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Powering Strong Communities

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Platte River Power Authority

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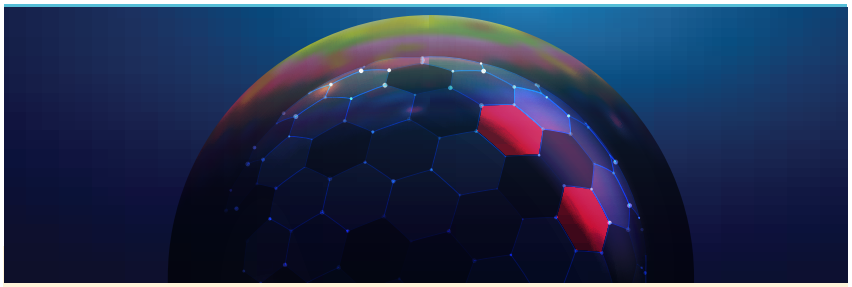

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AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

The American Public Power Association is the voice of not-for-profit, community-owned utilities that power approximately 2,000 towns and cities nationwide. We represent public power before the federal government to protect the interests of the more than 55 million people that public power utilities serve across the United States and its territories. We advise on electricity policy, grid technology and operations, and workforce development in support of safe, modern, and resilient utilities.

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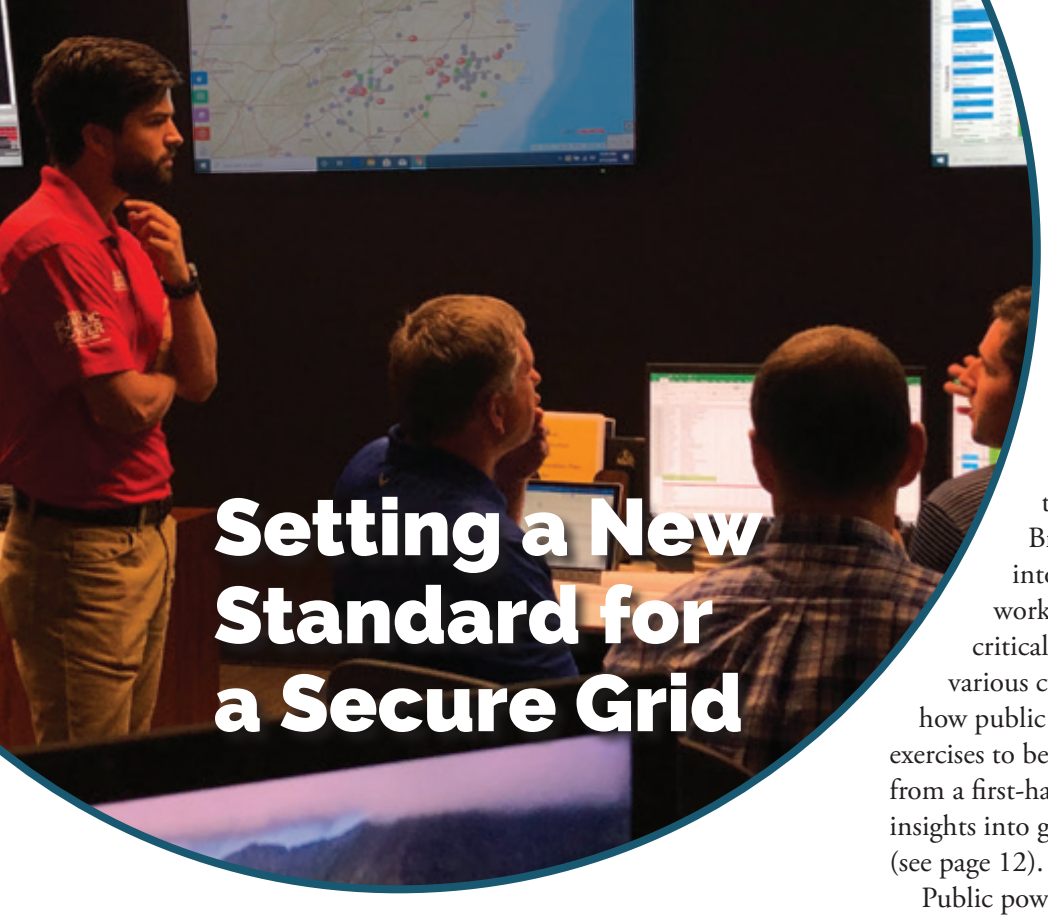

Setting a New Standard for a Secure Grid

BY SCOTT CORWIN, PRESIDENT AND CEO, AMERICAN PUBLIC POWER ASSOCIATION

Public power started well before APPA did in 1940 — at least as far back as 1881 in Butler, Missouri. The model has grown to 2,000 communities across the most diverse geography and demographics imaginable. These communities not only met the challenge of building the original infrastructure, but also of navigating economic volatility, deregulation, overregulation, technological advancement, and changes in the modern customer relationship.

Upon our 85th anniversary this fall it's tempting to dwell on our storied past and on our founding, when public power leaders from the West Coast to East, and many communities in between, came together to create our association (see page 14). Our focus, however, is on the dynamic time upon us and on preparing for a future that seems ominous at times. As we gain wisdom from our past, public power will embrace the future with the dedication and innovation we've always brought to the toughest challenges.

It is appropriate that this issue of *Public Power* magazine bridges recognition of our anniversary with discussion of a new set of large challenges facing electric utilities regarding utility security and resilience. Security in all forms, including cyber and physical, creates an emerging set of requirements and attention that will demand constant and endless vigilance. Bringing the next generation of the workforce into our story, and our mission, including creating workplace cultures that prioritize security will be critical (see page 6). In this issue, you will read about various cyber vulnerabilities and mitigation, you'll hear how public power practices for the worst during security exercises to be better prepared for actual events, you'll learn from a first-hand account of an actual cyberattack, and get insights into global threats as they relate to small utility security (see page 12).

Public power communities were, and still are, the yardstick, envisioned by FDR and others, as the standard of accountability, of affordability, of reliability against which others can be measured. Now, we are stepping up to meet the technological needs of the next chapter of this public power story in a newly forged version of how we meet the needs of our communities.

In 1940, even as some of our utilities were still taking form, public power played a large role to provide the power to help the U.S. and allied war effort. That mission was part of the impetus for the joint action enabled by banding together into a national association. Today, our mission includes a type of defensive effort not imaginable in those early years — the comprehensive monitoring, detection, and mitigation of sophisticated cyberattacks, often from foreign states.

At APPA, we've ramped up our efforts to prioritize security and resilience of the grid. We're working with various industry partners on increasing public power's participation in national preparedness exercises and hosting custom regional exercises for utilities. We've developed and curated materials to support increased wildfire mitigation efforts among our members. We've built on our cooperative agreements with the Department of Energy to bring outside funding to public power to invest in cybersecurity technology, including a new agreement for $5 million to expand on our Cyber Shield program. These efforts all come back to how we can assist our members and how they can learn from each other's struggles and successes. We have strength in numbers and together we can raise the bar and move the standard forward for a strong, resilient grid to serve public power communities.

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Strong from Within: How Utilities Are Fostering a Culture of Security

BY BETSY LOEFF,
CONTRIBUTING WRITER

As grid security and risk management continue to have increased focus within utilities, so has recognition increased that security is everyone's job at a utility, not just a few specialists. Building a culture that places security at the forefront doesn't happen overnight and requires investment in hardware and software that enhances a utility's infrastructure and staff training that keeps its people refreshed on the latest policies and best practices.

Particularly for cybersecurity, where the types of threats to utilities continue to evolve and expand, constant vigilance from every level is essential. Reuters reported last autumn that the number of cyberattacks on U.S. utilities in 2024 was 70% higher than the number of attacks for the same months – January through August – in 2023.

The American Public Power Association has resources to increase proficiency and program maturity for utilities at any level of security readiness. Here's a look at how two organizations are amping up protection of public power, from within and in helping other utilities boost their security posture.

Adding the Right Tools

Along with operating a 250-mile canal system that irrigates 150,000 acres of farmland, Turlock Irrigation District in California provides power to 240,000 people within a 662-square-mile area. TID has provided electricity to its region for over a century and was the first irrigation district in the state when it began operations in 1887.

Despite its long history, TID did not have a dedicated IT security department until 2024, when the public power utility engaged with APPA's Cyber Pathways program, a four-year effort with the Department of Energy to help utilities enhance their preparedness and to thwart bad actors.

Part of the grant covered hardware that would strengthen the utility's operational technology by providing more insight through monitoring capabilities, said William Wescott, IT security manager for TID. He and his colleague, Evan Sousa, are the two employees on the IT security team, and they have initially focused on protecting systems with technology and empowering others in the utility to help safeguard assets.

"We've added intrusion detection systems and a hard perimeter of firewalls," said Sousa, TID's security analyst. Cybersecurity intrusion detection systems monitor IT and OT systems for malicious activity and policy violations that could introduce risk. They track traffic and detect anomalies that may signal problems, such as unexpected commands or devices communicating at odd hours. Many also send alerts when known threats are detected, such as phishing or malware.

"These solutions give Evan and me the ability to train technicians who work in the field to help us monitor their assets," Wescott said. The systems also have automated alerts. "Let's say it was a denial-of-service attack," he continued. "As soon as we start getting targeted by a specific identity and it meets a certain threshold, Evan and I will receive the notification and we'll work with the asset owners to remediate the threat."

Screen grab from a video in the Tailored Cybersecurity Training for Utilities

Building the Basics

While larger public power entities like TID have dedicated staff focused on security, often small utilities have people wearing multiple hats who must handle this responsibility along with other important roles.

Energy Northwest, a joint operating agency serving 29 utility districts and municipalities in Washington state, used a grant from APPA's Demonstration of Energy and Efficiency Developments program to support the creation of a modularized training program, Tailored Cybersecurity Training for Utilities. The training is a comprehensive set of materials that includes on-demand educational content, customizable templates, and opportunities for peer collaboration via virtual roundtables.

The templates give utilities with little cybersecurity expertise in-house a way to get started. They cover a wide variety of topics, procedures, and policies utilities can implement, and many have a short training video to explain how to use them.

> **"It's essential our workers understand the physical threat, not just the cyber."**
>
> **WILLIAM WESCOTT,** IT SECURITY MANAGER, **TURLOCK IRRIGATION DISTRICT,** CALIFORNIA

Among the subjects covered is account management, which applies how and when staff members of the utility can access and operate certain equipment. "You don't want to give every new employee access to everything," said Josh Watt, who worked as a project manager on the training initiative. (Watt left Energy Northwest in October 2025). "You want to make sure that the access is specific to a person's role and on a need-to-know basis. You also want to make sure that when people leave the organization, you remove their security clearance. It's a matter of managing your user accounts with a mindset of risk and least privilege."

Another template covers incident response. The template walks people through steps to take when a security threat occurs and how to document the activity. Watt called this template a how-to that outlines the process of "containing what happened, fixing it, and making sure it doesn't happen again."

Clean desk audits are offered in template form, too, and these cover much more than passwords on sticky notes tucked under an employee's keyboard. Energy Northwest experts have helped member utilities shore up cybersecurity programs with clean desk audits in the past, so Watt and his team had plenty of background in template writing.

He said clean desk audits generally occur at night, after everyone leaves. "You look for things like unlocked doors, unlocked key boxes, and unlocked gates," he said. After the

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Screen grab from a video in the Tailored Cybersecurity Training for Utilities

nighttime review, the Energy Northwest team goes back during work hours and looks for things like sensitive documents left unattended on desks. The templates contain checklists of things to look for, giving security newcomers an easy-to-follow guide.

The materials, podcasts, and videos create what Watt called "a kickstart for some utility that doesn't already have a cybersecurity program in place." He added, "It's not a comprehensive cybersecurity program, but for a small utility that is looking to create the program, to put some policies in place, it would help." Larger organizations could likely benefit, too, because the materials offer a fresh look at policies and approaches from experts in the field. All of these materials are available to DEED members in the DEED Project Library.

> **"Technology changes day to day. Getting people together to talk through threats that are coming out, what they're seeing, and how they're handling it is the biggest benefit of this entire program."**
>
> **JOSH WATT,** PROJECT MANAGER, **ENERGY NORTHWEST,** WASHINGTON

Training the Team

Most experts agree that the weakest link in cybersecurity isn't the hardware or software, it's the people running the machines. Energy Northwest has offered phishing exercises and other training tools to its member utilities. TID is using training from the SANS Institute for the 10% of employees who receive NERC-CIP instruction, and they use a combination of homegrown and purchased modules for all other employees.

"All our users in the district receive the same annual training, regardless of title," Sousa said. "From the general manager to technicians, analysts, engineers — everyone — it's all the same."

The approach is computer-based, filled with quizzes and somewhat gamified. "Everyone has email, so we try to focus on the most common surface attack vector," he added. For instance, the team has a module on social engineering phishing, a type of attack that uses social ties — such as posing as a trusted entity like a bank or the company IT department — and manipulation or lies to trick people into revealing information or clicking links that lead to things like malware download.

"We're also doing a USB watering hole test," Wescott said. "We go around the district and set a USB somewhere to see if individuals are plugging those in. A lot of our users are skeptical when they find something like that. They're reaching out to our help desk or asking IT to review it before they plug it into anything. Our process is working."

Expanding Protection

Cybersecurity isn't the only type of security that utilities must manage. "It's essential our workers understand the physical threat, not just the cyber," Wescott said. "Our utility has a lot of remote sites, and if an individual were to break in and gain access to some of the computer systems at a remote site, they could be on our operational technology network."

Explaining the difference between IT and OT systems is part of the utility's security training, Sousa said. He added that employees can unknowingly create exposure by plugging a laptop into the OT side or transferring data between one side to the other. "IT devices are configured to stay on their network. If an employee uses that same device to traverse the OT side, that could introduce unwanted risks," he explained.

Another issue is added protection for aging equipment. The Energy Northwest team covered this in its training materials, noting that legacy operational technology and aging infrastructure face elevated security risks.

Watt pointed to the patches and updates that software and cell phone makers regularly issue for their products to shore up weaknesses and block threats. "Typically, they put out patches to service their largest user base, which is generally their most up-to-date products. If you are behind on software or technology, you could be subject to vulnerabilities," he said, adding that attackers "look for older technologies and older computer languages out there because they know that they may not be patched."

If keeping systems up-to-date and patched isn't an option, another fix is putting current firewalls in front of the legacy systems, Watt said. Data diodes are an option, too. A data diode is a device that enforces one-way communication between two networks. Diodes allow things like logs and alarms to be exported to IT systems for analytics and monitoring, but they also prevent malware from getting into an OT network.

A final note on expanding protection is this: Get involved in the cybersecurity community.

Watt noted that annual conferences and other meetings are valuable, but he added that the program's monthly roundtables kept information flowing. "Technology changes day to day. Getting people together to talk through threats that are coming out, what they're seeing, and how they're handling it is the biggest benefit of this entire program."

HOW SMALL UTILITY CYBER EFFORTS SUPPORT NATIONAL SECURITY

BY ROB DENABURG, CYBERSECURITY PROGRAM SENIOR MANAGER, AMERICAN PUBLIC POWER ASSOCIATION

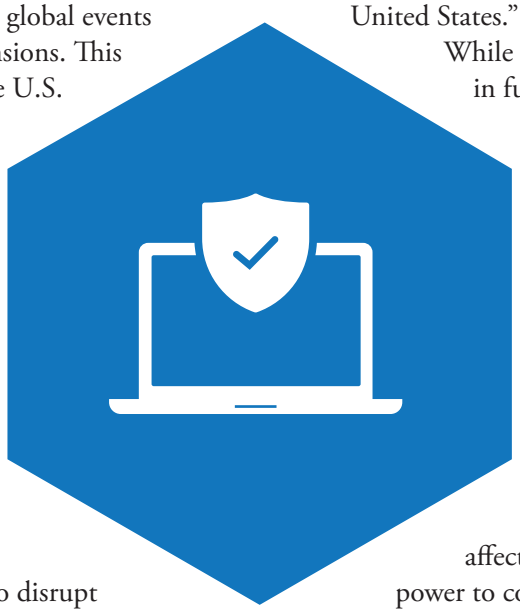
One of public power utilities' greatest structural advantages is their close connection with the communities they serve. The local ownership and input on utility decisions lead to a dedication to service and investment in the community's quality of life. While public power utilities are by nature locally focused, that does not make them immune to global forces, including geopolitical tensions and foreign conflicts.

In addition to the critical role public power utilities play in the economy, public health, and safety, utilities can play an important role in the security of the nation by being resilient to cyberattack.

Foreign nation-states, state-sponsored actors, hacktivists, cyber criminals, and other bad actors have targeted U.S. critical infrastructure, including public power utilities. These attackers pose a host of risks to domestic systems, and their capabilities and motivations can vary significantly. For example, profit-seeking attackers often attempt to extort victims or steal and sell valuable information. Other attackers might try to gain access to sensitive networks to conduct espionage or steal intellectual property used to advance corporate or national interests.

While these kinds of attacks may increase amid global conflicts, they tend to be relatively consistent and are generally not tied to geopolitical events.

Some attacks, though, are motivated by global events and might ramp up amid international tensions. This can put utilities of all types and sizes in the U.S. at higher risk. When conflicts flare up overseas, ideologically driven attackers might deface websites, leak sensitive information, or cause disruptions they see as conducive to their political aims. These types of attacks may threaten utilities' business functions but are less likely to disrupt the flow of power to customers.



However, cybersecurity firms have identified threat actors inspired by conflicts, such as the Russian invasion of Ukraine, who have aims to carry out more sophisticated attacks, including attempts to disrupt critical infrastructure by manipulating industrial control systems. These events indicate that future activity by well-resourced attackers may pose more than just a nuisance-level risk to public power utilities.

Attackers who are part of or affiliated with foreign governments are also improving their capabilities to carry out sophisticated attacks on U.S. systems. While these attackers may choose to refrain from more disruptive breaches during peacetime to avoid provoking a significant U.S. response, government threat assessments indicate that U.S. adversaries are trying to gain a covert foothold in utility systems and use that access to prepare for more disruptive attacks on U.S. critical infrastructure.

These more serious attacks could be deployed amid, or in the lead-up to, future conflicts. For example, in 2024, the Cybersecurity and Infrastructure Security Agency released an advisory cautioning that state-sponsored cyber actors in China "are seeking to pre-position themselves on IT networks for disruptive or destructive cyberattacks against U.S. critical infrastructure in the event of a major crisis or conflict with the United States."

While attacks against U.S. critical infrastructure in future conflicts may purposefully target systems with high strategic value, that doesn't limit the targets to utilities serving large populations. For example, foreign attackers could target infrastructure that supports the U.S. military, including communities adjacent to bases or other facilities. While many facilities that support national security will have backup power, this power may only sustain some services and functions, not act as a long-term replacement for normal grid service. Even if they don't directly affect military facilities, attacks that disrupt power to communities are an attempt to bring the cost of American participation in the conflict home for U.S. citizens. The aim with these attacks is to create public pressure from within the U.S. on the government to avoid intervening or limiting its participation in a conflict. Alternatively, attackers may be less pointed and more focused on disrupting whatever systems they can access — and they might see smaller systems as easier targets.

In the face of these threats, public power utilities are an important line of defense against U.S. adversaries. For this reason, the American Public Power Association and its members are leveraging industry and government support to secure public power systems and keep their communities safe from intentional power disruption. This includes an increased focus on sharing the knowledge and best practices necessary to mitigate major and emerging threats and reduce the consequences associated with being targeted.

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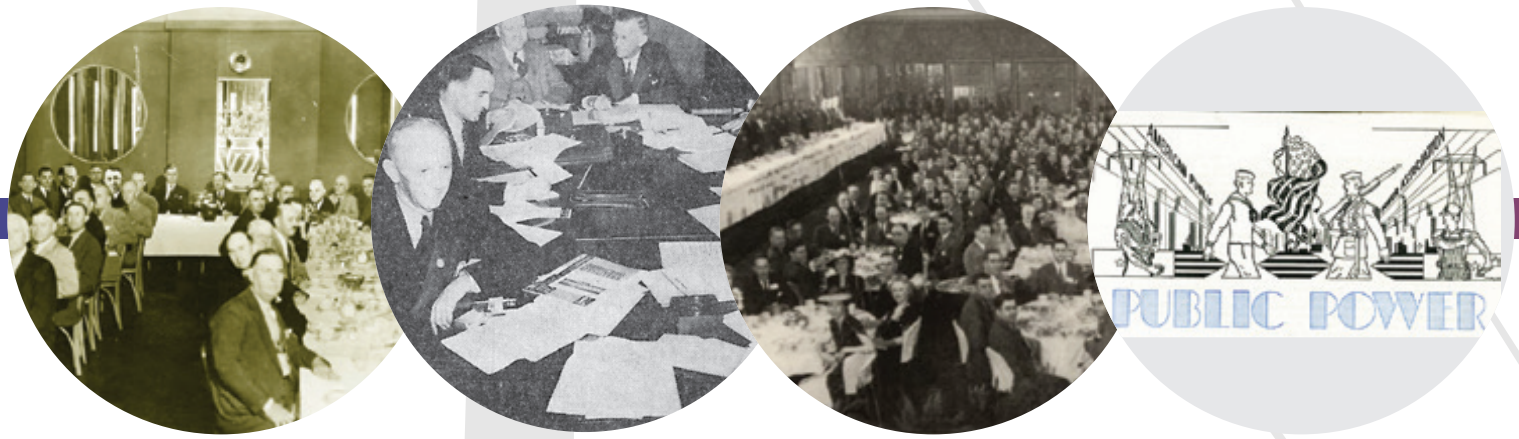
ADVANCING A COMMON PURPOSE

REFLECTING ON 85 YEARS OF A MISSION FOR PUBLIC POWER

BY SUSAN PARTAIN, DIRECTOR, CONTENT STRATEGY, AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association's founding was thanks to a group of leaders that fought to both develop and retain public ownership in their communities and had the passion to support others in doing so.

E.F. Scattergood, who helped establish the electric services arm of the Los Angeles Department of Water and Power in the 1910s, led efforts to develop an association starting as early as 1934, when leaders gathered in Kansas City to form the National Association of Municipal Utilities. While that effort failed to get off the ground, Scattergood and other prominent leaders kept working to form an alliance that would promote "competent and non-political administration of publicly owned electric utilities."



In September 1940, a group of about 40 public power utility leaders from across the country gathered in Washington, D.C., to officially form the American Public Power Association. The meeting was timed to coincide with a government-sponsored meeting on national defense, which various public power utility leaders were attending. The meeting included representatives from public power entities big and small and some federal agencies. The attendees also selected APPA's first board of directors, naming James Donovan of Kansas City president, Scattergood first vice president, and Frank King, superintendent of utilities in Burlington, Vermont, as executive vice president. The first board met in Kansas City in October 1940 and included representatives from more than a dozen utilities.

No dedicated association staff existed until fall 1941, when Harold Kramer, secretary and general manager of Loup Power District in Nebraska, agreed to serve temporarily as APPA's first "secretary-manager" and set up a small office in Washington, D.C., He led the association from November 1941 to June 1942.

Prior to getting APPA off the ground, Kramer was a force that not only developed Loup Power District but advocated for the enablement of public power districts across the state of Nebraska and the financing mechanisms that made their signature generation projects possible.

Scattergood's efforts to build hydroelectric plants to serve Los Angeles made way for the public power utility to acquire its distribution system from private companies that had previously managed it. He was also pivotal in securing Congressional approval for building the Hoover Dam (then called the Boulder Canyon Project) and the transmission infrastructure that would bring electricity to Southern California, fueling its growth.

In December 1941, Kramer told *Electrical World* magazine that the association was to be a "service rather than crusading organization — self-improvement by exchange of information and ideas is the underlying feature. But, make no mistake about it, we intend to defend against the onslaughts on public power on whatever front they may appear."

To the *Lincoln Journal Star*, Kramer stated the early objectives of the association were to "promote cooperation between members, advance their common purposes, and aid in problems

of management and operation, engineering, accounting and commercial practice, legal policy and others."

In APPA's first years, public power entities faced pressure from federal agencies to rapidly increase generation to support industries backing the war effort. Along with concerns over meeting this load came questions about project finance and developing transmission interconnections.

Continued Cooperation

These past investments allow public power utilities to continue serving their communities reliably and affordably, including through ongoing connection to APPA.

"Having the basis be this gentleman who was our first general manager here at the power district lead that charge really makes me proud to be part of Loup Power District and to be a good member of APPA," said Neal Suess, who has been president and CEO of Loup Power District since 2005.

When asked about the value he's seen from continued participation in the association, he pointed to the relationships fostered over his decades in the industry.

"You get hooked up with consultants, others in the utility business [with whom] you have a common goal and a common thread with that you can really just talk about the issues of the day," said Suess. "Without the association, you don't make those connections."

He has attended conferences and participated in various working groups and knowledge sharing initiatives. Suess said those activities and the information shared in APPA's news periodicals and the community groups on APPA Engage has helped him make sense of industry trends.

David Hanson, senior assistant general manager of power system at LADWP, noted that as part of an effort to bring the utility "back to basics," there is a renewed focus on its history, with particular emphasis on the founders' intent to serve the community.

"We brought a very large black and white photo of Ezra Scattergood into a board meeting," said Hanson. "I reminded the board that it's poetic that the generation facility that kept the lights on through last September's heat storm and through the Palisades Fire is the Scattergood Generating Station."

Hanson said much of the focus on improvements stemmed from lessons following the 2025 Palisades Fire. The aftermath of the fire was the first time he was aware that LADWP received mutual aid, when crews from the Navajo Tribal Utility Authority and Pacific Gas & Electric came to help. Hanson said that operations crews from LADWP have routinely participated in mutual aid, including efforts to help Puerto Rico following Hurricane Maria.

As one of the largest public power utilities, and one so connected to APPA's founding, Hanson hopes LADWP will take greater part in collaborating with other public power utilities such as through sharing best practices and challenges "so that everybody can learn together." He noted specific interest in how other utilities are addressing city procurement policies and implementing new generation technologies.

"If we can point to other municipalities out there that are embracing [small modular reactors], we need that collaboration

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and we need that proof of concept, and we only get that through collaborations and partnerships through APPA," said Hanson.

Darren Springer, general manager of Burlington Electric in Vermont, also noted the value of knowledge exchange. Among other venues, Burlington Electric has been active in APPA's research and development program, Demonstration of Energy and Efficiency Developments, or DEED.

"We've had opportunities for learning from various municipals around the country through APPA. Sometimes we're able to share examples of things that we're working on that are relevant to other utilities. And that's amazing, because that means the impact of our work can go beyond Burlington, and vice versa," he said.

Defending the Model

Alonzo Weaver, senior vice president and chief operating officer at Memphis Light, Gas and Water in Tennessee, another charter member, emphasized the value in collaboration.

"The network that APPA provides has given us resources to address many common issues that municipally owned utilities share," he said, citing support around broadband implementation and navigating supply chain disruptions.

Weaver also pointed to the preservation of tax-exempt financing for capital work as having a positive impact on MLGW's ability to provide energy at the lowest cost.

"Without APPA's advocacy, we would be paying higher interest rates on our bonds and our customers would either have higher rates or less projects, and neither of those are good outcomes," added Springer.

Tax-exempt financing is one of several issues the national network has worked to advance.

"Anytime you have a national organization representing utilities from all different states, different regulatory environments, not everyone's going to be on the same page on every issue," said Springer.

"If we stick together, we can get more accomplished and I believe that's the essence of these associations," said Hanson. "The American Public Power Association is where we can find strength in numbers, from the largest public power to the smallest public power. APPA gives us that voice in Washington that allows us to push things on a federal level that we can't necessarily take part in at our local municipal level."

Terry Wimberley, President and CEO of the Paris Board of Public Utilities in Tennessee, highlighted the "camaraderie, the programs, and the training" participation in associations brings, including at the annual Legislative Rally, which he has attended for the last 10 years.

"I very much enjoy getting to be a voice for public power and am thankful that APPA has the folks in Washington operating at that level, paying attention to all the things that matter in the public power world and helping to protect the public power model," said Wimberley.

"Our world right now is as crazy as it's ever been… trying to keep up with all the changes that are going on every single minute of every single day, it's too much for us to do at our individual utility levels," said Suess. "I've gotten to get to know some of our congressional leaders on a first name basis, to where

they will call me if they have a concern about something in our industry and then I can contact them back — and that really started with a lot of the things that APPA puts together."

Future Roles

Public power leaders pointed to several areas where they expect APPA to continue its mission of supporting members.

Looking ahead, Weaver at MLGW hopes to see coordinated efforts around the impacts of tariffs and how public power systems are addressing rapidly increasing electric demand as well as shifts in generating technologies.

"We've all got a responsibility to train the folks behind us and create a deep bench," said Hanson.

Hanson expects this to extend to educating students and the general public as well.

"We've got to be able to talk about the issues that are facing the power system in an easy-to-understand way," he said.

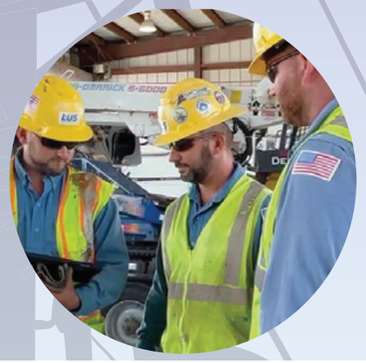
"Electric utilities are going to play a more critical role in our energy system in the future, which is saying something because they're pretty critical as it is," said Springer. "Our philosophy is that more customers over time are going to be relying on the electric grid, not just for turning the lights on, but for their transportation needs, for their heating and cooling needs, in [other ways] that they haven't necessarily in the past. And that means that our work collectively as electric utilities is going to be critically important for the nation's economy, for our local economies, for our environment, and for our customers."

Much like the leader many decades before him, Suess sees a continued opportunity for public power to grow across the country, and for APPA to help communities get municipalization initiatives across the line.

"I really see public power growing in the future… There's no way we can go but up from here," he shared.

85 YEARS ON, WHAT DOES APPA MEAN TO PUBLIC POWER UTILITIES?

From the past to the present, the American Public Power Association has existed to support and advance the operation of community-owned electric utilities. Here's what leaders at long-time members say they value about having a national association for public power.



The network that APPA provides has given us resources to address many common issues that municipally owned utilities share, such as the challenges of broadband implementation, the strategies around supply chain disruptions, and tax-exempt financing for prepays and capital work. This final example is key to how municipals can provide energy at the lowest cost.

ALONZO WEAVER, SENIOR VICE PRESIDENT, CHIEF OPERATING OFFICER,
MEMPHIS LIGHT, GAS, AND WATER DIVISION, TENNESSEE

Being able to collectively engage is important. We've had opportunities for learning from various municipals around the country through APPA. Sometimes we're able to share examples of things that we're working on that are relevant to other utilities. And that's amazing, because that means the impact of our work can go beyond Burlington, and vice versa.

DARREN SPRINGER, GENERAL MANAGER,
BURLINGTON ELECTRIC, VERMONT

Our world right now is as crazy as it's ever been, with the ever-changing administrations and us trying to keep up with all the changes that are going on every single minute of every single day, it's too much for us to do at our individual utility levels… The training that's provided is great and the constant information given to us that we need to run our organization through the newsletters, the magazine, and [the community groups now on APPA Engage] have helped me understand some of the things that have been going on. You get hooked up with consultants, others in the utility business that you have a common goal and a common thread with that you can really just talk about the issues of the day. Without the association, you don't make those connections, you don't meet those people.

NEAL SUESS, PRESIDENT AND CEO,
LOUP POWER DISTRICT, NEBRASKA

We value the services that we get from our associations — the camaraderie, the programs, the training. We've been a longtime APPA member here at Paris, Tennessee. It's a privilege to be a part of APPA and to watch what they do. I've been to the Legislative Rally for about the last 10 years… I very much enjoy getting to be a voice for public power and thankful that APPA has folks in Washington operating at that level, paying attention to all the things that matter in the public power world and helping to protect the public power model.

TERRY WIMBERLEY, PRESIDENT AND CEO,
PARIS BOARD OF PUBLIC UTILITIES, TENNESSEE

The American Public Power Association is where we can find strength in numbers, where we're all suffering from the same things, from the largest to the smallest public power [utility]. If we stick together, we can get more accomplished.

DAVID HANSON, SENIOR ASSISTANT GENERAL MANAGER OF POWER SYSTEM,
LOS ANGELES DEPARTMENT OF WATER AND POWER, CALIFORNIA

Creating Resilience

How Public Power Is Preparing Its Infrastructure for the Future

BY ADAM PATTERSON, CONTENT SPECIALIST,
AMERICAN PUBLIC POWER ASSOCIATION

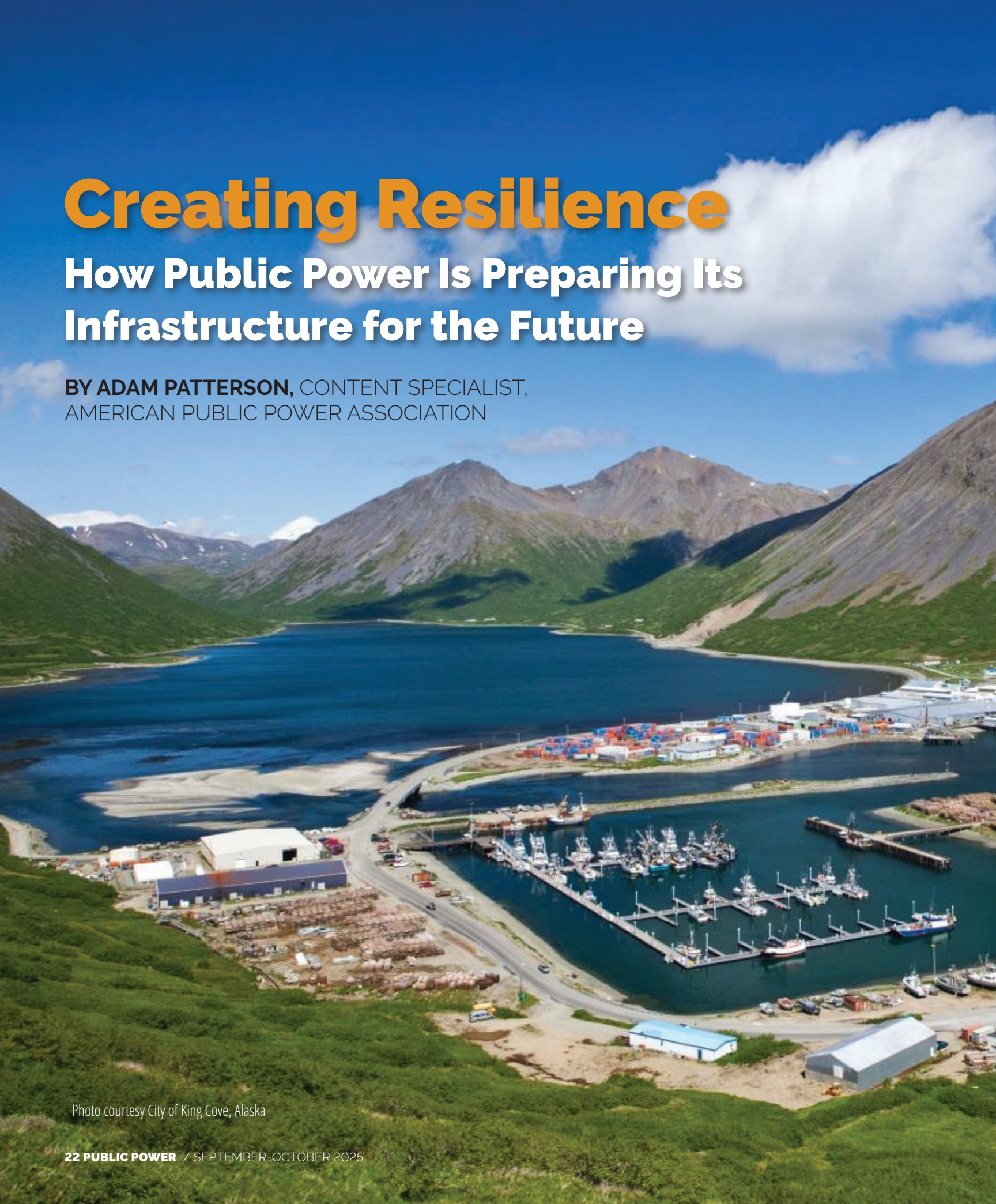


Photo courtesy City of King Cove, Alaska

Public power communities across the U.S. are making investments in resiliency to counter threats to safety, grid security, and electricity reliability. Just as each public power community has distinct priorities, each also faces a litany of distinct threats that could hamper how communities are served. Whether needing to address changing climate or natural forces, uncertainty in the costs and procurement of energy, or new patterns of energy use from increased technology adoption, public power providers are meeting specific resiliency needs with dedication and ingenuity.

Countering Risks

Serving more than 320,000 city residents and a network of educational institutions that encompasses nearly 40 grade schools and the University of California at Riverside campus, Riverside Public Utilities is one of the larger public power utilities in California. Like many municipalities in the state, Riverside faces the potential for major risk to grid security from earthquakes, increasingly severe heatwaves, and wildfires.

Scott Lesch, assistant general manager of Riverside's Power Resources Division, and Daniel Honeyfield, assistant general manager of Riverside's Energy Delivery Division, have overseen the simultaneous modernization and hardening of the local grid. This has taken the form of large-scale initiatives that aim to address Riverside's resiliency needs — both in terms of its infrastructure particularities and in mitigating the stressors posed by earthquakes and rising heat.

Notable among these is the Riverside Transmission Reliability Project, or RTRP, that is building a second point of connection to the California Independent System Operator. Among other benefits, adding a second connection point could mitigate potential power loss in Riverside's service area if the first point of interconnection was to fail. According to Lesch, Riverside is the largest city in the state that currently has only one point of interconnection to CAISO.

While the RTRP is augmenting Riverside's transmission security, the utility is also working to ensure power supply and substations are reinforced to prevent blackouts during peak summer demand. With Southern California's heatwaves becoming more intense and prolonged, Riverside's customers are requiring more power to keep themselves cool during these warmer months.

"We've been lining up internal gas-fired generation in summer to meet our peak loads. We've also been improving our kV subtransmission system over the last five

"Both the utility and the city are undertaking a new 25-year strategic plan looking toward 2050 about how the city is going to become more sustainable and more resilient."

SCOTT LESCH, POWER RESOURCES DIVISION ASSISTANT GENERAL MANAGER,
RIVERSIDE PUBLIC UTILITIES, CALIFORNIA

years, putting in additional lines so if we lose one line we don't have a distribution level blackout. We're also upgrading several substations and building a replacement substation in our industrial area," Lesch said.

Riverside has paired these infrastructure reinforcements with wildfire mitigation. While Riverside was spared the more intense blazes that destroyed other communities in Southern California in early 2025, the public power utility is preparing to keep its customers and power grid safe from similar incidents by implementing fire mitigation strategies.

"We first submitted a wildfire mitigation plan back in 2021. We're fortunate here in Riverside that only about 15% of our service territory would be classified as a Tier 2 fire risk. What our engineers and distribution teams have been doing is focusing on those areas, improving distribution infrastructure through installing Cal Fire-approved fuses so we don't get arcs that can start fires," Lesch said.

The utility has also engaged in tabletop exercises to plan their response to earthquakes and heat storms — heatwaves that persist unbroken for three or more days — that could affect a greater number of customers than wildfires.

"The City of Riverside received a federal grant to do a tabletop exercise for how to deal with an extended heat storm event. We'll be participating in that at the Riverside Emergency Operations Center and then putting out a written report — kind of lessons learned — that will be a public document," Lesch said.

Lessons from these exercises are informing the utility's resiliency plan, one that is focused on advancing grid security while eliminating carbon output.

"Both the utility and the city are undertaking a new 25-year strategic plan looking toward 2050 about how the city is going to become more sustainable and more resilient, while trying to completely decarbonize," Lesch said.

Reducing Dependence

King Cove, a fishing town near the western end of the Alaskan Peninsula, has built resilience through investment in renewable energy. As a remote area without quick access to larger settlements, King Cove residents require shipments of goods and fuel to keep themselves supplied. These shipments are often by nautical transit due to the lack of roads to the mainland.

While the community was incorporated in 1949, the Indigenous Aleuts who constitute a plurality of the town's residents have lived throughout the region for millennia. King Cove's remote location and lack of connection to a broader electrical grid meant the town was reliant on diesel generation for electricity through the early 1990s. The fuel that powered its diesel plant was brought in by sea, leaving the price of electricity tied to the oil market and the town's energy dependent on outside supplies.

Gary Hennigh has been King Cove's city administrator since 1989. The start of Hennigh's tenure coincided with a push to develop renewable energy that would allow the town to develop more affordable power. While the nearby Delta Creek Valley was identified as a potential source of hydropower in the 1970s, building renewable generation wasn't formally proposed until a December 1989 city council meeting — the first one Hennigh attended.

"My first day on the job involved being told King Cove has got this great hydropower potential that the Army Corps of

Engineers identified back in the early ’70s, and then the Alaska Energy Authority became aware of it as well,” Hennigh said.

King Cove’s development of a local grid — one whose affordable, reliable power has supported its fishing industry and improved the town’s quality of life — has been a decades-long process.

“After getting some funding from USDA and state grants, we were ready to move forward. By 1992, we had hired a contractor to come out and build the project, and, by December 1993, Delta Creek was brought online. From 1993 through 2017, we were 50% renewable just on the strength of what Delta Creek was bringing us,” Hennigh said.

The success of King Cove’s Delta Creek facility laid the groundwork for the development of the subsequent Waterfall Creek plant, which began operating in 2017.

“The process of bringing Waterfall Creek online got on a fast track because we were able to say what hydropower has done

Delta Creek hydroelectric facility. Photo courtesy City of King Cove, Alaska.

"We've mapped out all these sensitivities, and our power supply group runs hundreds of different models to consider how certain stressors might play out."

DARREN BUCK, DIRECTOR OF POWER DELIVERY,
PLATTE RIVER POWER AUTHORITY, COLORADO

for us during the first 15-plus years, and we think this can only make our generation stronger," Hennigh said.

Since Waterfall Creek was brought online, King Cove's annual electric generation has been 85% renewable. Having local hydropower has saved the city from purchasing 4 million gallons of diesel — translating to $6 million in cost savings, substantially reducing its carbon emissions, and lowering residents' electric bills by an average of $1,000 annually.

This transition toward renewables, paired with its underground power lines, has made King Cove a standout among Alaskan public power communities — an achievement that was recognized through the town receiving the Best Practice for Community Renewable Energy Independence at the 2017 Helsinki Arctic Energy Summit.

While Hennigh recognizes there is work ahead to build further resilience against climate stressors and seismic activity, he is proud of the work King Cove Municipal Electric has done to build a stable local grid that provides its customers with affordable power.

"I love to tell people in urban Alaska that if everything comes together the way it has the potential to, that little King Cove out on the end of the planet could have the cheapest unsubsidized kilowatt cost anywhere in Alaska," Hennigh said.

Resilience Today and Tomorrow

Colorado's Platte River Power Authority serves the cities of Estes Park, Fort Collins, Longmont, and Loveland, which together provide power to over 156,000 residential and 20,000 commercial customers. The communities Platte River serves are interested in sustainability, and the joint action agency's resilience work is tied closely to climate response.

Much of this work pairs with the agency's 2024 Integrated Resource Plan, which aims to ensure Platte River's generation is both reliable and environmentally sustainable — paving the way for electrification, electric vehicle adoption, and decarbonization while ensuring affordability.

"Our customers are tech-savvy and more excited about adopting new technologies. There's a lot of EVs in our service territory and a lot of solar," said Zach Borton, distributed energy resource services manager at Platte River.

As a backbone of its grid stability, Platte River has focused on ensuring all parts of its system, including transformers and breakers, are ready to meet the demands of load growth from electrification and a rising population. Utilities nationwide are contending with the cost pressures of incorporating new technologies, and Platte River has endeavored to mitigate these while transitioning its energy portfolio.

"We have made significant investment to migrate from old oil-type breakers to brand-new SF6 breakers. We've had a significant amount of capital investment over the last 15 years to ensure not only can we meet what we need today, but we can meet future load growth as well," said Darren Buck, Platte River's director of power delivery.

The agency is also investing in batteries that can store excess generation from renewables and provide power as needed, whether during times of lower solar and wind output or when grid stressors temporarily cut other generation.

"Every one of our owner communities will get a battery that adds up to around 5 and 20 MW each, which will help them on the resiliency and increased load side of things," Borton said.

Buck is now overseeing emergency preparedness work that has incorporated lessons from past incidents into the utility's modernization and reliability planning.

Crew working on Estes Park's battery storage. Photo courtesy Platte River Power Authority, Colorado.

"We have a very solid vegetation management plan that my team has implemented based off local climate conditions. We have trained incident commanders in our operational division who keep track of how to address not just fires, but floods and tornadoes as well," Buck said.

Buck noted that much of Platte River's scenario forecasting and mitigation work has involved gaming out how environmental stressors might play against the structure of its grid, such as how wildfires could affect solar generation.

"We have been running every possible scenario. For example, you can run a case with low solar output and high heat, including when a fire's smoke is blocking out solar output amidst peak temperatures when demand is climbing and you have low wind production as well. We've mapped out all these sensitivities, and our power supply group runs hundreds of different models to consider how certain stressors might play out," Buck said.

Borton noted that Platte River's resilience work has benefited from learning how other public power utilities have effectively enhanced grid resilience, especially through knowledge sharing and mutual support.

"Public power utilities love talking with each other about what works and what doesn't. I just had a great conversation with Matthew Emerson over at [Los Angeles Water and Power], who operates a [virtual power plant] there and has similar goals," Borton said.

Ultimately, Platte River's efforts tie back to its dedication to its member communities and close relationships with those it serves.

"That's what public power is all about. It's listening to people and understanding their needs and making sure those shape the ways our organization moves forward," Borton said.

PUBLIC POWER COMMUNITIES

LAKOTA, NORTH DAKOTA

BY ADAM PATTERSON,
CONTENT SPECIALIST,
AMERICAN PUBLIC POWER ASSOCIATION

Lakota Municipal Utilities at a Spark Homes construction in the town.

POPULATION: **687**
ELECTRIC CUSTOMERS: **547**
UTILITY FORMED: **1930**
UTILITY EMPLOYEES: **3**

Nestled between Devils Lake to its west and Grand Forks to its east, Lakota, North Dakota, was founded in 1883 amid a wave of settlement in the territory, chartered a full six years before North Dakota was formally admitted as a state in 1896. The nearby railroad, constructed the same year Lakota was founded, continued to bring new residents to the area for years to come.

Lakota Municipal Utilities was formed in 1930 after taking over service from a private company. While other smaller communities throughout the Dakotas have depopulated since, Lakota has remained a thriving, tight-knit community.

Amie Vasichek, Lakota's city auditor, was raised near Lankin, North Dakota before moving to Lakota, and has spent 16 years working for the utility. Vasichek describes her team as deeply invested in supporting Lakota's ongoing development. "The city council and the board … encourage us to be volunteers, be part of the clubs and the boards, and just working to make an impact for our town."

While Vasichek noted that Lakota lacks a stoplight, its small-town character is rich in local resources and gathering places thanks to its committed residents. This has included the creation of Lakota Market Village, a community-managed space that allows residents to host pop-up shops and fundraisers. The town also has a golf course and an outdoor recreation center that helps foster an ongoing sense of community.

In addition to recreation, Lakota has worked to build the kind of support needed to raise families and encourage new residents to move to the area. One of the first projects Vasichek worked on with the utility was creating a town childcare center next to the school in a time when many in-home daycares had closed, leaving a void for working parents. In the years since, many in the community — including Vasichek's own children — have volunteered to maintain the childcare's grounds during the summer months.

Vasichek emphasized that the work of the utility is designed to forge the best possible future for Lakota. This encompasses increasing reliability, which includes recently receiving a North Dakota Transmission Authority grant to underground its electrical lines. The affordable rates and exceptional service Lakota Municipal Power provides have served as an incentive for new residents to move to the area and for those who moved away from the town to return. As Vasichek, who received a 2025 APPA Larry Hobart Seven Hats Award for her management of the utility, noted, "For people who come back here or move here, it really helps that our rates are lower, and we have reliable power."

The city has also supported workforce development through providing scholarships for Lakota residents who go on to higher education and bring their knowledge and training back to the city.

"We're trying to make sure people know that it's fun to go and spread your wings, but we're always here if you want to come back," said Vasichek.

Vasichek finds her time at Lakota Municipal Utilities fulfilling in large part because she sees its work as inseparable from building the kind of community that first drew her to the town. "At the end of the day, the greatest reward about my job is being part of something bigger than just my job," she said. "Doing things that help build a stronger, more resilient town and connect our community brings real pride."

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Exercising for Grid Security

BY SUSAN PARTAIN, DIRECTOR, CONTENT STRATEGY, AMERICAN PUBLIC POWER ASSOCIATION

Being prepared isn't just about having the right infrastructure, policies, or procedures in place. It's ensuring people know those policies and procedures — and each other — to leverage the utility's and community's assets effectively in a response.

Utilities and other critical sectors have conducted various exercises at the local, state, and national levels to prepare for emergencies and security incidents. Exercises bring together the various parties involved to work through an emergency scenario or to practice full-scale response procedures in the event of a cyber or physical attack. As the types of threats or emergencies that utilities potentially face broadens, so have the corresponding exercises.

Organizing an exercise can be as simple as gathering a group of representatives from across the community who would be involved in a response and walking through what actions each would take in a given scenario, such as those outlined in APPA's Tabletop Exercises in a Box or included in the All-Hazards Guidebook.

Overhead training at Kansas Municipal Utilities

Exercises can also involve multiple utilities in a specific state or region, like the Safe Haven exercise APPA is holding with various public power utilities this fall, or GridEx, a national exercise focused on cybersecurity of the electric grid.

Motivated to Grow

Often, one of the greatest benefits of participating in these types of events is building relationships.

Brad Mears, executive director of Kansas Municipal Utilities, noted how exercises have increased awareness of response capabilities and how these can be coordinated.

He said the events help participants "understand what people are facing on both sides" as well as how to communicate during incidents to clarify what is needed in a response.

KMU is cohosting a Safe Haven exercise, along with APPA and the Department of Energy, for its members across Kansas in October, and participated in a regional storm response exercise with its members and the Municipal Electric System of Oklahoma in 2024. (Snohomish Public Utility District in Washington will cohost another Safe Haven event in November).

Mears said KMU participates in the exercises APPA hosts for the Public Power Mutual Aid Committee, as well as workshops with state emergency planning agencies and federal entities like the Cybersecurity Infrastructure Security Agency and Argonne National Laboratory.

Tom Dunmore, chief engineer at Vineland Municipal Utilities in southern New Jersey, said that the public power utility regularly participates in a variety of exercises and similar events, some as part of compliance protocols and others on a voluntary basis to support overall preparedness. This has included everything from internal-only environmental protection drills to GridEx.

"We try to stay fairly active as a whole across the utility," said Dunmore. "It helps to know we're calling the right person in the moment rather than [cold calling] the organization to find the right person."

A storm response exercise. Photo courtesy Kansas Municipal Utilities.

> **"It's a lot easier to help when you know who you're helping out."**
>
> **BRAD MEARS,** EXECUTIVE DIRECTOR, **KANSAS MUNICIPAL UTILITIES**

He said those organizations can include anyone from local emergency responders to other city departments and the regional transmission organization.

Mears said KMU holds events in various parts of the state to make it easier for rural and remote members to attend in person, as he said it's the interactive part of the exercises that has the greatest impact.

"It builds relationships across utilities… it's a lot easier to help when you know who you're helping out," said Mears.

Billy Shearer, safety manager at New Braunfels Utilities in Texas, said that the public power utility focused more on participating in exercises when he came on board six years ago. He said they've participated in everything from local tabletop exercises to regional storm response workshops and cyber exercises, including GridEx.

When the exercises have been more locally or regionally focused, other participants have included the fire department, city managers, and the Lower Colorado River Authority, which supplies power to NBU. Shearer said the events have included tabletop exercises on various emergency response scenarios as well as having the fire department practice rescuing dummy utility workers.

Shearer said the tabletop exercises have again ramped up following recent leadership changes across the utility and the city. He said these efforts help individuals across city agencies align on what they need from the utility, and what the utility needs from others.

A recent event brought together local emergency managers to provide input into NBU's response activities. "They were there to provide input into our injects and explain to us what would be going on from their perspective because we're only a small piece of the city puzzle," said Shearer.

He said such activities also help recognize what resources various agencies have that could be helpful to a variety of community members, from emergency operations centers to warming centers and water distribution efforts.

Improved Resilience

NBU hosted its first community emergency preparedness event in August with the goal of increasing community awareness. The event was held at NBU's office and involved the public power utility sharing tools and tips for what they should do during an outage and handing out starter emergency kits.

Julia Haynes, Director of External Relations at NBU, said that while the event happened on the heels of this summer's tragic flooding in central Texas, event planning started before then, with the impetus being NBU's commitment to keeping its community informed.

"Recent events were an eye opener for people," said Shearer. For him, emergency preparedness is "not just the utility... Be proactive and take the time to tell your family how to respond to natural disasters as well."

Attendees seemed engaged in the event and Haynes said they left feeling more confident and knowledgeable about the services available in emergencies. Haynes said the utility plans to host such events again in the future and will invite more community partners to share tips from their perspectives and might also consider going to locations more convenient for different parts of the community.

"Providing resilient services to the community is a core responsibility of the utility. Empowering our customers with knowledge is essential, and it's something that we take seriously and will continue to prioritize." said Haynes.

Shearer noted appreciation for the public service mindset among colleagues at the community-owned utility, seeing willingness to offer help however they can. "It gives you a comfortable feeling to know that we're taking the extra steps to support locals in any kind of event."

NBU's community emergency preparedness event. Photo courtesy New Braunfels Utilities

Operations crew members during a drill. Photo courtesy Vineland Municipal Utilities.

> **"We should get it right, and we know we won't every time. We want to know where we are weak because we want to be stronger."**
>
> **TOM DUNMORE,** CHIEF ENGINEER, **VINELAND MUNICIPAL UTILITIES,** NEW JERSEY

"Being ready to support our communities is our number one goal," said Shearer. He sees how holding the exercises has helped NBU grow and streamline its processes before a real event.

Dunmore agreed. "We're really looking at resiliency… which for us is how fast can we respond to an issue, not necessarily how robust the system is… What we're trying to focus on is how do we respond to the things we can't foresee in a more controlled, foreseeable way."

Learning at Every Opportunity

When Vineland first considered participating in GridEx, Dunmore said it felt a bit overwhelming for the utility, which serves about 25,000 customers. In corresponding with the operators of the exercise, he learned that the utility could participate as an observer, which he said was still a helpful learning experience.

"Once we saw how the drill went, how the staffing and support worked, that really upped our level of exercise expectations and gave us the ability to better develop and manage our own internal drills," he said.

Most importantly, Dunmore said it's critical to make sure someone is translating the lessons from the exercise into updated protocols and procedures.

"Because we have a central group that has a role in those exercises, we can share the lessons learned quickly," said Dunmore. "That has been invaluable to us, because we're no longer having someone else learn the mistakes that we've already made."

Another big takeaway is from looking at when the simulated response breaks down. Scenarios are often designed to keep escalating until they reach a breaking point so participants can learn where vulnerabilities lie. "Giving ourselves time and space to fail," added Dunmore. "We're going to make mistakes, we're going to fail… that allows us to write process and procedures to help in the future."

Dunmore noted that Vineland Municipal Utilities has been placing more emphasis in recent years on making proactive changes based on exercise findings. In the past, he said exercises were often approached as a regulatory requirement rather than with a focus on learning.

> **"Having a positive emergency preparedness posture is important. Take the time to communicate and don't wait until it happens. You want to be on your toes rather than your heels."**
>
> **BILLY SHEARER,** SAFETY MANAGER,
> **NEW BRAUNFELS UTILITIES,** TEXAS

Vineland has had to deal with a variety of weather and natural events, from flash flooding to wildfires. Dunmore said a turning point in the utility's approach to preparedness occurred after a derecho came through its service territory in the early 2000s without warning.

"We can't predict the weather, but we can prepare to respond to it," said Dunmore. "We have these processes in place, we've trained our personnel… we should get it right, and we know we won't every time. We want to know where we are weak because we want to be stronger."

Building Rapport

From KMU's perspective, hosting exercises and workshops is an important service it provides to build resilience among its members and awareness of the resources and support available to them.

"An emergency response plan is not something to set on a shelf. You have to review it periodically to keep it current and updated," said Mears. In the exercises, members can review their plans and get pointers and ideas from other participants.

Dunmore said his team meets in advance of exercises to discuss what they expect to get out of a given exercise. While he said exercises don't always unfold as expected, having a defined common goal helps frame the debrief to be more teamwork-oriented about what processes might have failed, rather than finger pointing at which specific participants did or didn't do something correctly.

Dunmore said Vineland is looking to include more city divisions in its exercises in the coming years to expand the level of input to improve emergency response.

"Having a positive emergency preparedness posture is important," said Shearer. "Take the time to communicate and don't wait until it happens. You want to be on your toes rather than your heels."

Part of that preparedness is also about learning from other utilities.

"For those that have had issues come up in the past, reach out to them, see how they fixed it. Don't sit there and try to reinvent the wheel," advised Shearer.

Exercise participants, said Shearer, should "be flexible, be honest, and just be ready to work as a team."

Public Power Leaders: **Dylan Lewellyn**

Dylan Lewellyn has served as electric manager for Ipswich Utilities in Massachusetts since 2023. He came to Ipswich in 2017 as an implementation specialist. During his tenure, he has overseen the development of the Reinvest Ipswich program, an initiative that funds customers' in-home energy efficiency improvements. His work at Ipswich was instrumental in securing an Energy Innovator Award, given in recognition of the utility's forward-thinking approach to sustainability and electrification.

WHAT BROUGHT YOU TO YOUR CAREER IN PUBLIC POWER?

I went to college at Boston University, where I focused on business with a minor in sustainable energy. I knew I wanted to go into the energy space, but I didn't know much about public power at the time. A colleague I worked with at BU wound up at Ipswich Electric Light Department, and he needed somebody to work on sustainability initiatives. I started here in 2017 and eventually took over most of the business office functions. Around two or three years after that, I took on the general manager role in 2024 after being in an interim capacity since 2023.

HOW HAVE YOU HELPED ADVANCE IPSWICH'S SUSTAINABILITY INITIATIVES?

When I started at Ipswich there was a desire for greater attention to our sustainability program on the rebates and incentives side. I think we've made great strides there, especially due to the efforts of our new sustainability program manager, Ashley Wilson.

We had an interest in making sustainability more ingrained in our business practices. Work on Reinvest Ipswich started under our former general manager, John Blair. John, Ashley, and I worked closely on developing that concept and have also worked with the Center for EcoTechnology. We did a robust feasibility study and saw an opportunity to leverage what the Environmental Protection Agency calls inclusive utility investment. We were doing free assessments for customers, but they had to put [efficiency improvements] on hold due to the cost.

Identifying that barrier to entry led to the development of a concept where the utility uses its access to a larger pool of capital to facilitate the installation of these improvements. We know that the energy savings are there, and by implementing those projects we can reduce the customer's overall energy bills and even recoup the cost of the initial investment.

HOW WOULD YOU DESCRIBE YOUR LEADERSHIP PHILOSOPHY?

I try to meet folks where they are and focus on the people themselves. I came here straight out of school, so a lot of what I've learned I picked up from John Blair, our previous general manager. I learned from him the importance of making sure your people feel safe, happy, and comfortable at work. It helps to align their interests with what they do and be open to receiving feedback, and make sure you're clearing obstacles out of their way. I think that's the first job of any manager and is a big part of my leadership philosophy.

HOW HAS IPSWICH WORKED TO ADVANCE CUSTOMER SERVICE DURING YOUR TIME THERE?

I think we have done a good job of instituting customer surveys and gathering feedback. A lot of our staff are customers in town, and there's a big community aspect to what we do. We aim to be attuned to our customers' priorities.

The leadership of our board has made strides in being visible, particularly in public meetings. Something that we have been great at is attending community events and meeting our

customers where they are. A recent example is when someone reached out to Ashley Wilson about supporting the local free school lunch program. They needed a location to hand out the lunches, and we were able to give them a spot on our campus where, Monday through Friday, anybody that's under 18 can come here to pick up a free school lunch.

WHAT ARE YOUR GOALS FOR IPSWICH?

We are in a phase of getting back to basics while also looking forward with sustainability planning. I've spent a lot of time over the past two years bringing on new management — a new operations manager and business manager, among other roles. We've been focused on making sure we're as stable and staffed up as possible.

We're planning on doing a customer survey this year and are considering moving toward more dynamic rate structures. I think we have an opportunity to implement time-of-use rates depending on feedback from stakeholders.

We have opportunities to make investments in our local infrastructure, including incorporating some cleaner generation and energy storage. We have a 125-year-old power plant with dual-fuel natural gas and diesel engines. While it used to power the entire town, we don't run it 24/7 anymore but still use it for peak shaving purposes. In the next 12 months, through a partnership with a developer, we have a utility-scale battery going up in town beneath our wind turbine. We have an older substation near our office we could rebuild and potentially include another battery in the future.

On the power supply side, we've done a good job sourcing from carbon-free sources. The new emissions standard for Massachusetts municipalities is coming into effect in 2030. It shouldn't be a problem for us to demonstrate that 50% of our power portfolio is clean. But due to electrification, there is concern about accounting for load growth and how that would impact making our generation as carbon-free as possible. We need to ensure our distribution infrastructure can handle that. Making investments in our asset management programs and better understanding what we have deployed in the field will allow us to take a more proactive approach toward the impacts of electrification.

Small "Inconveniences" Are Better Than a Cyberattack: A Cautionary Tale

While physical attacks might result in clear infrastructure damage, one of the dangers behind cyberattacks lies in how they can be hidden from their targets.

One utility serving a small Midwestern community learned this firsthand a few years back.

The utility's ordeal began when its finance officer's email account was accessed without their awareness. Rather than taking immediate action, the attacker used this email breach to learn the utility's invoicing patterns, including where the largest bills come from and at what intervals. Once the attacker had gathered insights from reviewing the finance officer's emails, they began executing an impersonation and theft scheme.

Having become familiar with the timing of the utility's largest regular payment, made to its joint action agency, the attacker intercepted the email with the invoice. Then, using a fake email address that nearly replicated the JAA's (only one letter difference — an added "s"), the attacker sent a notice that the agency's bank account details had changed. The content of the email itself was tailored to look like prior messages from the JAA, creating an impression of authenticity.

"We have a good relationship with the joint action agency, so when they requested a change, it didn't seem out of the ordinary," the utility's director said.

Because the attacker had access to the utility's email, they changed a setting so that any legitimate emails from the JAA went into a hidden folder. Then, using the finance officer's email, the attacker replied to the JAA invoice email with a general statement apologizing that the payment would be late.

The same process happened the next month. In the third month, the attacker sent another email from the fake JAA address noting yet another bank account change.

"That should have been a huge red flag," said the utility director. But the attacker had been pulling in real information from past threads, including the signature from the usual invoice sender.

As the third payment was in process, the utility director got a text from the JAA's CFO saying the JAA hadn't received the last three payments, but also that he couldn't talk because he was attending a board meeting. The utility director thought the text was a scam, as the request was suspiciously worded and sent at the end of the day.

The next day, the utility director and finance officer looked into the payments and called the JAA to confirm whether the payments had actually been received. That's when the utility realized what was happening.

Fortunately, the utility team was able to stop the third payment. But the first two payments — totaling over $350,000 — had been cleared out by the attacker.

The utility's IT support found multiple suspicious logins to the finance officer's email account, and a federal investigation began.

"It's still a mystery of how they were able to get into the email in the first place," said the utility director. The investigation didn't find any actions on the finance officer's part that would have triggered the breach.

Investigators from the Department of Homeland Security believe the attacker exploited a loophole in using text for multifactor authentication. Now, in addition to changing passwords, the utility uses an app for multifactor authentication and a password manager. Staff are told not to save credentials in browsers, spreadsheets, etc., and to use unique, complicated passwords.

The attacker succeeded by exploiting not only the long-standing, trusting relationship between the various organizations involved but also human nature. The attacker's bank flagged the first payment but hadn't reached out even though it thought the payment was suspicious. The JAA only attempted to contact the utility through email.

"If either of us would have picked up the phone and just called," reflected the utility director, then the attack would have been caught earlier.

The utility director had been in the position for less than two years when the attack occurred and had assembled a to-do list for establishing more rigorous cybersecurity. The list included installing watchdog software, which looks for activity like suspicious logins from out of state.

"I was trying to be proactive, but I wasn't fast enough," he said. "I wondered about cost efficacy. I had been more worried about budget dollars than the what ifs."

He advised other utility leaders not to get into the mentality of "it's not going to happen here."

"Eliminate the notion. Yes, it can happen to you. [Small towns] are probably more targeted because [attackers] know you don't have as many full-time staff, you are more resource stretched, so it might be seen as easier than going against the giants that have an IT team."

The utility also updated its payment verification process to align with insurance coverage standards, which include requiring a phone call to confirm details for any wire transactions and having multiple people review larger payments.

The utility worked with a nearby university on assessing its system, such as evaluating the strength of its firewalls, and to train its staff on the latest security practices. The utility director recommended that utilities regularly perform assessments and penetration testing to catch potential vulnerabilities.

"Prioritize it. Take the recommendations, make upgrades, and then just stay in touch with your IT and those programs that offer those types of services. Things change year to year. Even if you've done it, don't wait five years to do it again. It needs to be an annual thing."

Assessments can include everything from analyzing a utility's infrastructure to its website, programs, computer protocols, and password policies.

Meanwhile, the attack continues to take a toll on the utility and its handful of staff.

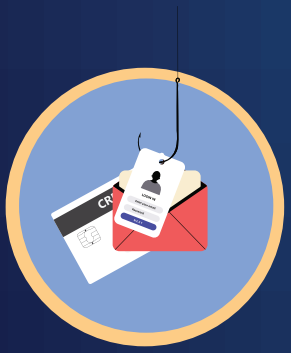
On top of the extensive documentation requested by state and federal agencies involved in the ongoing investigation, the utility has also had a lot of back-and-forth with its insurance company while trying to recover some of the financial loss.

The utility director advised other public power leaders to "track and save everything," and to carefully review insurance policies to know what is and isn't covered, and how the coverage might be interpreted in different scenarios.

While some security measures might involve minor inconveniences for employees, such as using a password manager, the utility director said they are well worth the cost: "I'd rather be inconvenienced for 10 seconds than go through this again."

COMMON CYBER RISKS AND HOW TO MITIGATE THEM

Cyber risks come in many forms, exploiting distinct vulnerabilities for specific aims, and can include more than one kind of attack carried out simultaneously. Malicious behavior encompasses both the means of entering systems as well as the ways in which attackers disrupt them upon access. Here are four common risks, how they are executed, and measures public power utilities can use to protect themselves against them.



Phishing

What it Is: Fraudulent emails, text messages, phone calls, or websites to trick users into submitting sensitive information — such as passwords or other credentials — that can be used to breach protected systems. Phishing can also trick users into downloading malicious software.

How to Mitigate: Train employees to spot phishing attempts and provide reporting measures so staff can easily flag suspicious emails or other items.

Man in the Middle (MitM) Attack

What it Is: An attacker intercepts communication between two parties, gathering sensitive information such as login credentials or personal data.

How to Mitigate: Ensure your organization has strong wireless encryption and router login credentials and employs a secure VPN, which makes it harder for bad actors to surveil information sent across systems.

Ransomware

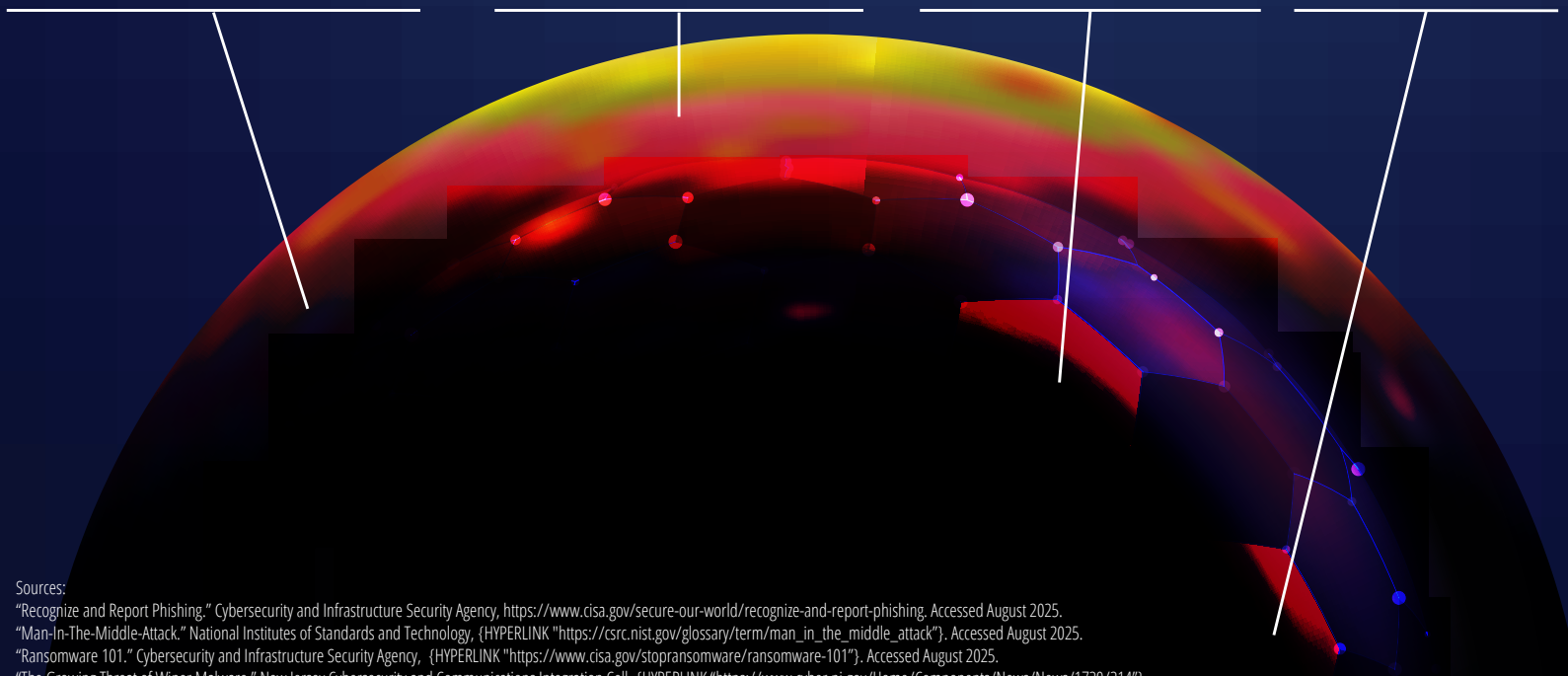
What it Is: Malicious software that locks important data or system files, so an attacker can demand

How to Mitigate: Implement multifactor authentication to make it more difficult for bad actors to access systems. Be able to quickly isolate infected machines and lock shared drives in the event of an attack.

Wiper Attack

What it Is: Malicious software that corrupts or erases critical data from a system.

How to Mitigate: Continuously monitor network traffic and system logs, use encryption, and back up essential data.



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