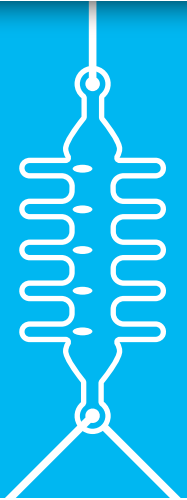




# USING MOBILITY TO TRANSFORM UTILITY OPERATIONS & MAINTENANCE

Utilities customers want more reliable service and, more than ever before, expect dependable and detailed responses when outages occur. To meet this demand and increase general operational efficiency, utility companies are turning to advanced technologies and deploying mobile computing devices to monitor supply lines, transmission resources and in-plant assets.



**Mobile solutions help utilities respond to and repair outages quickly, maintain assets, meet federal reliability requirements and face increasing demands. At the same time, optimizing responsiveness helps improve customer satisfaction.**

The purpose of this white paper is to provide you with information about how mobile solutions can help utilities achieve operational excellence by transforming the way workers communicate, monitor and respond in the field, as well as enhancing in-plant operations and predictive maintenance.

## Key benefits

Mobile technologies are already improving utilities operations, including:

- ✓ Increase operational efficiency.
- ✓ Limit service disruptions and minimize outage restoration times.
- ✓ Improve productivity and responsiveness in critical scenarios by keeping crews in the field connected.
- ✓ Better manage assets.
- ✓ Manage the regulatory environment.
- ✓ Enhance in-plant maintenance, safety and compliance.

## Utilities trends

### A widening gap exists between infrastructure investment vs. demands for reliable energy.

It is estimated there will be a \$208 billion shortfall by 2029 and a \$338 billion shortfall by 2039 in generation and transmission needed for demand.<sup>1</sup>

### New types of energy demands are on the rise.

The number of electric vehicle (EV) charging stations within the United States will have grown from 6,900 chargers in 2012<sup>1</sup> to more than 35 million in 2030. An estimated 27 million EVs are expected to be on the road in the United States by 2030.<sup>2</sup>

### Renewable power-generation sources require new transmission capabilities.

Electricity generation from renewable energy sources is expected to rise from 19.8% in 2020 to 35% in 2030.<sup>3</sup>

INFRASTRUCTURE VS. INVESTMENTS



ELECTRIC TRANSPORTATION



RENEWABLE ENERGY TRANSMISSION GROWTH



1. Failure to Act: Electric Infrastructure Investment Gaps in a Rapidly Changing Environment. American Society of Civil Engineers (ASCE) [2020] ▶  
 2. The US electric vehicle charging market could grow nearly tenfold by 2030. PwC [2023] ▶  
 3. Renewable Energy. Center for Climate and Energy Solutions [n.d.] ▶

## Mobile technologies provide access to outage information

**Information is central to a utility company's ability to quickly recognize, respond to and resolve grid problems**, especially in an outage scenario. While the smart grid framework gathers and shares information with participants in the electrical flow—bulk generation, transmission, distribution and the customer—mobile technologies are an important way to collect data, communicate with appropriate stakeholders and make repairs.

For example, customers can use their smartphones to take photographs of downed wires, poles, and other safety and outage issues to share with utility

companies. This helps the operations team to quickly visualize the situation before sending workers to the site, helping technicians to make repairs to restore service in one visit.

Utility field workers are using advanced technology with mobile devices to access critical information and repair outages. Video from drones, for example, provides them with an in-depth view of the situation while maintaining a safe distance. Augmented reality (AR) can help record real-world measurements, diagnose problems and provide annotations to aid complex repairs.



### RESILIENCE NEEDED

**\$28** BILLION → **\$169** BILLION

The distribution system accounts for 92% of all electric service interruptions, a result of aging infrastructure, severe weather events and vandalism. Power outages are costing the U.S. economy \$28 billion to \$169 billion annually.<sup>4</sup>

## Examples of advanced technologies



### Artificial intelligence

Artificial intelligence (AI) and machine learning are helping utilities manage assets. With AI's ability to analyze massive databases, utilities can develop greater and more granular maps of generation and transmission resources and use advanced solutions to monitor assets in near real time.



### Drones

Drones assist with inspections, allowing workers to safely view and assess damage. Using drones can reduce the need for multiple bucket trucks and allow the utility company to gather video feed information for additional analysis that can be used to optimize repairs.



### Smart tablets

Smart tablets allow on-site repair crews to gather more information during assessment that can speed up repairs. Crews can use tablets to view a digital overlay of the pre-damaged site to see what the actual damage is and what replacement components may be needed. They can query about and request inventory in real time, and enhance productivity by ensuring the right employees are on-site with the right tools in hand.



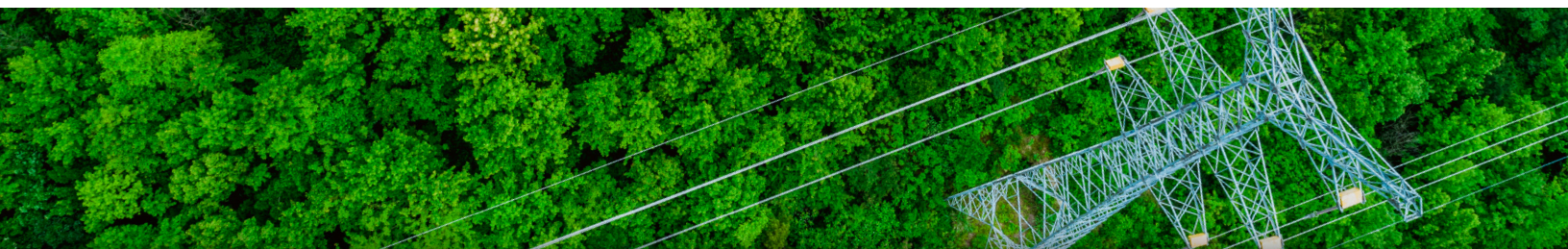
### Augmented reality

AR is helping repair crews maintain assets in the field and restore outages faster. AR technology can overlay a 3D model on a piece of equipment in real time and provide access to documentation such as manuals or maintenance history. For damaged equipment, crews can immediately order replacement parts or consult with a more experienced technician via video conference about a complex repair. AR is also being used for employee training.



### The Internet of Things

The Internet of Things (IoT) and the rise of big data, advanced analytics and smart sensors enable utilities and energy companies to capture and share real-time analytics across their mobile workforce to ensure efficient, effective decision-making. As utilities transform into more connected and distributed grids, their mobile workforces can use their mobile devices to gather and access information to help them respond faster and be more productive.



## CASE STUDY

## SeekOps pinpoints gas leaks with space-age tech and Panasonic rugged tablets



**SeekOps, a leak-detection service provider for the energy industry based in Pasadena, CA, successfully set out to transition NASA's miniature methane sensor technology from a proven prototype to a commercial service**—based on technology that was first demonstrated while mounted to a drone used for oil production surveys and gas-utility safety inspections. The SeekOps solution can detect leaks faster than traditional manual inspections and provides significantly more high-quality data than other methods, which translates to more effective, accurate and sensitive leak detection and localization.

The founders of SeekOps paired their methane detection drone with a Panasonic TOUGHBOOK® tablet, a purpose-built, rugged device for energy

professionals—from oil rig technicians to utility workers. The 10" form factor, daylight-readable screen, long battery life and rugged durability can provide natural-gas field teams with immediately actionable information.

A three-person SeekOps team—a drone pilot, safety observer and ground control operator armed with a tablet—can set up and begin inspecting a wellpad in less than 15 minutes. With a real-time view of streaming data from the drone, the team can detect a problem, pinpoint its exact location and assign a severity grade—providing a faster, cheaper and smarter way to reduce methane gas leaks.

*“There’s really nothing on the market that could contend with these devices, and we knew when we took it out into the field, that we had made the right hardware choice.”*

—Andrew Aubrey, CEO,  
SeekOps

[FULL CASE STUDY](#)[MORE CASE STUDIES](#)

## Mobility for in-plant operations

**Mobile technology plays a critical role in the modernization and digital transformation of utilities.** Mobile utility management, for example, touches inspection, maintenance, staff scheduling, data capture and transmission, compliance, and grid operations.


With the right mobile devices, plant operators in charge of large facilities or many different sites can better manage maintenance rounds, quickly identifying assets that need inspection and ensuring personnel schedules are planned effectively.

Using mobility also helps reduce labor-intensive manual data capture. Workers can use their device to take and send pictures of assets, transmit information quickly to or see asset history from a central database, and gauge next steps while they're still on their shift.

This helps reduce data errors and improves compliance while empowering employees to proactively make maintenance decisions that could extend equipment life.

Reducing back-office costs through mobility allows utilities to focus on enhancing safety and plant efficiency. Mobile dashboards and reports offer real-time metrics on work orders, improved documentation, more robust compliance and better visibility into expenses.

Efficient operations mean plants spend more time meeting customer demands for power and boosting their bottom line. Integrating mobility can dramatically improve utility plant management.



*While having the right devices in the field is crucial, mobile technology can help manage in-plant operations more efficiently as well.*


## Mobile-enabled OMS/WMS predicts and minimizes restoration times

**Utility companies face multiple operational challenges, including unpredictable outages and interrupted service that impacts millions of people annually.** Mobile-enabled order management systems (OMS) and work management systems (WMS) can help predict and minimize restoration times, which can be communicated to affected customers.

Despite the drive to prevent outages, the unpredictability of severe weather—the top cause of outages—means service interruptions will continue to happen.

Utilities can use mobile-enabled OMS/WMS to improve customer satisfaction during these challenging times by staying connected with the customer.

Even when dealing with outages caused by other means, such as natural disasters, sabotage and vandalism, fuel supply deficiencies, or other transmission disruptions, it's critical that field crew can access up-to-the-minute information and capture and transmit accurate data efficiently and safely.



*Mobile devices are critical to overall productivity, as well as ongoing reliability improvements, better outage responsiveness and customer satisfaction.*



## Rugged mobile solutions improve productivity in critical field scenarios



SEVERE STORMS



EXTREME HEAT



FLOODS



HURRICANES



FIRES



CYBERATTACKS

Utility personnel often work in harsh conditions, making them ideal candidates for mobile solutions that use rugged hardware typically built to meet military standards for toughness.

Rugged mobile devices are ideal for field workers who need reliable access to critical information and worry-free performance in harsh conditions to stay productive. A consumer-grade mobile device can't stand up to day-after-day conditions that utility field workers experience. If something goes wrong with a consumer-grade laptop in the field, it's not easy to fix.

### Putting unreliable or delicate consumer-grade computing equipment in the field can potentially risk:

- Ongoing business operations
- Productivity for field workers and IT technicians
- Increased operational costs, including device repair and employee downtime
- Worker safety
- Prolonged customer service outages

### Panasonic TOUGHBOOK mobile devices are purpose-built for the utility and energy industry and offer:

- ✔ **RUGGED DURABILITY**—Tested to meet military standards (MIL-SPEC) and ingress protection (IP) standards, our devices can withstand bumps, spills and drops in a physically active environment. They can also handle dust, dirt, vibration, extreme temperatures and exposure to substances like oil, grease and caustic fluids.
- ✔ **EXCEPTIONAL RELIABILITY**—TOUGHBOOK rugged devices are 72% more reliable than other rugged devices, based on a comparison of device failure rates.<sup>5</sup> In the moments that matter, you can depend on TOUGHBOOK devices to perform.
- ✔ **CONNECTIVITY**—TOUGHBOOK devices feature wireless options including Wi-Fi, 4G LTE, 5G and Bluetooth®, with powerful embedded antenna modules that provide connectivity even where signals may be blocked by industrial buildings and large machinery. They're also certified for use on the FirstNet® and Verizon networks for first responders.
- ✔ **EASE OF USE**—Our mobile devices have common forms and features that users are already familiar with, while also offering some functionality geared specifically toward utility worker needs: touchscreens that users can operate while wearing heavy gloves, lighting options for readability in a bright or dark space, and AC adaptors/power cables that work across all devices and models.

5. Compares Panasonic actual data for TOUGHBOOK computers to data gathered by IDC on consumer and rugged laptops, tablets and handheld devices and reported in The Case for Deploying Rugged Devices in Your Organization. IDC (November 2021) ▶



## Rugged mobile technology: A smart investment

Mobile devices are critical to overall productivity, as well as ongoing reliability improvements, better outage responsiveness and customer satisfaction.

Adopting reliable, rugged technology helps protect your mobile investments and can save you money over time, reduce downtime for utility maintenance and repair, and increase productivity. Even though rugged technology may have a higher cost up front, it can pay for itself over a relatively short period of time in reduced repair costs, minimized productivity loss and longer time in the field.

### WHEN TECHNOLOGY FAILS, IT COSTS TIME AND MONEY

**20% more service tickets** for organizations using consumer-grade devices as their frontline mobile solution, compared to organizations with rugged mobile devices<sup>6</sup>

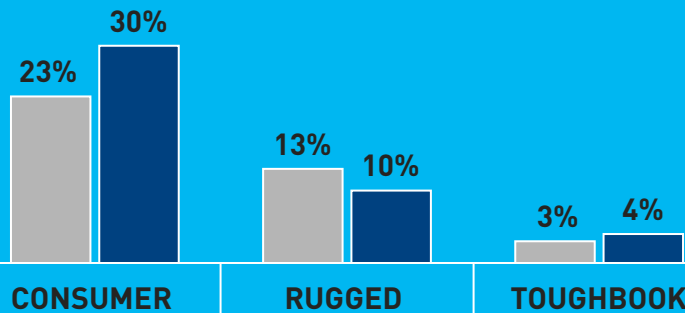
**74 minutes of lost productivity** for frontline workers with each mobile device issue<sup>6</sup>



### WHEN FAILURE IS NOT AN OPTION

**TOUGHBOOK laptops and tablets outperform consumer-grade devices as well as devices from other rugged competitors.<sup>7</sup>**

#### AVERAGE DAILY FAILURE RATE



6. Enterprise Mobility Total Cost of Ownership. VCD Research Group Inc. (2021)

7. Compares Panasonic actual data for TOUGHBOOK computers to data gathered by IDC on consumer and rugged laptops and tablets and reported in The Case for Deploying Rugged Devices in Your Organization. IDC (November 2021) ▶

## Choosing the right rugged device

With the right rugged devices, utilities gain both business efficiency and customer service benefits. TOUGHBOOK devices last longer in the field, offering greater reliability, stronger battery life and a lower total cost of ownership.

### Consider these benefits of Panasonic rugged devices:

- ✓ Lower computer failure rates means higher worker productivity.
- ✓ Enterprise-grade security protects data and network.
- ✓ Software and deployment solutions help deliver real-time data and analytics and automate manual processes.
- ✓ Backwards-compatible vehicle docking solutions improve driver safety and optimize usage, contributing to a lower cost of ownership and future-proofing purchases.
- ✓ Reliable connectivity and support for multimodal communications provide flexibility to access data.
- ✓ When paired with AR technology, TOUGHBOOK rugged devices improve the ability to locate and monitor assets in the field, identify outages, provide repairs, and locate and track mobile workforce teams, helping to improve operational efficiency and worker safety.



**TO LEARN MORE, VISIT TOUGHBOOK MOBILE SOLUTIONS FOR UTILITIES ▶**

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