

Infrastructure Investment and ESG Analysis: A Natural Fit



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Infrastructure is an asset class that naturally lends itself to Environmental, Social and Governance (“ESG”) considerations. This is because most infrastructure assets require sizeable capital commitments over very long-time frames, and therefore future risks have to be incorporated into planning and financing decisions. ESG analysis is a methodology to capture and value *mis-priced future risks* such as externality risk (pollution, CO2, etc.), (lack of) diversity risk, climate change physical and transition risk, resilience risk, reputational risk, etc. In our new normal of COVID and social unrest, we are all being forced to reconsider the future we want to live in, with all of the threats to our existence, including future pandemics, growing inequality and climate change. Infrastructure investors and the projects they fund have to quickly adapt to the rapidly changing requirements coming out of this new normal, and ESG analysis provides the framework for valuing these future risks, where that future has been brought rapidly forward by our current crisis.

In most cases infrastructure has a beneficial social impact because it forms the basic physical systems of a nation, enabling its functioning, economic development and prosperity. Governmental organizations often consider increasing infrastructure budgets in an effort to boost a country’s development as it creates an economic multiplier effect. We cannot say that infrastructure is a natural component of ESG investing; infrastructure is *what we do* and ESG is *how we do it*, but infrastructure development underpins many of the 17 UN Sustainable Development Goals and thus investors in this sector are well positioned to make a positive impact on the societies and economies in which they invest. The long-lasting economic, social and environmental impacts arising from infrastructure assets are subject to increasing scrutiny from all stakeholders. What do stakeholders look at, and why and how will this scrutiny impact infrastructure investing moving forward?

ENVIRONMENTAL CHALLENGE

Whether one believes in evolution or revolution, the world is changing fast and is facing challenges driving infrastructure investors to adapt. These changes can be the result of new legislation or market requirements (mixed with perceived

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opportunity and competition). And these new market requirements can be driven by new perspectives on the environment. The greatest environmental challenge faced by humanity is climate change. Climate change challenges the traditional assumption that past experience provides a good guide to future conditions.

Our modern era is characterized by significant and still growing use of fossil fuels. This can be attributed to the growing world population and modern consumption preferences. The increasing pressure to reduce energy-related CO₂ emissions to limit climate change has led to a global energy transition from fossil-based sources to those that have a lower or zero-carbon footprint by the second half of this century. It is obvious that the infrastructure sector will play a big role in this transition; communities will have to review their energy sources, redesign their cities and landscapes, and will have to constantly adapt to fast-evolving technology trends and climate impacts.

In the move to non-fossil fuel solutions, the most impacted infrastructure industry outside of the energy sector may be transportation. Transportation drives significant demand for oil products, mainly gasoline and diesel. In 2010, the U.S. transportation sector accounted for 27% of all U.S. heat-trapping greenhouse gas emissions, with cars and trucks accounting for 65% of that total. Petroleum accounts for 93% of the nation's transportation energy use¹. Emissions from aviation make up a comparatively small share of total global greenhouse gas emissions, but they are also growing faster than in any other part of transportation². Energy infrastructure will have to continue to shift to natural gas and quickly evolve to incorporate biofuels or electricity – if its power mix comes from decarbonized sources. This will profoundly reshape e.g. the refining and pipelines landscape as we know it. A study³ from the Rocky Mountain Institute, conducted in selected US states, reports that gas plants and the pipelines that go with them, will become uneconomic (and at risk of being “stranded”) relative to clean energy sources by 2035. Indeed, because clean energy costs have fallen significantly, there is increasing economic pressure on planned new gas plants and on those currently operating. The analysis shows that by 2035, 71 percent of planned gas capacity will be more expensive to operate than building (and operating) a clean energy portfolio. Associated with increased climate change-awareness from investors and consumers, this reduction in gas demand will

cause pipelines to become underutilized. Their operators will have to increase rates to recover their costs from the much smaller amount of gas being transported. This will eventually cripple the economics of gas-fired generation, eroding the value of both the gas plants and the pipelines.

The whole infrastructure universe is becoming increasingly complex, intelligent and interconnected. Enabling technologies such as smart meters, Internet of Things, AI and more, are permeating the industry and are useful in monitoring and rationalizing the amount of energy used in buildings and installations. Indeed, the energy transition requires much higher standards for energy efficiency and there will be less demand on those who do not keep up with these trends, thus leading to a loss in value relative to state-of-the-art projects.

Infrastructure is being damaged by sea level rise, heavy downpours, and extreme heat; damages are projected to increase with continued climate change. Power outages, road and bridge damage are among the infrastructure failures that have occurred during these extreme events. A disruption in any one system affects others. For example, a failure of the electrical grid can affect everything from water treatment to public health.⁴

Climate change affects the function and operation of existing water infrastructure – including hydropower, structural flood defenses, drainage and irrigation systems – as well as water management practices. An examination of potential climate change-induced water impacts on water infrastructure is worthwhile to better understand the criticality and magnitude of the issue of risk that water infrastructure (and subsequently quality supply faces). First, the simple issue of supply exists; that is, is enough water of a sufficient quality available to address the needs of the community and the environment that it serves? Availability relates to several important components; is the water supply consistent, sufficient in quality, protected from natural and humanistic disasters, economically viable to claim and transport, allocated appropriately among users, and part of a dynamic supply system that can adapt to changing needs, seasons, political drivers, etc.? If so, then is the necessary infrastructure in place to obtain the additional supply, and is that infrastructure managed in such a way to maintain the investment in that infrastructure and the levels of service expected from the supply?⁵



In the longer term, sea level rise, extreme storm surge events, and high tides will affect coastal facilities and infrastructure on which many energy systems, markets, and consumers depend.⁶ The world population living in coastal zones has been increasing because of economic growth, urbanization and population growth. Estimates show that 638 million people were living in low-elevation coastal zones in 2000 and this number could increase by 60%-70% by 2050 to exceed 1 billion people⁷. It is projected that coastlines will recede and low-lying areas along the coasts will see frequent flooding as sea levels rise, as well as wetland destruction, increased tidal and storm surge flooding, and increased rates of shoreline change. One of the direct financial impacts of this is rising insurance rates because of the increased potential damage to infrastructure. In recent years, in the US, flood maps that the Federal Emergency Management Agency (FEMA) uses to determine flood risk – and help inform insurance rates – have changed in some coastal areas, with base flood elevation (regulatory requirement for the floodproofing of structures) levels rising up to several feet. Also, after natural disasters such as Hurricanes Sandy (2012) and Katrina (2005), FEMA increased insurance premiums, partly to offset the huge financial losses incurred from the calamities. This can result in exorbitant insurance costs for property owners⁸. Considering the increasing need for infrastructure for coastal development, and considering that most infrastructure is designed for service life extending over several decades, environmental considerations will be very important for present and future projects. ESG due diligence will be used to ensure resilience of infrastructure, networks and other physical plant constructed in these areas.

Additionally, with ice cap melting and subsequent sea level rise, stormwater infrastructure at low-lying, shallow elevations may not have the capacity to contain

the rainfall events themselves, nor convey the rate of stormwater flow to outfalls, nor be physically capable of discharging if sea levels rise significantly enough to obstruct stormwater outfalls. As most stormwater pipe networks are not continuously pressurized, rising sea levels could complicate their ability to discharge, or worse, yet, result in backflow contamination or public health hazards and nuisances as stormwater backs up in combined sewer systems (those that convey both wastewater and stormwater flows) into neighborhoods, streets, households, and businesses. These scenarios or others could lead to the vulnerability of millions of people in low-lying coastal areas being at greater risk of flooding by storm surges over the course of the present century⁹.

Extreme weather events swept the globe in 2017 and 2018 – from drought in India and record rains in Japan to hurricanes in the United States and typhoons in the Philippines. These events are yet more proof of what the human and economic costs of a changing climate will be¹⁰. As an illustration, New York City's subway system, the nation's busiest, sustained the worst damage in its 108 years of operation on October 29, 2012. Millions of people were left without service for at least a week. The damages from Superstorm Sandy are indicative of what powerful tropical storms and higher sea levels could bring more frequently in the future, and were very much in line with vulnerability assessments conducted over the past four years. The effects of the storm would have been far worse if local climate resilience strategies had not been in place. The City of New York and the Metropolitan Transportation Authority worked aggressively to protect life and property by stopping the operation of the city's subway before the storm hit and moving the train cars out of low-lying, flood-prone areas. Catastrophic loss of life would have resulted if there had been subway trains operating in the tunnels when the storm struck.¹¹

COVID, SOCIAL UNREST, AND INFRASTRUCTURE

It is difficult to write any paper today without thinking about what is on everyone's mind right now: the devastating global coronavirus crisis which is having massive and unprecedented social, economic and governance effects.¹² In every sector the pandemic is having an impact on *social* aspects as the companies are forced to adapt their products, their services and their way of operating to the social

distancing measures put in place throughout the world. Companies must, for instance, give protective equipment to their employees or arrange work from home. Some firms also hope to keep employees on their payrolls, rather than resorting to furloughs, in order to support employment and incomes, as well as to stimulate the economy. That being said, for the infrastructure sector in particular,



important impacts can be seen around the *governance* aspect. The prevailing question for any organization is: does the governance structure show good resiliency and preparedness to face off against the crisis?

First, this crisis will highlight the importance of diversity, whether in terms of gender, ethnic, life or career experience. Diversity improves brainstorming and innovation so that a company's management team can look at each matter from different angles, in order to better assess risks and bring a wider array of different ideas to the table. Being able to assess both short and long term risks, balance sheet and cash flow implications by incorporating diverse perspectives is very important for infrastructure projects that take years before coming to fruition and tie up significant amounts of capital. A more diverse board may make wiser decisions regarding cash flow management policy so that a company has a balance sheet that is robust enough to survive a crisis such as COVID-19.

This crisis also highlights the importance of wisely choosing management who can adapt from *peacetime* management to *wartime* management. According to venture capitalist Ben Horowitz, "In wartime, a company is fending off an imminent existential threat. Such a threat can come from a wide range of sources including competition, dramatic macro-economic change, market change, supply chain change, and so forth."¹³ Even as the lockdown measures around the world are lifted, the risk of continued spread persists until a vaccine and/or effective treatments are widely available. It is therefore important to have leadership who thinks ahead long-term in all investment and management decisions. Investors and limited partners choose infrastructure because it is categorized as a sustainable and resilient business that can withstand black swan events and market volatility. With high impact events like the COVID-19 crisis, strong governance and an adaptable management are important for the resiliency of any infrastructure project.

On the environmental side, the pandemic warns us about the respect we owe to nature before we decide to modify and settle its remotest parts. A scary study estimates that more than 3,200 strains of coronaviruses already exist among bats, awaiting an opportunity to jump to people¹⁴, while COVID-19 and a growing number of infectious diseases – discovered in the past few decades – that spread

to humans are believed to have come from birds and bats. Scientists have not established that climate change played any direct role causing the COVID-19 outbreak but they warned that the transmission of the virus to humans is facilitated by swift climate and environmental change in both loss of biodiversity and encroachment by civilization. Building roads and railways in wild places not changed by man until then can destroy the natural habitat of certain birds and bats, leading them to relocate closer to human civilization, in farms for instance, where they might infect livestock. A 2013 study research attributed 22% of emerging contagion to what they call "land use change"¹⁵, while we have a push from the world growing population to reach unsettled land for more habitat, food and commodities.

Also, some have evoked the idea that this pandemic is our chance to reinvent the whole idea of urban versus rural infrastructure. Working remotely requires much more investment in making communication infrastructure more equitably available and more resilient. It also means perhaps a reversal of the urbanization trend, less need for commuting infrastructure, less need for commercial office space, more decentralized planning, and attention paid to mitigating contagion over space efficiency. Future planning will require complete rethinking of how residential and commercial infrastructure interact, and will require much more flexibility, modularity, and multifunctionality.

Everything we associate with living under the COVID pandemic has implications for future infrastructure investment. According to Richard Abadie of PwC, "Economies, especially developing economies, were already facing significant infrastructure gaps. Governments now face a dilemma whether to increase infrastructure spending as a mean to stimulate their economies or, ironically, to cut committed infrastructure spending to save. The pandemic will increase calls for increased spending to address certain priorities, such as digital connectivity, health care, welfare, pandemic-proofing of public services, and infrastructure such as transport."¹⁶

Finally, the social unrest created by inequality and deterioration of social justice, and amplified by the COVID crisis, also have significant implications for infrastructure planning and investment. First and foremost, all of the necessary infrastructure projects that respond to COVID and Climate Change will require significant amounts of labor,

which can directly serve to mitigate inequality assuming living wages are paid. Investment in schools, hospitals, transportation, and communication networks in underserved communities will have a long and significant payback in terms of dramatically increasing the productivity and dignity of the working poor and allow for the expansion of the

middle class, which is the economic and innovation engine of the economy. However, convincing taxpayers of the value of these investments, when the benefits seemingly accrue to those too poor to pay taxes, requires a way to price the risk of inequality. An ESG framework can provide the toolkit for managing this risk.

STAKEHOLDERS' DEMAND

Another driver for more ESG analysis are the stakeholders involved in each infrastructure project. There is increasing demand from limited partners and portfolio managers who trust that ESG analysis helps them make long term decisions that help achieve sustainability. On the one hand, they believe that ESG screening means not forgoing returns, but rather enhancing them¹⁷. At the very least, ESG considerations enhance risk-adjusted returns. On the other hand, ESG considerations are critical when it comes to exercising investors' fiduciary duties. Any infrastructure project or business, whatever its size and in order to thrive in the future, needs to have a healthy relationship with its stakeholders. These include employees, suppliers, customers, the environment, regulators and

the communities in which they operate. Cooperating and maintaining good relations with the leaders of the communities is crucial to avoid having the authorization to operate withdrawn. Community leaders recognize well the benefits of infrastructure projects, as they are core to the growth and prosperity of the economy, creating jobs and delivering essential services to the community. "A study by the Economic Policy Institute in 2017 estimated that each \$100 spent on infrastructure boosts private sector output by, on average, \$17 in the long run"¹⁸. Therefore, confident of the fundamental legitimacy of their activity, project suppliers should do their part by proving that they will operate with respect for the environment and communities.

APPLICATION

Industry standards and guidelines are often the foundation for ESG analysis in infrastructure investing. There are many standards and the main actors include: World Bank Group EHS Guidelines & Industry Sector Guidelines, IFC Performance Standards, Equator Principles, PRI Principles CDC Toolkit, and Infrastructure Sector Profile. According to GRESB (Global Real Estate Sustainability Benchmark), investors are making a push for more standardization in order to better understand and disclose ESG performance¹⁹. Managers looking to secure and manage funds from endowments, pension funds, as well as private and public institutional investors of all stripes could be at risk of losing capital without disclosed ESG standards.

As a good example, the Principles for Responsible Investment (PRI) are six principles developed by global institutional investors to reflect the current ESG issues related to investments. With regard to infrastructure investing the organization provides a list of ESG considerations:

ESG considerations in infrastructure investing

- maintaining social licence to operate
- health and safety standards (pre- and postcommercial operation date)
- biodiversity impacts
- alignment of interest with shareholders
- stakeholder management and community relations
- labour standards
- land rights, indigenous rights
- accessibility and social inclusion
- service reliability
- climate change impact and additionality
- resource scarcity and degradation
- extreme weather events
- supply chain sustainability
- accountability
- board independence and conflicts of interest
- management and board oversight of ESG
- bribery and corruption
- tax policy
- cyber security
- diversity and anti-discrimination



ESG analysis can be built into an investment process from both a bottom-up and top-down perspective. One way is to apply exclusions based on qualitative and quantitative assessments. For example, investments in coal-fired power plants, biomass power projects where biomass

is supplied from non-sustainable sources and shale gas projects, should raise red flags. Every investment should be monitored for ESG considerations throughout the lifecycle of the investment, and any developments reported to investors in a proactive manner.

CONCLUSION

The imperative to decarbonize is one of the most disruptive trends of our lifetime, and will have a massive and lasting impact on infrastructure investing. The current pandemic may be nature’s response to our lack of attention, but is also a catalyst to begin reinventing our cities and the physical backbone of our global economy. Our time of social unrest is a call for social justice through

more equitable infrastructure planning that moves more people out of poverty and into the middle class where they become the engine of the economy. Incorporating ESG analysis into infrastructure project evaluation and planning will allow for better assessment of future risks and impact for investors as well as for broad society.

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