Private investment in infrastructure

Introduction

This section presents data and analyses related to levels of private investment in infrastructure. Unless otherwise stated, the analyses refers to private sector investment in primary market projects financed by public as well as private financiers, including greenfield projects (new projects on undeveloped sites), brownfield projects (construction on previously developed sites, such as upgrades), and investment via the privatisation of public sector assets.

Compared with previous years' reports, the analyses draw on a bespoke new dataset developed in partnership with Realfin which has a more comprehensive coverage of transactions, particularly in developing markets. The new dataset almost doubles the value and number of transactions from previous *Infrastructure Monitor* reports.

With this additional coverage, the Realfin dataset represents the best available comparable data for global project-based private investment in infrastructure. However, it is still not exhaustive, so figures presented in this section underestimate the true levels of global private investment in infrastructure. In some sectors – notably renewables – global organisations have attempted in recent years to improve the availability and granularity of data; however, detailed data are generally not available for most infrastructure sectors.

Note the following:

i. The dataset focuses on project-based private investment and does not capture most corporate private investment in infrastructure, which may represent a significant portion of private investment in some infrastructure sectors. E.g. balance sheet financing is estimated to account for 70% of total private investment in renewable energy.

ii. Coverage of green, sustainable, and sustainability-linked bonds is limited, particularly as use-of-proceeds (intended and actual) are typically not reported and are difficult to identify as either primary or secondary investment.

The estimates in this report are best interpreted as indicative of the broad trends in the size and nature of private infrastructure investment.

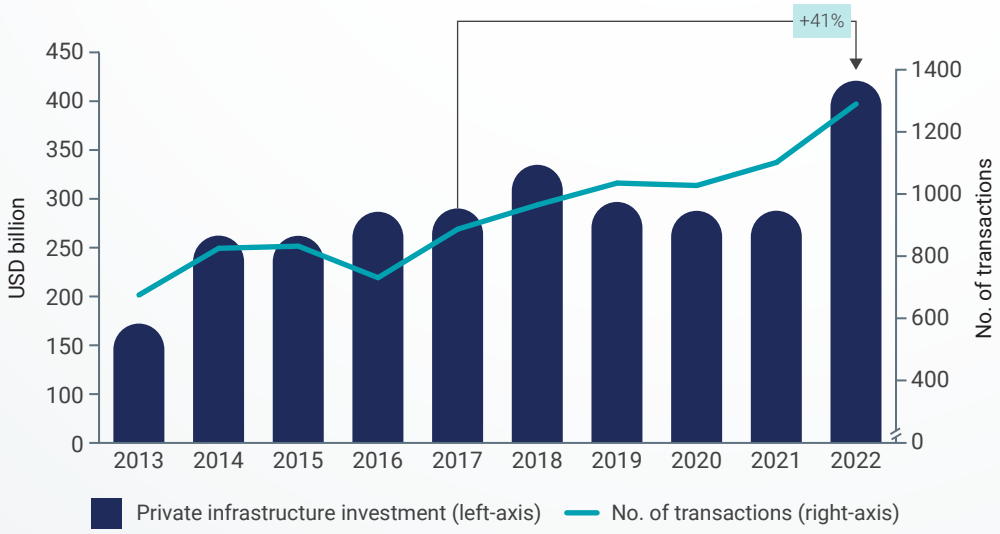
Key findings

- In 2022, after eight years of stagnation, private investment in infrastructure projects in primary markets increased significantly, with the number of transactions up 30% and the overall value 41% higher than the five-year average.
- The secondary market for infrastructure also performed strongly in 2022, driven by growth in acquisitions.
- In 2022, private infrastructure investment grew significantly in high-income groups. Middle-and low-income groups also saw an increase but only 6% above their five-year average. Disparity persists as high-income nations continue to attract a much larger share of global infrastructure private investment.
- While investment increased in all regions except Oceania in 2022, growth was particularly strong in North America and Western Europe where investment almost doubled.
- Investment growth in 2022 was led by the transport sector, with strong growth also seen in digital infrastructure and energy transmission.
- Private investment in infrastructure has experienced a post-COVID-19 recovery, with stronger growth in energy transmission and digital infrastructure pushing levels above their pre-pandemic averages.
- In 2022, private investment in non-green sectors showed stronger growth than renewables.
- There is a clear shift toward cleaner energy. While renewables have long been the preferred type of investment for energy generation in high-income countries, middle- and low-income countries are catching up.
- Solar is by far the most common type of energy generation across both income groups, but the energy mix varies.
- Private investment in infrastructure projects continues to be primarily debt-financed, and increasingly so.
- Sustainable financing is increasingly being used to finance private investment in infrastructure. In 2022, its use increased in both income groups, with North America and Western Europe still leading the way.
- In 2022, growth in private infrastructure investment was driven by banks, who continued to increase their role as financiers, as well as the public sector, whose share rose after years of decline.

In 2022, after eight years of stagnation, private investment in infrastructure projects in primary markets increased significantly, with the number of transactions up 30% and the overall value 41% higher than the five-year average.

Private investment in infrastructure projects in primary markets

(USD billion, number of transactions, and % growth in value compared to five-year average)



- In 2022, global private investment in infrastructure projects in primary markets increased by 46% to USD424 billion, ending an eight-year period of stagnation. Investment now sits well above pre-pandemic levels and is 41% higher than the past five-year average (2017–2021).
- Nevertheless, a single year of data is insufficient evidence to indicate a lasting shift in the trend. Also, if the prevailing macroeconomic conditions persist, or worsen, and interest rates remain elevated or continue to rise, the attractiveness of infrastructure investments may diminish, and infrastructure fundraising will continue to decline – as seen in 2023. This could impose constraints on investments in upcoming years.
- The number of transactions also continued to increase in 2022, rising by 18% to reach 1,293 transactions. However, with stronger growth in the value of infrastructure investment, the average transaction size increased overall in 2022, after three years of decline. This primarily reflects stronger investment in sectors with typically larger project sizes, notably transport and digital infrastructure.

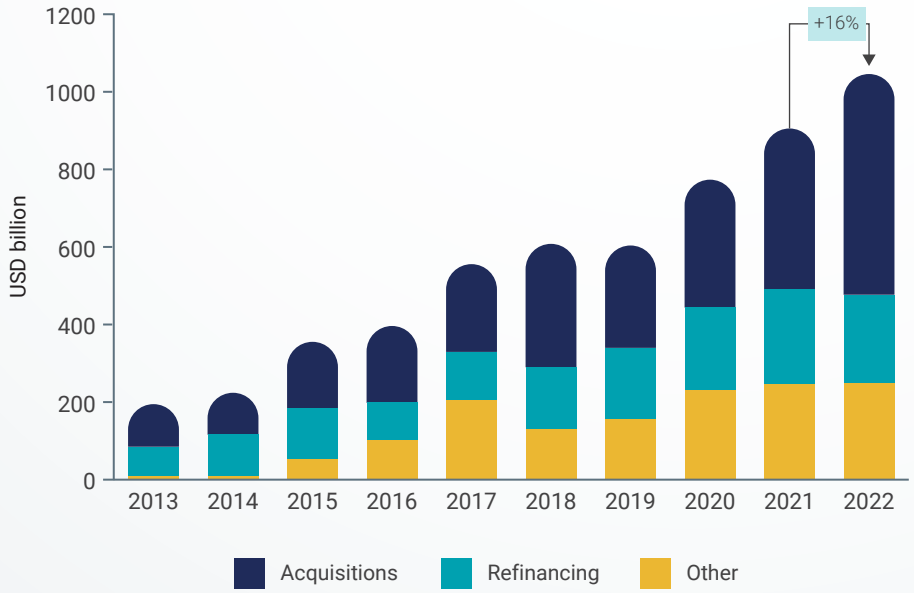
Source: Global Infrastructure Hub based on Realfin data.

Note: Throughout this report, 'private investment in infrastructure projects' refers to private sector investment in infrastructure projects in primary markets (financed by private and public financiers) including greenfield and brownfield infrastructure, as well as privatisations, unless otherwise specified. Investment values represent commitments made at the financial close of investment and not executed investment.

The secondary market for infrastructure also performed strongly in 2022, driven by growth in acquisitions.

Private investment in infrastructure projects in secondary markets

(USD billion)



- Secondary private investment in infrastructure projects rose by 16% in 2022 to USD1 trillion across 1,892 transactions, continuing the trend from the past decade. Total secondary investment in infrastructure projects is now 73% higher in value than the pre-pandemic level in 2019.
- Growth in 2022 was driven by an increase in acquisitions, which rose by 37% to USD569 billion, representing 54% of total secondary investment in infrastructure (the highest since 2013). Acquisition growth is likely to reflect several factors, such as an increasing attraction toward the safe haven of secondary markets amid heightened global uncertainty, and the potential hedge that infrastructure assets can offer against rising inflation.
- Meanwhile, refinancing fell in 2022 for the first time since 2016 (down by 6%). Fewer investors opted for refinancing due to increasing interest rates which would result in considerably higher interest costs compared to their existing obligations.

Source: Global Infrastructure Hub based on Realfin data.

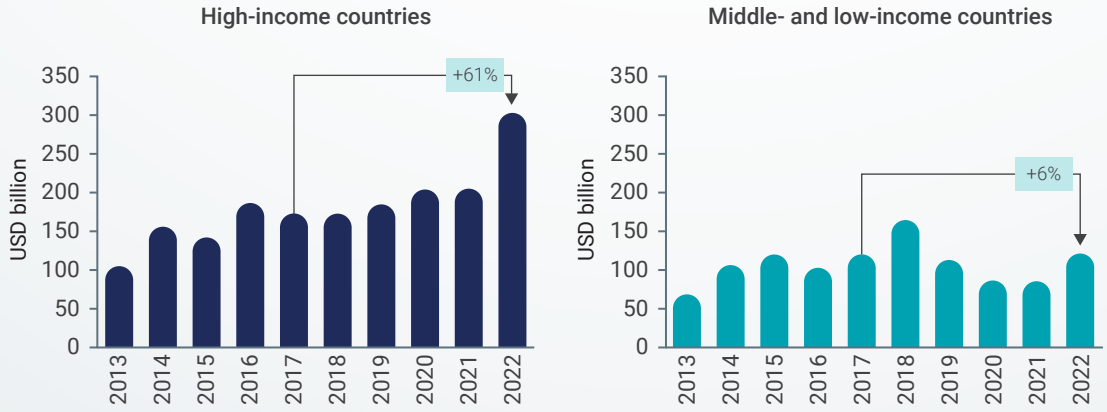
Note: 'Other' includes transactions such as securitisations and financing for infrastructure companies for general corporate purposes and ongoing operations.

In 2022, private infrastructure investment grew significantly in high-income groups. Middle- and low-income groups also saw an increase but only 6% above their five-year average. Disparity persists as high-income nations continue to attract a much larger share of global infrastructure private investment.

- In 2022, despite the multiple crises and shocks, private investment in infrastructure projects increased by 46% in high-income countries (HICs) and 42% in middle- and low-income countries (MLICs). Investment is now 61% higher than the past five-year average (2017-2021) in HICs and 6% in MLICs.
- Despite increases in both income groups, the gap between HICs and MLICs has notably widened since 2018. This continued in 2022, with HICs attracting 71% of global private investment in infrastructure projects while, even with a post-pandemic rebound, investment levels in MLICs lagged their pre-pandemic peak in 2018. Investment in MLICs comprises only about 40% of investment in HICs.
- This disparity is also evident on a share of GDP basis. In 2022, private investment in infrastructure projects represented 0.5% of GDP in HICs (the highest on record), and only 0.3% in MLICs. This highlights the urgency of channelling capital toward MLICs, particularly for sustainable infrastructure.

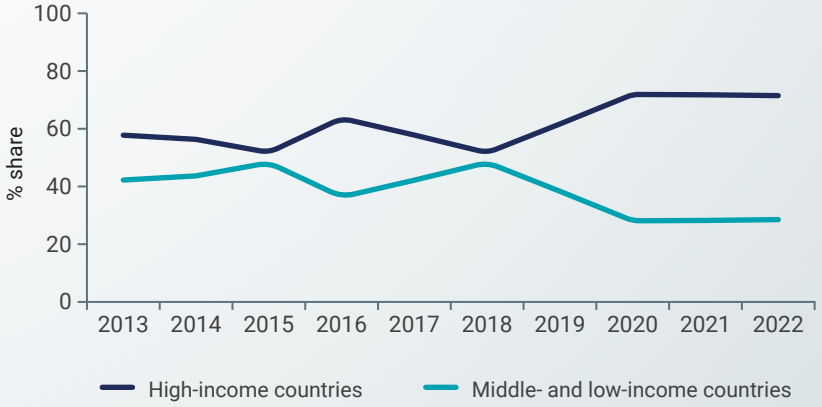
Private investment in infrastructure projects by income group

(USD billion and % growth compared to five-year average)



Private investment in infrastructure projects by income group

(% share of total value)



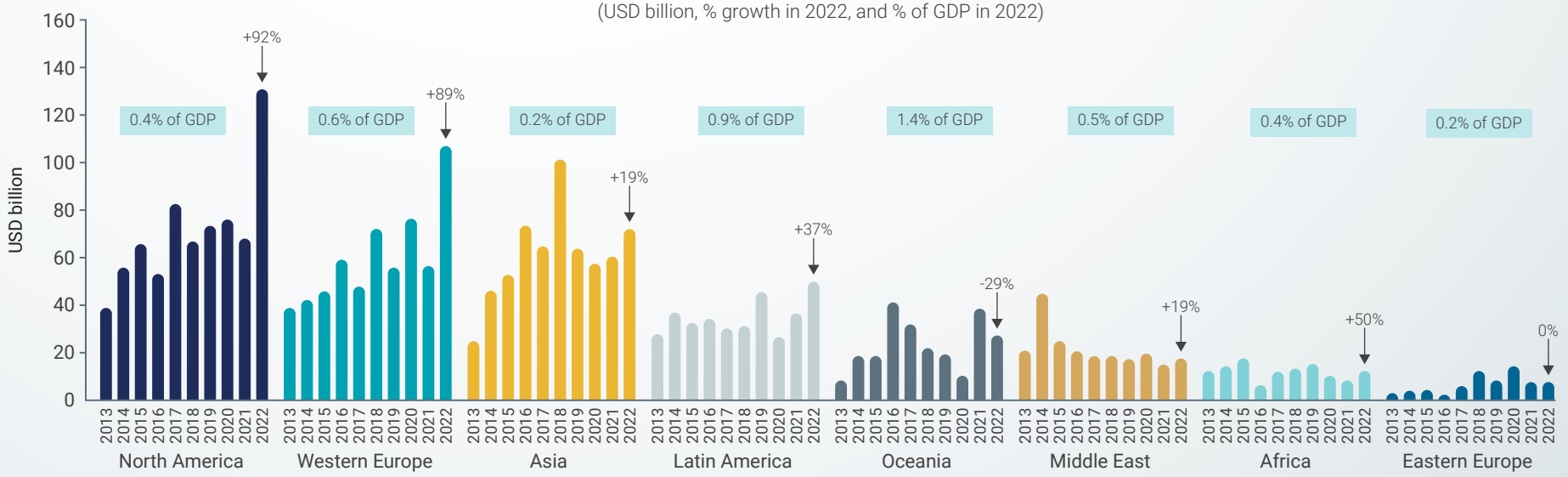
Source: Global Infrastructure Hub based on Realfin data.

While investment increased in all regions except Oceania in 2022, growth was particularly strong in North America and Western Europe where investment almost doubled.

- Prior to 2022, levels of private investment in infrastructure projects were broadly similar in North America, Western Europe, and Asia. However, this was not the case in 2022. While investment increased globally in all regions except Oceania, growth was particularly strong in North America (up by 92%) and Western Europe (up by 89%).
- In North America, growth was led by the transport sector with several large projects reaching financial close – notably airports in the US and light rail in Canada. This may be related to significant policy support for infrastructure by the current US administration, such as the *Infrastructure Investment and Jobs Act (2021)*, which opened up investment opportunities in the US.
- Meanwhile in Western Europe, growth was boosted by the continued rollout of fibre optic broadband networks, particularly in the UK, with investment in the digital infrastructure sector in Western Europe more than doubling (up by 151%) in 2022.
- Private investment in infrastructure continued its post-pandemic recovery in Asia and Latin America, increasing for the second consecutive year. The Middle East and Africa saw strong growth, albeit from low levels, to be broadly in line with their pre-pandemic averages. Investment in Eastern Europe was flat, with Poland emerging as the dominant country in the region after the onset of the Russia-Ukraine war in 2022, which brought investment to a standstill in Russia.

Private investment in infrastructure projects by region

(USD billion, % growth in 2022, and % of GDP in 2022)



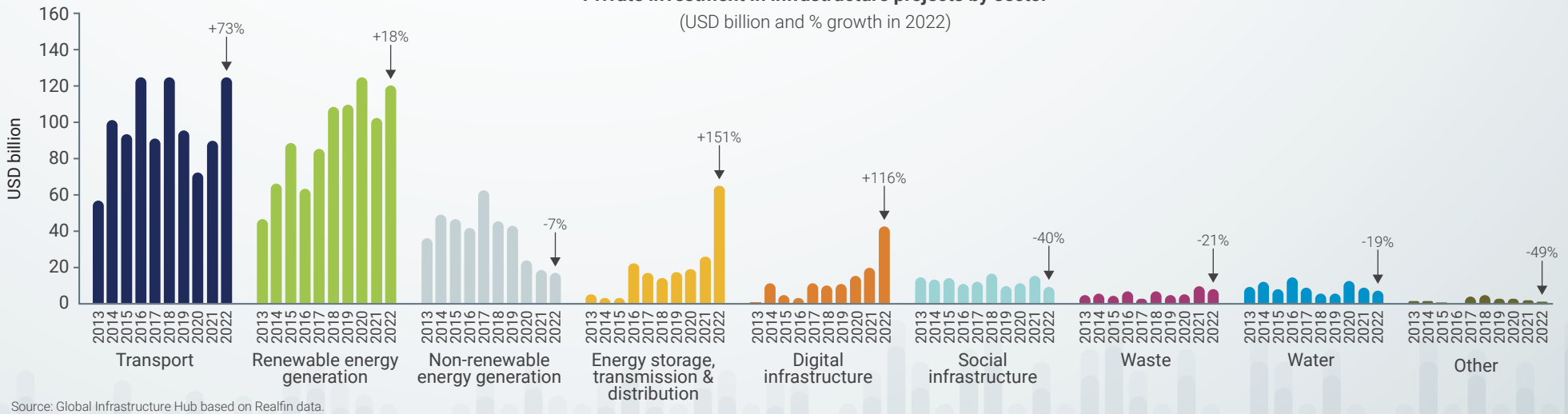
Source: Global Infrastructure Hub based on Realfin data.

Investment growth in 2022 was led by the transport sector, with strong growth also seen in digital infrastructure and energy transmission.

- Transport and renewable energy sectors typically dominate private investment in infrastructure projects, each attracting roughly a third of the total value of investment over the 10-year period from 2013 to 2022 (35% and 31%, respectively). While these two sectors continued to attract the most private investment in 2022, transport investment surpassed renewables investment for the first time since 2018. However, based on the number of projects, renewable energy continues to be the leading sector for private investment in infrastructure, accounting for 55% of all projects in 2022.
- While North America led the way with an almost sixfold increase in transport investment, the increase in transport was more widespread, with all regions except Oceania and Africa experiencing a rise. Asia saw the largest increase after North America, with transport investment more than doubling in 2022, largely reflecting a surge in investment in roads in India due to a favourable regulatory environment and the introduction of innovative structures such as the toll-operate-transfer (TOT) model. Even excluding the record levels of investment seen in airport and light rail projects in 2022 (as noted previously), investment in the transport sector – the most impacted sector during the COVID-19 pandemic – has now recovered to 2% above its pre-pandemic average (2017–2019).
- In the renewable energy sector, investment increased by 18% in 2022, with all regions except Asia and the Middle East recording a rise. Renewables investment in Asia increased for several years, but since 2020, has been declining. 2020 saw investment in some particularly large offshore wind projects in several Asian countries, such as South Korea, Taiwan, and Japan, which have since tapered out.
- Following a period of steady growth, the energy storage, transmission and distribution sector and the digital infrastructure sector saw growth skyrocket in 2022, albeit from low bases. Western Europe continues to dominate investment in digital infrastructure (90% of the sector's total investment in 2022), while transmission projects in both Western Europe and North America supported growth in the energy storage, transmission and distribution sector. Notwithstanding the surge in grid investment in 2022, total energy sector investment has remained at relatively stable levels since 2017. In a positive sign, non-renewable private investment declined for the fifth consecutive year, highlighting the continued shift in investor preferences toward cleaner energy.
- Social infrastructure, waste, water, and other sectors continue to attract the lowest levels of private investment, all of which declined in 2022.

Private investment in infrastructure projects by sector

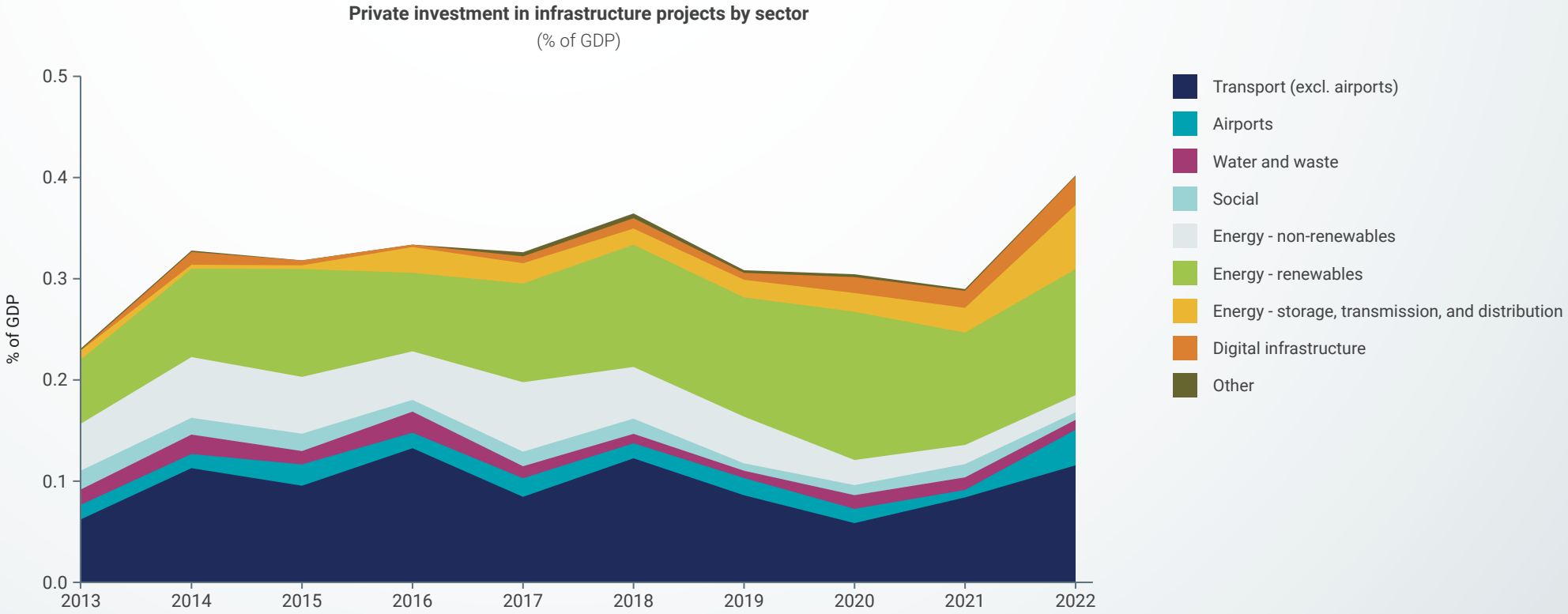
(USD billion and % growth in 2022)



Source: Global Infrastructure Hub based on Realfin data.

Note: 'Other' includes environment and infrastructure (general) sectors.

Private investment in infrastructure has experienced a post-COVID-19 recovery, with stronger growth in energy transmission and digital infrastructure pushing levels above their pre-pandemic averages.



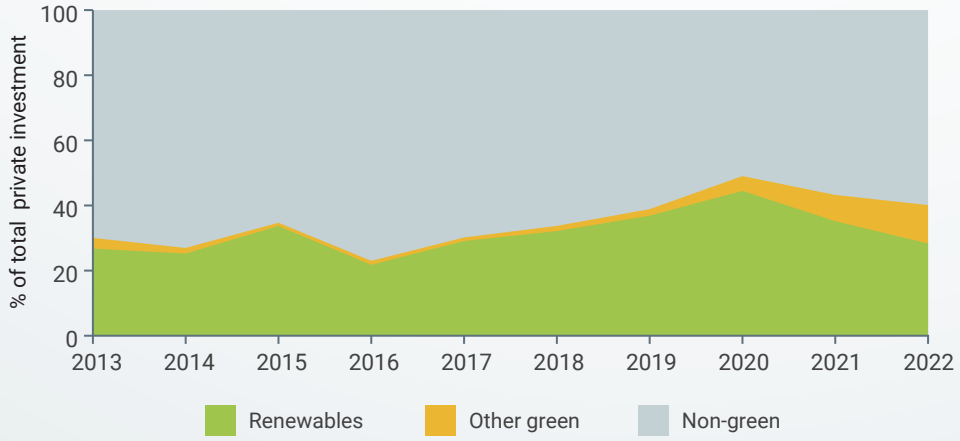
Source: Global Infrastructure Hub based on Realfin data.
Note: 'Other' includes environment and infrastructure (general) sectors.

In 2022, private investment in non-green sectors showed stronger growth than renewables.

- Overall, the share of green private investment in infrastructure has increased since 2016 in alignment with the global clean energy transition and driven by the demand for renewables. However, this share of green private investment has been declining since its peak in 2020, when it was particularly high due to continued strong investment in renewables during the COVID-19 pandemic, while investment in non-green sectors – most notably transport – was heavily impacted and saw a significant drop. Transport investment has since recovered, with only 6% considered green in 2022.
- While green investment typically represents renewable energy generation projects, in 2022, growth in sectors outside of renewables (Other Green) outpaced that of renewables. This primarily reflects growth in energy transmission and battery storage projects. Non-green investment also grew significantly in 2022 (54%), outpacing total green investment growth (35%).
- While non-green investment increased in both HICs and MLICs in 2022, growth in HICs (64%) outpaced that in MLICs (38%). HICs also led the growth in Other Green investment, accounting for 90% of the increase in 2022, mostly in energy transmission and storage projects.
- On a regional basis, investment in North America and Western Europe has been the greenest over the past five years, averaging 51% and 50% of their total private investment in infrastructure from 2018 to 2022. In 2022, these two regions continued to account for the majority of green private investment (37% in North America and 27% in Western Europe). 2022 also saw Africa and Eastern Europe experience a significant surge in green investment, reaching 74% and 70% respectively of total private infrastructure investment in those regions. In contrast, green private investment in Asia has been on a sharp decline since the COVID-19 pandemic, with an increasing focus on transport, and declining investment in renewables. While its share of green private investment fell to 13% in 2022, Asia is still the third largest destination for green private investment, behind North America and Western Europe.

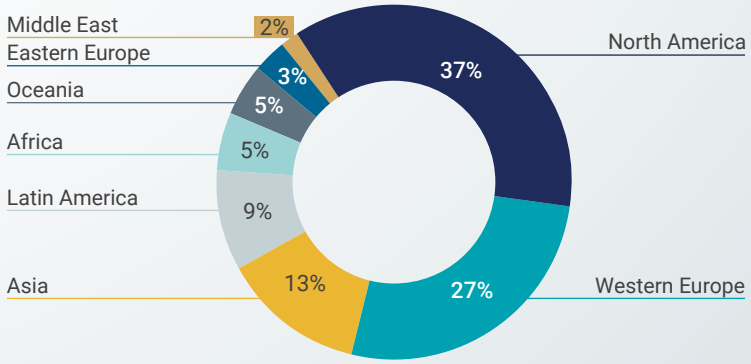
Green and non-green private investment in infrastructure projects

(% of total private investment in infrastructure projects)



Green private investment in infrastructure by region

(% of total green investment, 2022)



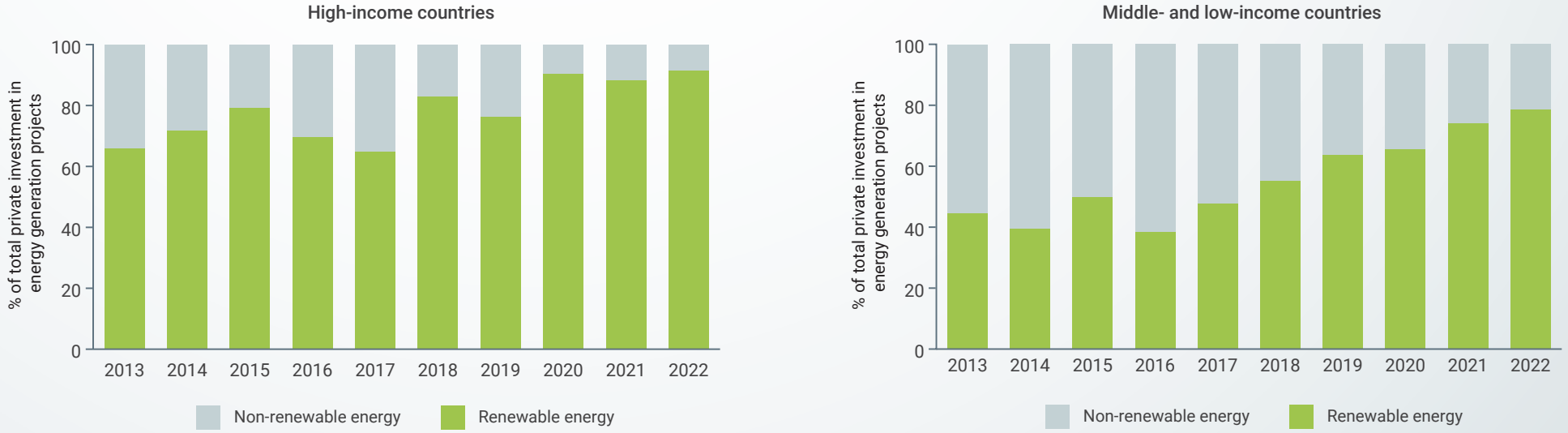
Source: Global Infrastructure Hub based on Realfin data.

There is a clear shift toward cleaner energy. While renewables have long been the preferred type of investment for energy generation in high-income countries, middle-and low-income countries are catching up.

- Globally, the trend away from non-renewable energy generation continued in 2022, as noted previously, with non-renewables representing only 12% of total private investment in energy generation in 2022, compared with 44% a decade ago (2013). However, it is discouraging that new investment in non-renewable energy generation persists, even in high-income countries (where it represented 9% of total energy generation investment in 2022).
- Encouragingly, in middle- and low-income countries, the share of renewables in energy generation projects has been notably increasing since 2016 and continued to do so in 2022, reaching 79% of total energy generation investment.

Private investment in non-renewables and renewables, by income group

(% of total private investment in energy generation projects)



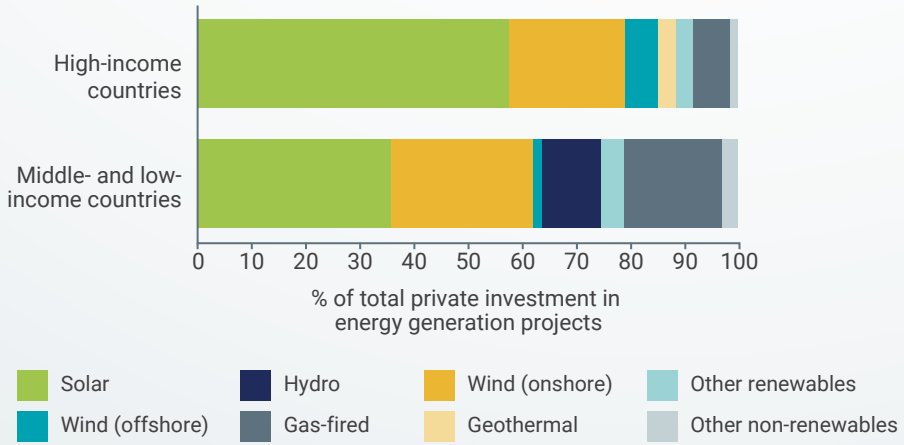
Source: Global Infrastructure Hub based on Realfin data.

Solar is by far the most common type of energy generation across both income groups, but the energy mix varies.

- Among energy generation projects, solar is the most preferred type of energy for private investors. This is true for both HICs and MLICs, although it is relatively more dominant in HICs, where it represented 58% of total energy generation investment in 2022 (compared with 36% in MLICs). Following solar, wind energy (both onshore and offshore) attracted relatively similar shares of energy generation projects in both income groups (27% in HICS and 28% in MLICs). The attractiveness of wind and solar is consistent with significant cost reductions in clean energy technology over the past decade. According to the IEA (2023), the costs of key clean energy technologies – solar PV, wind, heat pumps, and batteries – fell by almost 80% between 2010 and 2022.
- MLICs also have a notably higher share of energy generation investment in both gas-fired power plants and hydropower. While investment in coal-fired power plants saw a steep decline from 38% of total energy generation projects in 2016 to virtually zero in 2022, this was not the case for gas. The share of gas-fired power plants remains at about 18% – on par with the 10-year average.

Private investment in energy generation projects by income group

(% of total private investment in energy generation projects, 2022)



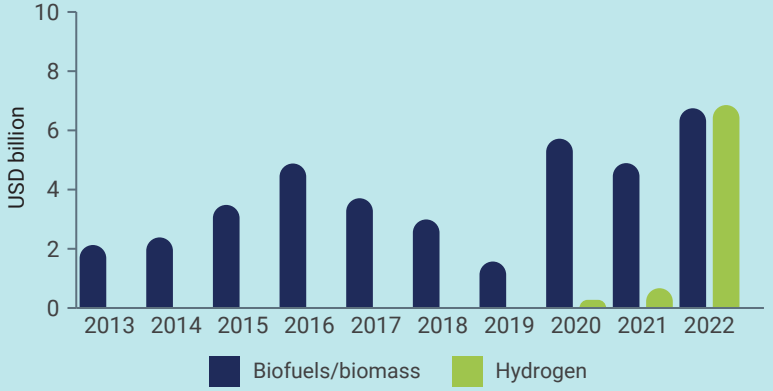
Source: Global Infrastructure Hub based on Realfin data.

Fuel production

While production of both conventional (such as oil and gas) and alternative fuels (such as biofuels and hydrogen) are excluded from estimates of private investment in infrastructure as they are not considered within the GI Hub's definition of infrastructure, such data are still captured. The data show that while biofuels have attracted private investors throughout the past decade, investment in the past three years (2020–2022) has been elevated – at levels almost double (92%) the average of the preceding seven years (2013–2019). Private investment in hydrogen also emerged strongly in 2022, and early data for 2023 indicate that this trend will continue and strengthen.

Private investment in alternative fuel projects

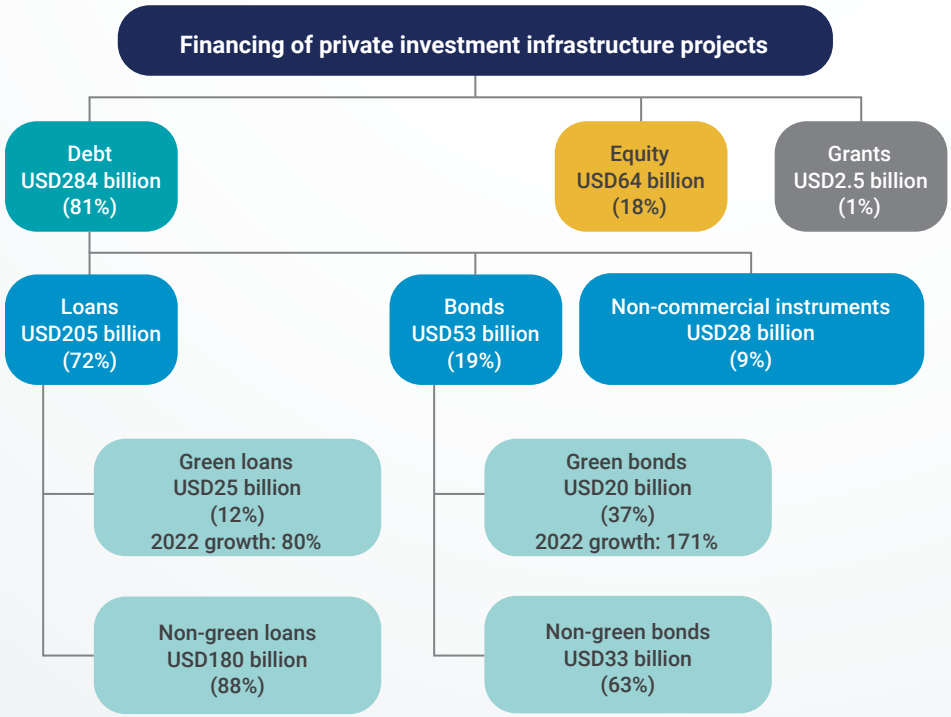
(USD billion)



Private investment in infrastructure projects continues to be primarily debt-financed, and increasingly so.

Financing of private investment in infrastructure projects by instrument

(USD billion and % of total value, 2022)



Source: Global Infrastructure Hub based on Realfin data.

Note: Includes only transactions for which instrument details are available. In this analysis, sustainability-linked bonds are included in the green bonds category.

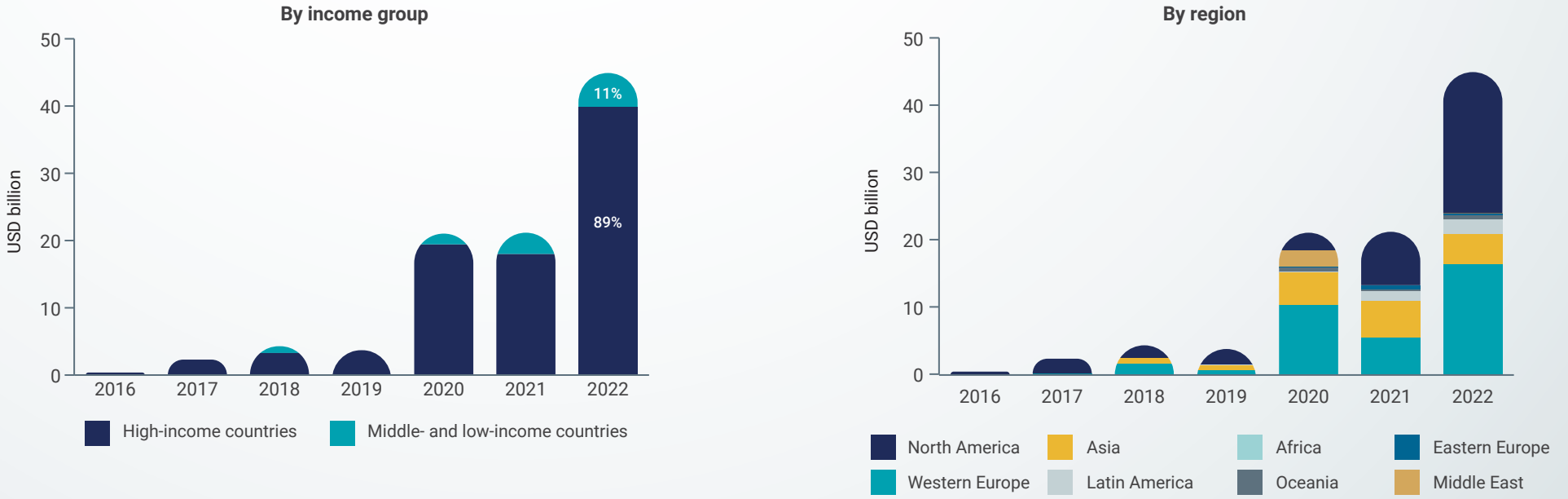
- In 2022, the share of debt financing of private investment in infrastructure projects continued its trend, increasing from 63% in 2016 to 81% in 2022. This increase has been most apparent in Western Europe, where the share increased from 63% in 2016 to 86% in 2022.
- Within debt financing, the use of loans dominates. Moreover, sustainable instruments, primarily green bonds and green loans, continue to grow strongly. In 2022, 13% of the total financing of private investment in infrastructure projects was through either green bonds or green loans.
- Note that there are several challenges related to data on green bond issuances, particularly around the use-of-proceeds:
  i. Green bond data generally do not indicate whether proceeds are being earmarked for primary or secondary purposes.
  ii. Data on actual use-of-proceeds are extremely limited. However, anecdotal evidence suggests that some green bonds are used to refinance existing assets rather than to finance new assets (CPI/IRENA, 2020).

Sustainable financing is increasingly being used to finance private investment in infrastructure. In 2022, its use increased in both income groups, with North America and Western Europe still leading the way.

- While most sustainable financing of private investment in infrastructure projects occurs in HICs (89%), its use increased in both HICs and MLICs in 2022. Growth in MLICs was almost entirely driven by Brazil, while the US led growth in HICs. Nevertheless, sustainable financing still represents a relatively small portion of the overall market (13% of the total value of private investment in infrastructure).
- Sustainable financing continues to grow in prevalence in more regions, with its use expanding in five out of eight regions in 2022. However, North America and Western Europe remain the clear leaders, accounting for 83% of all sustainable financing in 2022.

Sustainable financing of private investment in infrastructure projects

(USD billion)



Source: Global Infrastructure Hub based on Realfin data.

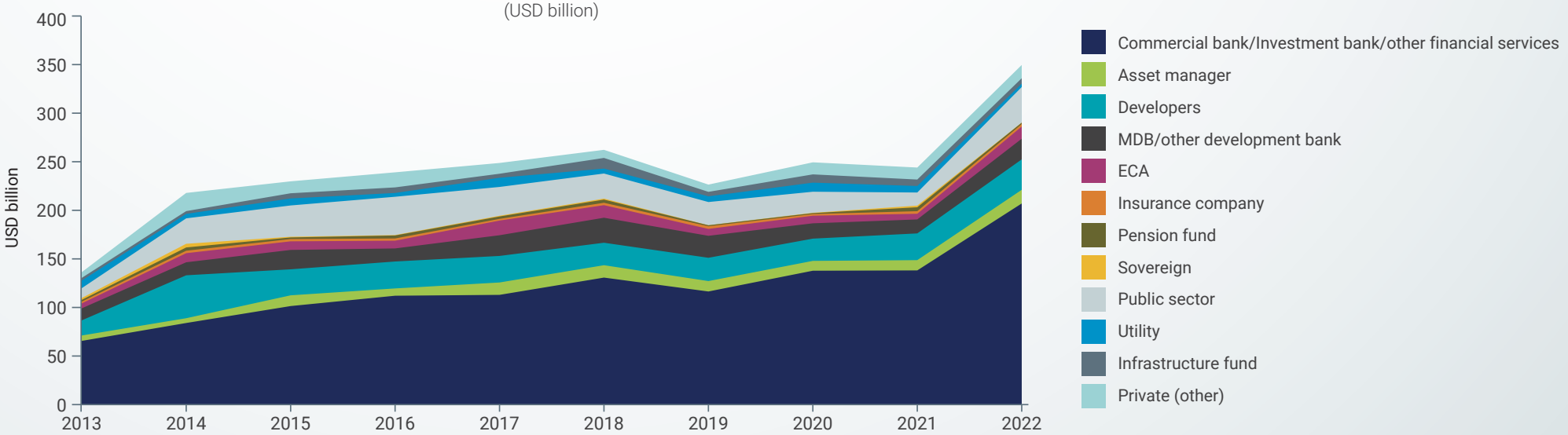
Note: Includes only transactions for which instrument details are available.

Growth in private infrastructure investment in 2022 was driven by banks, who continued to increase their role as financiers, as well as the public sector, whose share rose after years of decline.

- In 2022, financial service institutions – primarily commercial and investment banks – increased their share of financing of private investment in infrastructure projects to 59%. This continued the trend of the past decade, which saw their share increase steadily from 48% in 2013.
- While banks are the most prominent financier type in both HICs and MLICs, their dominance is more pronounced in HICs, accounting for 66% of total financing in 2022, compared with only 38% in MLICs. Projects in MLICs rely more on financing from public institutions. E.g., in 2022, a third of projects in these countries involved an MDB or other development institution as a financier, accounting for around 15% of total financing of private investment in infrastructure.
- Notably, the share of financing contributed by the public sector – which includes government agencies and state-owned entities and banks – increased from 6% to 10% in 2022 after a period of decline since 2016. This may reflect the heavy involvement of state-owned banks such as the State Bank of India and Union Bank of India, in several Indian highway public-private partnerships (PPPs) in 2022.

Financing of private investment in infrastructure projects by financier

(USD billion)



Source: Global Infrastructure Hub based on Realfin data.

Notes: 1. ECA = Export Credit Agency, MDB = Multilateral Development Bank, Developers = Developer / Engineering procurement / Construction firm, Asset Manager = Asset managers, fund managers, and private equity firms. 2. 'Other development bank' includes bilateral development institutions, national development banks, and other development institutions not included within MDBs. 3. 'Other financial services' includes institutions such as financial advisory firms and hedge funds, and excludes insurance companies, pension funds, and asset managers, which are included as their own category for the purpose of this analysis. Analysis excludes transactions for which financier details are not available

The graph is based on an average of 82% of primary infrastructure transactions, given that data for financiers was not available for all the transactions.