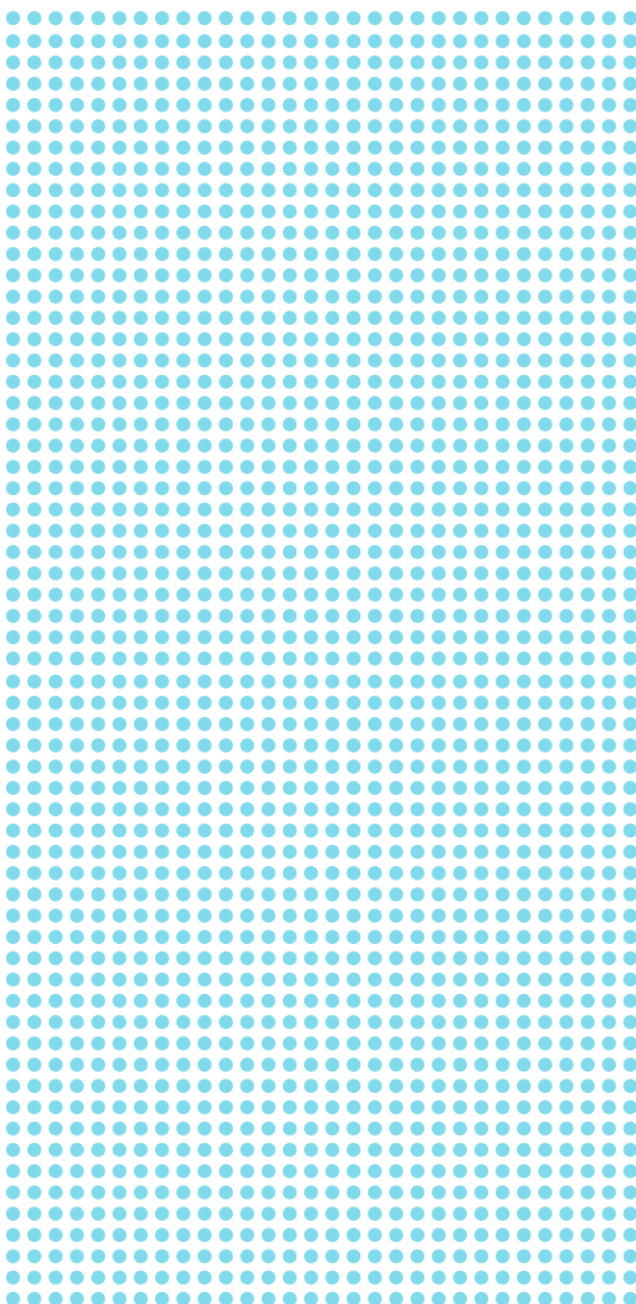# Tough Calls

Dedication in the face of disaster

FOREWORD

Every day, disasters threaten lives, homes, and property around the world. Hurricanes, wildfires, tornados, earthquakes, volcanos, floods, drought, landslides, terrorist attacks and more, damage and destroy the people and things we hold dear.

Wherever disaster strikes, you will find first responders willing and ready to serve. Firefighters, utility workers, police officers, rescue crews, EMS and many others put their lives on the line to protect and provide for their own communities and beyond. At those times when our instincts just want us to be with our families, first responders are heading to the front lines.

And they are not alone. In the background, teams of workers are supporting, directing, feeding, managing and communicating, to ensure those on the front line have what they need to do their jobs.

We've looked at significant recent disasters, and from the many individual stories, we have identified some that illustrate the work of first responders, the organizations that support them and the communities they serve.

In this paper, we'll discuss:

- ▸ Dedicated workers, dedicated employers,
- ▸ Giving and receiving mutual aid,
- ▸ Pitching in – doing what needs to be done,
- ▸ How ready are you?
- ▸ Practice makes perfect,
- ▸ Disaster-ready communications,
- ▸ Networking your networks,
- ▸ Situational awareness – the big picture,
- ▸ Choosing tech partners you can trust.

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DEDICATED WORKERS, DEDICATED EMPLOYERS

In the aftermath of Hurricane Florence, over 40,000 utility workers were mobilized in the Carolinas and Georgia. Many of these people's own homes were flooded, their loved ones were evacuated or in shelters. Yet they were tasked with eliminating live wire danger, ensuring power to critical infrastructure, and re-establishing service as quickly as possible – all while flood waters swirled and rain poured down for days on end.

"Crews in the field worked 16 hours a day," says Gay Johnson from Four County Electric Membership Corp. This kind of response demands extreme dedication. Knowing that their communities needed power restored, they went to work in difficult, unpleasant, even treacherous conditions.

In another inspiring story from North Carolina's Four County Electric, many first responders had to evacuate their families to shelters while they worked long hours to restore power. Since workers couldn't directly support their own families, the company designated to one employee the role of "family trouble shooter."

Gay Johnson explains: "He goes out and places tarps and does what he can to help limit the damage. Meanwhile, all of our employees are on board with their mission: getting the power back on for the members."

As an employer, that makes sense; when you ask your people to demonstrate dedication to your customers and communities, you lead by example and demonstrate commitment to your people. Prioritizing family safety and security ensures workers' peace of mind when the demands of their jobs mean they cannot be with their families.

"What you regularly do Monday through Friday when all is well is always important, but it may not be at all what's needed most right now."
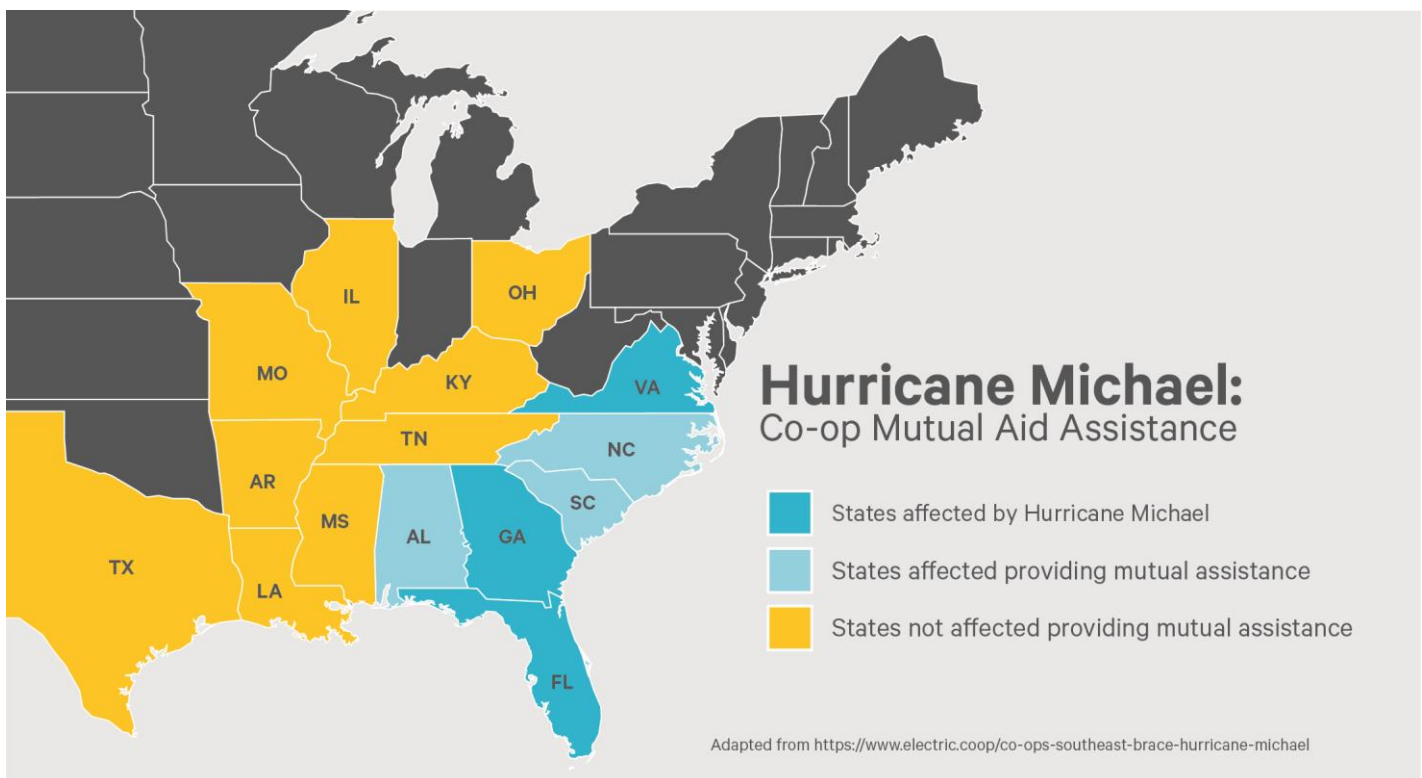
*Check out the article on **Dedication** from Joy Ditto, President and CEO of UTC.*

GIVING – AND RECEIVING – MUTUAL AID

Some events are so large that local first responders need reinforcements to effectively respond. Often this is between neighboring counties, but it can also occur on a global level.

When the city of Christchurch, New Zealand was struck by an earthquake, almost 700 rescue workers came from all over the world to search for, and rescue survivors. As aftershocks continued, urban search teams from the United Kingdom, United States, Japan, Singapore and Taiwan arrived within hours. While some arrived with their own communications, other equipment critical to the rescue effort was made available on the ground. With the beleaguered city the headquarters for Tait International Ltd, local Tait technicians worked round the clock setting up, training and supporting the crews as they arrived. For many, it provided valuable first-hand experience of what Tait customers face.

In response to Hurricane Michael, the below image (adapted from the original by NRECA) shows the extent of mutual aid assistance – including between states that were also affected by the storm.

Hurricane Michael:
Co-op Mutual Aid Assistance

- States affected by Hurricane Michael
- States affected providing mutual assistance
- States not affected providing mutual assistance

Adapted from https://www.electric.coop/co-ops-southeast-brace-hurricane-michael

Coordinating with mutual aid partners requires significant preparation and effort, however.

There are several ways you can approach it:

- One strategy is to maintain a cache of radios to lend out to mutual aid partners, to get reliable communications on the ground fast. It's important that software is updated, batteries charged and regular checks and maintenance performed, just like your regular fleet. Of course your mutual aid partners need to know where the radios are and how to use them.

- Alternatively, coordinating open standard communication choices across boundaries allow your neighbors to use their equipment on your network – or your equipment on theirs. (Conversely, proprietary technologies and features can bring mutual aid to a

grinding, life-threatening halt.) This approach can potentially allow you to monitor all teams, regardless of their origin, through dispatch location services.

▶ If you're offering mutual aid, bringing your own communications that can talk in radio-to-radio mode can also keep your team in touch with each other. During Hurricane Irma, for instance, Alliant Energy sent 200 personnel from Iowa and Wisconsin to support Florida's relief efforts. The analog Talkaround feature allowed volunteer teams to remain in touch, despite being hundreds of miles from their network's closest base station.

PITCHING IN – DOING WHAT NEEDS TO BE DONE

Regardless of your day job, when disaster strikes everyone needs to be ready to tackle any job. It might be messier than you're used to, or it might require you to learn new skills on the fly. Effective organizations frequently demonstrate this kind of flexibility in the way they care for their front liners and support crews. Other agencies may bring their expertise, but everyone needs support, including orientation to an unfamiliar environment, hot food and a place to stay. That takes an all-hands effort.

In North Carolina, utilities personnel proved their willingness to be flexible. After Hurricane Florence, Lisa Galizia, communications director of the Carteret-Craven Electric Cooperative explained: "People who do certain jobs under normal circumstances get assigned to much different roles during emergencies like this, because they are essential. At times like this, what matters is lodging visiting crews, keeping everyone fed, getting supplies out, and bird-dogging for line crews unfamiliar with your territory."

"We're pumping out grits, bacon and eggs to the crews, while our staffers load up trucks and trailers with the poles, transformers and other equipment they'll need to at least start the day," said Galizia.

Meanwhile, CEO Paul Spruill of Tideland EMC drove a school bus to move work crews, and the company's HR director, Myra Beasley, spent more than 12 hours each day in the YMCA kitchen preparing meals for first responders.

During Hurricane Michael, an apprentice line technician from Talquin Electric hosted an entire mutual aid crew from Marshfield, Missouri at his own home – just days after he and his wife had married.

"...when disaster strikes everyone needs to be ready to tackle any job."

HOW READY ARE YOU?

Possibly the greatest barrier to effective disaster response is low levels of preparedness. While surprisingly common, "waiting to prepare" can be disastrous. It is much easier to develop your plan while the sun shines, than when you have lost your roof, a school is in lockdown, or there is six feet of floodwater in your main street.

First off, you need to recognize that disaster planning is not straightforward; it involves taking a good hard look at your community and your organization, then asking some tough questions.

▶ First of all, you need to determine what kind of disasters are real threats in your area. You may not worry about hurricanes or earthquakes in the Midwest, but what about tornados? Out west, the risk of flooding may be low, but earthquakes and wild fires are constant threats. And of course, sadly it's true that everyone must be vigilant against violent mass crimes. Remember that you may have to be independent for 72 hours or more, without power, fuel or support.

▶ Now look back on how your organization has responded to past events. What went well? What did not? Where can improvements be made? What changes have occurred (to infrastructure, population, technology, individual awareness) since then? An area last hit by a hurricane 50 years ago will not respond in the same way today, regardless of how successful that response may have been at that time.

Once you have identified your community's possible risks, you can build response plans for each one.

See this white paper on preventing escalating chaos in a disaster.

PRACTICE MAKES PERFECT!

Having a plan is important, but it can only help if everyone knows the plan and is comfortable with it. If a football coach designed game plans but never practiced them, you wouldn't expect that team to succeed on game day. In the same way, your people must practice different safety drills and emergency plans to prepare them for future events.

Practice drills may seem tedious on fair weather days, but they can be – quite literally – the difference between life and death for first responders and the communities they serve. When you put your plan to the test before disaster strikes, you can look for strengths and weaknesses, review and update, ensure your people are prepared, and test your communications systems for efficacy.

READY FOR THE NEXT MAJOR EVENT?

Take the test.

▶ **When was the last time we updated and tested our emergency strategy?**

▶ **Are our service providers and partner agencies' emergency processes robust and well-practiced?**

▶ **Do we have established and effective lines of communication with our off-duty personnel, our service providers and other emergency agencies?**

▶ **Do our emergency personnel train and practice for major national disasters every year?**

▶ **How do we locate, communicate with, and help those in our community who can't reach us?**

▶ **Have we established relationships with our stakeholders, local businesses (i.e. hardware suppliers, concrete cutters), and community groups who we can work with in an emergency?**

▶ **Do we have a communications plan and a team able to communicate with the public via conventional, broadcast, and social media?**

▶ **Does our community understand the risks, and are they prepared to survive independently for up to three days after a disaster?**

DISASTER-READY COMMUNICATIONS

Storms and other disasters have a nasty habit of knocking out power, and very often, public communications networks go with it. In a major disaster, telephone systems (especially cell phone systems) frequently fail. As wildfires raged across California, mobile phones went silent as towers and lines succumbed to the flames, leaving citizens unable to receive automated warnings or call 911 for help.

"We had to drive through neighborhoods with sirens and public address systems to alert residents and visitors," said David Katz, a spokesman for the Malibu Search and Rescue Team. "In some cases, we had to go house to house on foot."

Dane Clemons, the director of Information Technology and Communications at Talquin Electric, explained the importance of reliable communications during storms in 2017. "When a storm such as Irma comes to town it brings a lot of pre-storm and post-storm anxiety. Knowing that you have clear and reliable communications helps relieve some of that. During Irma, our Tait radio system performed solidly and was never a concern. Communications were clear and reliable throughout the entire event, which ultimately contributed to a timely restoration operation."

In Marshalltown, Iowa, the headquarters of Racom took a direct hit from an F-3 tornado. Responsible for managing critical communications for multiple Iowa public safety agencies, and despite the devastation they had experienced, Racom demonstrates their resilience under duress in this video.

A consistent theme echoes throughout all of these examples: without communication, we're alone and isolated; effective communication ensures we're able to help and support others when they need it most. Check these 10 tips, to make sure your communications are disaster-hardened.

1. In a major disaster, you cannot rely on public cellular systems which are frequently overloaded, or fail entirely.

2. Disaster planning must limit access to critical users only. You will not have enough channels in extreme situations.

3. Identify, protect and prioritize critical user groups in advance, and build them into your talkgroup structure.

4. Define your interoperability needs – who needs to talk to whom?

5. When will you use encryption? Can you communicate effectively with all the necessary agencies and groups?

6. Consider investing in transportable repeater systems that can be rapidly deployed.

7. Train and practice your communications in simulated emergencies at least annually.

8. Plan for a scenario in which your computer systems are not available. Ensure all your procedures are thoroughly documented in electronic and hard copy formats, easy to follow and easy to find by everyone who might need them.

9. You will lose power to your system – plan for it with dual redundancy (AC then battery then generator).

10. Eliminate single points of failure at the system design stage. Invest enough to stay on air through critical events, ensuring power to sites throughout.

Learn more about Tougher LMR Systems: 10 Ways to Protect and Strengthen your LMR system.

"… without communication, we're alone and isolated; effective communication ensures we're able to help and support others when they need it most."

NETWORKING YOUR NETWORKS

In Houston, both P25 and LTE networks were critical to Hurricane Harvey response and recovery. In her recent article, Sandra Wendelken from MissionCritical Communications explains: "County officials used many of the same apps during the hurricane as they did during the Super Bowl in February. Those apps allowed them to send photos, and Sonim Technologies dual subscriber identity module (SIM) cards allowed officials to travel outside the network's band 14 coverage and roam onto commercial networks."

Both networks experienced a small number of site outages due to record-setting flood water, but provided effective cover for each other. During Hurricane Florence, FirstNet proved itself, demonstrating the strength in both technologies, as you can see in this video.

However, LTE and cellular are still experiencing growing pains when it comes to resilience and service provision. After Hurricane Michael, Florida Governor Rick Scott acknowledged telecommunications as one of the most frustrating problems. According to the FCC, four days after the Category 4 hurricane made landfall, Florida had 383 cell sites out of service, Georgia had 90 sites down, with a further eight out in Alabama.

The California wild fires provide another example. Demonstrating a blatant discrepancy between commercial and broader public interests, firefighters were unable to communicate effectively when Verizon throttled their data speed.

In his article Is Disaster Communications the new Norm?, communications writer and consultant Andrew Seybold explained the need for a network of networks: "I keep coming back to the fact that I do not know of a single network in the world that can withstand everything nature throws at it or that terrorists might do to disable it. Knowing that LMR, FirstNet, and now more and more, WiFi is available to public safety makes more sense to me and helps me sleep at night."

Combining technologies into a network of networks in this way strengthens communications for first responders in any situation, enhancing their safety and their ability to work in extreme situations. Manufacturers have begun to roll out new products and solutions with built-in redundancy that gives you communications security and peace of mind. For example, Tait Unified Vehicle gives you access to broadband data, voice through the radio network, and Wifi, wherever they are available. Should you lose service on any network, first responders can still communicate through the remaining networks.

FIVE REASONS WHY MISSION CRITICAL RADIO SYSTEMS ARE SO RESILIENT:

▶ **If power is lost, battery backups or generators keep systems online.**

▶ **Even if the radio network fails, users can still communicate with each other through simplex (direct) mode.**

▶ **Dedicated channels keep clear of overloaded public networks.**

▶ **Public safety radios are purpose-built for extended shift life.**

▶ **Designed and tested to military specification, radio communications are reliable in the most extreme adverse conditions.**

SITUATIONAL AWARENESS – THE BIG PICTURE

Following the major earthquake which struck the country's second-largest city, New Zealand's Director of Civil Defence and Emergency Management, John Hamilton, stated:

"Situational awareness is absolutely critical. The flow of information by whatever means – whether it is through the man on a bike or a high technology device – is vital. We need to know everything, from the status of the hospital, airport and roads, right down to the acute trauma capacity, locally and in other national hospitals."

Different emergencies demand different insight. Other questions might include:

▶ Where are your workers?

▶ Where are the power outages?

▶ What tools and personnel are needed, where?

▶ Who needs rescue and what resources are required?

▶ What is the heart rate of firefighters battling a wildfire?

While voice communication will continue to provide insights, automated machine-to-machine data adds greater situational awareness. IP linking and monitoring software can communicate the status of your network. SCADA can tell Utilities where power is out, or share information on water flow. Man Down alerts can notify dispatch if a first responder is injured.

Dennis Buchanan, Rappahannock Electric Cooperative Communications Technician explained situational awareness from a safety perspective, citing the system as saving a lineman's life. The emergency notification system led to his survival because from the time of line contact, to notification Dispatch (sic), and to being transported to the hospital was just twenty minutes.

CHOOSING TECH PARTNERS THAT YOU CAN TRUST

We have already discussed the importance of your mutual aid partnerships, but just as important are your technology partners. During large scale events, when you require additional resources, emergency maintenance and extra bandwidth, it's important to know that they have your back.

During the horror hurricane season of 2017, Tait North American partner, Harris, was right there. Before Maria, Irma, and Harvey had even made landfall, Harris had 700 radios on the ground in Puerto Rico, Florida, and Texas for police and the National Guard, as well as fish and wildlife commissions. Technical teams were deployed to Puerto Rico to help restore communications, and their high-resolution satellite weather imagery kept track, as the giant storms advanced.

Tait supported and maintained vital communications during storms in the US Virgin Islands and after devastating earthquakes left Kaikoura, New Zealand, physically cut off from the rest of the country for weeks. (Post-quake, Tait has continued to support the massive road reconstruction efforts, as Kaikoura's coastal highway and rail links are restored and strengthened.)

Each of the stories we have highlighted carries a reminder of the unpredictable nature of disaster. No matter where in the world you live, what you have experienced in the past – and what future threats you perceive – preparing for the unthinkable is crucial for the survival of your community.

For your first responders to operate safely and swiftly, they trust you to equip them with:

▶ the right tools and knowledge,

▶ equipment that is maintained, updated, and accessible,

▶ robust, reliable communications,

▶ a flexible, well-prepared, and supportive work environment.

When you are vigilent to threats, ready to give and receive mutual aid, and support your first responders, you know that your diligent preparation can save lives in your community, when disaster strikes.

WANT TO HELP?

There are many ways you can support local organizations and communities during disaster response, but we particularly highlight the following nationwide organization:

The Information Technology Disaster Resource Center (ITDRC) was founded in 2008. This 501(c)(3) organization provides communities with "the technical resources necessary to continue operations and begin recovery after a disaster." You can donate money, tech equipment, or volunteer your time with them

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