

In a new research paper, my colleagues and I show that the physical risks created by climate change are not limited to a distant future for investors in infrastructure, some of whom could well lose more than 50 percent of the value of their portfolio to physical climate risk before 2050 in the event of runaway climate change. Moreover, the average investor will also lose twice as much to extreme weather, mostly in OECD countries, compared with a low carbon scenario.

The numbers are significant: over the past two decades, institutional investors have increasingly allocated capital to private, mostly unlisted, infrastructure companies. infraMetrics tracks a universe representing approximately \$4.1 trillion of enterprise value and \$2.2 trillion of market capitalisation, at current market prices, in 25 key markets.

Floods and storms are the most common climate-related events, but extreme temperatures are also on the rise with increasing frequency and intensity. If climate change accelerates, these trends will become more frequent and severe. Using a very granular database of asset-level physical risk estimates and financial data, we find that the impact of runaway climate change on the value of infrastructure investments before 2050 is significant. We also find that if no serious measures are taken, financial losses from physical risk (which are never zero) would be twice as high as in a low carbon scenario, for all investors.

In this new paper, we describe our approach to measure baseline physical risks (today) and how physical risks would materialise from that baseline in different climate scenarios in terms of their impact on cashflows and discount rates at the asset level. We also look at how physical risks, despite being asset-specific, are not easily diversified for most investors, some of whom could have a high concentration of such risks in their portfolios.

Our research shows that the cost of physical risks within the “current

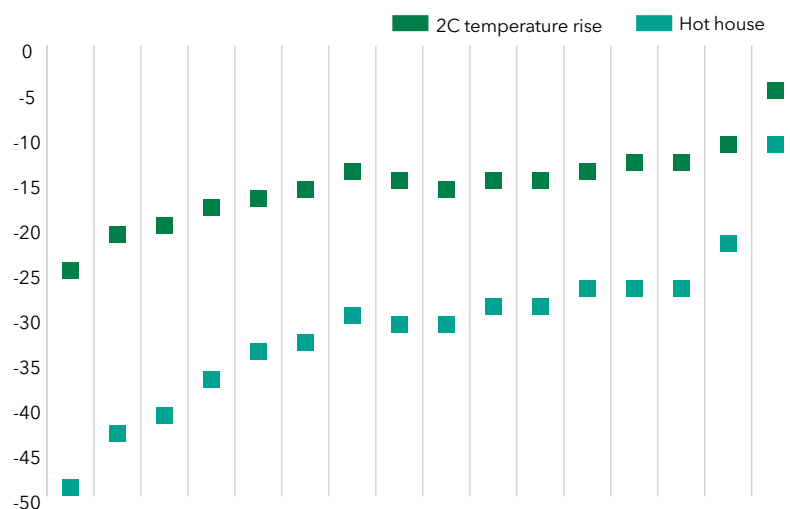
Climate risk: Not the day after tomorrow



Guest comment by **Frederic Blanc-Brude**

Physical risk to infrastructure assets can result in major losses, and sooner than many expect. The EDHEC Infrastructure & Private Assets Research Institute quantifies those losses in different climate scenarios

Maximum loss due to physical risk in two climate scenarios for different portfolio sizes (%)



Source: EDHEC Infrastructure & Private Assets Research Institute

policies” scenario represents, on average, 4.4 percent of the total NAV of the assets in our reference database by 2050. The average maximum loss is -27 percent, and we see that the effect of extreme climate events is negative across all sectors, impacting the NAV of transport (-10 percent on average, maximum -97 percent) and the energy and water resources sector (-7 percent on average, maximum -40 percent).

Moreover, most infrastructure investors hold a few individual assets and therefore have potentially high concentration in physical risks. Investors who hold direct stakes, be they fund managers or asset owners, usually have fewer than 20 investments. The average asset owner has fewer than 10 direct stakes.

Using asset-level loss estimates for more than 700 infrastructure companies in different climate scenarios, we built

thousands of random portfolios with between five and 20 assets and stacked the climate losses by 2050. While lucky investors can find themselves with limited climate-related losses by 2050, many are not so lucky. The most unfortunate face large losses, especially if they are not diversified across many assets.

As such, when an investor is exposed to the riskiest assets in the same portfolio, maximum losses for those investors exposed to a few of the riskier assets can mount to -27 percent in the orderly transition scenario and to -54 percent in the “hot house” scenario.

Long-term planning

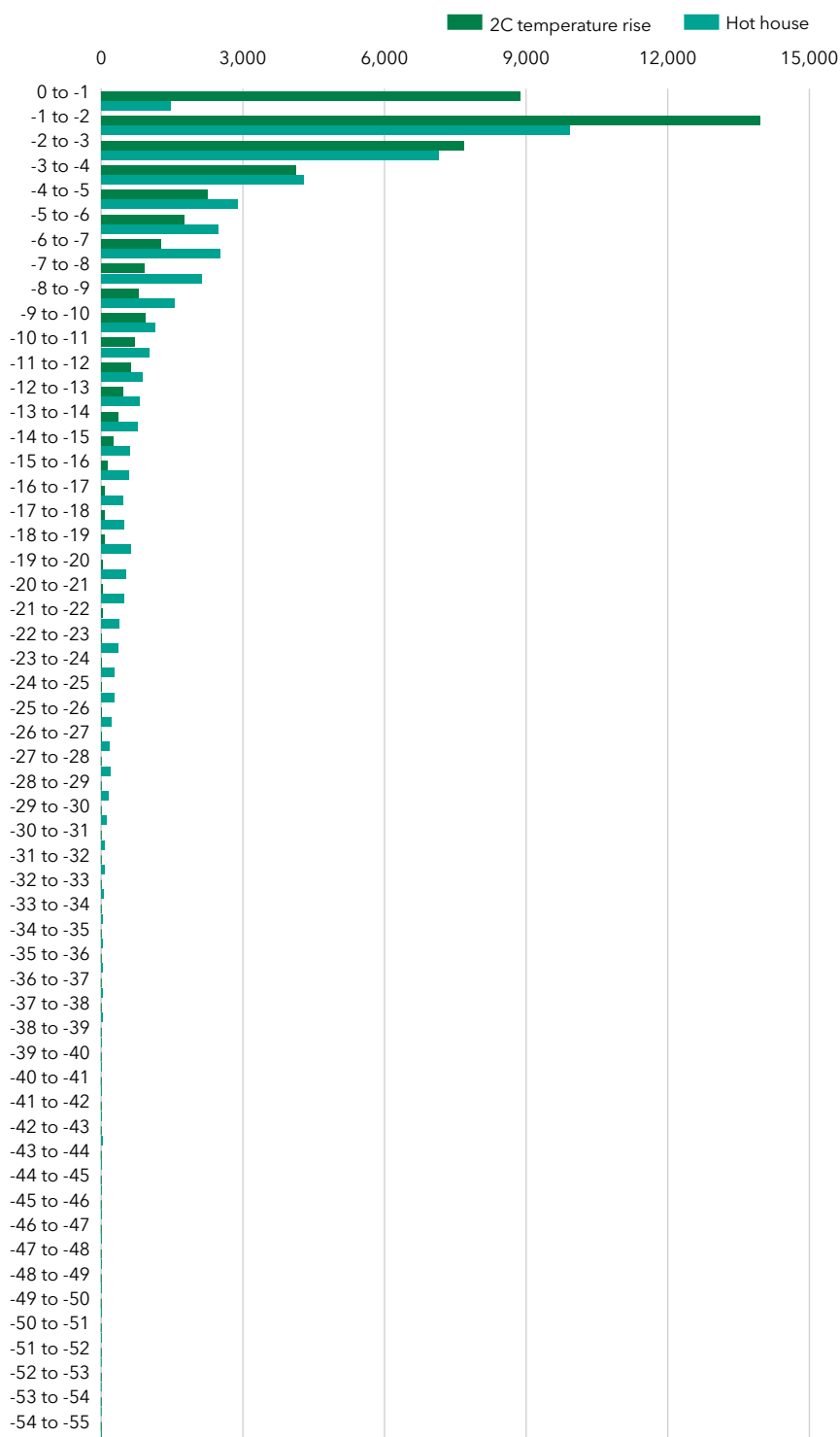
While 2050 is decades beyond the investment horizon of funds, many are now exposed to much longer-term commitments. Plus, the next generation of funds will pick up the same assets.

Climate change risks are already material for a number of investors in infrastructure assets, even if these are located in developed economies. This challenges the intuition of many investors that these risks would impact first and foremost the poorer populations of the global south. Instead, the reverse is true: more value will be destroyed in places where more valuable assets exist.

It should also be noted that our loss estimates can be considered very conservative in light of the very limited impact of physical risk on the economy implied by the scenario used by the Network for Greening the Financial System. A ‘too little, too late’ scenario, by which emissions keep rising and climate change accelerates, would show a rapidly decreasing value of infrastructure assets due to their loss of future revenues, itself the result of a less active economy, mostly due to chronic heat.

This focus on the materiality of the physical risks allows climate risk to be seen not solely as the result of a public policy decision but as a reality that, without action from all stakeholders, including governments, will have a very significant impact on the value of investments. ■

Distribution of losses due to physical risks in different scenarios for thousands of infrastructure portfolios (range of percentage loss for the fund)



Source: EDHEC Infrastructure & Private Assets Research Institute

Based on work by Noel Amenc, Bertrand Jayles, Qinyu Goh, Abhishek Gupta and Darwin Marcelo - EDHEC Infrastructure & Private Assets Research Institute. Frederic Blanc-Brude is director at EDHEC Infrastructure & Private Assets Research Institute and is also CEO of Scientific Infra & Private Assets Ltd, a data provider.