



How will climate change impact telecommunications & data center companies?

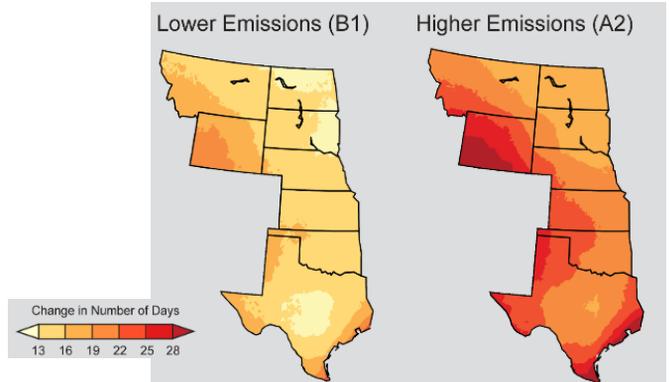
Kansas, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming

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 Great Plains.

Great Plains

Climate is changing and impacts on telecoms and data centers are already being felt. From extreme weather to gradually changing baseline conditions, the operating environment for telecoms and data centers are shifting.

In the Great Plains, temperatures have already been rising, leading to increased demand for water and energy, which increases costs and squeezes asset operating margins.



The number of hot days per year are expected to increase dramatically. The number of extremely hot days is expected to increase by 2041-2070 whether future greenhouse gas emissions are high or low. This change is compared to average temperatures in 1971-2000 (NCA 2014).

Temperatures are predicted to continue to rise, leading to more frequent and intense droughts, severe rainfall events, and heat waves. This poses additional challenges to a region which already experiences multiple climate and weather hazards, including floods and droughts. These variable conditions stress communities and cause billions of dollars in damage; stressors climate change will increase.

case study

A severe weather event like Hurricane Ike shows the potential impact of climate change on business continuity for telecom companies and their customers. Hurricane Ike, which hit parts of the Great Plains in September 2008, left many locations across northeast Texas without power or communications for almost a week. However, Verizon's service remained strong; it had an 87% successful call rate during a network test 24 hours after the storm hit, due to its focus on reliability and preparation for extreme weather events. To learn more about 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

Great Plains

climate factors	potential impacts
Increases in maximum temperature	<ul style="list-style-type: none">• 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 in temperature can stress communications equipment and infrastructure, reducing life span• Increased energy demand during heat waves can result in power outages
Decrease in precipitation	<ul style="list-style-type: none">• Can cause land subsidence and heave, reducing the stability of telecom infrastructure both above and below ground• Increases seasonal water scarcity, reducing the amount of water available for cooling data centers
Increased frequency of extreme events	<ul style="list-style-type: none">• Increases the risk of disruption to the electricity supply on which telecoms and data centers rely• Reduced capacity to handle increased demand for services, especially during a major snow/ice storm

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.

- *Explore methods to increase water efficiency or identify new water sources for cooling data centers*
- *Relocate or fortify* critical telecom assets such as terminals, cell towers, power facilities, or central offices out of existing and future floodplains.
- *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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