



IMPACT REPORT

August 2024

INFRASTRUCTURE FUNDS AT A GLANCE

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GLOSSARY & SYMBOLS

If you are a fund investor

and would like to have a live demo of the Phenix Capital Impact Database, please visit www.phenixcapitalgroup.com/impact-database and register your interest.

If you are an impact fund manager

and would like to be considered for listing on the Phenix Capital Impact Database please email sales@phenixcapitalgroup.com. Listing is free of charge.



ABOUT PHENIX CAPITAL

CATALYSING INSTITUTIONAL CAPITAL TOWARDS THE SDGS

Phenix Capital Group is an impact investment consultant that enables institutional investors to make impact investments.

We assist asset owners and asset managers in aligning their investments with their values, financial objectives, and the Sustainable Development Goals.

www.phenixcapitalgroup.com

Our Vision

We envision a world in which institutional capital helps to end poverty, protect the planet and ensure prosperity for all

Our Mission

Our mission is to enable and catalyse institutional investments that realise financial, social and environmental returns

What we do

To achieve our mission, we enable institutional investors to allocate capital to impact investments through our Events & Webinars, Impact Databases, Impact Fund Assessment.

Signatory of:



ABOUT IMPACT DATABASE

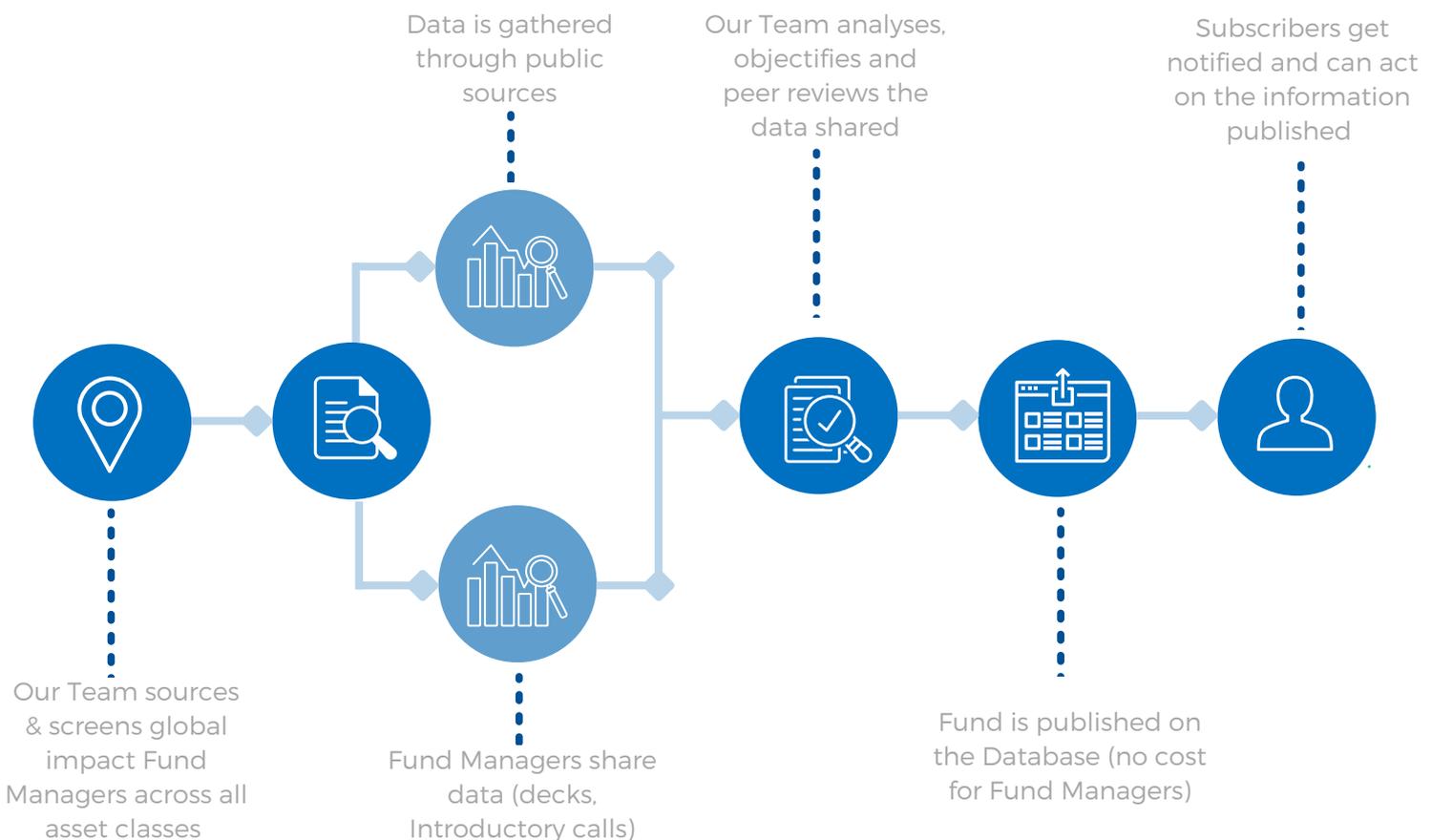
Phenix Capital's mission is to enable the allocation of capital from institutional investors towards social and environmental solutions while supporting the 2030 Sustainable Development Goals (SDGs). With the Impact Database, Phenix Capital aims to provide investors with access to and intelligence on the impact fund market opportunities available to them.

Three main variables have been central to construct, monitor and update the database: **funds considered have an impact proposition, institutional scale, and target market-rate returns.**

Impact Investing goes beyond negative screening and using Environmental, Social and Governance (ESG) integration to reduce harm or avoid risks, to generating intentional positive impact. Phenix Capital defines impact investing as **investing with the dual mandate of financial return and positive societal or environmental impacts**, with the notion of measuring the positive and negative impact of investments, ensuring both **intentionality and additionality** among these.

Phenix Capital's Impact Database features funds that align with this definition through their creation of solutions for global social and environmental issues, whilst prioritising financial returns. This category of impact investments can be referred to as **financial-first impact investments.**

FUND SOURCING PROCESS



INTRODUCTION



A global inflation-stricken economy combined with El Niño amplifying what made 2023 become the hottest year on record, saw some governments scaling back on infrastructure investments and reprioritising climate resilience.

For many countries, infrastructure, which is typically seen as a hedge against inflation, remains the solution to long term growth, as concluded by the UK's National Infrastructure Commission's second [National Infrastructure Assessment](#) released in October 2023.

So, while the infrastructure market in general is facing headwinds and making fundraising challenging, infrastructure impact funds, which aim to give investors both returns and social and/or environmental impact, have grown in both number and assets since the last Phenix Capital [Infrastructure Impact Fund Report in 2023](#).

Year on year, the number of infrastructure funds grew by 10.9% from 322 funds, although the full calendar year growth for 2023 was 2%. And, since inception of the database in 2015, the number of infrastructure funds has grown by almost 208%.

Part of the driver for the growth in infrastructure as an impact asset class is that infrastructure development plays a key role in achieving nearly all of the UN's Sustainable Development Goals (SDGs) with some [72% of the SDG targets](#) linked to infrastructure development.

That said, while infrastructure is essential to underpin sustainable development, the greatest need is still in the developing world, where there are 65 funds with this regional focus, while the majority of the impact funds in the Phenix Capital database, 251 funds equivalent to 72%, have a developed market focus. The split is the same as a year ago, where 81% of the funds had a global and developed market focus.

Clean Water and Sanitation (SDG6), Affordable & Clean Energy (SDG7), and Industry, Innovation & Infrastructure (SDG9) are the main goals related to infrastructure. Looking at the report, however, in addition to the top two goals by number of funds, namely SDG7 and SDG9, Sustainable Cities & Communities (SDG11) and Climate Action (SDG13) are core themes for funds.

For investors, in addition to SDG11, infrastructure investing in Responsible Consumption & Production (SDG12) is also priority. Beyond the energy transition and renewables, water, and transport, the social and wellbeing impact of infrastructure is important as a driver of economic growth.

While the transition to net zero is driving infrastructure investing in some countries, such as Malaysia's [green infrastructure plans](#) and Singapore's [climate resilience policy](#), the cost of living crisis in others [such as the UK](#) has stymied the drive to go green.



Post pandemic, a number of initiatives such as Europe's [Sustainable and Resilient Infrastructure](#) and the US Inflation Reduction Act (IRA), were created to provide the stimulus for impact-focused infrastructure investing.

IRA, for example, went some way to allow pension funds to increase their investments in climate solutions, especially urban and infrastructure investments, by bolstering tax incentives for [renewable energy and other climate solutions](#).

More specifically, IRA gave the US Department of Agriculture (USDA) resources to increase access to lower-cost clean energy, and climate-smart agriculture and conservation while creating good paying jobs, so ticking the Decent Work & Economic Growth (SDG8) box.

In 2023, USDA made \$13.2 billion available to build electrification infrastructure that would give clean, affordable and reliable energy to communities in rural America.

IRA's schemes have also allowed the creation of projects on \$500 million or more that are larger and more appropriate for subnational pension fund investments.

Moreover, the tax-exempt nature of pension funds in the US had meant they were penalised as developers preferred private investors that could capitalise on the tax credits, making the project "cheaper" to finance. While upfront subsidies did not reduce the risk of projects, they have helped to make the risk profile more attractive by lowering the investment cost.

It is clear that infrastructure is key to a well-functioning society and economy. Today, however, climate-related disasters can lead to widespread infrastructure failure and damage, which disproportionately impacts developing countries, making climate resilient infrastructure planning and decision-making now an essential part of governments' duty.

Economic losses from such disasters increased sevenfold between the 1970s and the 2010s from \$198 billion to \$1.6 trillion. Infrastructure assets make up an important share of this economic damage, according to the [OECD](#). To meet climate and development objectives by 2030, an annual investment of \$6.9 trillion in sustainable infrastructure is needed globally.

Key Takeaways

- 208% growth in number of infrastructure impact funds since 2015
- 21% growth in number of open infrastructure funds
- 72% of the funds focus on developed market infrastructure
- 91% growth in target assets open for investment
- 39% of infrastructure funds open for investment
- 82% of the funds have a global or developed market focus
- 75% growth in planned infrastructure fund launches compared to 2023
- 60% growth in number of funds targeting Climate Action (SDG13)

IMPACT THEMES MAPPED AGAINST THE SDGS



The Phenix Capital Group has mapped the SDGs against Impact Themes, which are based on **the most globally endorsed terms used by practitioners in the financial sector** and what's used by generally accepted frameworks, to enable both fund managers and fund allocators to better **understand how the SDGs and it's sub-goals translate into outcome-based investment areas** - by the name that they are commonly known and referred to in the financial industry.

Mapped against the SDGs' sub-goals, our Impact Themes offer a comprehensive way for investors and fund managers in the financial industry to identify what social or environmental outcome is generated by an impact investment and its contribution to the Sustainable Development Goals.

THE REVAMPED IMPACT THEMES ARE ALREADY AVAILABLE IN OUR IMPACT DATABASE FOR FUND FILTERING, VIA THE FUND SEARCH FUNCTION.

BE PART OF THE IMPACT REPORT

Every month Phenix Capital Group publishes a new Impact Report, bringing up-to-date data on impact investments and interviews with impact fund managers and investors from the field.

PAST REPORTS INCLUDE:



See all Impact Reports on our website, visit: <https://phenixcapitalgroup.com/impact-report>

WOULD YOU LIKE TO BE FEATURED IN THE NEXT EDITION?

Featured interviews are carefully chosen taking into consideration the theme from the month and the expertise of the person to be interviewed, besides the company where he or she works.

Talk to our team about opportunities to be featured. Upcoming report topics include:

MONTH	REPORT THEME
September 2024	SDGs/ Investor report
October 2024	Real Estate
November 2024	Gender Lens
December 2024	Public Equity

Contact us to learn more about how to be featured in our reports.

INFRASTRUCTURE

FUNDS OVERVIEW

357

Infrastructure Funds
mapped on Impact
Database

174

Fund Managers on
Impact Database with
Infrastructure strategy

137

Open for investment
Infrastructure funds

113

Organisations with open for
investment Infrastructure
funds

€150bn

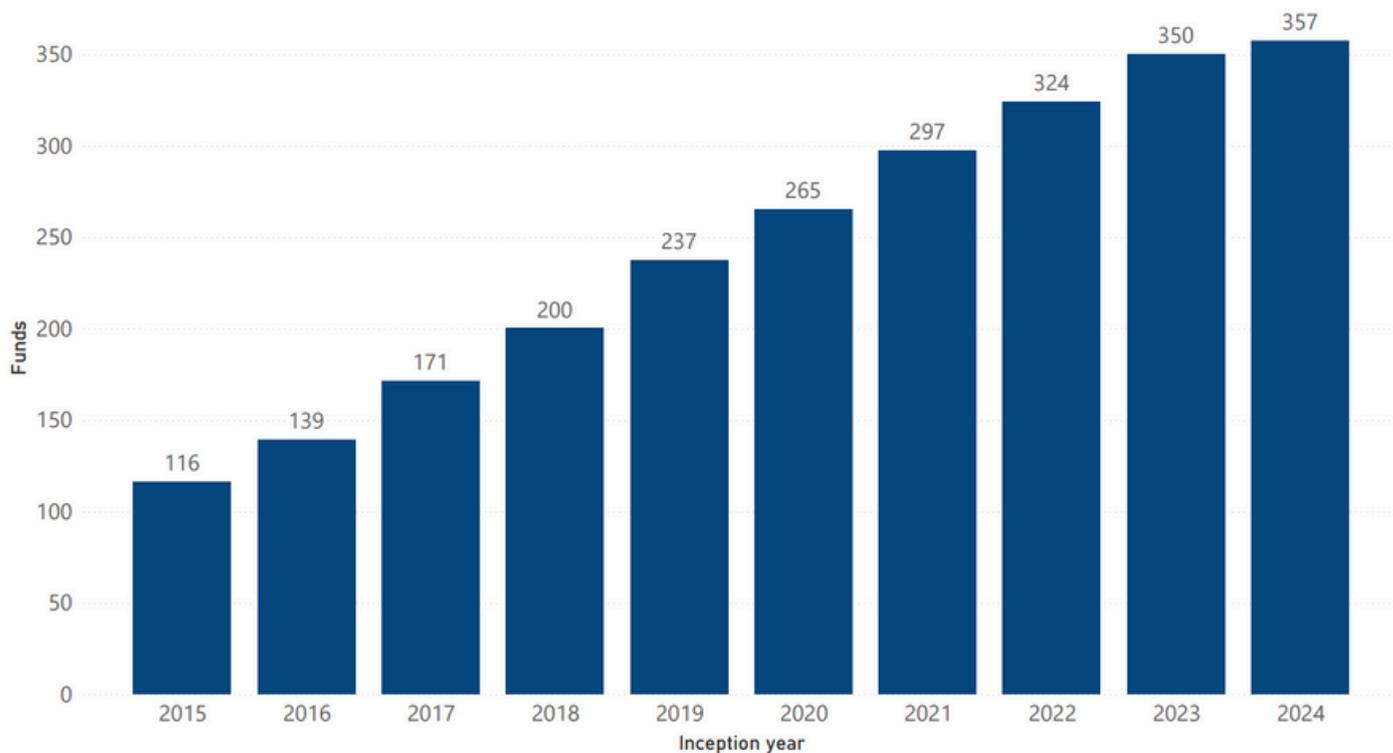
Total capital raised
towards Infrastructure
funds

€111bn

Total target size of open
for investment funds

DATA OVERVIEW

Cumulative Number of Infrastructure Funds



Since 2015, the cumulative number of funds focusing on infrastructure impact investing has grown by almost 208%.

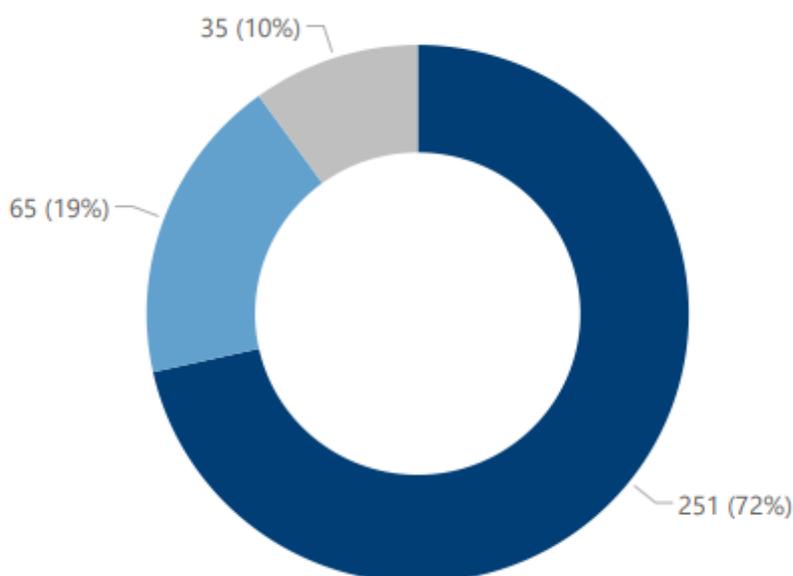
At the time of last year's report there were 322 infrastructure impact funds in the database, making the year-on-year growth almost 11%, but for the full calendar year 2023, the total growth in number of funds was just 2%.

What is more telling is the number of impact managers with infrastructure strategies. This has grown by 9.4% to total 174 managers.

The target size of assets for the funds that are open for investment has grown from €58 billion to €111 billion, representing a growth rate of 91.4%. The capital raised for impact investing since last year has grown by 11% to reach €150 billion.

Geographically, 72% of the infrastructure impact funds have a developed market focus, while another 10% have a global remit. Only 19% have an emerging market focus, on a par with 2023.

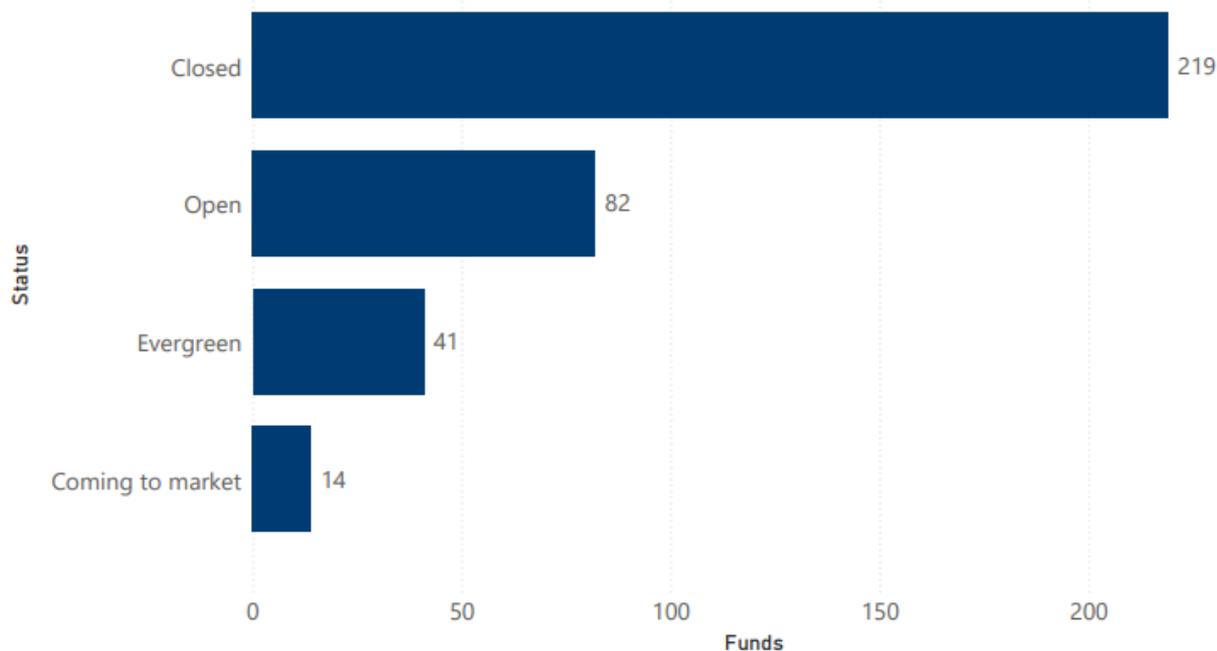
Infrastructure Funds by Market



Market ● Developed markets ● Emerging markets ● Global

DATA OVERVIEW

Infrastructure Funds by Status



In terms of funds by status, 62% of the infrastructure impact funds in the database are closed to investment, which compares to 66% this time last year. Compared to 2023, the 219 closed funds, represent a growth of 3.3% in number of vehicles that are not accepting new assets. Compared to the previous year, however, there are 20.6% more funds open to infrastructure investors. Nearly 39% of all the infrastructure funds, equivalent to 137 funds, are open.

There are currently 113 investment firms with open funds, making up 65% of the total number of infrastructure managers. The number of investment firms with open funds has grown by nearly 27%. Compared to 2023, the number of evergreen funds has grown by nearly 21% to 41 funds, while the number of new funds coming to market has grown by 75% since 2023 with 14 new launches planned.

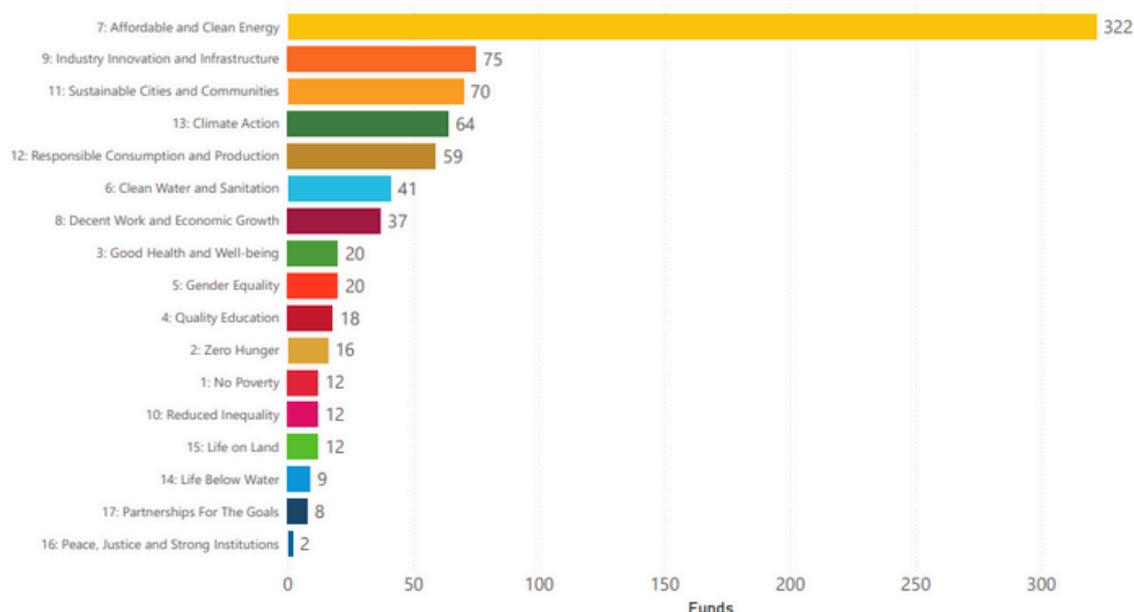
Among the planned/new launches are Alexforbes Investments' [AF Infrastructure Impact Fund-of-Funds](#) that will be providing clients with exposure to a long-term inflation-beating asset class that also addresses South Africa's critical infrastructure needs. The fund set to close at year end, is targeting a fund size of Rand 5 billion (€252 million). Projects will encompass renewable energy (such as solar and wind) and essential infrastructure (including roads, railways and public health facilities). The new launch is taking advantage of the [National Treasury's announcement](#) permitting South African retirement funds to invest up to 45% in infrastructure.

The second fund comes from BNP Paribas. The BNP Paribas Climate Impact Infrastructure Debt, which will be managed by BNPP AM's Private Assets division, has been launched to finance climate change mitigation. BNP Paribas Climate Impact Infrastructure Debt, which is structured as a Luxembourg Reserved Alternative Investment Fund and classified as Article 9 under SFDR, is targeting €500 million to €750 million from institutional investors.

The strategy will support energy transition projects that focus on renewable energy, clean mobility and the circular economy, including new sectors such as batteries, hydrogen and carbon capture. Three investments have already been secured for the fund, with financing for a low-carbon energy producer, a green-sourced district heating platform and a portfolio of onshore wind farms.

DATA OVERVIEW

SDGs Targeted by Infrastructure Funds



The European Green Deal and the US Inflation Reduction Act continues to drive investments into infrastructure impact funds, with the majority focusing on renewable energy and the energy transition through SDG7: Affordable and Clean Energy.

There are 322 funds focusing on SDG7, which represents a growth in number of 12% since last year. Industry, Innovation & Infrastructure (SDG9) and Sustainable Cities and Communities (SDG11) continue to hold the second and third slots in terms of SDGs targeted by infrastructure funds with 75 and 70 funds and a growth rate in number of 21% and 23%, respectively, compared to 2023.

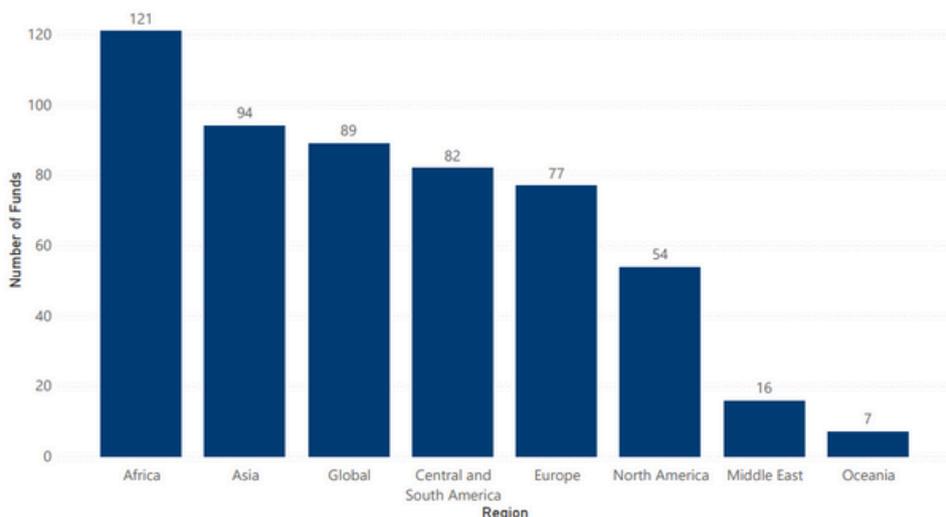
Where the change has been interesting is Climate Action (SDG13), which has seen a growth of 60% in the number of infrastructure funds targeting it, taking it from 5th position to 4th for 2024. Responsible Consumption & Production (SDG12) the previous 4th place incumbent has seen a growth of 7% to reach 59 funds in 2024, taking 5th place.

Despite the fact that global and developed market infrastructure funds make up the majority of the funds in the database, 121 funds have a focus on Africa, making it the most popular continent and emerging market for this asset class.

This month's interview, Frontier Energy, discusses in detail how they can truly make an impact in the African energy infrastructure market.

Asia follows in second place with 94 funds. Singapore has issued its [climate action plan](#) on top of its public sector infrastructure focus that will see an issuance of up to \$35 billion of green bonds by 2030 to finance projects, including new electric rail lines.

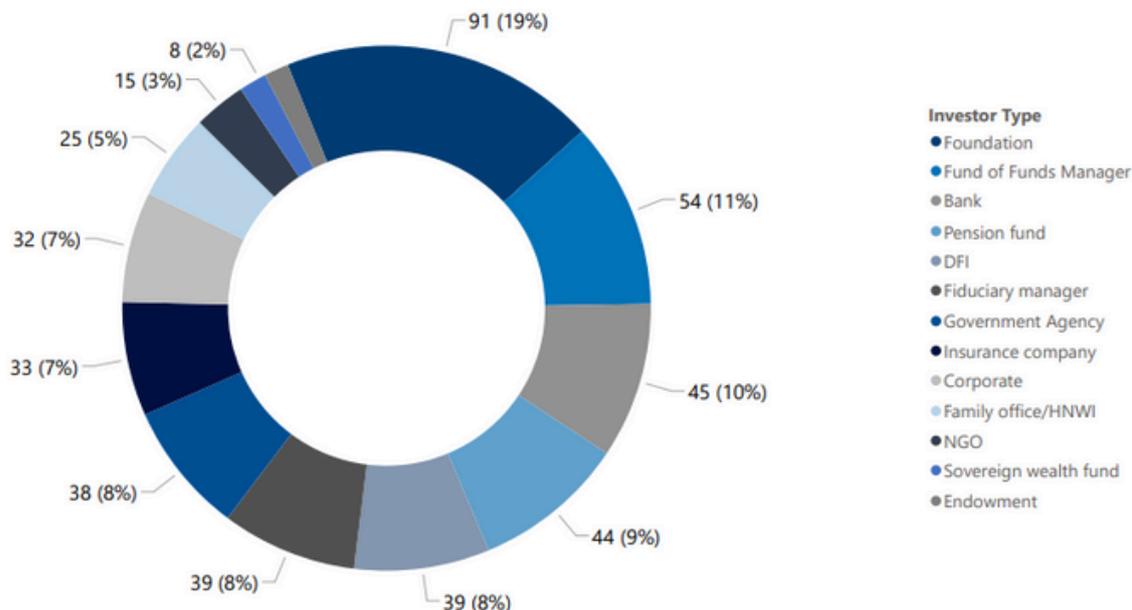
Number of Infrastructure Funds per Region Targeted



*Data may overlap as funds can target several asset classes, SDGs and/or regions.

DATA OVERVIEW

Investors by Type with Investments in Infrastructure Funds



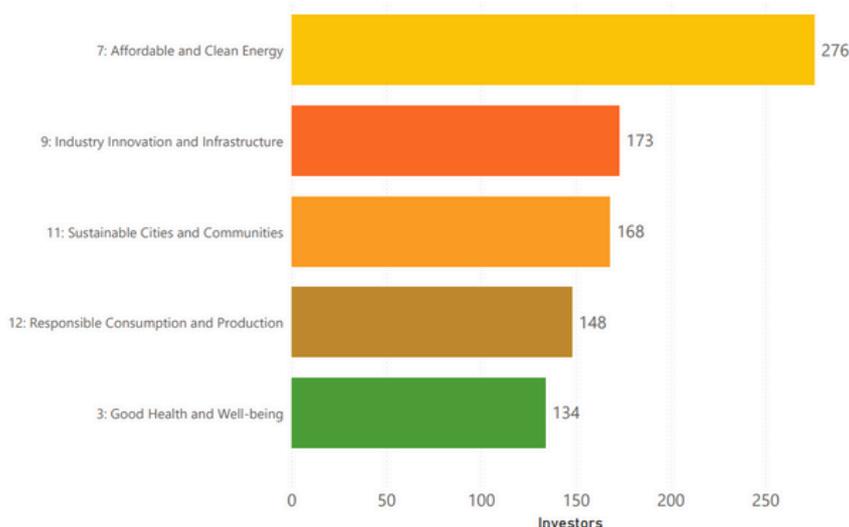
*Data may overlap as funds can target several asset classes, SDGs and/or regions.

Foundations currently make up the largest investor segment investing in infrastructure funds with 91 foundations making up 19% of the 463-strong institutional investor base. There has been a 203% growth in the number of foundations focusing on infrastructure funds since last year's report. Funds of funds continue to be the second largest investor group making up 11% of the allocators. There has been a 69% growth rate in the number of funds of funds allocating. Banks and pension funds come 3rd and 4th making up 11% and 10% of the total investor base. Compared to 2023, pension funds allocating to infrastructure have dropped from 69 to 44. The growth rate in investor types reflects the growth in the number of investors now participating in the database.

Most targeted SDGs by Infrastructure Investors

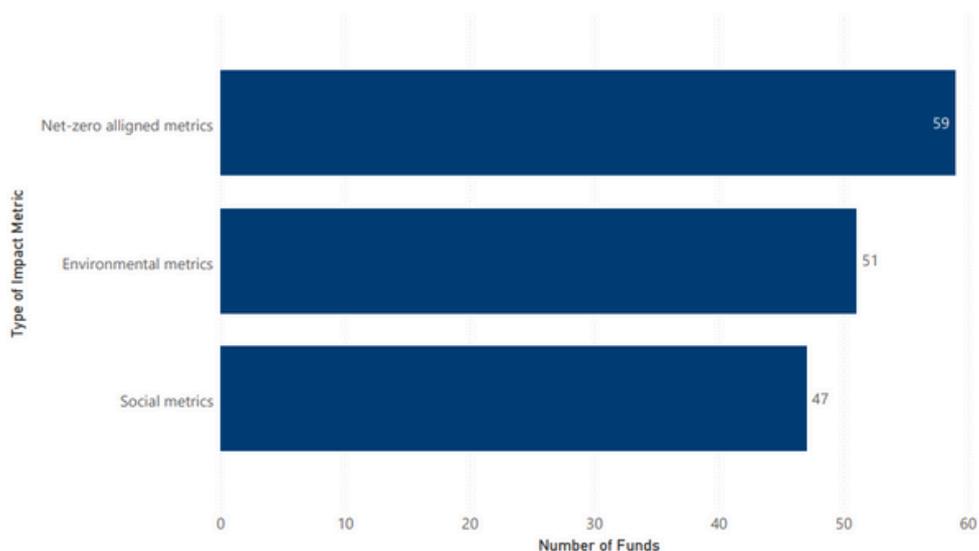
The top three SDGs favoured by investors in 2024 mirror the SDGs targeted by the funds, with the number of funds discernibly less than in 2023. SDG7 saw a drop of 9.5% in the number of funds, while SDG9 and SDG11 saw drops of 16% and 43%, respectively.

Good Health & Wellbeing (SDG3) continues to occupy the 5th place. What is interesting is that Responsible Consumption & Production (SDG12) is favoured in 4th place in 2024, where as in the previous year this slot was filled by Zero Hunger (SDG2).

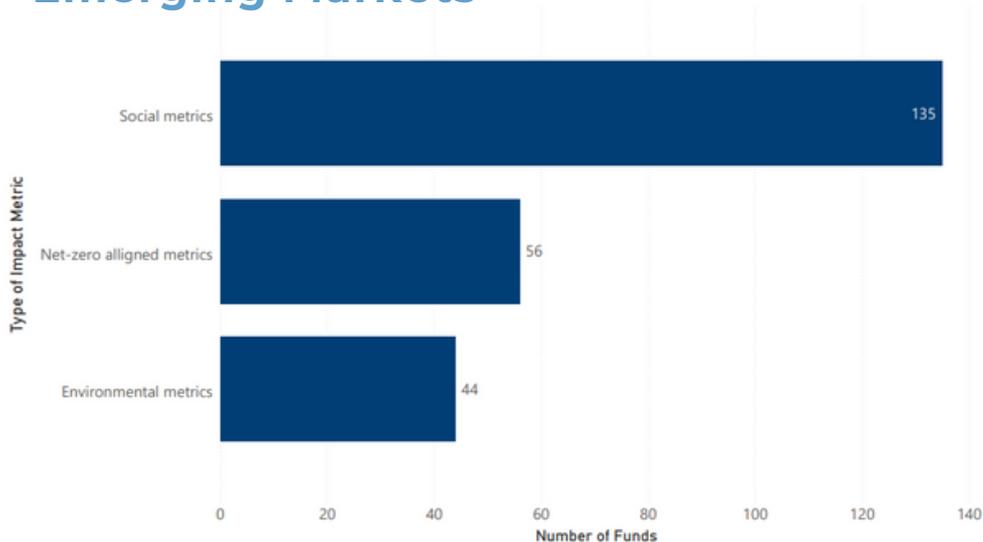


DATA OVERVIEW

Number of Infrastructure Funds per Type of Impact Metrics - Developed and Global Markets



Number of Infrastructure Funds per Type of Impact Metrics - Emerging Markets



It is always interesting to compare the priorities between global and developed markets and the emerging markets as reflected in the impact metrics selected. Net-Zero aligned metrics are the priority for 59 funds focused on the developed and global markets, compared to 56 in the emerging markets. But where the real disparity is obvious is in the social metrics.

Social impact metrics are a powerful tool to help to address pressing challenges in the emerging markets such as poverty, education, inequality. The profile of Frontier Energy offers some interesting insights into how certain issues can only be addressed when looking at the problem from a different point of view/gender.

In the emerging markets 135 infrastructure funds prioritise this impact metric, while just 47 funds have this as a priority in the developed and global markets focused funds. Environment metrics are prevalent in 51 developed and global market funds, compared to 44 for emerging market funds.



Anders Hauch Co-Founder, Frontier Energy

With close to \$300 million in assets under management, Copenhagen-headquartered Frontier Energy has spent the last 15 years building a leading investment platform for African renewable energy. Anders Hauch, one of five Danish co-founders, talks about the idea, the journey and the future for Frontier Energy.

Anders is Co-Founder and part of the executive management group of Frontier Energy. He focuses on investments, investor relations and fundraising. Prior to co-founding Frontier Energy in 2011, Anders had worked two years for a technology start-up, two years as CEO of an internet start-up, and 10 years with business development in Africa, Latin America and Russia as partner in the international consultancy division of the Confederation of Danish Industries. He holds a M.Sc. International Business from Copenhagen Business School and has lived in China, India and Kenya.

How was the renewable energy in Africa fund idea born?

My fellow co-founders, Lars Tejlgaard and Daniel Schultz, and I had worked together since the early 00's when all three of us independent of each other in 2007 got the idea of establishing an investment fund to make a bigger difference for Africa than what we were already doing.

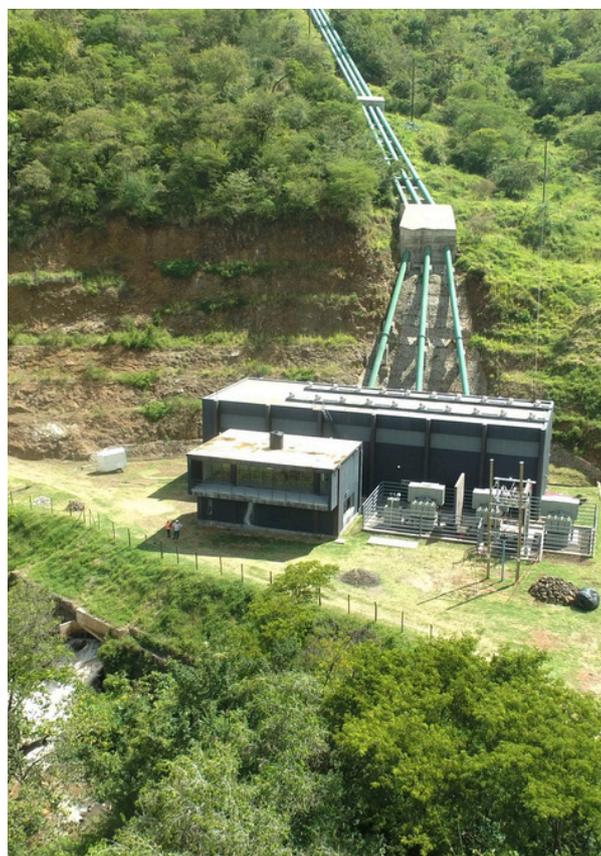
We were all three partners in a 50-person consultancy under the largest employers' association in Denmark, the Confederation of Danish Industries, where we helped Danish companies investing and doing business in emerging markets. We covered a wide range of countries from the large BRIC's, where we had offices, to the smaller developing countries in the global south.

We also helped global south business associations getting better at improving the business environment in their countries, using the long experience of our larger organisation in Denmark. Funded by companies paying for our assistance and public money from the likes of the World Bank and the Danish government, we worked at the intersection of public and private capital.

Working in the smaller global south countries, two things stood out. Companies from developed countries focused more on the large BRIC countries, paying less attention to the smaller global south countries. Doing business was hampered greatly by inadequate supply of electricity, which when available would be of poor quality and expensive. Middle Africa – south of Sahara and north of South Africa – was particularly finding itself in this situation. The global business and investment world was hardly paying any attention to this part of Africa.

But this has changed now. For a start, there is increased focus on Africa for geopolitical reasons, driven by the West's conflict with Russia and strained relationship with China, which is now seen much more as a competitor than a partner. There is also an understanding that immigration from Africa will only grow exponentially if the continent does not develop and any increased risk of conflict on the continent is likely to impact Europe in particular, a lot.

But, perhaps more importantly, there has been a renewed realisation that Africa is a continent of immense resources. From essential raw materials to the green transition that China has been dominating, alternative manufacturing locations; a supply of agricultural products; great vacation destinations; and a huge surplus of young people that are likely to be a lifeline as many developed countries find themselves with a rapidly aging population and not enough young people entering our workforce.



Back to 2007, before the general realisation of Africa's future global role, Lars, Daniel and myself were tired of the half-hearted interest in Africa from large parts of the Danish business environment and not feeling our work left a real lasting impact in Africa. We wanted to make a difference, and we believed in the power of commercial business interests bringing real change to developing countries. Particularly if done with respect for people and planet.

The poor electricity supply we had experienced for many years in Africa made this sector an obvious focus for us. With climate change topping the agenda in 2007 and renewables actually being competitive with fossil fuel power in Africa, we conceived the idea of a renewable energy fund.

After four years and the 2007-09 financial crisis, the idea was finally born, with the help of the Confederation of Danish Industries as a founding father. We had raised \$70 million for our first fund from the Danish and British development finance institutions (DFIs), which most developed countries have established to provide capital to commercial investments in developing countries.

We also secured capital from a public-private vehicle, GEEREF, managed by the European Investment Bank, and from three Danish pension and insurance companies. We then spun out from the Confederation of Danish Industries, who still supports us today, and holds a small interest in our setup.

Along the way, we also picked up two great people who joined us as co-founders. Kim Gredsted, who was working for the Danish DFI as head of Southern Africa and had a prior background as M&A lawyer; and Gert Skov, an experienced engineer who had been on the contractor side responsible for building large plants in emerging markets. Both were equipped with highly important skills for what we set out to do.



Six years', in connection with our second fund, we were joined by a sixth partner, Kwame Partner, who had long experience from power and infrastructure financing in the US and Africa.

Is renewable energy competitive in Africa?

Absolutely. It was then and it is now. Even more now. Middle Africa's problem was that its countries' relatively small energy grids – which are largely unconnected – did not allow for the very large gigawatt coal and other fossil fuel power plants that had driven the power grids for decades in developed countries. Their transmission network would not be able to transmit such high volume of power nationwide. Moreover, they typically would have also had to build port facilities, with some countries actually landlocked. This made just the cost of importing fuel prohibitive.

When we started, hydropower and wind energy was already competitive. Africa already utilised hydropower and had enormous unused additional hydropower potential. Wind is not strong everywhere on the continent, but plenty of countries have locations with very strong and stable wind conditions. Solar PV power was way too expensive in 2007, but now it is beating the cost of any other renewable energy resource – except of course when the sun has gone down or it is raining. Hence the need for a mix of generation technologies and storage.

A common drawback with all the renewable technologies is their intermittency. The generation pattern will never match the demand one to one. In developed countries we solve this problem with peaker power plants, which run during periods of high demand for electricity to balance the grid. These power plants are turned on when required.

In Africa, however, they shut down supply to consumers when there is not enough power. Hence, the continent had to invest in fossil power plants, to match the gap between demand and renewable power supply.



Today this is changing. Battery storage has become competitive and can, for the most part, bridge the gap between renewable supply and demand particularly for daily up to weekly storage requirements. For longer storage, existing reservoir hydropower and new pumped hydropower is competitive. As a business, we are getting into both types of storage now.

The other side, where the competitiveness of renewables wins, is with the traditional use of energy. In vast parts of Africa kerosene lamps are used in the evening and unclean water is boiled using charcoal or firewood. While sometimes free, firewood can take many hours a day to collect and is often the work of women and children.

We do not supply household solar power systems nor do we work with grid extensions; we leave this to others and several countries in Africa have been successful in expanding the grid.

Kenya is an example of a country that has increased access to electricity from 32% in 2013 to 84% now. Households that turn to electricity experience a significant improvement in livelihood. Health improves when particles from kerosene lamps and firewood, which is a source of respiratory diseases and burn accidents, is removed. The ability to do school work and chores in the evening is also a game changer. The 'clean' electricity we provide ends up being cheaper than kerosene and firewood and frees up many tiring hours previously spent collecting firewood.

Africa is even starting to see a rapid change in transportation, where there is currently a boom of activity in electric two-wheelers; a common transportation method in Africa that is much cheaper even without subsidies. Lately, we have also seen a change in urban areas from cooking with gas to electric induction stoves. All of this means an increased demand for electricity.

How did you find good projects to invest in?

From the beginning we established ourselves as both a developer (of renewable energy sources) and an investor. In Europe and many other countries, investors can invest in renewable energy projects developed by specialised developers. In Africa, that was not the case. The sector had just opened up for private investments in the generation sector in the first few countries in Africa. More countries have followed since. Hence, there were almost no developers around and the few that we found did not know what was required to make projects bankable. So, we needed be our own developer and for this to be viable, we needed to be on the ground.



Our fund and fund management company were established in Denmark under Danish/European regulation to give investors the comfort of proper rules and no use of harmful tax structures. The first thing we did, however, was to establish an operational headquarter in Nairobi, Kenya, and move two of the founders, Lars and Daniel, to work from there. The rest of us followed and we have been taking turns as the founders to live there.

By this point, we had three employees in Denmark and another 25 key employees in Africa, in addition to the five founders. The employees are mainly located in Nairobi but also in our other countries of operation: Uganda, Rwanda, Tanzania, Malawi, Zambia, Mozambique, and Sierra Leone. Of the employees, there are a few international profiles, but mostly local people, two of which have become partners. We can find many strong local hires and our aim is to build a team consisting mainly of African nationals. This in itself has an impact.

“OUR INVESTMENT APPROACH IS TO DEVELOP BY OURSELVES OR, IF WE JOIN EXISTING VENTURES, TO ENGAGE HEAVILY IN THE DEVELOPMENT.”

We do this to ensure the projects are bankable and meet our environmental and social requirements, which follows the high standard established by the IFC Performance Standards. These typically set the bar higher than local legislation. We also personally engage in the construction and operation phase of every project to ensure successful implementation.

But the bottom line for all our investments is that we build renewable power plants that have long term off-take agreements – power purchase agreements (PPAs) – with either large solid corporations or state electricity utilities. For the latter, it is important that they are backed by government agreements that protect us against changes in tax regimes; law; and the default of the utility off-taker. The PPAs have a fixed tariff in US dollars for 20 to 25 years, securing a steady cashflow with solid risk mitigation.

Depending on the stability of the country, we sometimes take political risk insurance with the World Bank or in the private insurance market. That said, the historic default rate on debt to infrastructure in Africa is not higher than other continents. In fact, we think the combination of 20–25-year contracted power price in US dollars and strong government-backed contracts is a really strong proposition compared to renewable energy in developed countries. When it comes to returns on investment, it is about twice as high as renewable energy in developed countries because competition for assets is much lower.

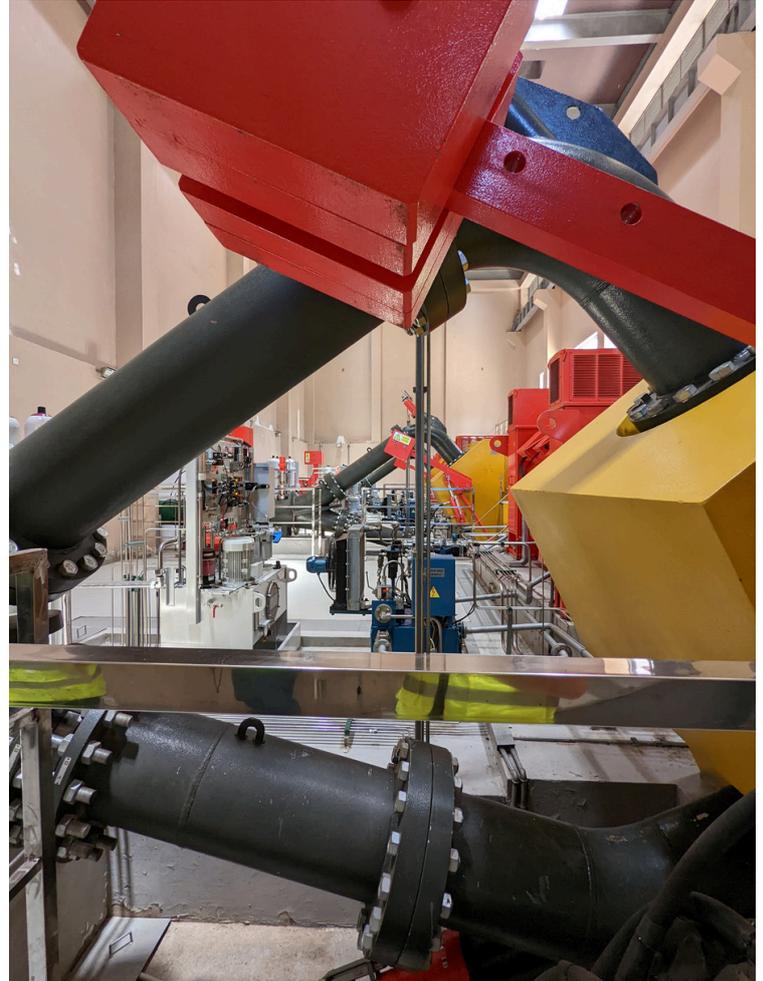
How did you move beyond the first fund and what's next?

Our first fund was small raising \$70 million and our investors in many ways saw it as a pilot fund. Maybe they also wanted to see if we could pull it off. After all, as a team, we came with no industry or investment experience, only many years working in Africa as well as a passion for bringing renewable affordable energy to Africa.

We started with a blank sheet of paper in a newly opened industry. After three and a half years, we started constructing our first plant; a hydropower plant in Uganda. After six years, the fund was fully committed and we were constructing five hydropower plants across Uganda and Rwanda. We also had a large portfolio of projects under development, some of which were close to construction, but no more capital to finance the construction. With that success and supportive investors, we established our second fund in 2017.

At that time, we had caught the attention of other DFIs, some of whom had been lenders to our projects. Eight of the European DFIs invested in our second fund together with two large foundations, a Dutch listed fund, two large European insurance companies with Allianz Insurance being the largest investor we have ever worked with. We also had five HNWI investors who we had met in various ways but never targeted in our fundraising. For the second fund, we ended up with a total commitment of \$227 million, which was a record for a dedicated renewable investment fund for Africa.

We used our second fund to roll over our excess development portfolio and started construction on a 96MW solar PV project in Kenya after three and a half months. This shows the power of the rolling fund model in infrastructure, where excess development projects can be rolled into a successor fund after the end of a fund's investment period, which is typically in year five of 10-year fund life.



Today, we have almost completed 10 projects through our second fund. There are another four hydropower projects in Uganda; a 5MW hydropower in Zimbabwe; a 96MW and a 20MW solar PV project in Kenya; a 50MW solar PV project in four locations in Sierra Leone; and our first wind project of 50MW in Kenya, of which six projects are in operation and the remaining are under construction. When completed, we will have constructed 270MW of renewable energy in Africa across our two funds.

Next step for us is to raise our third greenfield renewable fund, which is scheduled for 2025 and a number of our current investors are expected to join again. We are aiming for \$500 million in capital, half of which will come from DFIs and the other half from private investors, mirroring our previous funds.

At the same time, we are introducing a new permanent capital vehicle for operating renewable assets, either as a private fund or launched as a listed trust on the London Stock Exchange, which we are far in the preparation of. This will acquire assets from our own greenfield funds and from third parties. The driver for this, however, is not because we do not have interested buyers for our assets. In fact, we are in good progress with a group of buyers for some of our assets. However, the return levels for operating renewable assets in Africa is very attractive compared to similar assets in developed countries, but these are currently not really available to institutional or private investors from outside Africa as from a risk management perspective, you need someone on the ground to manage the assets and until now there has not been such a vehicle. The new listed vehicle will combine renewable energy with impact in Africa, at an attractive return.

Talking about impact, what impact do you create with your funds?

We see our impact being on three levels. At the top layer, you may say, we add more renewable energy to the world which helps reduce greenhouse gas emissions. It might be a small contribution relative to what is added in developed countries every year, but for Africa it is quite significant.

Our second impact level is the countries we operate in. They are all poor developing countries. We are supplying green affordable power to the countries we operate in and we believe that this will contribute to the countries' path up the development ladder. For development, they need enough power; they need affordable power; and they need green power.

They need green energy as the export markets they want to tap into in developed countries are finally starting to shift towards reducing their carbon footprint across their entire supply chain. We see this trend in mining for metals for the European electric vehicle industry, where new mines are concerned about their carbon footprint for this very reason.



In some projects we need to move people to new houses. We give them a full new plot of land of the same size and quality, and we help them get started incl. building them a new proper house in replacement of their prior dwellings. This greatly improves the standard of living for the families.

Our third impact level is the communities we operate in. Our renewable power plants are typically in areas with many disadvantaged neighbourhoods, home to many poor people. We feel a strong obligation and our investors have a strong interest in us not only mitigating the impact on people and planet, but also contributing to improvements that would not otherwise have come to especially the communities we operate among.

We measure our impact and report on it to our investors. It is everything from job and income creation, gender equality, and basic needs of the communities like clean drinking water, support to schools, dormitories for girls to reduce girl school dropouts and teenage pregnancies, improved access to health, and much more. As an example, we have trained more than 30 women in one remote mountain area in birth assistance. With a lack of access to a proper hospital, this is a significant improvement. We have also managed to employ and maintain 50% women in the workforce on some of our plants.

We find great pleasure in being able to structure renewable energy projects for a good risk return profile for investors with impact on planet and especially on people who really need a helping hand. This is why we are still very passionate about renewable energy in Africa.

Frontier Energy

Founded in 2011, Frontier Energy is a leading investor in the African renewable energy market. We have a hands-on and integrated approach to investing in the development, construction and operation of renewable energy projects. Frontier Energy's operating and under construction projects in its first two funds have a combined capacity of 270MW from solar PV, hydropower, and wind power. For its next fund it has about 60 projects under development and in pipeline with a total generation capacity of 1,100 MW and total project costs of more than \$2.5 billion.



DEEP DIVE:

SDG9: INDUSTRY, INNOVATION & INFRASTRUCTURE

Sustainable Development Goal (SDG) 9: Building resilient infrastructure; promoting inclusive and sustainable industrialisation; and fostering innovation. SDG9, and specifically infrastructure investing, is at the heart of economic growth and essential for development.

From transport systems, including bridges, tunnels and smart motorways, through climate-resilient and energy-efficient buildings, to power-generation facilities and water and sanitation networks, infrastructure investing provides the services that enable society to function and economies to grow. More than this, it is also a strategy that will benefit from technological innovations such as the Internet of Things (IoT).

From an investment point of view, infrastructure is a stable and popular asset class for risk-averse institutional investors such as pension funds and the myriads of investment sub-themes allow investors to tick a number of SDG boxes with one allocation.

Overarching themes such as climate change, artificial intelligence, shifting supply chains, and population growth, means that infrastructure investments now include hydrogen production, storage and distribution; electric-vehicle charging networks; and highspeed broadband networks.

But infrastructure is more than just a collection of individual real assets such as power plants, hospitals or sewage works. Viewed as a holistic portfolio of assets, these investments can tie in economic, environmental and social sustainability and development into one neat package.

For example, a bridge or road that links a rural village to urban markets, not only creates construction and maintenance jobs but gives communities access to education, employment, commerce and leisure.

In fact, increasing investment in line with economic needs could add about 0.6% to global GDP, according to a [2016 report](#) by McKinsey Global Institute. The report suggested the effect could be more pronounced in larger countries that currently have infrastructure gaps; 1.3% in the US and 1.5% in Brazil.

From an environmental point of view, clean energy infrastructure is essential to conserving natural resources and mitigating the impact of climate change.

Thanks to initiatives such as the European Green Deal and the US' Inflation Reduction Act, the energy transition, and with it the renewable energy subsector, investments ranging from battery storage, carbon capture, offshore wind and solar are gaining traction.



In the UK, jobs in the clean energy industry will be a priority for the [National Wealth Fund](#) from both a climate change perspective as well as an energy independence point of view. The fund, which will be set up with the UK Infrastructure Bank that will allocate £7.3 billion of additional funding, and the British Business Bank, which will help to catalyse private investment invest in the new industries of the future.

Private participation in infrastructure is core to scale infrastructure projects. According to the World Bank's Private Participation in Infrastructure (PPI) [2023 annual report](#), there were investment commitments of \$86 billion in 2023, which in terms of volume is down 5% from 2022's \$91.3 billion, but up 1% from the past five-year average of \$85.5 billion.

The number of countries with PPI increased to 68 from 54 countries in 2022, but more importantly, 2023 saw a significant increase in the number of projects, jumping from 260 projects in 2022 to 322 projects in 2023.

According to the report, the countries with the highest levels of investment in 2023 as a percentage of national GDP were: Cabo Verde, with 7.4% of its GDP committed to PPI investments; Lao People's Democratic Republic with 6.2% and Bosnia and Herzegovina with 2%. In absolute terms, China, Brazil, Philippines, India, and Peru received the largest PPI investments in 2023, collectively attracting \$66 billion, capturing almost 77% of global PPI investment.

Of all the projects recorded in 2023, 52% were primarily sponsored by foreign entities, marking an increase from the 44% recorded in 2022. Information, Communication & Technology (ICT) (78%) and energy (53%) are the sectors with the highest number of PPI projects being sponsored by foreign entities. ICT investments increased almost fourfold reaching \$7.8 billion across 52 projects in 35 countries.

On the other hand, the municipal solid waste sector (18%) and water sector (26%) predominantly have local investors. Investment commitments in Clean Water & Sanitation (SDG6) sector decreased to a third of the investment levels seen in 2022, marking a 64% decrease compared to the past five-year average.





Meanwhile energy saw a threefold increase in investment levels from 2022, accounting for almost three quarters of the total global PPI investments, with most of this increase occurring in the East Asia and Pacific region. Affordable & Clean Energy (SDG7) was a winner as 97% electricity generation projects were renewable, compared to 94% in 2022.

Infrastructure investments in the transport sector (part of Sustainable Cities & Communities SDG11) dropped by 76% compared to 2022 largely due to a decline in road investments in China and India. That said, the \$40.4 billion in PPI commitments, 95% of which were channelled across 24 energy projects in China were the main driver behind the region's recovery. China is currently investing in its [grid infrastructure](#) to keep up with the boom in renewable energy.

While infrastructure is typically associated with real assets and bricks and mortar, it will be technology that will impact infrastructure development going forward. The energy and transport sectors have good examples of technology developments. According to [S&P Global Commodity Insights](#), clean energy technology investment, excluding hydropower, nuclear or transportation sector, will reach nearly \$800 billion in 2024 and \$1 trillion by 2030.

Solar will enjoy the largest share of the additional spend and account for some 55% of total investment, while onshore wind is the second-largest segment in terms of absolute investment but growing more slowly. The fastest-growing areas for new investments are battery energy storage and electrolysis.

Technology-based carbon dioxide removal (CDR) will see a rapid development of methodologies to verify carbon crediting and certify CDR, along with significant funding for technology-based removal, are driving the project pipeline to unprecedented levels.

S&P Global Commodity Insights tracks more than 6,500 individual solar and energy storage projects expected to be commissioned in 2024, in addition to millions of distributed projects, making the investment opportunity very diffuse. Some 150 green hydrogen projects and 65 carbon capture, utilisation and storage projects, including capture, transportation, and storage, will be commissioned in 2024.

But technology such as the Internet of Things that allow residential smart meters, for example, will allow business and individuals more control over their energy consumption will become more prevalent. The construction industry is the perfect example of how technology will be able to streamline processes.

For example, the use of drones and machine learning, such as those built by [Skycatch](#), to increase productivity, improve efficiency and safety, and reduce costs on major capital projects. Drones and robots are increasingly being used for diagnostics.

The increased bandwidth offered by 5G networks means real-time data collection, such as [Sensat's](#) visualisation software for infrastructure projects used for the UK's HS2 high-speed rail link, can be used to monitor progress and increase efficiency. Wearables such as [smart helmets](#) can increase safety on construction sites.

Rapid population growth is leading to increasing urbanisation. From a transportation point of view, SDG11: Sustainable Cities & Communities, is all about reducing road congestion and making mobility more affordable, efficient and environmentally friendly.

The goal is to move from privately owned petrol cars to shared autonomous vehicles and electric vehicles, such as robo-taxis and shuttles, and increasing the use of bikes through bike lanes and bike sharing. Flying taxis such as [VoloCity air taxi](#), are almost here. Powered by battery technology, it emits zero carbon dioxide or nitric oxide making flying more sustainable. Drones are already being used to deliver parcels in Iceland, using [Flytrex](#), and [Jedsy](#) delivers lab samples in Switzerland.

Climate Action (SDG13) is driving net zero, which is powering the transition to affordable and clean energy (SDG7). This in turn is driving a global infrastructure transition, giving SDG9 a whole new dimension as clean energy generation plants are built; huge stocks of electric vehicles created; and buildings and homes retrofitted for energy efficiency.

Right, now finance flows for climate-resilient infrastructure are essential to address the growing impacts of climate change. According to the [OECD](#), to meet climate and development objectives by 2030, an annual investment of \$6.9 trillion in sustainable infrastructure is needed globally. Investing in climate-resilient infrastructure systems is cost effective, can save lives and support continued economic growth, reducing vulnerability to current and future climate shocks.



PHENIX IMPACT FUND ASSESSMENT

Phenix Impact Fund Assessment is a proprietary framework developed in close consultation with institutional asset owners and industry leaders, for the purpose of **assessing the robustness of a fund's impact proposition.**

On 6 themes and 45 criteria, it examines to what extent the policies, procedures and human resources are in place to deliver the impact that a fund aims to create.

ASSESSING THE ROBUSTNESS OF IMPACT FUND PROPOSITIONS

Uncover strengths and weaknesses

Adopt industry best practices

Prepare for institutional impact due diligence



PHENIX IMPACT
FUND ASSESSMENT
January 2024

[VISIT SITE >>>](#)

GLOSSARY & SYMBOLS

Committed capital: Amount committed in a fund vehicle by its limited partners / investors.

Developed markets: We include Europe (excl. Eastern Europe), North America, Asia Pacific (Singapore, Japan, and South Korea only), ia (New Zealand, Australia) Middle East and Africa (Israel only).

Direct lending: A specialised form of private debt, in which loans are made to middle-market companies. It is the private debt strategy with lower risk, achieved by using collateral.

Emerging markets: We include Latin and Central America, Asia Pacific (excl. Singapore, Japan, South Korea), Middle East and Africa (excl. Israel) Europe (Eastern Europe only).

Fund managers: Organisation managing commingled, pooled and customised vehicles invested by institutional asset owners. Also called General Partner or GP.

Global: Funds that have an investment geographic scope encompassing both developed and emerging markets.

Impact investing: Investments with the dual mandate of financial return and positive societal or environmental impacts, with the notion of measuring the positive and negative impact of investments, ensuring both intentionality and additionality among these.

Institutional asset owners: Outsourced CIOs, pension funds, insurance companies, family offices, sovereign wealth funds, endowments, foundations, banks, fiduciary managers, discretionary investment consultants. Also called Limited Partner or LP.

Market targeted: Markets fund managers target for their investments: We include Global, Developed markets, Emerging markets.

Mezzanine: A specialised form of financing in which loans are subordinated to banks, with no collateral. It is the most equity-like form of private debt.

Microcredit: A common form of microfinance, characterised by small loans to individuals or small companies.

Private debt: Debt instruments to companies: direct lending, mezzanine, microfinance strategies.

Public debt: Publicly traded fixed income securities: investment grade or high yield, focused on green bonds and municipal and community infrastructure and affordable housing issuers.

Regions targeted: Regions fund managers target for their investments: We include Asia Pacific (East Asia, Central Asia, South Asia, South East Asia), Europe (Western Europe, Eastern Europe), Global, Latin and Central America, Middle East and Africa (East Africa, Middle East, Northern Africa, West Africa, Southern Africa), North America, Oceania.

Target fund size: Amount the fund manager is targeting when raising capital.

Vintage: Year where the fund manager first calls capital from investors.

Full glossary: www.phenixcapitalgroup.com/impact-investing-glossary

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