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Review of the environment to invest in infrastructure 2021

Review of the environment to invest in infrastructure (infra), 2021

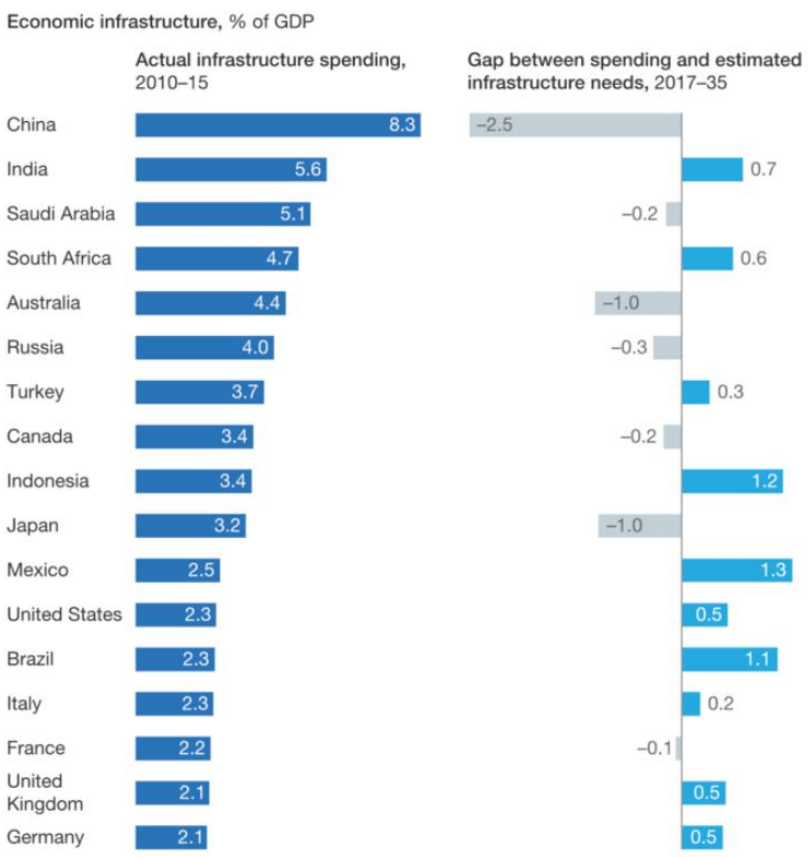
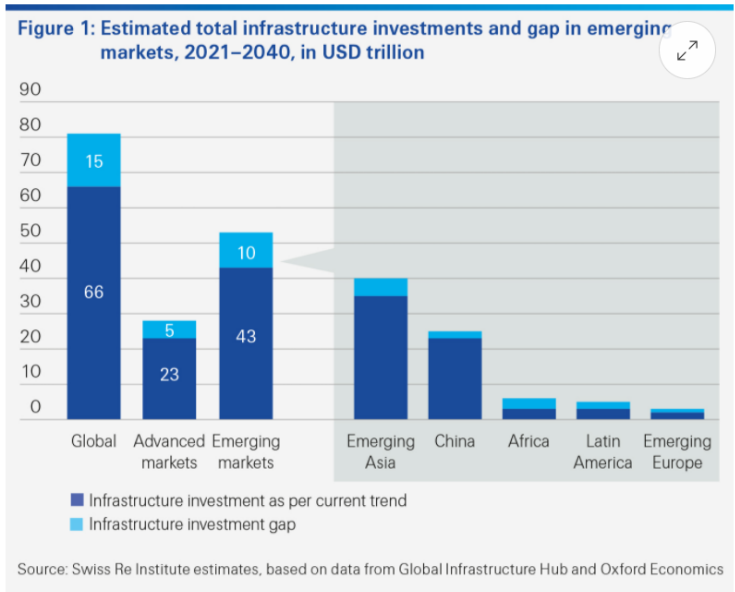
Executive summary

- There is an emerging global funding gap between needed infrastructure and its required corresponding investment. It can be argued that government inaction has allowed this gap to widen, exacerbated by a lack of correctly priced opportunities for investors. These issues haven't dampened investor demand. This demand however, is not being satisfied by way of direct investing. The inflow of capital to the infrastructure space has been channelled largely by specialised infrastructure general partners. According to Schroders¹, since direct or co-investment into infrastructure products requires very large equity tickets, infrastructure private equity managers are deemed a better channel to invest in this space.
- Historically, these managers have returned 8-10% IRR net of fees. When considering the different infra investing strategies available however, there is variance in results.
- There is currently a record amount of dry powder in the market, which seems to be pushing up valuations and thus impacting deal volume
- Instead of parking money in traditional projects, less traditional forms of infra, where there is a possibility to digitalise, could offer more value.
These sectors are:
 - Smart roads
 - Data centres
 - Smart grids
- When investing in infrastructure, there is a choice of three options:
 - Traditional long-horizon government backed projects (public-private partnerships: PPPs)
 - Partial PPPs with the ability to use the project for new clients
 - Infrastructure service providers, specialised private equity funds
- The following shortlist indicates infrastructure service providers that stand out:
 - Global Infrastructure Partners (GIP)
 - KKR Energy & Infrastructure
 - Macquarie European Infrastructure Funds (MIRA)
 - Arcus European Infrastructure
 - EQT Infrastructure
 - Basalt Infrastructure Partners
 - Antin Infrastructure Partners
 - Cube Infrastructure
 - Icon infrastructure
 - EIG Global Energy Partners (TCW Energy)
 - North Haven Infrastructure Partners

¹ "Infrastructure financing – an overview - Schroders." http://www.schroders.com/en/sysglobalassets/digital/hong-kong/institutional/201704_infrastructure_financing_an_overview.pdf.

Infrastructure landscape

There is general consensus on the existence of a global gap in funding for the needed infrastructure spend and the investment that is actually happening.



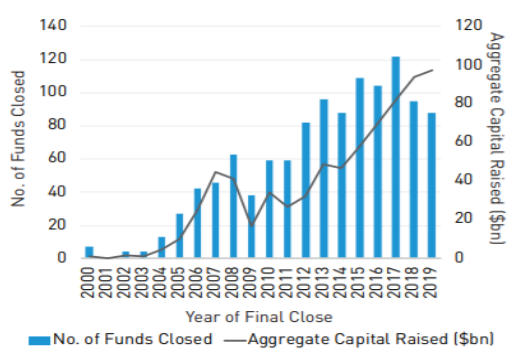
What are some of the dynamics causing this underfunding?

Infrastructure deal size and activity have increased steadily over the last 10 years. Many of these deals have been in what we can call ‘traditional infrastructure’, such as traditional energy, roads, bridges etc.

A prevailing sentiment is that the market is becoming more efficiently priced due to bigger deals and more dry powder in the market. This reinforces the understanding that infrastructure can be relied upon to be a long-term income play, but not somewhere where immense ‘value’ can be found.²

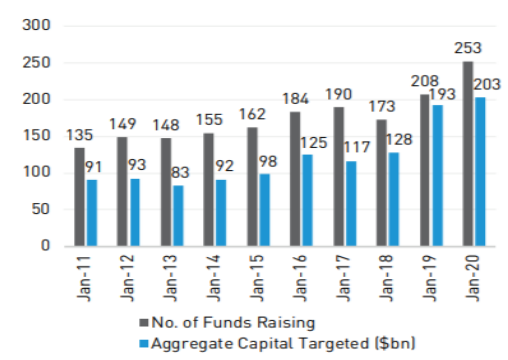
A Preqin report states that infra managers have been returning an average IRR of 10-11%, with an IRR of 8.7% over the past decade.³ This solid performance has increased inflows of capital into the asset class, for instance Canadian Pension funds CDPQ and OMERS are some of the largest infrastructure investors in the world and have decided to increase their (already sizable) allocation. The result is a large amount of dry powder, which in 2019 was estimated to be over \$200bn. This led to a slight decrease in deal activity from 2017-2020 as seen in the graph below.

Fig. 1: Global Unlisted Infrastructure Fundraising, 2000 - 2019



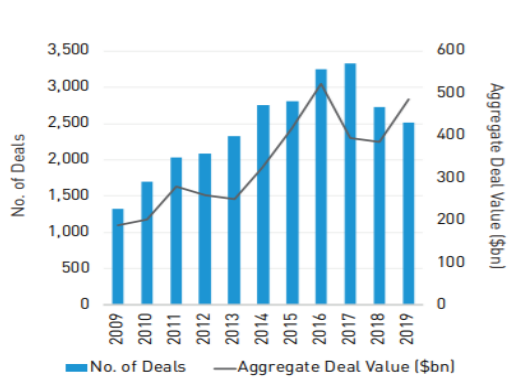
Source: Preqin Pro

Fig. 2: Unlisted Infrastructure Funds in Market, 2011 - 2020



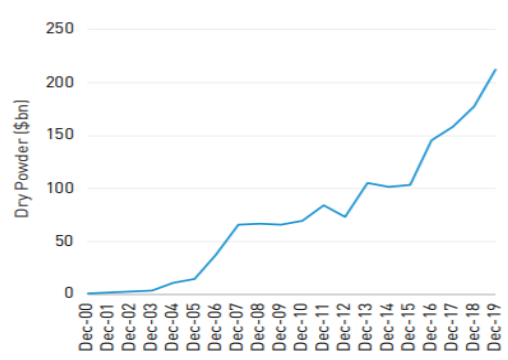
Source: Preqin Pro

Fig. 3: Global Infrastructure Deals, 2009 - 2019



Source: Preqin Pro

Fig. 4: Global Unlisted Infrastructure Dry Powder, 2000 - 2019



Source: Preqin Pro

² "The Infrastructure Gap: Funding the Future." <https://infrastructure.aecom.com/infrastructure-funding>. Accessed 8 Jan. 2021.
³ "2020 Preqin Global Infrastructure Report | Preqin." 4 Feb. 2020, <https://www.preqin.com/insights/global-reports/2020-preqin-global-infrastructure-report>. Accessed 8 Jan. 2021.

The search for more attractive returns is opening up funding for new types of infrastructure in non-typical sectors such as data coverage and green energy. For these deals, digitalisation and an operational edge are providing the source of value.

The role of governments

Traditional infrastructure often relies on PPPs or on government investment to underwrite certain projects. Given the pressures of the pandemic, government budgets will understandably be under some pressure. However there have been some announcements that should stimulate another decade or more of infra projects. These include the European Green Deal and China's \$2 trillion infra plan that is very focused on AI and 5G. Momentum might also be in place to implement a US green new deal given the recent Democrat leadership in US government.

PwC argues the following points regarding the worldwide infra landscape:

- Emerging markets will invest an estimated 3.9% of GDP (USD 2.2 trillion annually) in infrastructure over next 20 years.
- There will be strong growth in investment in renewable energy, smart and resilient infrastructure.
- Emerging Asia will invest an estimated USD 1.7 trillion annually, equal to 4.2% of GDP; China to account for 54% of emerging market spend.
- Infrastructure in emerging markets represents an annual USD 920 billion investment opportunity for institutional investors, including insurers.

Where to invest?

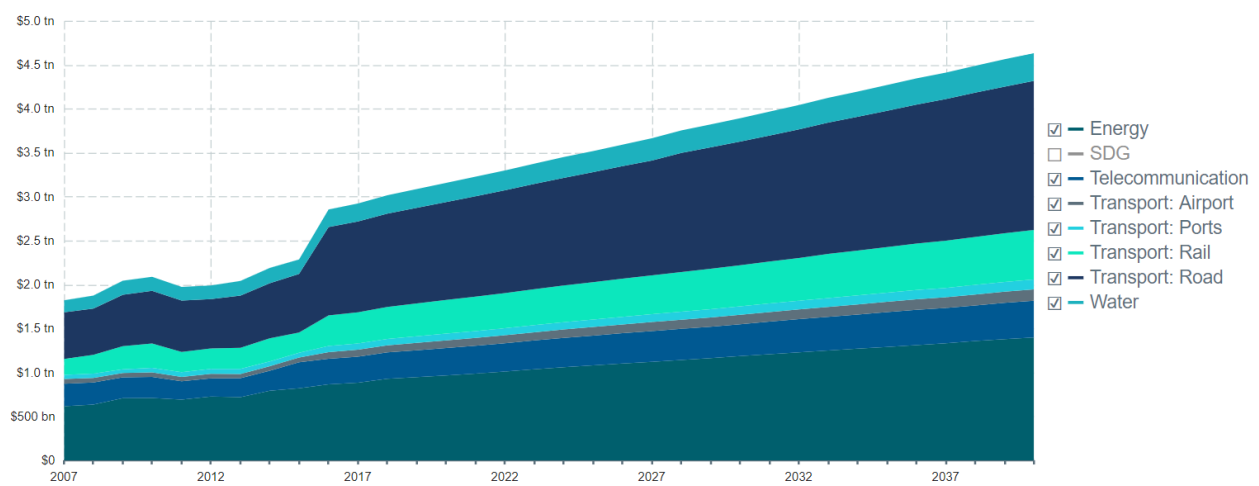
When looking at where to allocate funds, we will use the following reasoning:

- 1) Where is there a need for added infrastructure?
- 2) Within these industries, where can digitalisation play a large part of the strategy?
- 3) Within these, will the project be structured as a ‘traditional infrastructure play’ or will there be more upside potential?

Which sectors and geographies have the biggest need?

Infrastructure investment need for each sector

Export Chart 



5. The majority of global infrastructure investment gap is in the road and electricity sectors.

Outlook estimates an \$8 trillion infrastructure investment gap in roads, which represent more than half of the total global infrastructure investment gap. Although the electricity sector represents the second largest infrastructure investment gap at \$2.9 trillion, the majority of that gap is in developing and emerging countries.

Figure 8: Comparison of infrastructure investment forecast by sector 2016 – 2040 (\$ billion)

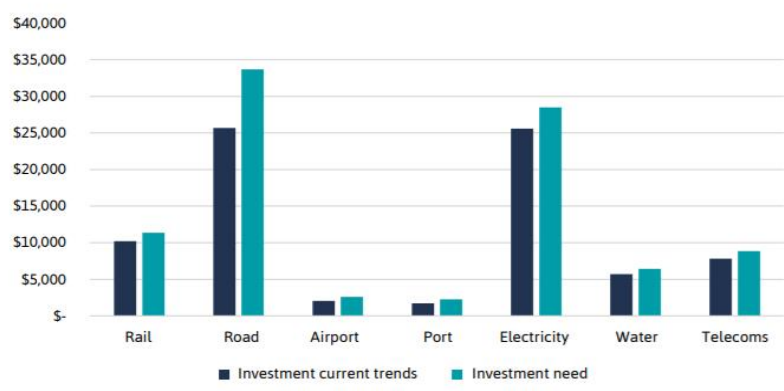
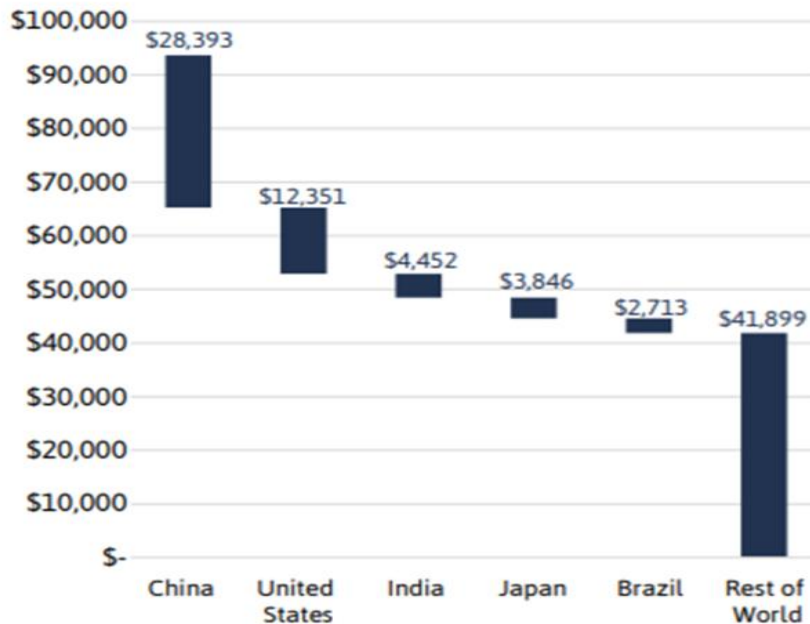


Figure 5: Infrastructure needs by country 2016–2040
(\$ billion)



The above charts conclude that there is a need for private investment in globally. There are needs in African and other Asian geographies, but to mitigate risk, APAC, US and Europe will typically have the least risky governments and enough growth to undertake these typically 20+ year projects.

The sectors that stand out are:

- Telecoms (specifically data centres)
- Energy (specifically green energy)
- Roads (specifically smart roads)

These sectors will be considered in more detail in the following sections.

How should we consider the structure of an investment?

Historically infrastructure managers have returned 8-10% IRR net of fees. These returns have been driven by rising asset prices and easy refinancing solutions. The expected return of the current fund cohort is lower at around 6-8% IRR, with cash yields of around 3-5%. This brings the fund return more in line with the public markets rather than a traditional 10-year private equity investment. This seems also to be in line with what is expected from real estate funds who have historically returned between 8.5-10.5% IRR, but last year managed a 7.4%.⁴

If we look a little deeper, we can see some variance in the performance when comparing different investment styles.

We can broadly categorise an infrastructure investment in 3 categories:

- 1) The 'traditional' infrastructure approach. Working with a single government contract over a very long period.
This is what we would seek to avoid. The reasons being are the illiquidity risks and the often very high leverage position on these assets. From a strategy like this we would expect a yield of 3-5% over a long horizon. Exit of the asset may bring the IRR up to 6-8%.
- 2) Investment in a specialised infra private equity fund, where the fund are service providers who are managing infrastructure projects.
An investment into a specialised infra private equity fund will offer exposure to multiple projects and a larger upside potential given the options to expand the services to other client bases. These companies will often benefit from pre-contracted revenue with potentially decade long contracts. This dynamic makes them less volatile than a typical private equity investment which cannot guaranteed revenue in such a way. These investments should return more in the range of 15% IRR.
- 3) The middle road.
This is something that is seen more and more in the energy sector. For instance, concessions are granted in the solar energy sector that led to large amounts of private investment in solar farms. These farms would then have a guaranteed buyer in the government for the energy for a certain period of time. However, these projects were then often able to expand operations and increase efficiencies and thus expand their network of clients. The result being a hybrid of a PPP and a private equity investment, where there is guaranteed revenue, the backing of real estate and the potential for an expansion in client base and profitability. For a strategy like this, a return of 8-11% IRR is a rough expectation.

⁴ <https://www.reit.com/data-research/research/nareit-research/2021-reit-outlook-economy-commercial-real-estate>

Which sectors are most available to digitalisation?

To justify why digitalisation is important in infrastructure data shows us that embedding projects with digital capabilities will bring down maintenance costs and CAPEX by up to 30%⁵. This should translate to a higher return on the projects.

Several sectors that seem to have a large need for investment and would benefit greatly from a digital approach to infrastructure will now be considered briefly.

Sector 1: Smart Roads

Since the European Green Deal was announced in December 2019, around €5bn of EU money has been allocated to refurbishing roadways and other transport links. This includes digitalisation to help bring down carbon emission levels and to reduce accidents.

McKinsey estimates that globally, there is a need for €900bn of road investment per annum⁶, to combat decaying traditional roads. With a forthcoming need to upgrade roads in order to achieve the 2050 carbon neutral objective, this figure will most likely be higher and will call for a higher level of sophistication from the companies in charge of the projects.

Infrastructure projects to make roads ‘smarter’ will seek to solve issues such as electric car charging, electronic toll collection and a wide range of data collection to track speeds, accidents and breakdowns.⁷

Roads are generally a public asset, and therefore any collaboration on a smart road rollout would be either with a PPP, or with a specialist service provider. Smart roads will see the intersection of tech providers, infrastructure developers, and original equipment manufacturers (OEMs) to complete projects.⁸

This leaves the opportunity to invest into the asset itself via the infrastructure developer, or via one of the several service providers that will inevitably take on long term service contracts, or into an OEM company that will create the parts but generally not maintain it.

Verdict:

With the upcoming changes in transportation, and electrified vehicles there is a large opportunity in smart roads. There have not been enough rollouts to review how a PPP collaboration would work but investing via a service provider who can secure contracts for smart roads would give good exposure to the projects.

⁵ <https://www.network-industries.org/wp-content/uploads/2020/12/Digitalizing-infrastructure.pdf>

⁶

<https://www.mckinsey.com/~/media/mckinsey/industries/capital%20projects%20and%20infrastructure/our%20insights/improving%20the%20delivery%20of%20road%20infrastructure%20across%20the%20world/a-better-road-to-the-future-web-final.ashx>

⁷ <https://www.sageautomation.com/blog/intelligent-road-infrastructure-trends>

⁸ <https://www.futurebridge.com/blog/smart-road-infrastructure/>

Sector 2: Data centres

There has been massive investment in data centres and the growth in this sector has not yet flattened. The past dynamic where data centres were being bought up by the FAANG companies seems to be passing, as data centres shift into an era of optimised tech operations.

In essence, the next generation of data centre is more reliant on software, has machine learning and cognitive computing inbuilt and will offer far less service outage, and quicker connection.⁹ These updates will require an increased spend on data centres across the world as the expected standard of service increases.

Gartner predicts spending on data centres in 2021 will rise.

Table 1. Worldwide Data Center Infrastructure End-User Spending (Billions of U.S. Dollars)

| | 2019 | 2020 | 2021 |
|-------------------------|------|-------|------|
| End-User Spending (\$B) | 210 | 188 | 200 |
| Growth (%) | 0.7 | -10.3 | 6.2 |

Source: Gartner (October 2020)

Gartner also predicts a shifting dynamic in how data is going to be used by companies, underpinned by the 'anywhere operations' dynamic¹⁰. This essentially means that with a greater number of employees working from home, and the growing trends of geographically dispersed customers, the 'next generation' of data centres become more relevant.

As 5G is rolled out, data centres will be forced to upgrade. The ability of a data centre to rapidly process data is crucial for the success of a 5G service. The rollout of 5G will also see an explosion in the use of IoT devices due to the greatly enhanced connectivity.¹¹

A big part of this story is 'edge computing' which is the term used for the processing of data more locally. For example a 4k cat video streamed in Brussels would be processed by a Belgian based data centre rather than in Texas. To satisfy demand, in many instances there is a need to install smaller receivers on existing cell towers, or build 'mini' data centres nearer to users.

Aside from edge computing, we can foresee the need for implementation of AI and machine learning software into the data centres.

To gain exposure to this sector, there are several options. In the data centre upgrades, smaller more innovative service providers might be chosen over traditional OEMs¹², so picking a service provider that is showing sufficient innovation is key. Another way to approach this would be an infrastructure

⁹ <https://www.ibm.com/downloads/cas/MVWBAJE4>

¹⁰ <https://datacentrenews.eu/story/gartner-six-infrastructure-and-ops-trends-for-2021>

¹¹ <https://www.data4group.com/en/market-trends/the-impact-of-the-5g-revolution-on-the-data-center/>

¹² <https://www.datacenterdynamics.com/en/analysis/how-5g-will-affect-structure-data-centers/>

contractor that specialises in data towers. These players would already have access to certain PPP projects, and will benefit from the 5G rush to decentralise data receivers.

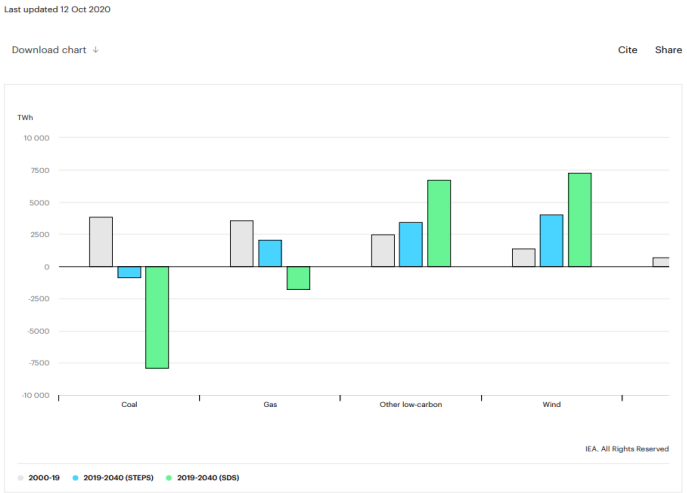
Verdict:

Data, which will increasingly include 5G infrastructure, is going to be mission critical to firms over the coming years. There is plenty of physical and software infrastructure that is in need of update. Exposure to this sector via service providers is recommended.

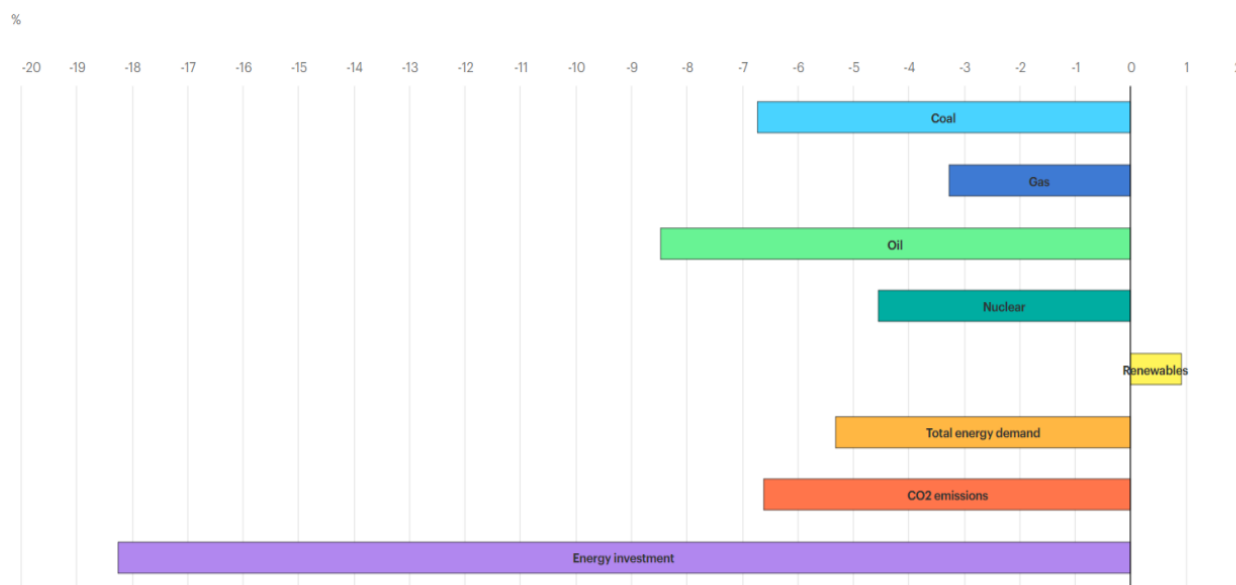
Area 3: Energy

As the world transitions to new forms of energy, infrastructure is going to become more and more critical as a means by which countries try to meet their global climate goals.

Change in global electricity generation by source and scenario, 2000-2040



The pandemic reduced investment in energy infrastructure by about 20%. However, investment into renewable energy continued to grow, albeit by less than 1%



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● Coal
 ● Gas
 ● Oil
 ● Nuclear
 ● Renewables
 ● Total energy demand
 ● CO2 emissions
 ● Energy investment

The industry is preparing to make shifts, a survey from Deloitte indicates that *digitalisation* and *decarbonisation* are key focuses for energy executives in the coming year¹³.

Prevailing investor sentiment seems to indicate further ramping up of investment into renewables, with a projected increase of 4.2% to 10.8% of their portfolios in the next 10 years.¹⁴

A key shift in how renewables will function is a shift from a purely centralised grid to include a Distributed Energy Resource model (DER). What this means is that energy grids will no longer be purely one-directional, but will have the possibility to transport energy from multiple energy generators (for instance, solar panels on housing estates). These new models will require publicly-backed projects to be fulfilled.¹⁵

On a larger scale, globally there has been \$110bn of stimulus money set aside for the energy sector. 75% of this money has been allocated to energy efficiency (\$32.4bn), EV and charging (\$20.9bn) and green hydrogen (\$18.9bn).¹⁶ Recent investment activity from the EU also shows the direction it is going, with 84% of recent investment going to smart grids.¹⁷

¹³ <https://www2.deloitte.com/us/en/pages/energy-and-resources/articles/power-and-utilities-industry-outlook.html/>

¹⁴ <https://www.theguardian.com/environment/2020/nov/23/investors-plan-major-move-into-renewable-energy-infrastructure>

¹⁵ <https://medium.com/@peter.a.kramer/provision-for-der-integration-on-the-grid-whats-the-big-deal-c585d2b0307>

¹⁶ <https://www.iea.org/reports/renewables-2020/key-trends-to-watch#abstract>

¹⁷ <https://www.energylivenews.com/2020/10/05/eu-to-invest-nearly-e1bn-in-new-energy-infrastructure-projects/>

The ways to gain exposure to these types of projects are similar to those referred to above. There are funds that will invest directly into green energy opportunities and in turn funds that will invest into the service providers associated with such projects.

Funds focusing on green energy are rather abundant; some of these funds also have been operating for several vintages thus showing some track record in the sector. Many of these funds will invest directly into green energy projects, often with lots of pre-contracted revenue or structured as a PPP. The result can be an emphasis on a yearly yield instead of a large capital appreciation. An example of a large player in the space would be Ares Management who have a listed vehicle that returns an average dividend of 3.37%¹⁸.

If we are to invest in a fund that takes stakes directly in projects, it is important to focus on specialist managers who have digitalisation and tech at the heart of their strategy and to avoid a more institutional approach that the large generalists are pursuing.

The last way to gain exposure would be to invest via a service provider companies who will work on the plethora of new energy infrastructure opportunities that are coming. This will allow us to benefit from the pre-contracted revenue, but also from the space to expand the services to new clients, which give us a higher return expectation.

Verdict:

Headwinds of climate goals combined with the plethora of new technologies gives lots of room for digitalised energy infrastructure. Definitely a good space for exposure.

¹⁸ <https://www.dividendchannel.com/symbol/ares/>

Putting it all together

As mentioned at the outset, there are 3 ways to invest in infrastructure:

1. Traditional long-horizon government backed projects (public-private partnerships: PPPs)
2. Partial PPPs with the ability to use the project for new clients
3. Infrastructure service providers, specialised private equity funds

On balance, we would recommend looking at infrastructure more in line with options 2) and 3), with a preference for 3). The reasoning for this would be that in the investments made via service providers in the infra space will come with many of the downside protections as investing directly into a project itself. These downside protections come by the way of fixed revenue contracts often from governments or blue-chip contracts. Once these contracts are in place, these services are then able to be sold on to different customers, and new contracts. From a diversification perspective, you would ultimately have exposure to several infrastructure projects with one ticket by investing in this manner.

Investing into projects in the vein of 2) could also provide a similarly interesting dynamic. There would be pre-contracted government revenue (in the case of energy), and then the option to develop more capacity to sell to other clients. The downside of these strategies is often that there are large development costs and then the need for aggressive capital appreciation upon exit. This can be seen as an advantage as there is real estate as an added downside protection however, it also depends on the timing of the entry into the investment. To mitigate risk an investor might choose to enter when the site is already purchased and revenue agreements are in place however, if the operation does not work as planned, then the land would not hold its value upon resale and the investor would have paid a premium for the real estate. Another issue here is the reliance on one single project at a time, whilst investing via a fund will ensure diversification and the option of a service provider will add another layer of diversification.

Recommendation:

Invest via a service provider who provide services into key infrastructure spaces. Examples of such fund managers include:

- Global Infrastructure Partners (GIP)
- KKR Energy & Infrastructure
- Macquarie European Infrastructure Funds (MIRA)
- Arcus European Infrastructure
- EQT Infrastructure
- Basalt Infrastructure Partners
- Antin Infrastructure Partners
- Cube Infrastructure
- Icon infrastructure
- EIG Global Energy Partners (TCW Energy)
- North Haven Infrastructure Partners