

Water Utility Resilience Survey

I: Past Experiences with Disasters

What type of natural or manmade disasters have you faced in your community? Check all that apply.

- ☐ Flood
- ☐ Snow & Ice
- ☐ Hurricane
- ☐ Tornado & Hailstorm
- ☐ Drought
- ☐ Covid
- ☐ Cybersecurity
- ☐ Fire & Explosion
- ☐ Spills and Leaks
- ☐ Unexpected Asset Failure
- ☐ Storm Surge
- ☐ Dependency on other vulnerable infrastructure systems
- ☐ None of the above but we are concerned about the future
- ☐ Other:

What has been the biggest challenge faced by your utility during a disaster? Check all that apply.

- ☐ Availability of 'rainy-day' fund to cover unplanned costs
- ☐ Access to emergency equipment
- ☐ Access to emergency services
- ☐ Adequate training of staff to handle emergency
- ☐ Workforce retention and morale
- ☐ Ability to repair equipment to be endure next disaster
- ☐ Ability to work with other partners to collaborate on solutions
- ☐ Timely and accurate stakeholder communication
- ☐ Other:

As you have experienced these challenges, what lessons have you learned that are now (or should be) common practice? Check all that apply.

- ☐ Implementation of communication technologies that allow staff to remain in touch virtually
- ☐ Implementation of smart technologies that enable predictive AND real time analysis of systems, across assets
- ☐ Design, engineering and construction that significantly enhance facility resilience
- ☐ Technologies, including drones, to provide immediate damage and required repair assessments
- ☐ Use of assets – including water sources - to provide early warning of public health concerns
- ☐ Balance of built and nature-based infrastructure
- ☐ Other:

In your previous experiences, did any unexpected partnerships or relationships result? Check all that apply.

- Utilities working together to share resources including equipment and personnel
- Utility working with local health department
- Utility collaborations with private corporations
- Utility collaborations with local nonprofits

Other:

Please add any details to describe the partnership.

Your answer:

II. Pre-disaster and Risk Mitigation

Based on previous disasters and incidents, has your utility considered and/or implemented the following? Check all that apply.

- Pre-negotiated emergency purchasing capabilities without mayoral, city manager, council approval
- Pre-positioned access to technologies, equipment, other critical resources
- Curated and updated list of pre-vetted and pre-approved vendors-suppliers.
- Just-in-time alternative delivery of fuel, chemicals, and power supplies
- Ransomware protection, cybersecurity mitigation programs
- Other:

As you prepare your utility for the next challenge, what steps are you considering? Check all that apply.

- Ensuring the Capital Improvement Plan addresses resiliency including long term changes in climate that could impact operations, (i.e, potential for more flooding, weather extremes, pandemics).
- Incorporating resilience-centric, including “smart” technologies into all new projects
- Retrofitting existing assets with resilience-centric, including “smart” technologies
- Using AI and machine learning to help pinpoint weaknesses in the systems/assets
- Seeking additional funding sources to pay for technologies that will make the utility more resilient
- Rate Increases
- Other:

Based on your utility’s interest in incorporating resilience-centric technologies into future projects and/or existing assets, what data-insight are you interested in seeing?

- System Pressure & Flow
- Upstream, at-point, downstream Real-Time Hydrological
- Water Quality (environmental, health)
- Predictive Forecasting, Analytics, and Monitoring
- Energy usage and optimization
- Chemical, Fuel, and Similar Resource usage
- Remote Manpower, Workflow, and Staffing Support

- Comprehensive Vulnerability Assessment of System Assets
- Risk and Consequence of Asset Failure
- Other:

Based on the breadth of persistent disasters, and therefore risks to your utility and community, what technologies would be most beneficial for homeowners, small businesses, industry and peer public sector facilities to adopt to mitigate future losses?

Your answer:

What is your biggest challenge associated with implementing resilience-centric technologies?

- CapEx
- OpEx
- Staff resistance
- Staff training
- Procurement
- Stakeholder Support for Rate Increases
- Political Support
- Other:

Newly commercialized smart technologies, equipment, and integrated solutions seek opportunities with your utility. Is your utility using or planning to use any of the following avenues for review and selection of vendors?

- Demonstration, pilot program
- Annual, traditional procurement
- Special competitions, challenges
- Exemption, waiver for expedited emergency procurement
- Performance-based procurement and contracting
- Joint ventures, public-private partnerships
- None, but interested in learning more.
- Other:

From what you have seen in the marketplace, where do you think the academic institutions, private sector companies, entrepreneurs and inventors should focus their technology R&D to help utilities be more resilient?

Your answer:

III. Workforce, Certification Demands

Which of the following would support your utility in its journey to resiliency? Check all that apply.

- Specific certification for Utility Resilience & Risk Management
- Disaster management training

- Resilience-centric technology and equipment training
- Upskilling of staff on specific hardware and software
- Just-in-Time digital, web-based learning tools
- Peer-to-peer real-time knowledge-sharing
- Other:

Since your most recent disaster response, recovery, and rebuild scenario, what one missing skill set has been identified?

Your answer:

IV. Demographics

You represent:

- Utility
- Vendor
- Academia
- Engineering Firm

If a utility, on a scale of 1-10, how large is your utility? 10 being the largest.

1 2 3 4 5 6 7 8 9 10

If a utility, on a scale of 1-10, how confident are you that your utility is as prepared as possible for the next disaster? 10 being most prepared.

1 2 3 4 5 6 7 8 9 10

If utility, on a scale of 1-10, how confident are you that your community understands that disasters will impact them? 10 being very confident.

1 2 3 4 5 6 7 8 9 10

Which of the following represent your current position? Check all that apply

- Executive Management
- Department Management
- Engineering
- Facilities Operations
- Field Operations
- Maintenance
- Finance
- Customer Services

Thank you for completing this survey. Please email your responses to melissa@theh2otower.org