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LESSON LEARNED

Emergency Communications: Ensuring Telecommunications Capabilities during Power Loss

SUMMARY

State emergency managers should partner with state and local telecommunications providers to review plans for service during extended power outages. State managers should also support alternative methods of communication, such as amateur radio systems, to ensure emergency communications during periods of electrical power loss.

DESCRIPTION

The state of Iowa experienced two consecutive winter storms of historic severity during a week-long span in late February and early March 2007. The first storm struck Iowa on February 24, bringing freezing rain and sleet to eastern and central parts of the state. The second storm arrived 5 days later, blanketing central and western portions of Iowa with blizzard conditions and record snowfalls in some areas. The storms destroyed electrical lines and caused roads to become ice covered, creating unsafe driving conditions. The amount of ice accumulation necessitated the closure of roads and the re-routing of traffic. Over 134,000 Iowans lost power during the storms. Together, the two storms caused a combined \$65 million in state and federally reimbursed damages. This total was only surpassed by the destruction caused by floods in 1993.

RACOM operates an 800 MHz trunked digital wireless network throughout Iowa and neighboring states. RACOM's Enhanced Digital Access Communication System provides integrated voice and data services with radio towers located throughout the state.

The severe ice storm caused a prolonged loss of electrical power, which incapacitated Iowa's telecommunications infrastructure. Many telecommunication nodes lost power for extended periods of time. This crippled power sources that were essential for phone and Internet networks such as Voice over Internet Protocol phone service. Citizens and businesses relying on these services lost all access to phone and Internet capabilities. Several 9-1-1 call centers in Cedar, Iowa, Johnson, and Muscatine counties also had telephone service affected. The loss of communications systems hampered the ability of the state to disseminate emergency public information through media outlets. The loss of electricity also limited the public's ability to receive emergency instructions during the winter storms.

Telecommunication nodes are power sources on the fiber optic systems that supply broadband service to telephone carriers. Each node serves between five and fifty customers. These nodes rely upon electricity either from the larger electrical grid or from battery back-ups that provide power for 2 to 24 hours.

Telephone companies attempted to deliver portable electric generators to supply the telecommunication nodes with power. However, the snow and ice hampered travel to the node locations. Even when generators could be delivered, they still required maintenance and fuel to continue operating. The Iowa State Emergency Operations Center addressed the lack of telecommunications capabilities by staffing amateur radio networks and the 800 MHz RACOM Enhanced Digital Access Communication System as alternate communication systems. Each received resource requests, shelter updates, and weather information from the field. These systems required considerable staffing commitments from Amateur Radio Emergency Services and the Iowa Wing of the Civil Air Patrol to sustain 24-hour shifts during the winter storms. In spite of the time commitments, these alternate systems provided communication channels when traditional systems were inoperable.

State emergency managers should partner with local telecommunications providers to review plans for service during extended power outages. State managers should also support alternative methods of communication, such as amateur radio systems, to ensure redundant emergency communications during periods of electrical power loss.

CITATION

Iowa Homeland Security and Emergency Management Division. *2007 Winter Storm After Action Report: State of Iowa Response Coordination*. 07 Jul 2007.
<https://www.llis.dhs.gov/docdetails/details.do?contentID=26358>

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