



# The 2025 Utility of the Future Survey: A Mandate to Modernize

April 29, 2025



# Executive Summary

Now in its third year, the *2025 Utility of the Future Survey* offers a view into how utilities across North America are navigating the ongoing challenges of grid modernization. Conducted between February and April 2025, the survey collected insights from 103 utility professionals across a range of roles and regions. The study was further augmented by third-party research into the external trends and pressures that are accentuating the need to modernize distribution grids and strive for more reliability and resilience.

The overarching finding is that grid modernization remains a key mandate for the vast majority of utilities. As was the case last year, roughly three out of four rate it as an important priority. But grid modernization is a journey, not a quick fix, and different utilities reported different levels of preparedness for the task ahead. This year, one in 11 utilities reported feeling completely prepared to modernize their distribution grids—up from one in 20 last year, which is encouraging progress.

By comparison, more than half (53%) reported they had *started* their grid modernization journey and were feeling at least *somewhat* prepared. This suggests that the grid modernization movement is well underway. Still, one-third felt a little or not at all prepared for the challenge of grid modernization—despite the acknowledgement that it's important. For them, the challenge is figuring out where to start, which is something Tantalus is uniquely positioned to help them do.

Ultimately, for all utilities, the best way to accelerate grid modernization is to take a data-centric approach, not a device-centric approach. That means leveraging solutions that harness the power of data, help them make the most of their existing assets, and deliver new levels of reliability and resilience. It also means taking advantage of analytics and AI-driven solutions that give utilities an immediate and intuitive view of everything that's happening across their distribution grids, including devices behind-the-meter.

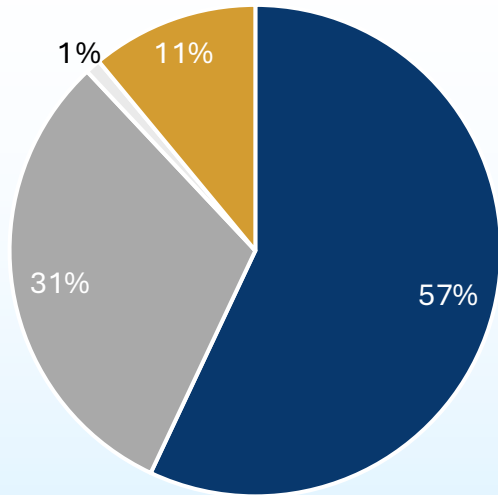
Of course, every journey has its obstacles. In this year's study, long-standing concerns such as grid data management and cybersecurity remained top of mind for most utilities. However, new pressures—including extreme weather, economic volatility, and rising customer expectations—have grown in urgency since last year's study.

In addition, non-technical concerns over hiring and retaining staff and weather-related disruptions now rival technical concerns, while many utilities still feel relatively unprepared to manage distributed energy resources, rooftop solar, and EV integration. Again, harnessing the power of data and maximizing the use of existing infrastructure are great ways to tackle these challenges.

In short, this year's study further validates the urgency around grid modernization and shows that most utilities have already begun their transformation. Now the question is, how will they approach the *next* phase of their journey—tackling grid data management, cybersecurity, limited resources, and other concerns? Tantalus stands ready to help utilities of *all* kinds discover and utilize the wealth of data at their disposal, leverage their existing infrastructures, and find the most cost-effective path toward becoming the utility of the future.

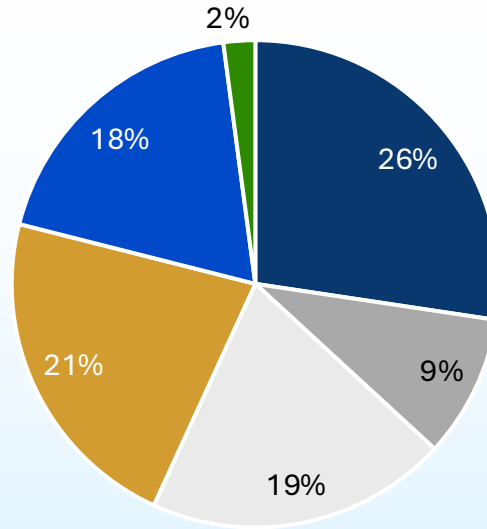
# Methodology

Organization Types



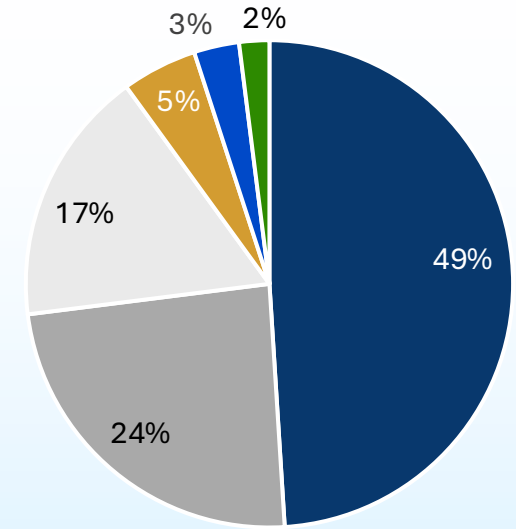
■ Public power    ■ Electric coop  
■ IOU            ■ Other

Respondent Roles



■ Senior leadership    ■ Engineering  
■ Operations            ■ Metering  
■ Customer service / billing    ■ Regulatory / business dev

Number of Meters



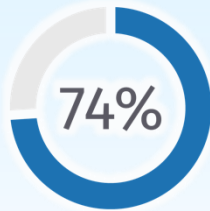
■ 1-9,999                    ■ 10,000-29,999  
■ 30,000-59,999            ■ 60,000-99,999  
■ 100,000-499,999        ■ 500,000+

- Online survey
- 103 respondents across multiple roles

- February – April 2025
- Individual responses kept anonymous

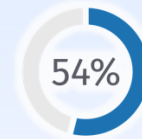
# Key Findings

Roughly three out of four utilities

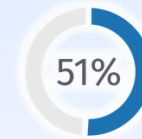


say **grid modernization** is a priority

## 2025 Top Concerns



Grid data management



Cyber-security



Extreme weather events

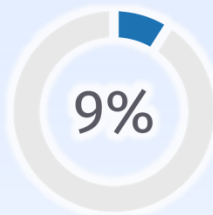


Staffing



Increased economic volatility

Only 9% feel



**completely prepared for grid modernization** (almost double from last year)

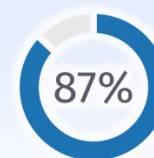


feel *somewhat prepared*, and are on their way toward grid modernization



feel *little or not at all prepared*, and are having trouble getting started on their journey

**Utilities feel least prepared to deal with:** extreme weather events and their impact on the grid, wildfire prevention, cybersecurity, and the rise of rooftop solar and other renewable energy resources



say it's **very important** to have a **single view** of what's going on

Utilities who focus on grid modernization and grid data management can tackle **multiple priorities at the same time**

# Changes from 2024-2025

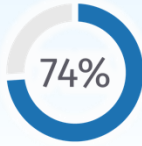
## Key Differences in Priority & Preparedness



said it was a priority in 2024



felt completely prepared in 2024



said it was a priority in 2025



felt completely prepared in 2025

## Preparedness by Category

Slight drop in preparedness across nearly all domains in 2025.

Data management, EV integration, and DERs emerged as *critical gaps*.

## Top Concerns — Shifts in Focus

### 2024

Top concerns were data management, cybersecurity, evolving regulations, staffing.

### 2025

Data management and cybersecurity remain top, but *staffing* and *extreme weather* now rank equally (both at 40%).

**Economic volatility** climbed higher in 2025 (from ~8th to 5th place).

**EVs and DERs** became more emphasized as areas of *low preparedness* in 2025.

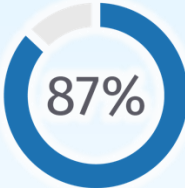
## Visibility Remains Critical

### 2024:



said a single unified view of all operations is very important.

### 2025:

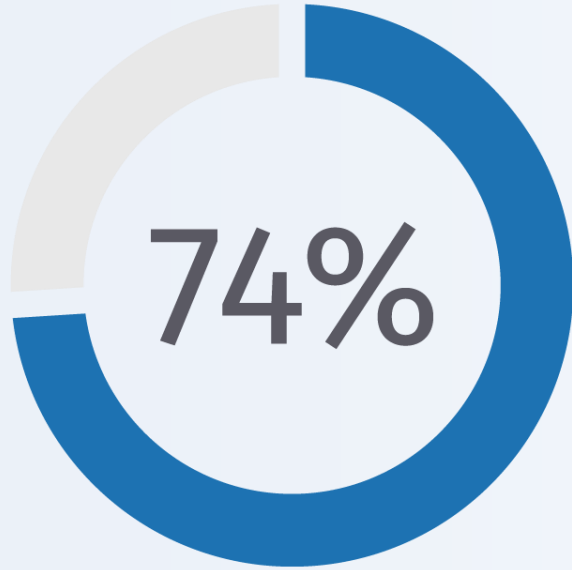


still say it's very important—well within the margin of error.

# Grid Modernization

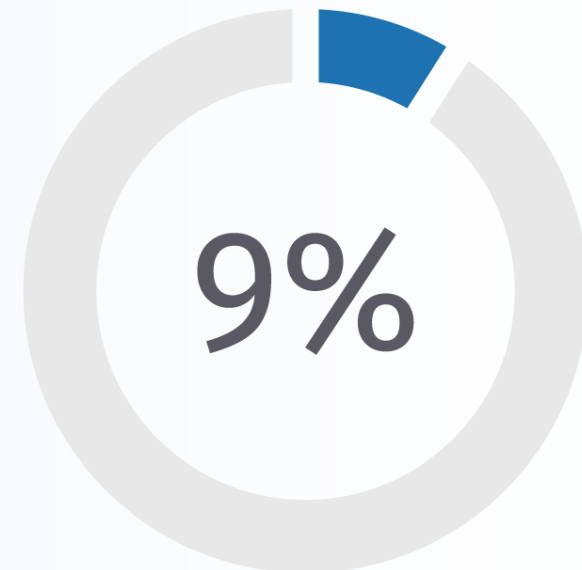
Priority vs. Preparedness

Priority



say grid modernization  
is a priority

Preparedness



feel completely prepared for  
grid modernization

# The Definition of Grid Modernization Remains the Same

## THE MODERN GRID MUST HAVE ...

Greater **RESILIENCY**  
to hazards of all types

Improved **RELIABILITY**  
for everyday operations

Enhanced **SECURITY**  
from an increasing and evolving  
number of threats

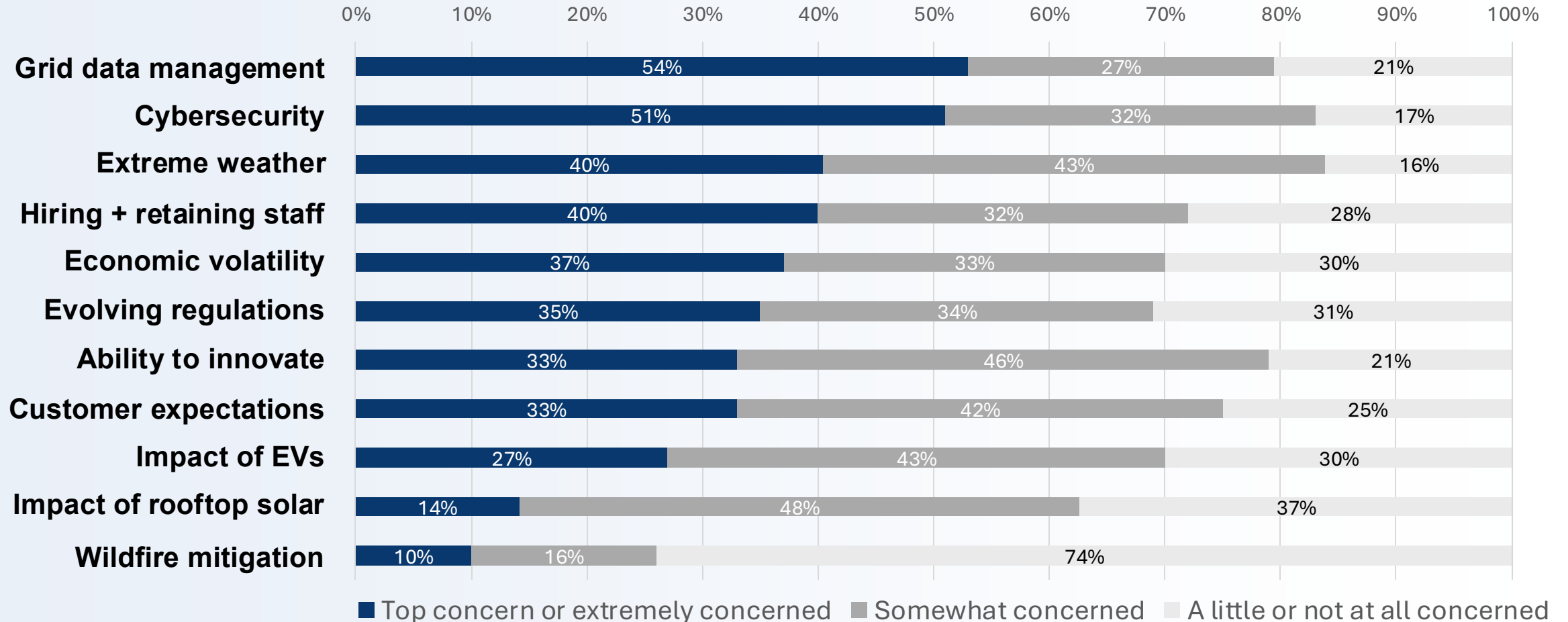
Additional **AFFORDABILITY**  
to maintain our  
economic prosperity

Superior **FLEXIBILITY**  
to respond to variability  
and uncertain conditions

Increased **SUSTAINABILITY**  
through energy-efficient and  
renewable resources

# Top Concerns

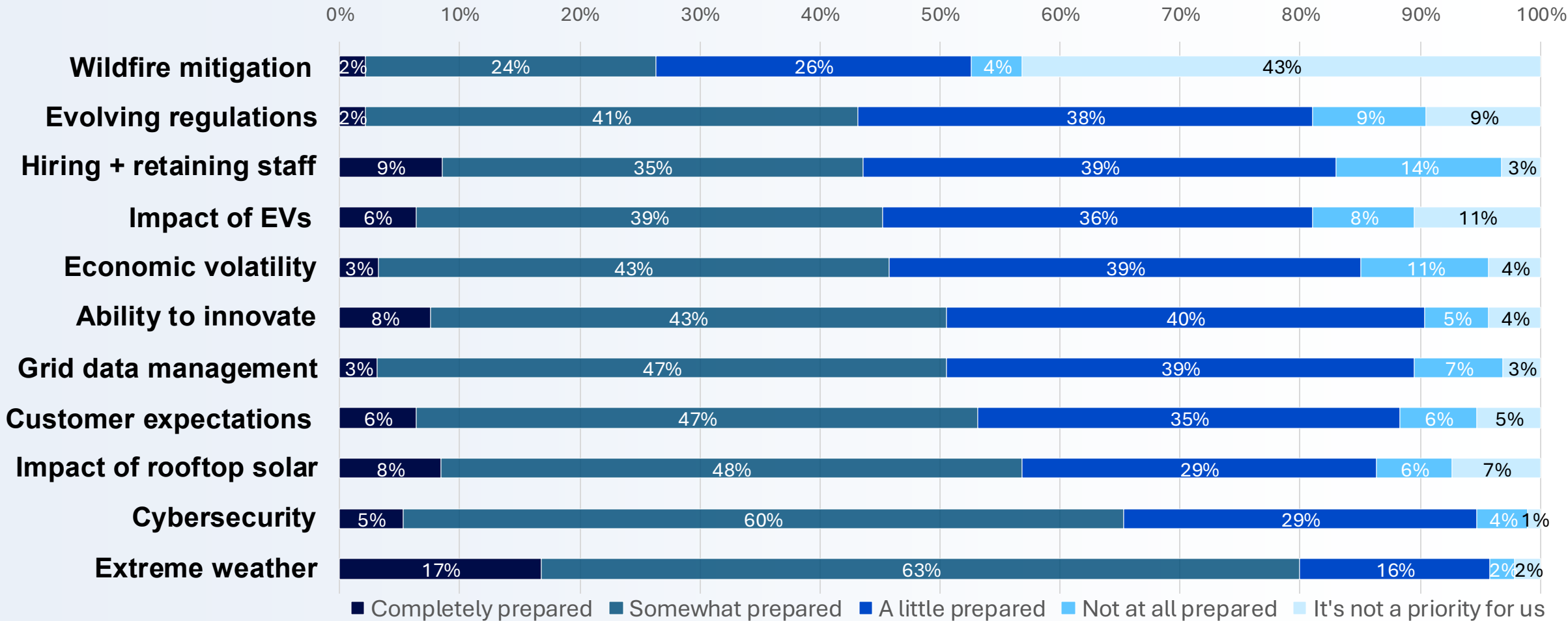
From *most concerned* to *least concerned*



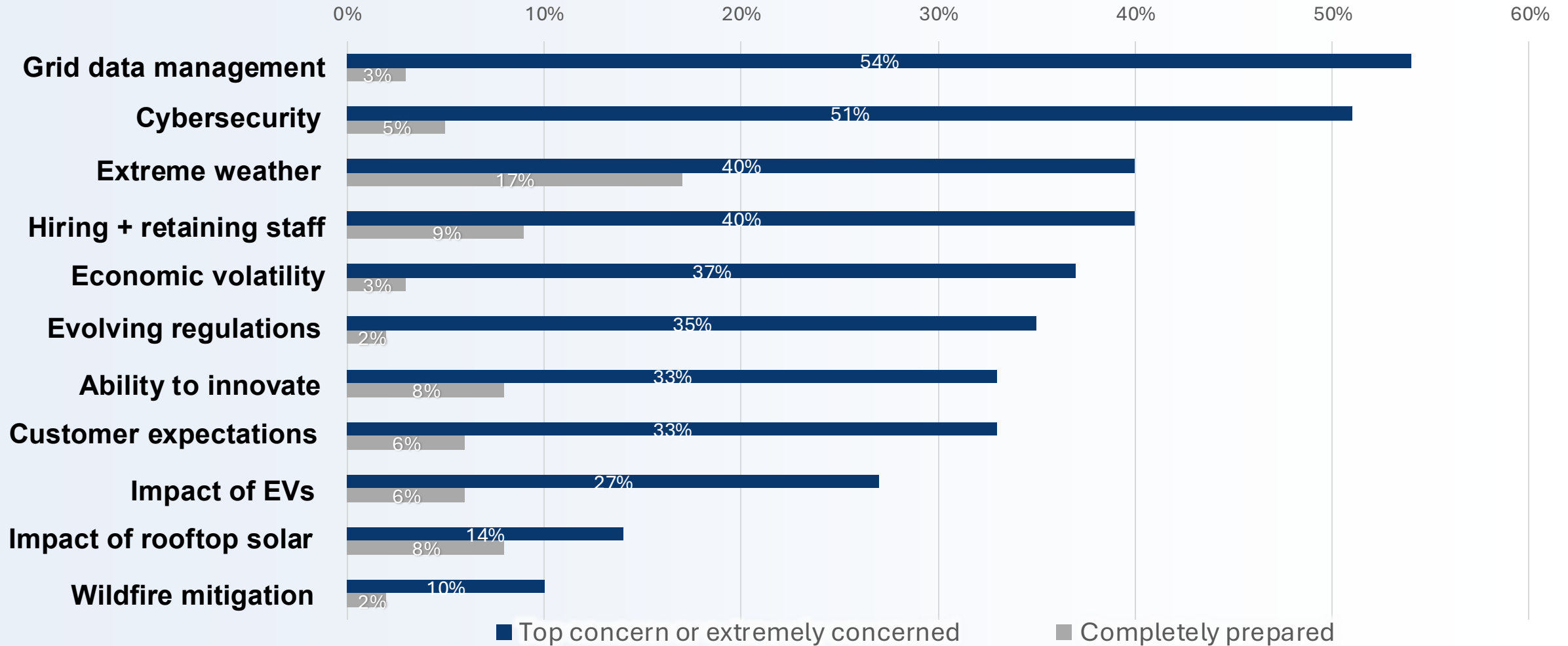


# Level of Preparedness

From least prepared to most prepared

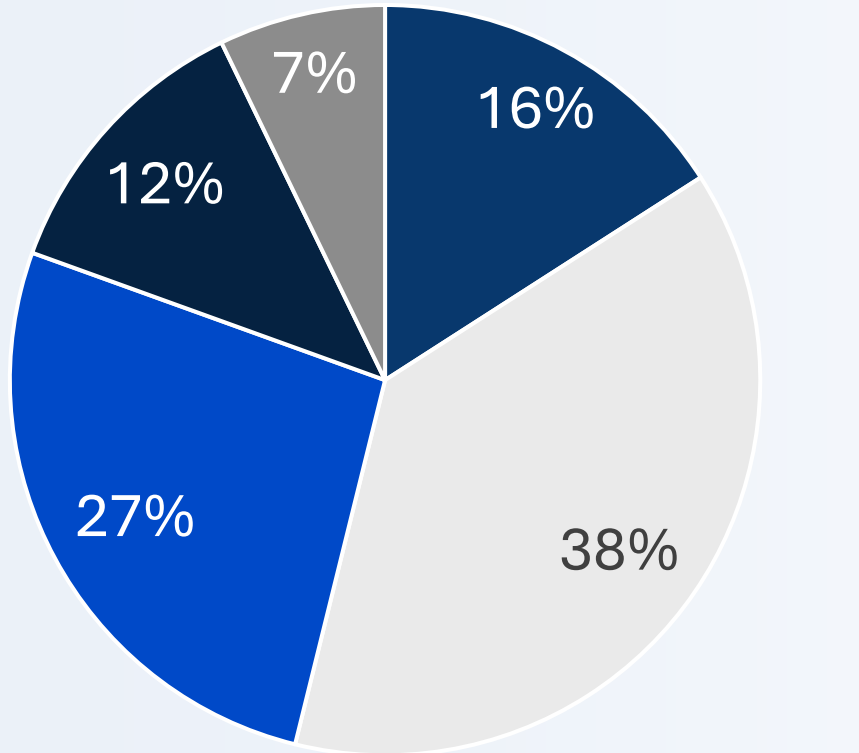


# Concerns vs. Preparedness



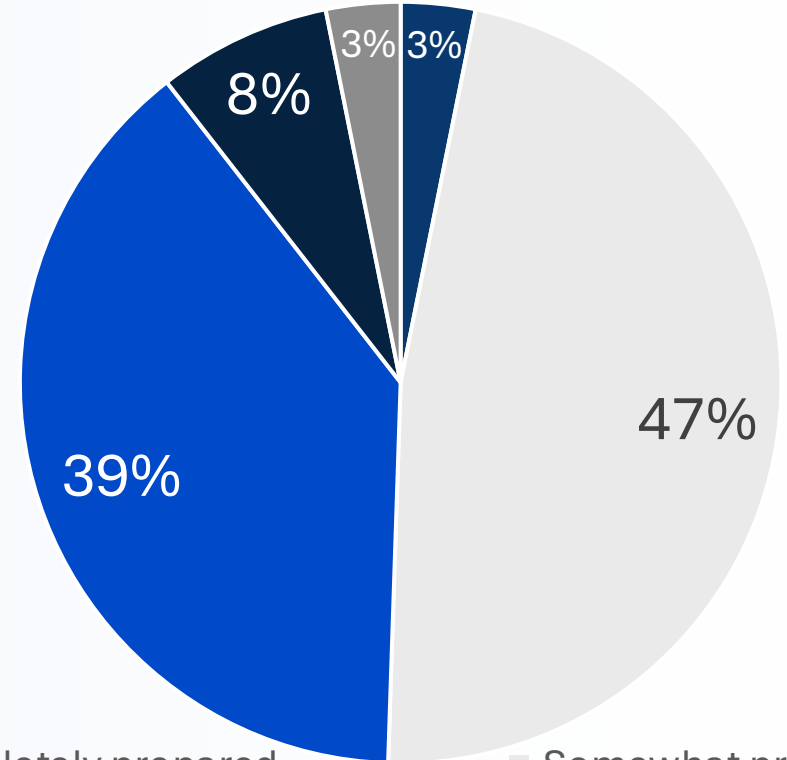
# Grid Data Management

## Priority



- Top concern
- Somewhat concerned
- Not at all concerned
- Extremely concerned
- A little concerned

## Preparedness



- Completely prepared
- A little prepared
- Not a priority
- Somewhat prepared
- Not at all prepared

# Cybersecurity

**70%**

increase in global  
cyberattacks on  
utilities in 2024

**~\$5M**

average cost per  
incident for security  
breaches

This makes it the  
**5<sup>th</sup> MOST**

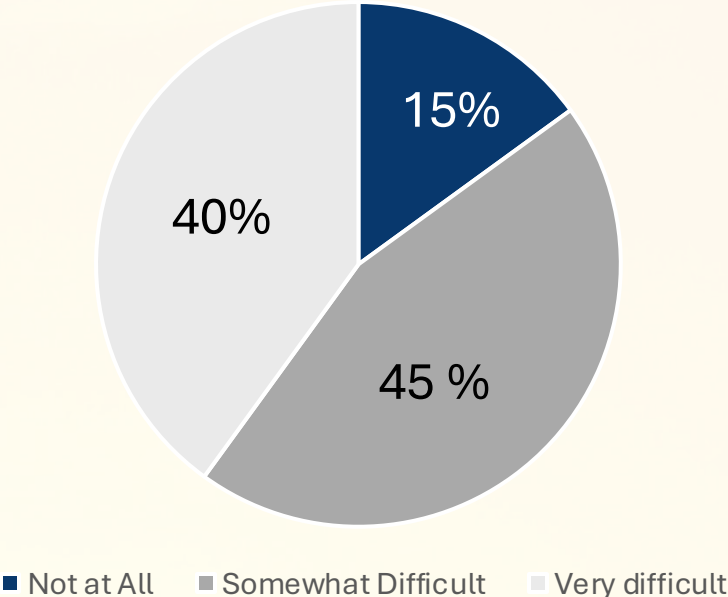
expensive industry  
per incident for  
security breaches

Sources:

- Armis: [The Anatomy of Cybersecurity \(2024\)](#)
- IBM: [Cost of a Data Breach Report 2023](#)

# Hiring & Retaining Staff

### Hiring difficulty for utilities



Transmission, distribution & storage employment in the U.S. grew 2.5% in 2024, **above** the economy-wide employment growth rate at 2.0%.

Energy employment outside utilities in the U.S. **outpaced** economy-wide employment, growing by 4.2%, more than double the economy’s growth rate



# Extreme Weather

2024

**27** weather + climate disasters **> \$1B** cost of each disaster

**17** severe storms **1** flooding event **5** tropical cyclones **6** tornado outbreaks

**2** winter storms **1** wild fire **1** drought

**\$182B**  
total cost of all the disasters to hit the U.S. in 2024

This total annual cost may rise by several billion as additional costs from identified events are reported.

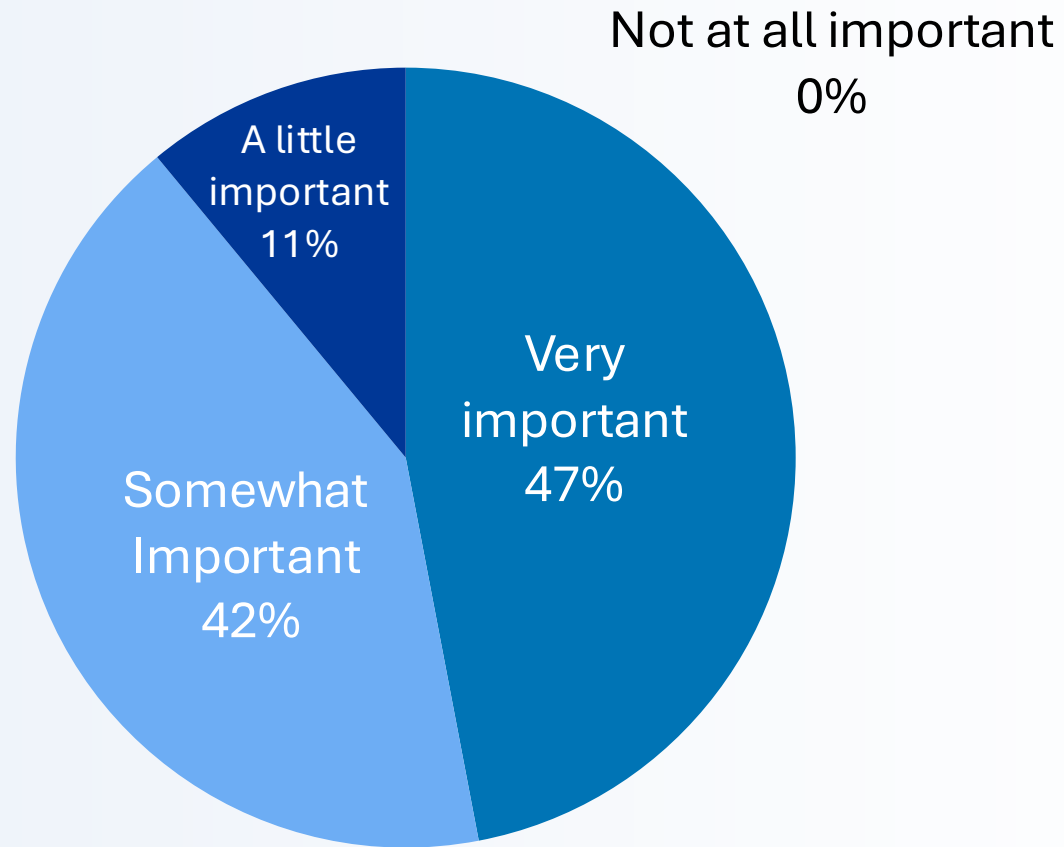
**568**  
fatalities from these events

**THE COSTLIEST EVENTS IN 2024**  
Hurricane Milton hit the American southeast, primarily affecting Florida. **Total cost: \$60B**  
Hurricane Helene in September, affecting the same region. **Total cost: \$55B**

**14th consecutive year** where the U.S. experienced 10 or more billion-dollar disasters and the **5th consecutive year** where 18 or more billion-dollar disasters impacted the U.S.

# Single View of Your Entire Operation

How important is it to have a single view of what's going on across your entire operation?



# Closing Recommendations

- Grid modernization can help you tackle **multiple priorities** at the same time.
- Use this study to **benchmark where you** are in your grid modernization journey.
- Wherever you are, **now is the time** to figure out how to overcome the **next obstacle**.
- Find the **most cost-effective path forward**—one that leverages existing investments.
- Don't focus only on the **device** or the **AI application**—focus on the **data**.
- Have a strategy in place for **grid data management**.
- Get a **single view** of your **entire grid**—including **behind the meter**.
- Remember the importance of **staying in control** of your own grid modernization.
- If you feel stuck, **compare notes** with your peers and Tantalus.





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