GAO Highlights

TELECOMMUNICATIONS

FCC Should Improve Monitoring of Industry Efforts to Strengthen Wireless Network Resiliency

Why GAO Did This Study

Americans increasingly rely on mobile wireless communications for safety-related communications like calling 911 and receiving weather alerts. Mobile wireless networks face risks from physical incidents including extreme weather events and intentional and accidental damage. For example, in 2017 several major hurricanes damaged wireless network infrastructure, leaving many U.S. citizens without reliable access to wireless communications.

GAO was asked to review federal efforts to improve the resiliency of wireless networks following natural disasters and other physical incidents. This report examines: (1) trends in mobile wireless outages reported to FCC since 2009 and (2) actions federal agencies and industry have taken since 2013 (after Hurricane Sandy) to improve wireless network resiliency, among other objectives. GAO analyzed wireless outage data from 2009 to 2016 (4 years before and after Hurricane Sandy); reviewed FCC, DHS, and industry documents; and interviewed stakeholders who represented a variety of perspectives, such as industry, public safety, and consumer groups. GAO assessed FCC's efforts to monitor an industry initiative to improve wireless network resiliency against federal internal control standards.

What GAO Recommends

FCC should work with industry to develop specific performance measures for the Wireless Network Resiliency Cooperative Framework, monitor the framework's outcomes, and promote awareness of it. FCC agreed with the recommendations.

What GAO Found

The number of wireless outages attributed to a physical incident—a natural disaster, accident, or other manmade event, such as vandalism—increased from 2009 to 2016, as reported to the Federal Communications Commission (FCC). During this time, the number of outages substantially increased from 189 to 1,079 outages, with most of the increase occurring from 2009 to 2011. FCC officials said this increase was due in part to growth in wireless customers and wireless infrastructure. Almost all outages attributed to a physical incident were due to an accident, such as damage to a cable due to a digging error (74 percent) or a natural disaster (25 percent). However, outages due to a natural disaster had a longer median duration (ranging from 19 to 36 hours), which was more than twice as long as outages caused by an accident. Power failures and failures in other providers' networks also play a role in wireless outages attributed to physical incidents. For instance, carriers reported that 87 percent of wireless outages attributed to a physical incident were due to a failure in another provider's network on which they rely.

Since 2013, federal agencies and industry have taken actions to improve the resiliency of wireless networks. For example, the Department of Homeland Security (DHS) and FCC charter federal advisory committees that have examined resiliency issues and potential solutions, such as sharing infrastructure during emergencies. FCC also proposed a rule that would disclose how individual wireless carriers' networks performed during emergency events. In response, an industry coalition announced an initiative—the Wireless Network Resiliency Cooperative Framework—whereby carriers agreed to allow roaming on each other's networks and aggregated statistics to be published on how networks performed during emergency events. This initiative prompted FCC to not adopt its proposed rule. FCC said it would engage with industry about the framework's implementation and use, but FCC has limited formal plans to oversee or spread knowledge of the framework:

- FCC developed a plan to track the completion of initial implementation tasks outlined in the framework, but this plan does not include steps to track or evaluate any outputs or outcomes from the framework.

- FCC and industry documents describe broad goals for the framework, such as advancing information sharing during and after emergency events, but neither FCC nor industry has set any specific measures to help determine whether the framework achieves these broad goals.

- Although some public safety officials and other stakeholders GAO contacted were not aware of the framework, FCC did not have plans to actively communicate information about the framework to these audiences.

More robust measures and a better plan to monitor the framework would help FCC collect information on the framework and evaluate its effectiveness. Such steps could help FCC address any challenges or decide whether further action is needed. Also, by promoting awareness about the framework, FCC would help public safety officials and other industry participants to be well positioned to use the framework to help them prepare for or respond to emergency events.

_____ **United States Government Accountability Office**