Infrastructure Outlook Q4 2025

September 2025

Despite major uncertainty in the markets, the fundamental drivers of investment in infrastructure remain undiminished. The megatrends of decarbonization and digitalization require investment, and that applies around the globe.

We also take a look at core areas of investment that are gaining in importance: sector coupling as the key to efficient energy use, battery storage systems (BESS) as a building block of flexibility to ensure grid stability, and sustainable transport as a growth driver in the mobility transition.

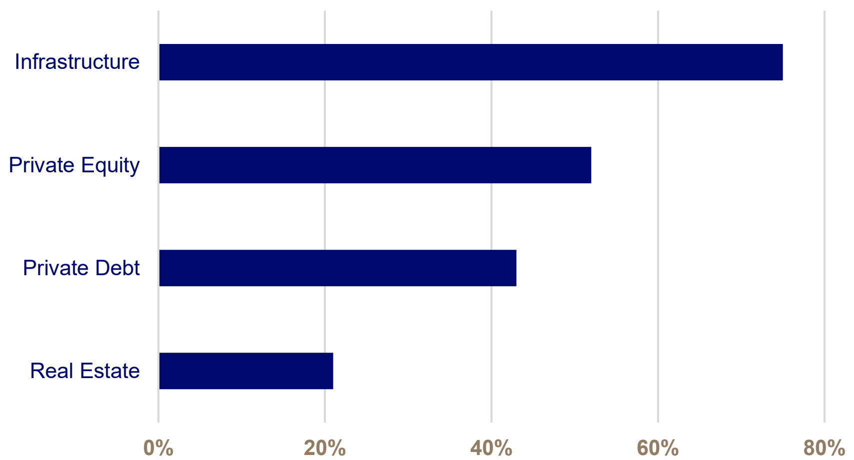
Overview

→ Results of our investor survey: more Europe, more infrastructure
→ Megatrends continue in the US too: don't write off the market
→ Sector coupling attractive to investors
→ Battery storage systems for the energy transition
→ Zero-emission transport on the horizon
→ Public capital can boost private investment

Results of our investor survey: more Europe, more infrastructure

We surveyed those who attended the annual Palladio Partners Investors Day in May 2025 (around 80 participants) and here are the results:

Which private market asset classes are you planning to invest more in/focus on?
(multiple answers possible)



Market update on fundraising

Capital raised in the infrastructure market is up significantly so far in 2025, climbing 83% year on year to USD 116 billion in the first half (H1 2024: USD 64 billion). Investors are investing more in Europe.

However, this increase is mainly due to the conclusion of a few large fundraising programs, along with interest rate cuts by western central banks.

We expect capital to remain concentrated in a relatively small number of large funds throughout the rest of the year. Competition for investor capital will intensify as a result, and fundraising outside these few large fund closings is likely to remain at a low level.

(Source: Preqin, Palladio Partners)

Market update on transaction activity

Transaction activity in non-listed infrastructure increased considerably year on year in the first half of 2025. The total transaction volume came to USD 236 billion, up 72% on the same period of the previous year (H1 2024: USD 137 billion).

This trend was boosted by global economic changes in connection with the energy transition and energy security as well as investments in digitalization, particularly in the context of advances in AI technology.

(Source: Preqin, Palladio Partners)

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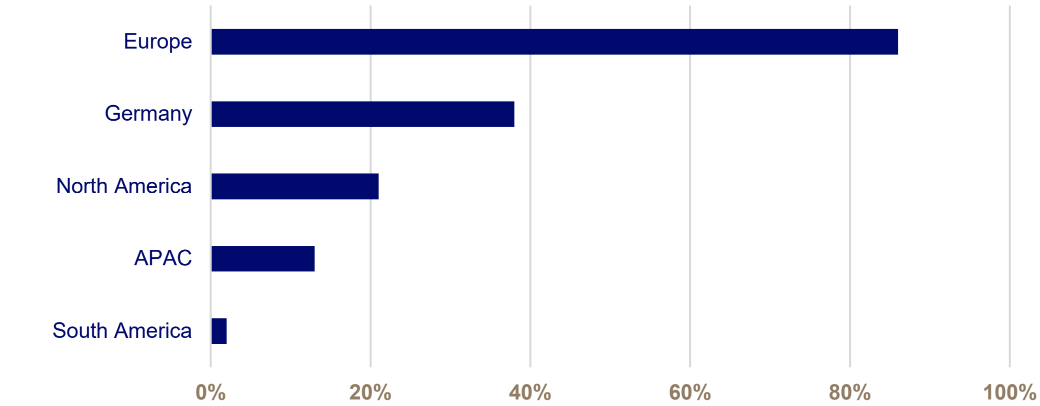
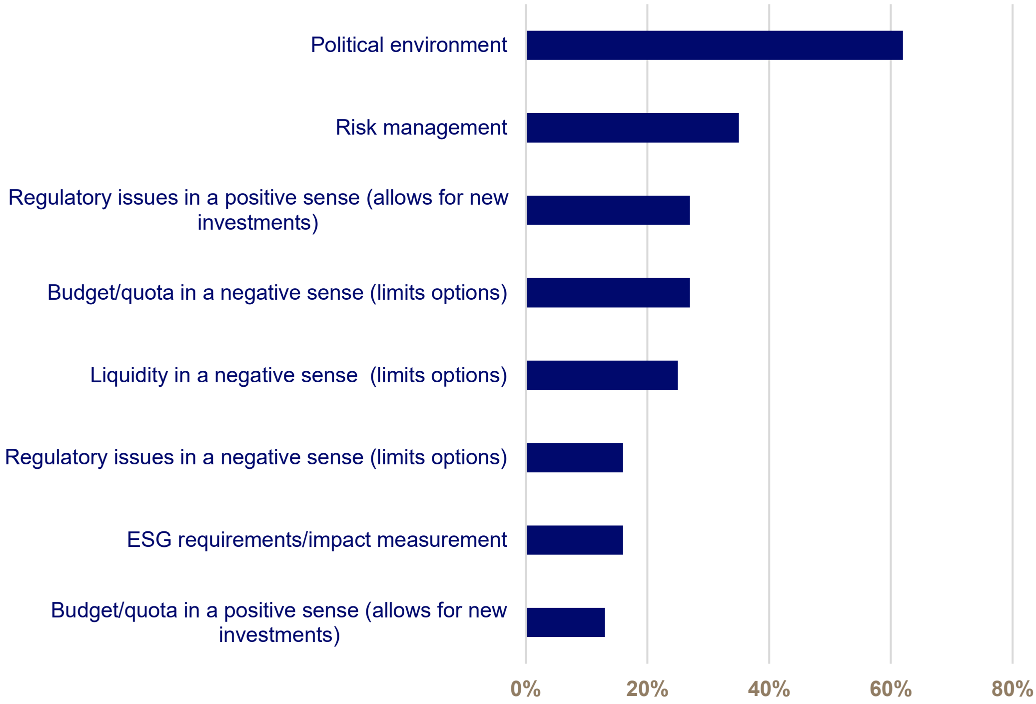
In which regions are you planning to increase your investments?
(multiple answers possible; max. 2)



Which of the following topics will have an influence on your investment decisions in the coming 12 months? Top 3
(multiple answers possible; max. 3)



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Investment in the US infrastructure market under the Trump administration: "Investors should keep calm and not write off the market – the megatrends continue unabated."

- US government policy continues to cause major uncertainty among investors. Can we completely write off the US market? Would it be better to focus on other regions? With regard to infrastructure investments, our answer is a clear no.
- The US cannot escape megatrends such as digitalization and the issue of energy supply security in the context of advancing electrification. These long-term trends go far beyond medium-term uncertainties that may be caused by individual administrations.
- Investors may wish to pause for a while and bide their time but should not write off the market. The US is set to remain a very large and attractive market in the long term, with anticipated GDP growth of 2.0% and a deep capital market.
- Given the realignment of US energy policy, project developers on renewable energy projects that have already been initiated now need to consider whether to try to complete projects faster so that they will be finished within the shorter deadlines. Energy policy will open up investment opportunities in the medium term, for instance in the field of LNG.

Sector coupling gains relevance: "Linking the megatrends of digitalization and decarbonization opens up major opportunities."

- The expansion and conversion of the entire energy system is closely linked to digitalization. Digital systems such as data centers require large amounts of energy. At the same time, energy grids must be digitally managed and made more flexible.
- Such sector coupling is becoming increasingly important. In the case of energy and transport, it's immediately obvious: the electrification of transport calls for a comprehensive system of charging points, which means that grids must have corresponding capacity. At the same time, modern electric vehicles such as passenger cars and buses can serve as battery storage devices, which in turn contribute to grid stability.
- Data centers are another example. They expand digital infrastructure, which requires a large amount of energy and high-performance grids, and simultaneously generate heat, which can be used locally.
- Sector coupling is an exciting field for private capital investment because multiple infrastructure sectors are addressed simultaneously. This allows for the combination of different risk-return profiles, which can help minimize risks in a portfolio context.

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Battery storage systems for the energy transition: “An attractive window for investment is opening up right now.”

- With volatile renewable energies accounting for a rapidly growing share of electricity production in Europe, the ongoing decommissioning of fossil fuel power plants and accompanying reduction in controllable production capacity, and increasing electrification (industry and transport), demand for battery energy storage systems (BESS) is rising.
- According to calculations by the Fraunhofer Institute for Solar Energy Systems, around 100 GWh of electrical storage capacity will be needed nationwide by 2030 and around 180 GWh by 2045. Large storage batteries currently have a total capacity of 3 GWh.
- Large storage batteries are on the rise in Germany:
    - While the market for PV energy storage systems is being driven by home-owners, institutional investors are mainly focusing on large batteries (> 1 MW), for which significant expansion is forecast in the next few years.
    - BESS in standardized 5 MWh containers are now widely used, with a trend toward more powerful plants, while manufacturers have cut technology costs substantially at the same time. This has significantly improved the planning, scaling and cost effectiveness of projects.
    - As stand-alone projects, battery storage systems help to smooth and reduce electricity prices and play an important part in ensuring grid stability through their participation in balancing energy markets. Additional revenue is generated through arbitrage between peak and low tariffs and the provision of grid services.
    - As co-location projects with large parks for renewable energy facilities, battery storage systems help to increase the cost effectiveness and flexibility of renewable energy projects, through optimized marketing of the electricity generated through power purchase agreements with increased supply security.
    - BESS are thus becoming a key component of the energy transition and an increasingly attractive area of investment.
- Regulation is noticeably boosting investment:
    - The 20-year exemption from grid fees for new BESS that become operational before 4 August 2029 lowers operating costs considerably.
    - The classification of BESS in the German Energy Industry Act (*Energiewirtschaftsgesetz*, EnWG) as infrastructure “of outstanding public interest” aims to speed up approvals for new facilities.
    - The energy storage strategy of the Federal Ministry for Economic Affairs and Climate Action aims to address obstacles to BESS and promote their further development.

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Find out more:

19 September 25

Palladio Partners and Voltfang launch battery storage system partnership

→ Press release

- BESS should be able to benefit from invitations to tender for reactive power due to be launched from this year, beginning with the transmission grid operator 50Hertz. The same applies to the market-based auctions held regularly by transmission grid operators since the beginning of 2024 to secure black start capability for the electricity grid in the event of a blackout.
- The planned capacity market that is expected to launch in 2028, on which secured power that has only been made available but not called up will also be remunerated, also opens up new earnings opportunities for BESS operators.

- Challenges
  - The current large number of grid connection requests for projects with a low likelihood of realization is leading to bottlenecks in capacity at grid operators. This can significantly delay the granting of grid connections for battery storage projects.
  - Even battery storage systems that serve the grid can exacerbate local grid bottlenecks, due to the current design of the electricity market. Location management through payment of construction cost subsidies to the grid operator and the possibility of designing projects as grid-neutral storage systems are under discussion. Grid-neutral storage systems would reduce discharges from battery storage systems during specific time slots.
  - The Federal Network Agency plans to revise the current exemption from grid fees so that grid fees will apply to storage systems. Details are expected to be announced at the end of 2026. The exemption until 4 August 2029 will remain in force and plants that have already received investment will be protected.
- An attractive window for investment is opening up right now. If you work with the right partner, have access to suitable projects and have the necessary expertise in securing grid connections, you will be particularly well placed to benefit from current market opportunities.

Zero-emission transport on the horizon: “Attractive prospects lead us to expect an increase in investment.”

- The transformation of road transport is in full swing. A structural change is emerging in road freight transport, driven by political pressure, technological advances and investment in infrastructure.
- The market share of “zero-emission trucks” (ZETs) is set to rise significantly in the medium term – current studies predict that transport will be completely emission-free from 2035.
- There are several key drivers of this development:
  - EU climate targets and CO_2 limits for fleets are forcing manufacturers to bring zero-emission drives to the market faster.
  - At the same time, costs for low-emission drives are falling, with intense competition accelerating the reduction in costs.

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- Investments are being made in the necessary infrastructure (even if infrastructure remains the biggest bottleneck and charging infrastructure is still inadequate).
- Large logistics contractors want to fulfill their customers' sustainability requirements.

- In particular, the leasing and rental sector, which already accounts for two-thirds of all new registrations, will make a significant contribution to the growth of the ZET market. There are three main reasons why it is expected to increase further in importance:
    - Costs and capital: High acquisition costs make leasing more attractive than ownership
    - Risk transfer: Residual value and resale risks in view of new technological developments are transferred
    - Fleet flexibility: Leasing allows the size of the fleet to be adjusted and prevents default risks
- We are already seeing large fleet operators (e.g. DHL, Schenker and Amazon) beginning to switch their truck fleets to lower-emission drive types. The main driver of this is the legal regulations on CO_2 reduction, which the transport sector in Germany has so far failed to comply with adequately. In addition, total operating costs for low-emission trucks are already comparable to those of traditional diesel trucks, even though acquisition costs for ZETs are currently still higher.
- The electric battery-powered truck sector in particular offers interesting prospects for infrastructure investors. As well as the financing of the actual rolling stock, this financing can be combined with investment in green energy production (e.g. solar PV projects on a carrier's roofs) and/or in charging infrastructure at the location. Integrated energy thus plays an important role here too.
- The market in Europe is currently still in the very early stages. However, attractive growth and return prospects in the sector give us reason to anticipate that infrastructure investors will invest more in attractive platforms in the coming years. The rail leasing market, which has grown rapidly over the last few years, partly due to the financial strength of international investors, offers a very good analogy. Investors' financial strength and wide-ranging infrastructure expertise can boost market growth in the zero-emission trucking sector on a lasting basis and further promote both vertical and horizontal integration (see integrated energy) at different stages of the value chain.

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The German government's special fund: "Public capital can boost private investment."

- There has been considerable debate in connection with the German government's special fund over which areas of infrastructure should be financed publicly, which should be financed privately, and which should be financed through a combination of the two.
- However, public funding can also encourage further private investment when used in a targeted way. One example is the energy transition in heating: the German government wants to expand geothermal energy. Private capital runs the risk that expensive drilling will not open up a geothermal reservoir of sufficient quantity or quality and therefore that pension capital, for example, will be wasted. If the government wishes to encourage private investment, a government stake in the risk, for instance through sureties or guarantees in the event that drilling is unsuccessful, is strongly recommended.
- Projects in the energy and infrastructure sector will need private partners, which means that the overall framework for private capital must be improved. Europe is driving forward the expansion of renewable energies and grid infrastructure on a massive scale with over EUR 1 trillion of investment in clean technologies by 2030. This offers significant potential for investors.

Disclaimer

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Palladio Partners is one of the leading investment boutiques for private markets.

An owner-managed specialist in the asset classes of infrastructure investments, private equity and private debt, it was founded in Frankfurt in 2012. Today, with its payroll of around 100 staff members, it has assets of approximately EUR 10 billion under management (including investment advisory mandates).

Palladio Partners administers its own funds and advises investors on realizing their individual investment strategies, offering access to attractive investment opportunities in Germany and globally.