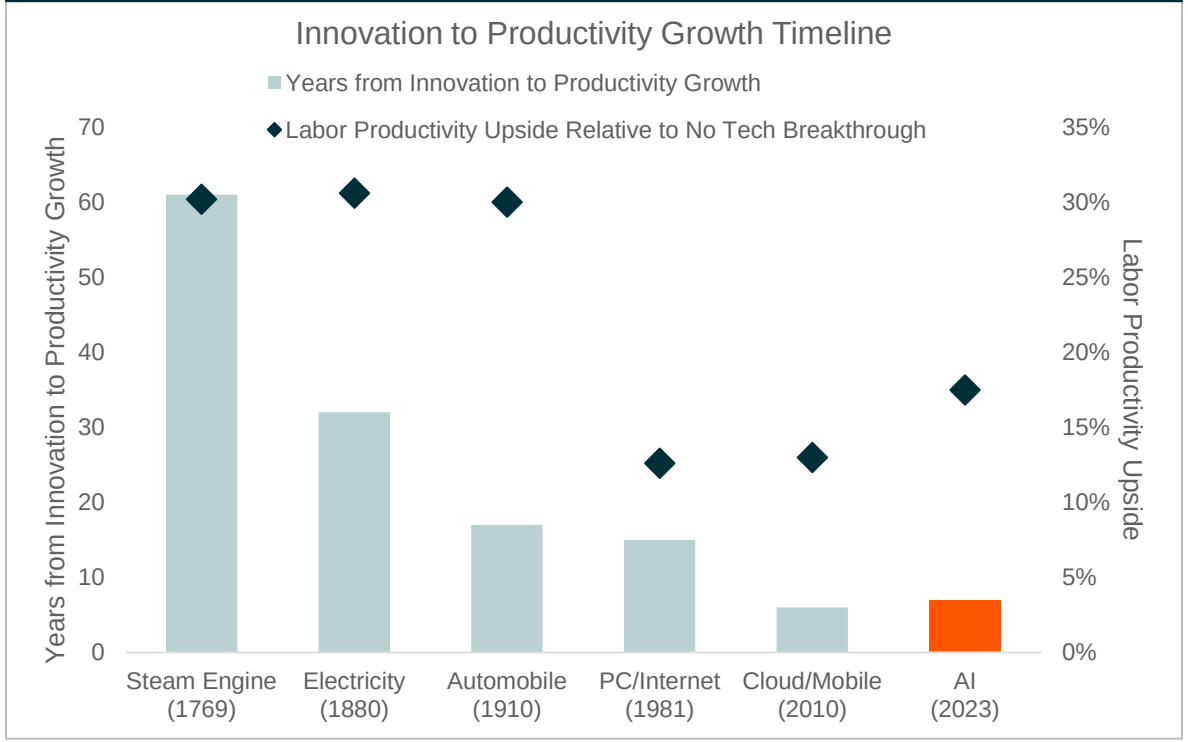
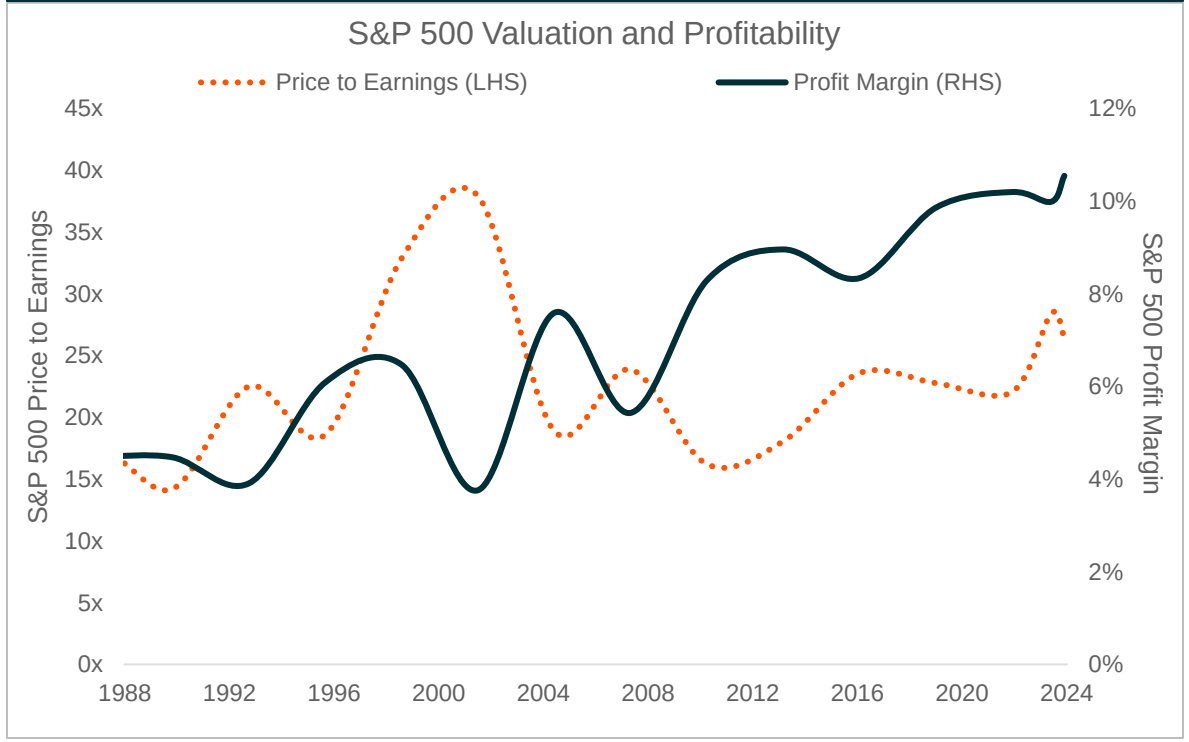
AI Could Increase Productivity at a Greater Rate Than the Internet Since Inception

Previous tech shifts boosted productivity, but AI may be on track to surpass even the advent of the internet. Growing AI integration could further elevate corporate profitability.

AI: Greater Productivity in Less Time Than the Internet



AI: Could Accelerate S&P 500 Profitability



Sources: Charts: LHS: Global X ETFs illustration with information derived from: JP Morgan, Jul 2024; FRED Economic Data, Sep 2024. RHS: Bloomberg, L.P., n.d., accessed on 19 Nov 2024. There is no guarantee that any trends observed in this material will continue. Any views and opinions are based on current market conditions and are subject to change.

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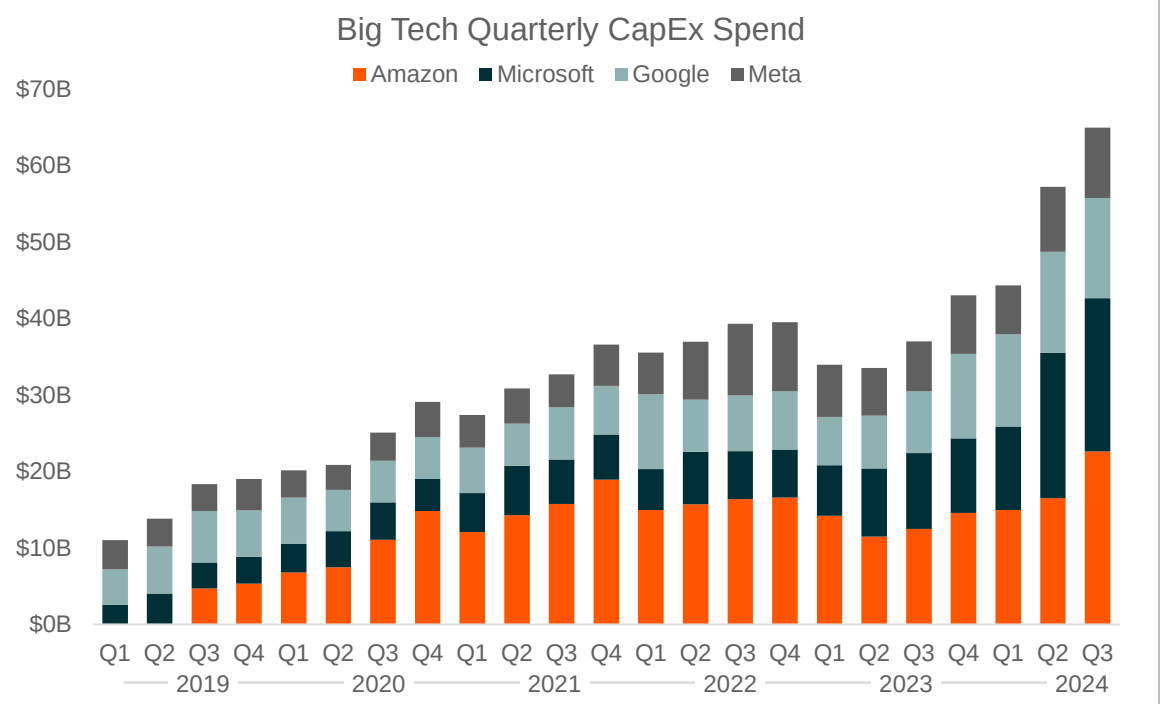
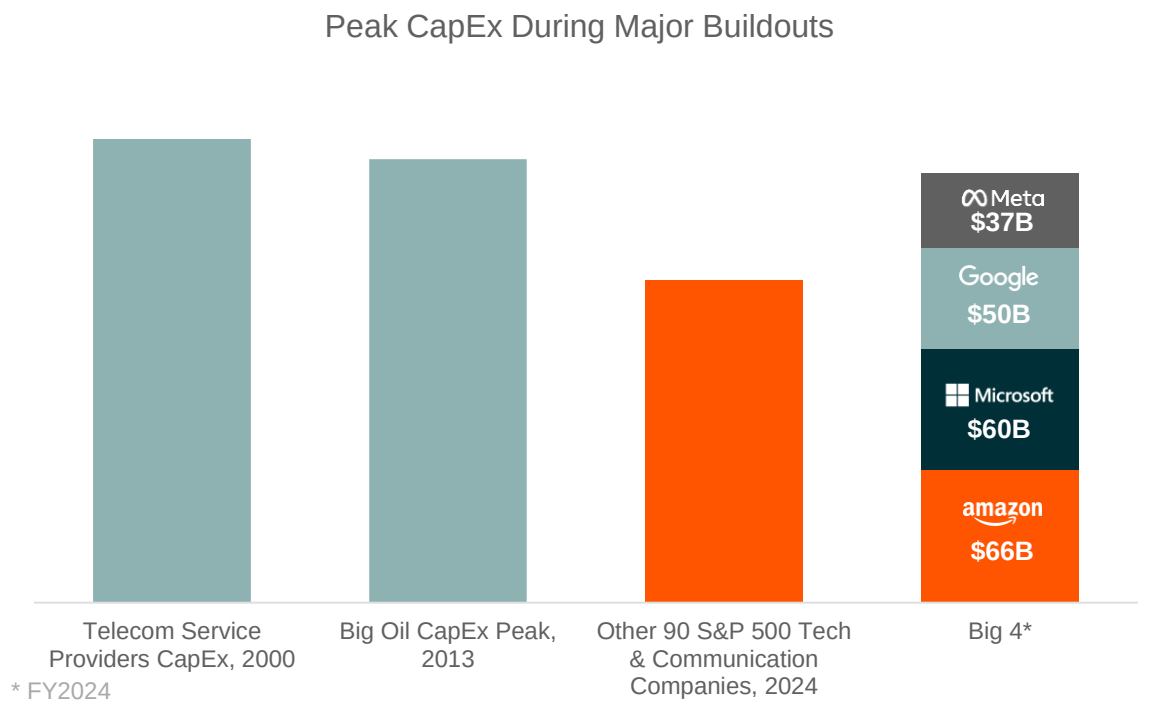
AI Investment: The CapEx Race Is On to Build the Infrastructure that AI Needs

In 2024, Amazon, Google, Microsoft, and Meta spent $246 billion on CapEx, primarily for AI infrastructure.

Big 4 CapEx Spend Already Totalled Over $150B by Q3 2024



2024 Big 4 CapEx Rivals Telecom and Big Oil at Their Peaks



Note: On the RHS chart, the Telecom and Big Oil figures are adjusted for inflation.

Sources: Text: 1 Forbes, Aug 2024; Charts: LHS: FactSet, n.d., accessed on 1 Nov 2024; RHS: Bloomberg, L.P., n.d., accessed on 1 Nov 2024; FactSet, n.d., accessed on 1 Nov 2024; MarketWatch, Jul 2024. There is no guarantee that any trends observed in this material will continue. Any views and opinions are based on current market conditions and are subject to change.

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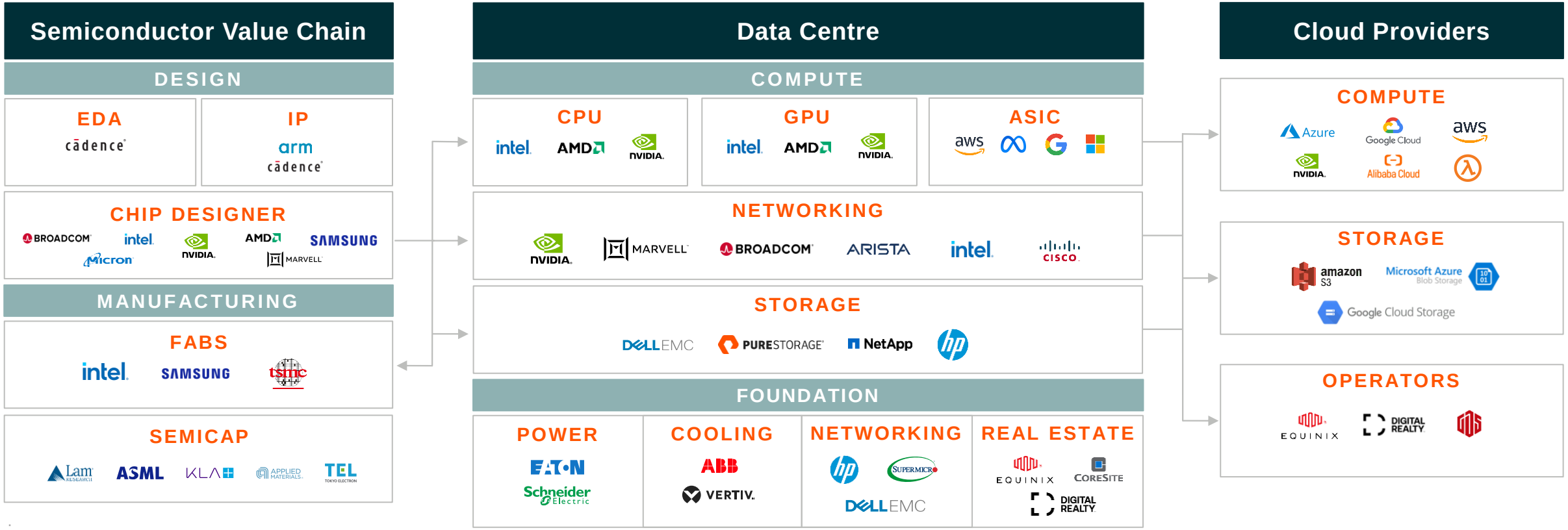
AI Investment: Infrastructure Spending May Benefit a Broad Data Centre Ecosystem

Modern data centre value chains span three categories – foundational semiconductors, core infrastructure (compute, networking, storage, cooling), and the software layer for technology abstraction.



Sources: Public Comps, Feb 2024. Note that these examples for each category are representative samples and not an exhaustive list.

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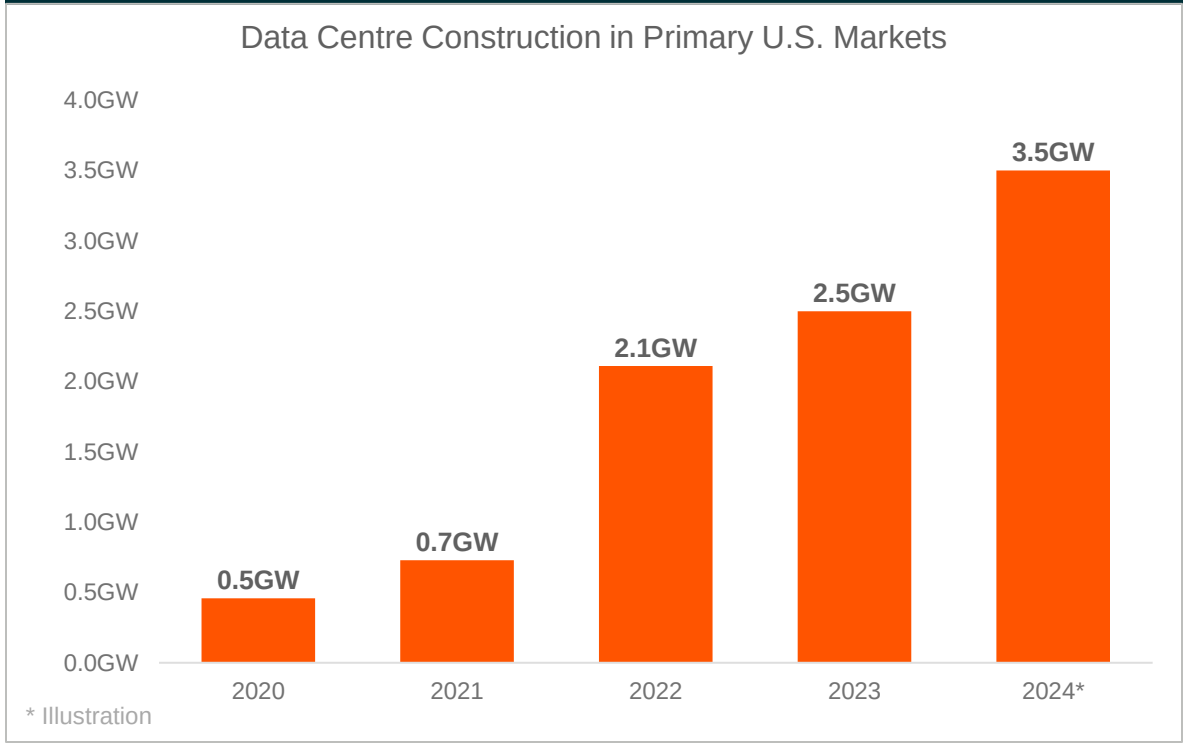
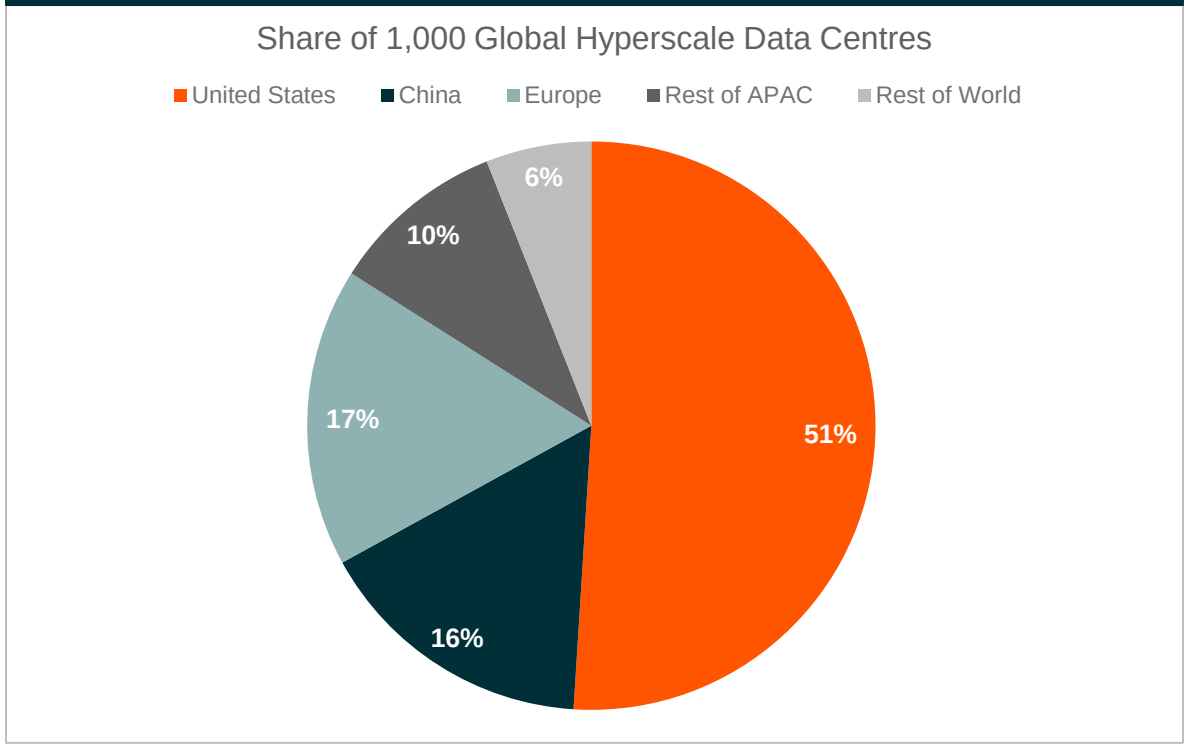
AI Investment: Record U.S. Data Centre Construction Activity Already Spurred by AI Demand

Global hyperscale data centres hit 1,000 in 2024, with hyperscale capacity now doubling every four years as cloud giants intensify their AI efforts.[1] North American data centre inventory grew by 24.4% YoY in Q1 2024.[2]

2024 U.S. Data Centre Activity Could Hit New Highs



Over 50% of Hyperscale Data Centres in the United States



Note: GW = Gigawatts

Sources: Text: 1. Synergy Research Group, Apr 2024; 2. Ibid.; Charts: LHS: CBRE Group, Inc., Mar 2024; RHS: Synergy Research Group, Apr 2024.

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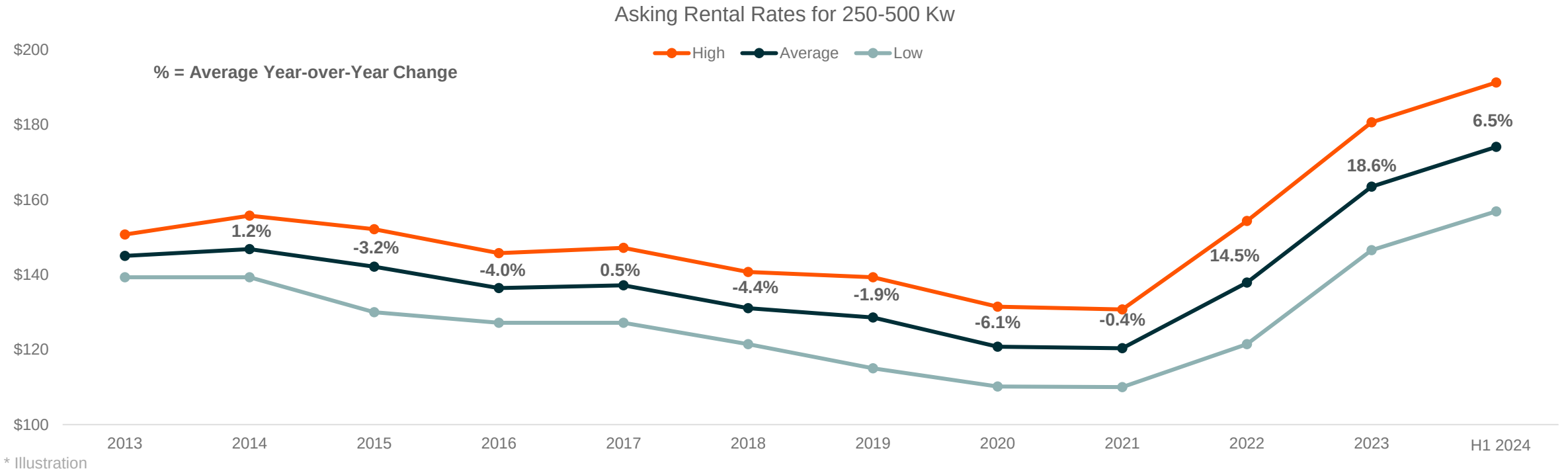
AI Investment: Rising Demand and Capacity Crunch Have Existing Data Centres Priced at Premiums

Vacancy rates are declining globally due to strong demand, with existing colocation-based U.S. data centres reaching record lows of 3.7% in 2023.[1] Rental rates for U.S. data centres anticipated to grow by 13% YoY in 2024.[2]

Asking Rental Rates for Data Centre Capacity in Primary U.S. Markets Are at 10-Year Highs



* Illustration

Note: Primary U.S. datacenter markets as defined by CBRE are Northern Virginia, Dallas-Ft. Worth, Silicon Valley, Chicago, New York Tri-State, Phoenix, Atlanta, and Hillsboro.

Sources: Text: 1. Sunbird, Jun 2024; 2. CBRE, Aug 2024; Chart: Global X ETFs illustrations with information derived from: CBRE, Aug 2024.

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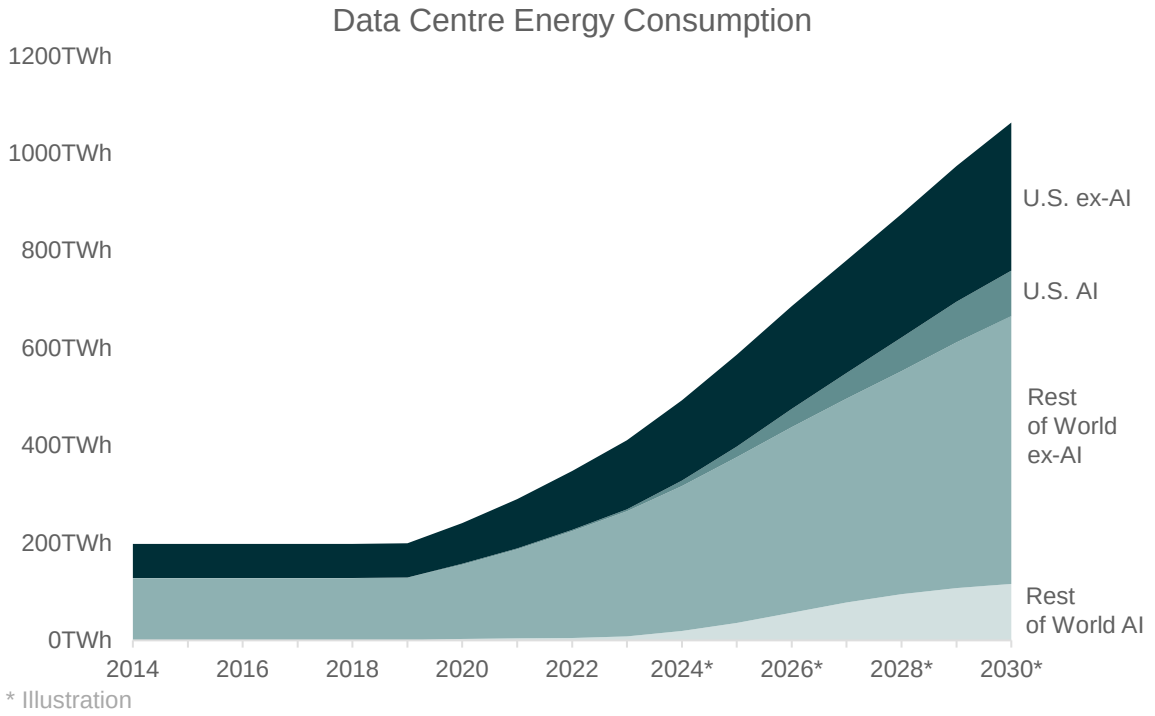
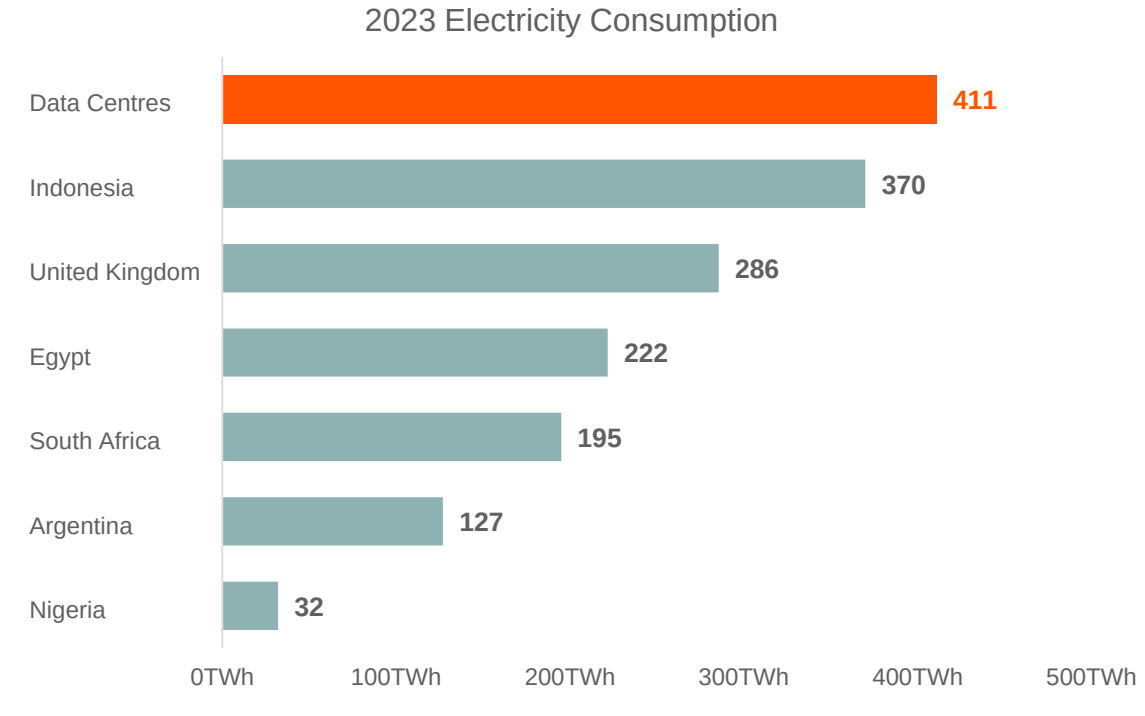
Energy Needs: Growing Data Centre Footprint Impacts Global Energy Demand and Supply Dynamic

Global energy consumption from data centres approximated 411 terawatt-hours (TWh) in 2023.[1] By 2030, their consumption could more than double to 1,000TWh, approximately equal to Japan's total electricity use.[2]

Global Data Centre Energy Demand Could Triple by 2030



Global Data Centre Energy Usage Exceeds Entire Countries



Sources: Text: 1. Goldman Sachs, May 2024; 2. S&P Global, Apr 2024; Charts: LHS: Goldman Sachs, May 2024; RHS: Enerdata, 2024; Energy Central, Jun 2024.

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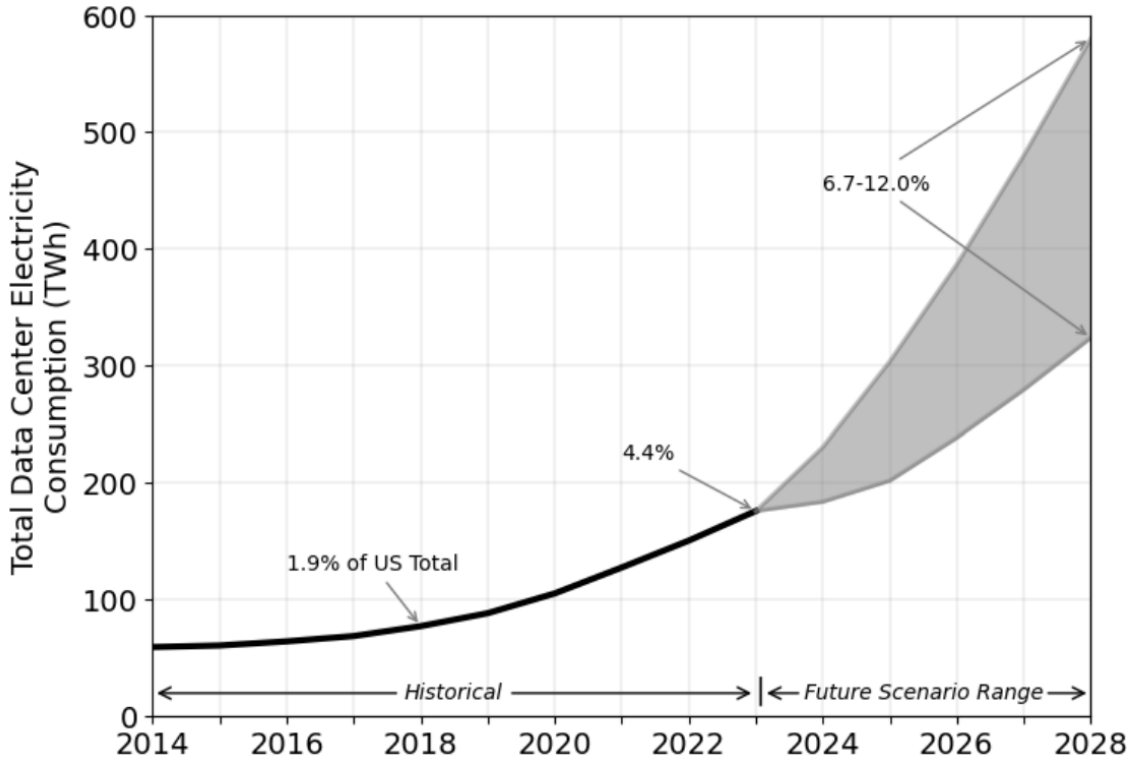
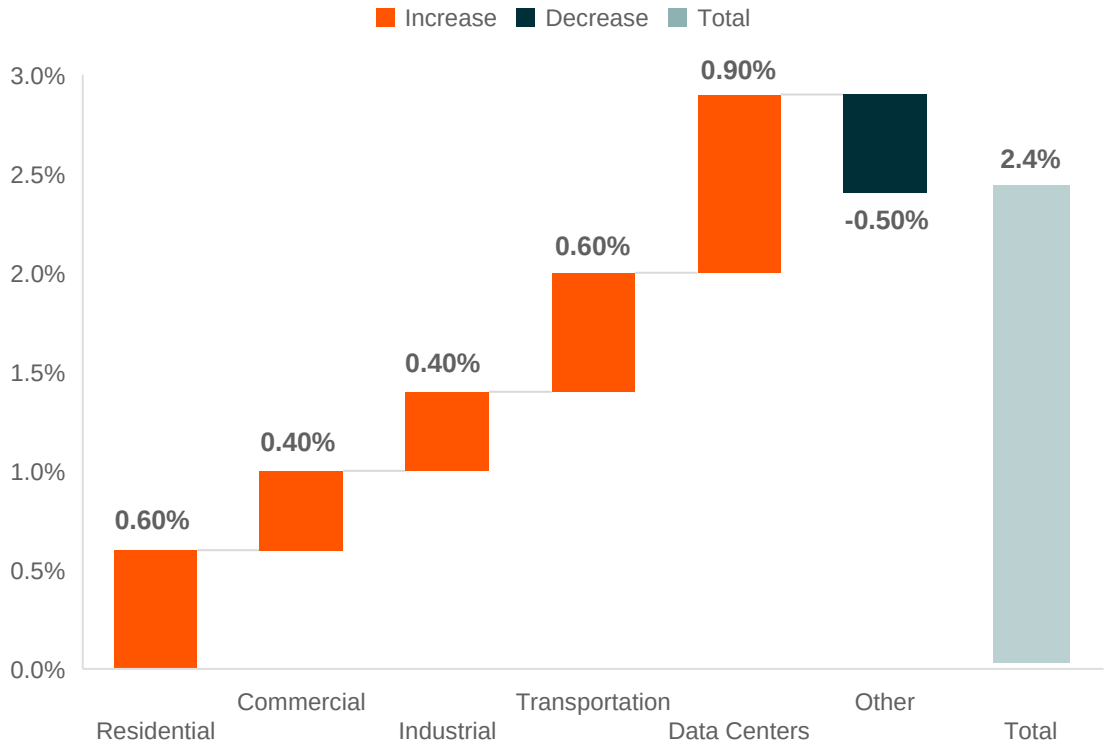
U.S. Data Centre Capacity Could Grow to 35 Gigawatts (GW) by 2030

The expanding data centre footprint, along with broader AI applications, is projected to significantly increase U.S. power demand.[1]

Total U.S. Data Centre Electricity Consumption



U.S. Power Demand CAGR, 2022-2030



Sources: Text 1. Mckinsey & Co, Sep 2024; Charts: LHS: Chart from United States Data Center Energy Usage Report, 2024; RHS: The Goldman Sachs Group, Inc., Apr 2024.

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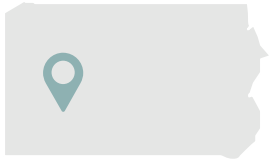
Tech Giants Tap Nuclear Power for Growing Data Centre Power Demands

The growing need for nuclear power is driving some big tech companies to form partnerships and commit investments, with a strong focus on small modular reactors.

Amazon Buys a Nuclear-Powered Data Centre from Talen

NAME/PROJECT
Cumulus Data Assets

LOCATION
Salem Township, Pennsylvania



DETAILS

On March 4, 2024, Talen Energy sold Cumulus Data Assets to Amazon Web Services (AWS) for $650 million. The 1,200-acre campus is powered by the nearby 2.5-gigawatt Susquehanna Steam Electric Station, a nuclear plant operational since 1983 and licensed through 2044.[1]

Green Energy Partners and IP3 Form a Phased Joint Venture

NAME/PROJECT
Surry Green Energy Centre

LOCATION
Surry County, Virginia

DETAILS

Approved on February 8, 2024, this data centre campus is designed to be powered by the nearby Surry Nuclear Power Plant but the long-term plan includes the development of 4-6 small modular reactors (SMRs) to provide nuclear energy directly to the data centres.[2]

Microsoft Signs 24/7 Nuclear Power Deal with Constellation

NAME/PROJECT
Boydton Campus

LOCATION
Boydton, Virginia

CURRENT # OF BUILDINGS
11

DETAILS

On June 20, 2023, Microsoft signed a deal with Constellation Energy to supply nuclear power to its Boydton, Virginia data centre, targeting near 100% carbon-free operation.

Amazon Data Centre Campus to Abut Nuclear Power Station

NAME/PROJECT
Lake Anna Tech Campus

LOCATION
Louisa County, Virginia

DETAILS

Filed on September 26, 2023, this is one of two data centre campuses Amazon plans to build as part of an $11 billion investment in the state.[3] The first campus is expected to house 7 data centre buildings and be located near the Lake Anna Nuclear Power Station.[4]

Sources: Text: 1. Nuclear News, Mar 2024; 2. Data Centre Dynamics, Aug 2023; 3. US Army Corps of Engineers, Norfolk District Website, 2023. 4. Lake Anna Life, Jun 2024.

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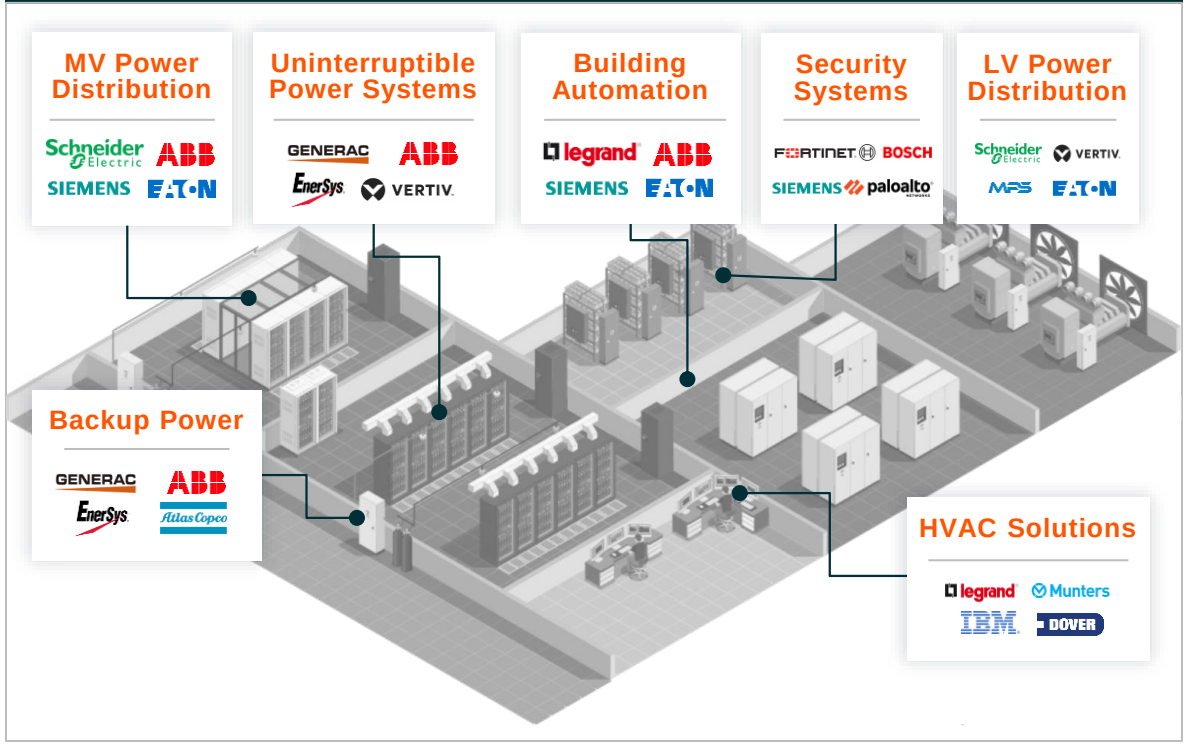
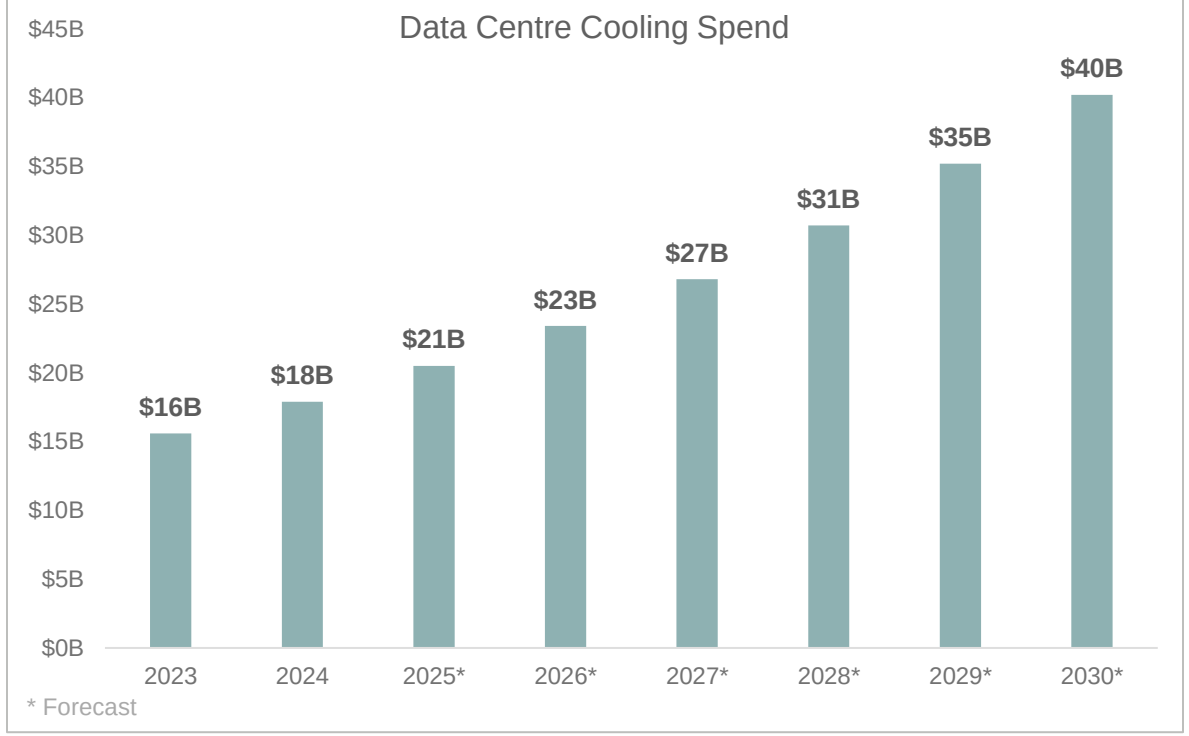
Energy Needs: Liquid Cooling and Power Management Essential to Handle Accelerated Computing

Data centre cooling weighs heavily on overall IT budgets as roughly 40% of a data centre's costs comes from cooling, power, and security.[1] Data centre cooling includes chillers, computer room AC air handlers, and HVAC units.

Data Centres Need Specialised Power and Cooling Systems



Data Centre Cooling Market to Approach $40B by 2030[2]



Sources: Text: 1. Public Comps, Feb 2024; 2. Robeco, Jun 2024; Charts: LHS: Global Market Insights, Apr 2024; RHS: Global X ETFs illustration with information derived from: Market.US, Jun 2024.

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Beyond Data Centres: Demand for Accelerated Computing Could Extend Beyond Generative AI

Accelerator chips are critical for generative AI and a wide array of critical computation-heavy end use cases across industries, expanding both the market potential for chips and energy demands.[1]

Applications of Accelerated Computing

Scientific Simulations

Physics, chemistry, and climate modeling could benefit from accelerated computing.

Autonomy

Self-driving vehicles, robotics, and drone navigation rely heavily on accelerated computing for real-time decision making, sensor fusion, and path planning.

Medical Research

Drug discovery and genomics could be enhanced with accelerated computing for complex calculations.

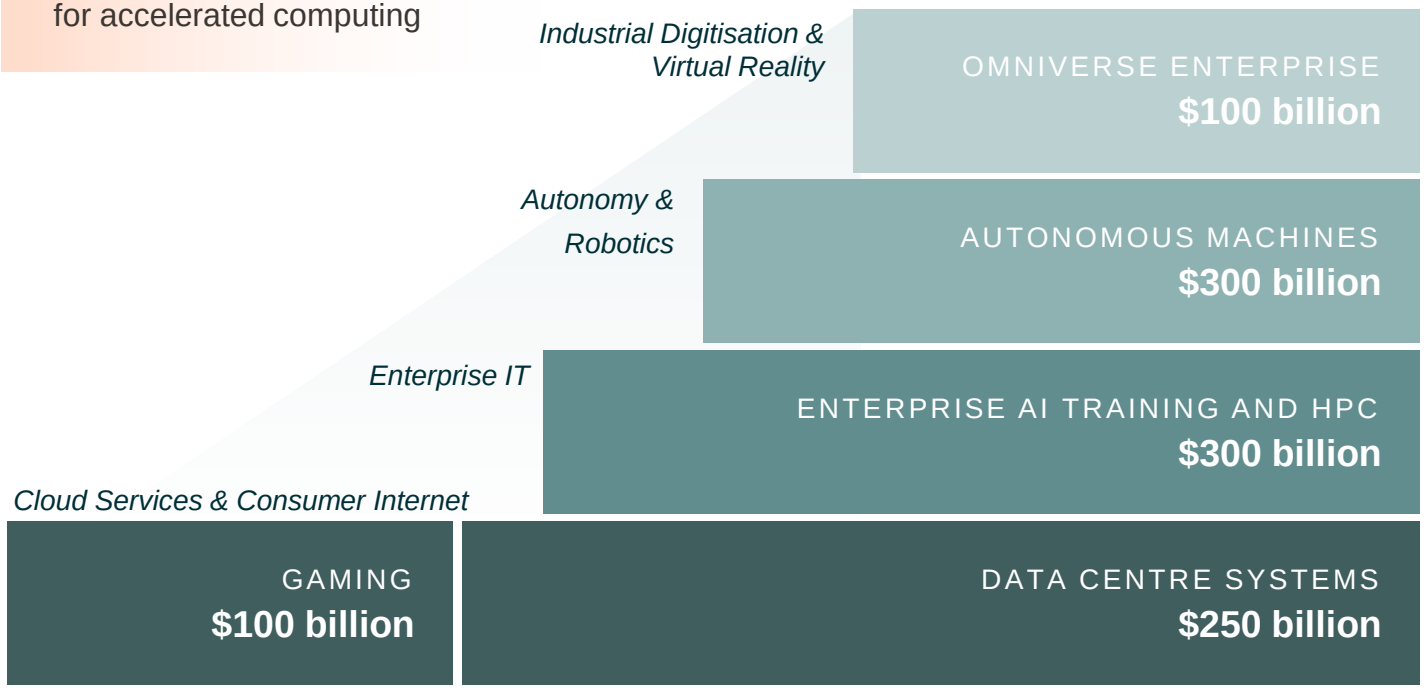
Computer Vision

Object detection and image processing in various industries may be improved due to accelerated computing.

Cryptography

Blockchain and cybersecurity applications use accelerated computing to potentially enhance performance.

+ $1 trillion
addressable opportunity
for accelerated computing



Sources: Text: 1. IBM.com, June 2024 Charts: RHS: The Next Platform, Oct 2023.

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Beyond Data Centres: Infrastructure Between Data Centres and End Users Critical for Adoption of AI

AI's benefits depend on low-latency, high-bandwidth, and secure communications between end users and the data centres running the models, which require quality cellular and communications infrastructure.

Generative AI Use Cases Could Drive Cellular Upgrades

Data Traffic Explosion

Smartphones, video streaming, and social media is driving global mobile data traffic exponentially, straining networks and spurring infrastructure investments.[1]

Low Latency Needs

Gen AI needs faster, more responsive networks. Critical applications relying on cloud-based AI will further drive demand for faster connections.[2]

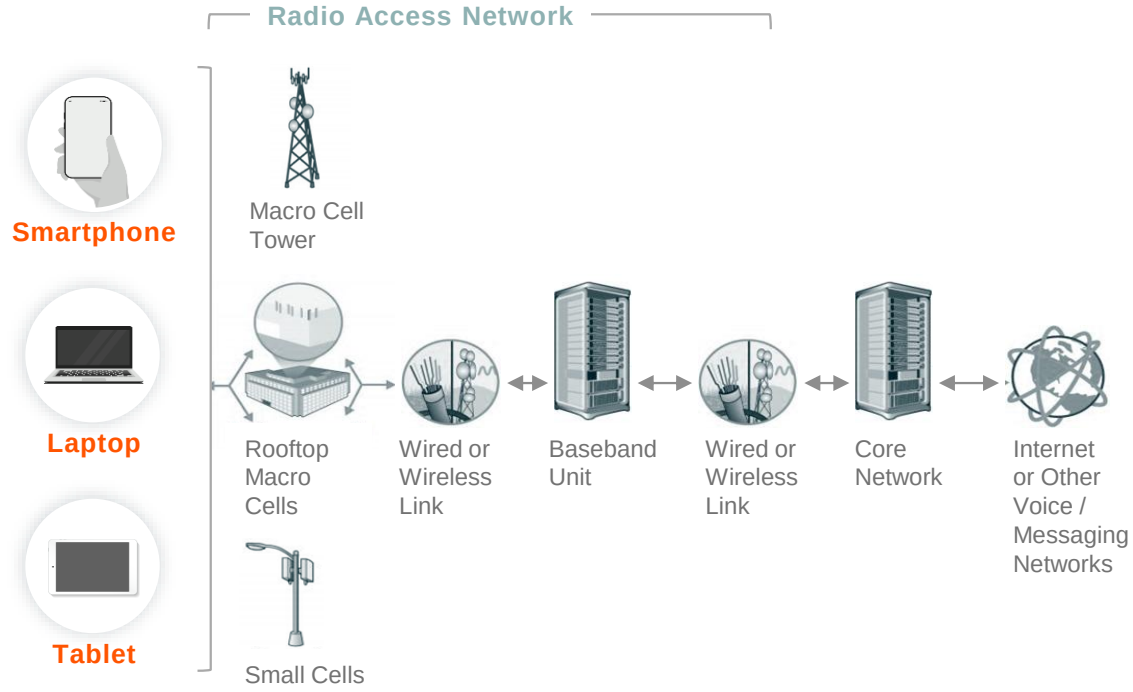
File Density Needs

Higher resolution media, complex data formats, AI-generated content, and other similar features necessitate investments in content transmission capabilities.[3]

Heightened Data Security

Networks must fortify their defences to meet heightened data security demands, especially as a wider range of critical systems adapt AI-based automated decision-making.[4]

Cellular Infrastructure Upgrades Span Network and Devices



Sources: Text: 1. Ericsson, Mobile Data Traffic Outlook; 2. Interplex, How the Rise of Generative AI is Impacting Data Centers and Network Infrastructures; 3. Medium, Send it Smarter: How AI Will Revolutionize Data Transfer and Storage; 4. ScienceDirect, The impact of artificial intelligence on organisational cyber security: An outcome of a systematic literature review Charts: RHS: Moniem Tech, Jun 2021.

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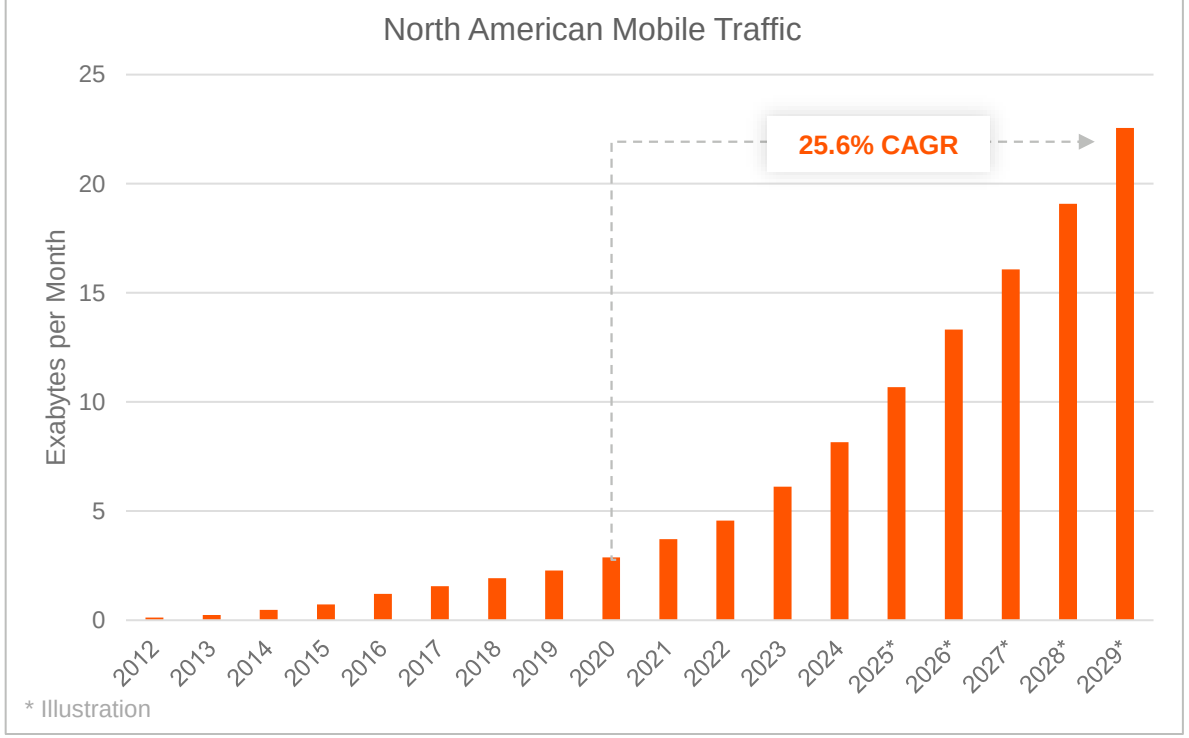
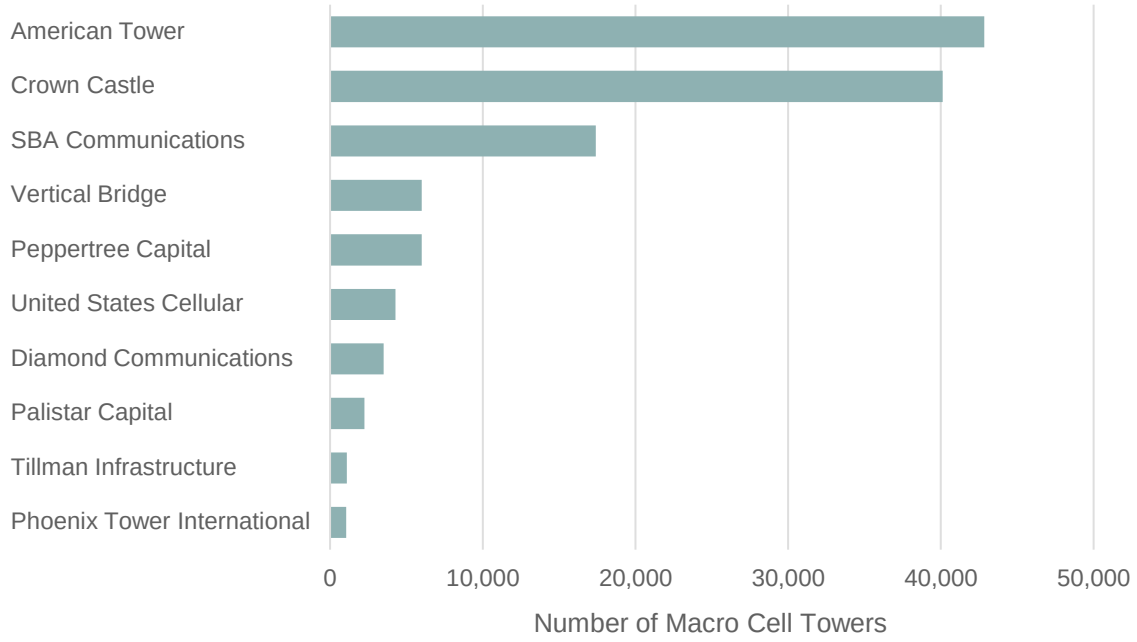
Deployment of Macro and Small Cell Towers Could Accelerate Due to AI-Driven Traffic

Mobile and cloud-based AI processing could strain existing cellular networks as users increasingly adopt AI applications, which may require widespread upgrades to devices and cellular infrastructure.

AI Could Further Accelerate Mobile Traffic Growth



Largest U.S. Tower Operators By Count



Sources: Charts: LHS: Global X ETFs illustration with information derived from: Ericsson, June 2024; RHS: Statista, Jul 2024; Wireless Estimator, Oct 2024.
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Global X Data Center REITs & Digital Infrastructure UCITS ETF (VPN IM)

VPN LN: Global X Data Center REITs & Digital Infrastructure UCITS ETF

VPN LN seeks to provide investment results that correspond generally to the total return of the Solactive Data Center REITs & Digital Infrastructure v2 Index.

High Growth Potential
The global data centre market could increase from around $300bn in 2024 to $483.26 billion in 2029 to support the growth of AI, nuclear power, smart grids, and other tech-based infrastructure.[1]

Global Tailwinds
Some forecasts suggests that demand for AI-ready data centre capacity will rise at an average rate of 33% per year between 2023 and 2030.[2]

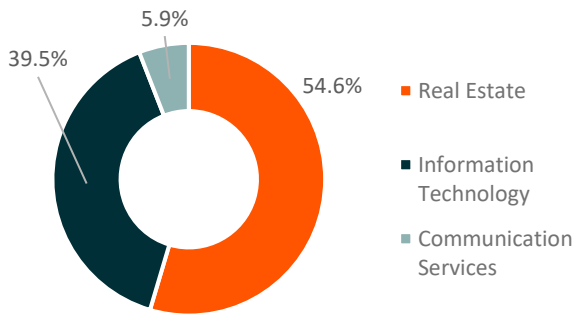
REIT Exposure
VPN LN is designed to provide exposure to a number of holdings and asset classes, including REITs, an asset class that has historically provided high-income potential. Past performance is not a reliable indicator of future results.

Key Facts[2]

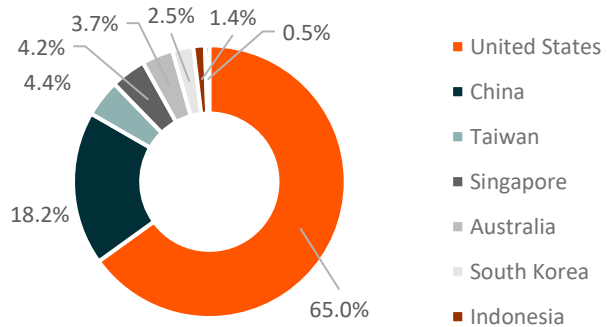
Inception Date:	7 December 2021		
Index:	Solactive Data Center REITs & Digital Infrastructure v2 Index	**Index Ticker:**	SOLVPN2
Total Expense Ratio:	0.50%	**Ongoing Charges:**	0.50%
Primary ISIN:	IE00BMH5Y327	**Domicile:**	Ireland
Registered Countries:	Austria, Denmark, Finland, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom	**Listing Exchanges:**	London Stock Exchange, Deutsche Börse Xetra, Borsa Italiana, SIX Swiss Exchange
		SFDR Classification	Article 6
Number of Holdings:[3]	25	**Management Style:**	Physical - Full Replication – Passively Managed Index -Tracking

Key Characteristics[3]

Sector Breakdown[3]



Country Breakdown[3]



Top 10 Holdings[3]

Name	Weight
American Tower Corp	13.22%
Equinix Inc	10.56%
Crown Castle Inc	9.60%
Digital Realty Trust	9.55%
GDS Holdings Ltd – ADR	7.71%
VNET Group Inc	6.01%
SBA Communications Corp	4.76%
China Tower Corp Ltd – H	4.53%
Keppel DC REIT	4.19%
NextDC	3.71%

Sources: 1. DLA Piper Research, Nov 2024.; 2. McKinsey, Oct 2024. 3. Bloomberg, as of 12/03/2025.

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Global X Data Center REITs & Digital Infrastructure UCITS ETF (VPN LN)

The Global X Data Center REITs & Digital Infrastructure UCITS ETF (VPN LN) seeks to invest in companies that have business operations in the field of data centres and/or cellular towers.

Underlying Index Selection Process

1 Initial Universe

- Market Cap ≥ $200 million
- 6-Month ADTV ≥ $2 million

2 Sub-Theme Revenue Criteria

- Index provider narrows universe to companies that generate ≥ 50% revenues from **Data Centre and/or Cellular Tower** related business operation sub-themes
- If there are fewer than 25 index components after all Data Center Companies and Cellular Tower Companies have been included, then an extra sub-theme of **Digital Infrastructure Hardware companies** is added

3 Final Composition

- Top 25 to 40 pure-play Data Centre and Cellular Tower companies are selected for inclusion
- If there are fewer than 25 constituents, Digital Infrastructure Hardware companies are included until the index reaches 25 constituents

4 Semi-Annual Rebalance (in January and July)

- Index components are weighted according to their free float market capitalisation:
  - Max weight of a **Data Centre or Cellular Tower company** = 12.0%
  - Max weight of a **Digital Infrastructure Hardware company** = 2.0%

VPN LN Sub-Themes

DATA CENTRE COMPANIES

Companies that Own, operate, and or develop data centres (including data centre REITs)

CELLULAR TOWER COMPANIES

Companies that own, operate, and or develop cellular towers (including cellular tower REITs)

DIGITAL INFRASTRUCTURE HARDWARE COMPANIES

Companies that manufacture the servers and/or other hardware often used in data centres and cellular towers, including semiconductors, integrated circuits, and processors

Full Index Methodology: Solactive Data Center REITs & Digital Infrastructure v2 Index

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The performance data does not take account of the commissions and costs incurred on the issue and redemption of units.

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A UCITS ETF's shares purchased on the secondary market cannot usually be sold directly back to a UCITS ETF. Investors must buy and sell shares on a secondary market with the assistance of an intermediary (e.g. a stockbroker) and may incur fees for doing so. In addition, investors may pay more than the current net asset value when buying shares and may receive less than the current net asset value when selling them. Changes in exchange rates may have an adverse effect on the value price or income of the UCITS ETF.

Past performance of a UCITS ETF does not predict future returns. Future performance is subject to taxation which depends on the personal situation of each investor, and which may change in the future. Neither past experience nor the current situation are necessarily accurate guides to the future growth in value or rate of return of a UCITS ETF.

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