How will climate change impact telecommunications & data center companies?

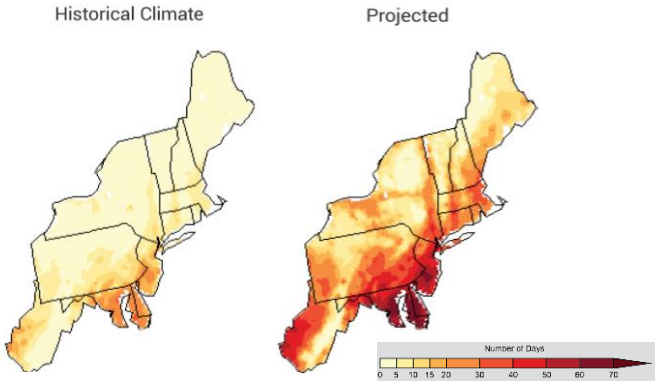
From extreme storms to incremental changes, telecommunications and data center companies are already feeling the impact of a changing climate. These impacts threaten to disrupt their supply chains and operations as well as cause costly damage to assets and infrastructure of companies in both sectors. This fact sheet offers some first steps toward increasing companies' resilience to climate change in the Northeast.

Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, and the District of Columbia

northeast

Changing conditions increase operating costs and customer dissatisfaction. In the Northeast rising temperatures will change how data centers are cooled and the efficiency of telecom transmission networks.

Extreme weather disrupts vital communications when governments, citizens, and companies need it most, putting national security and human welfare, and business value, at risk.



Hot days above 90°F will become more frequent and more severe by 2041

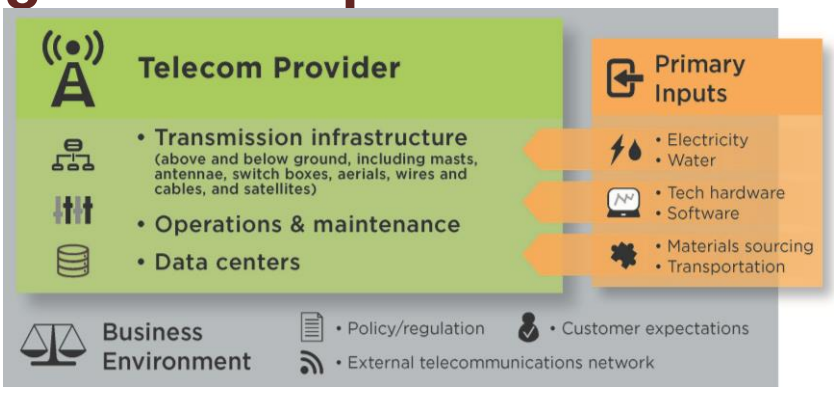
Projected increase in the number of days per year with a maximum temperature greater than 90°F averaged between 2041 and 2070, compared to 1971-2000, assuming continued increases in global greenhouse gas emissions (A2) (NCA 2014).

Temperatures and the frequency and intensity of extreme rain events are already increasing in the Northeastern United States. In the future, heat waves, ice and snow, heavy downpours, and sea level rise will pose greater challenges to business and society in this region. These challenges will be magnified by the region's dense population of sixty-four million people and its dependency on aging infrastructure.

case study

During Hurricane Sandy, telecom companies on the Eastern seaboard witnessed first-hand that their infrastructure and operations were not able to cope with extreme weather. Flooding and storm surges caused power failures, and inadequate backup generators rendered many sites inoperable. The storm also caused significant physical damage, knocking out 25% of all cell towers in an area spread over the coasts of 10 states. The storm seriously impacted service provision just when customers needed it most. Now major telecoms companies like Sprint and Verizon are working to build resilience and ensure that they avoid outages, customer complaints, and financial losses next time extreme weather hits. To see what Verizon is doing to increase its resilience, visit: http://www.verizonwireless.com/aboutus/commitment/emergency-preparedness.html

global companies need resilient supply chains



The supply chains supporting telecoms and data centers are complex and face a wide range of potential impacts from climate change. Complexity means that climate impacts to one part of the supply chain in one region of the world can have consequences for other parts of the supply chain in other regions. Companies need to look for climate risks in each tier of their supply chain.

Climate risks for telecommunications and data centers

northeast

climate factors	potential impacts
Increases in maximum temperature	• Higher frequency, duration, and intensity of heat waves create additional burdens on keeping equipment cool in data exchanges and base stations, resulting in increased failure rates • Increases heat-related health and safety risks to exposed workers (e.g., maintenance engineers, drivers, staff in exchanges)
Increases in precipitation	• Leads to coastal and river flooding of low-lying and underground infrastructure and facilities • Causes erosion/flood damage to transportation infrastructure and potentially exposes cables • Leads to inability to access assets
Increased frequency of extreme events	• Damages infrastructure • Increases risk of disruption to the electricity supply on which telecommunications and data centers rely • Reduce capacity to handle increased demand for services, especially during a major snow/ice storm.
Sea level rise	• Increases in storm surges increase the risk of saline corrosion of coastal telecommunications infrastructure • Leads to erosion or inundation of coastal and underground infrastructure

determine adaptive capacity

Use this checklist to start assessing how resilient your business is to less predictable weather and a changing climate.

- ✓ What backups and contingencies do you have in place to protect vital assets or operations?
- ✓ What financial options do you have in place that allow you to rebound from disruptions or change?
- ✓ How have past disruptions or extreme events impacted your business?
- ✓ Do critical tiers of your supply chain have redundancies in place to serve as backups?
- ✓ What are your business planning time frames?
- ✓ What shared infrastructure do you have?
- ✓ What is the rate of technological development and what are infrastructure lifespans? Shorter lifespans provide flexibility to respond quickly to changes in climate.

assess response strategies

There are many ways to build resilience. Here are some initial responses to consider.

- *Decouple communication infrastructure from the electric grid* where possible, for example, with microgrids.
- *Move equipment out of basements or ground floors in areas at risk of flooding*, or put them on rolling carts
- *Relocate or fortify* critical telecom assets such as terminals, cell towers, power facilities, or central offices out of existing and future floodplains, as well as out of coastal areas threatened by sea level rise or storm surges.
- *Identify resilient energy synergies*. Energy efficiency strategies not only reduce emissions but also lower your dependency on the electricity grid, which can suffer due to increased energy demand during heat waves and storm damage.

learn more

The full report, *Climate Risks Study for Telecommunications and Data Center Services,* is available at www.sftool.gov

The National Climate Assessment has more figures and details about climate change in your region at nca2014.globalchange.gov

Questions? Please email adaptation@gsa.gov or visit www.gsa.gov/climateadaptation

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