

Impact Blog

Climate change threats to US infrastructure

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|-----------|-------------|----------|------------|---------------|---------------------|---------------------------------|------------------|------------|--------------|--|
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|-----------|-------------|----------|------------|---------------|---------------------|---------------------------------|------------------|------------|--------------|--|

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Research

Climate change threats to US infrastructure



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Washington - Climate change and extreme weather are quickening the deterioration of the aging infrastructure system in the United States. As the frequency and severity of weather events increase, vulnerable areas and populations will experience greater stress. Urban and coastal regions are particularly at risk, with negative impacts to business, trade, local and regional economies, as well as public health and safety. Failing to address infrastructure needs may cost the U.S. GDP more than \$4 trillion by 2025.¹

Rising sea levels will affect coastal regions, while erosion and landslides threaten buildings, roads and other infrastructure. Along U.S. coastlines, nearly \$1 trillion in national wealth is threatened, along with 60,000 miles of U.S. roads and bridges inland, according to the Fourth National Climate Assessment (NCA).² The NCA says we must act quickly to reduce greenhouse gas (GHG) emissions and curb climate change to reduce infrastructure losses.

Urgent need to upgrade

Every four years, the American Society of Civil Engineers (ASCE) evaluates the state of America's infrastructure across 16 categories, issuing a state-by-state "report card." In 2017, U.S. infrastructure received a D+ overall score, the same rating as in 2013. Twelve of the 16 categories reviewed landed in the "D" range, including drinking water, transit, energy, hazardous waste, roads, aviation, levees and schools. Only one area - rail - made a B grade.

Infrastructure risks affect not only regional economies, but businesses as well. There is increasing risk of physical disruption to a company's operations and its supply chains if it is located in a high-impact region. Businesses also face potential risk and higher costs from an increase in regulatory requirements around sustainable sourcing, carbon emissions, toxic emissions and waste management.

Building gray to green

There is a path forward. Strengthening infrastructure systems creates business and market opportunities. This is especially evident in the building industry, where there has been huge momentum toward "green" building. Green buildings are designed, constructed and operated to optimize energy use, water use and indoor environmental quality as well as minimize impact to the site. The green building materials market is projected to grow from \$139 billion in 2016 to \$364 billion in 2022.³ Building green represents a significant opportunity to generate revenues, improve environmental performance and reduce human health impacts.

A larger emerging trend from green buildings is a move toward "resilient" cities, as municipalities establish their own energy, carbon emission and infrastructure goals. By 2050, 68% of the global population is expected to live in cities,

"Companies have a key role to play in building infrastructure resilience, in the U.S. and globally."

which are largely held together by concrete.⁴ The production process for this ubiquitous "gray matter" releases tons of carbon dioxide into the atmosphere each year, contributing to climate change. Cities around the world are investing more resources to move from gray toward green infrastructure.

Emerging trends and new technologies

Companies involved in infrastructure development are capitalizing on these trends, and increasingly considering the full lifecycle impacts of products, from sourcing to end-of-structure. Sourcing solutions can include, for example, use of certified wood products or recycled materials. Today, building products are designed to be more energy efficient, bolstered by significant advances in materials science, including new technologies such as pollution absorption, thermal insulation and light generation. These advances are contributing significantly to reducing GHG emissions around the world, helping to mitigate climate change impacts.

From policymakers to urban planners, there is widespread agreement that U.S. infrastructure is deteriorating and the need to act is urgent. Companies have a key role to play in building infrastructure resilience, in the U.S. and globally. Those firms that focus on solutions like infrastructure repair or new, sustainable technologies are likely to benefit from long-term growth opportunities.

Bottom line: Infrastructure solutions, from repair to green building and other new, sustainable technologies offer companies long-term growth opportunities. Calvert seeks these types of companies for investment across our portfolios.

1. Estimated at \$3.9 trillion (in 2015 dollars). American Society of Civil Engineers (ASCE)'s 2017 Infrastructure Report Card, p 110. Accessible at <https://www.infrastructurereportcard.org/>



2. USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II. Accessible at <https://nca2018.globalchange.gov/>

3. Grand View Research, "Green Building Materials Market Size, Share & Trend Analysis Report By Product, By Application (Framing, Insulation, Roofing, Exterior Siding, Interior Finishing), and Segment Forecasts, 2012 - 2022," March 2018

4. United Nations Department of Economic and Social Affairs, "68% of the world population projected to live in urban areas by 2050, says UN," May 16, 2018. Accessible at <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>

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