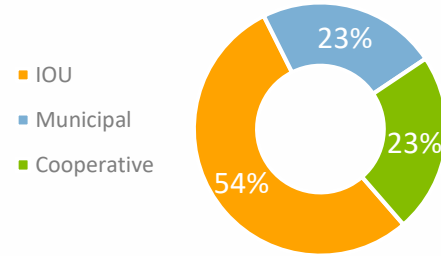


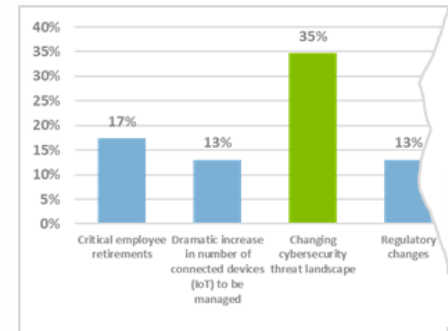
2018 BRIDGE Index™ Utility Industry Survey

Grid Security Survey Results

Utility Respondents



Biggest Impact on Operations



Contents

- Family of utility industry surveys
- Authorized usage
- Survey respondents
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Family of Utility Industry Surveys

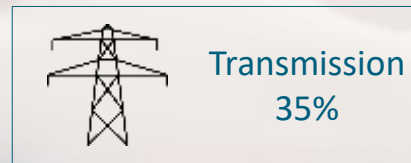
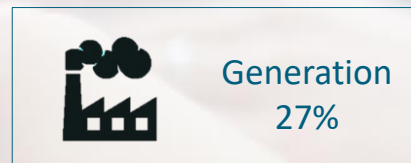
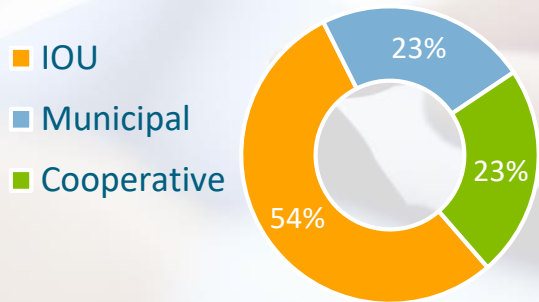
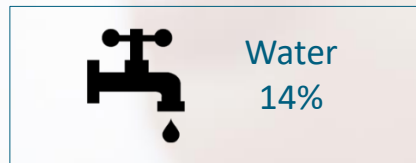
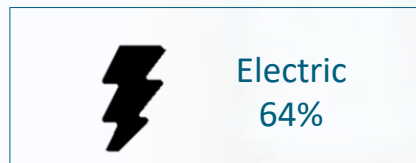
- The BRIDGE Energy Group BRIDGE Index™ family of surveys provides an objective look at the state of both current and future priorities across a broad cross-section of North American utility decision-makers. The insights garnered from this study provide a solid basis for future decision making by industry leaders.
- Annual BRIDGE Index™ surveys include:
 - Grid Operations survey
 - Grid Security survey
 - Grid Modernization survey
 - Grid Analytics survey

Authorized Usage

- Refer to Legal Notice at end of presentation
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- You are free to quote the contents as long as you clearly reference the source as
 - “Source: BRIDGE Energy Group® – 2018 BRIDGE Index™”

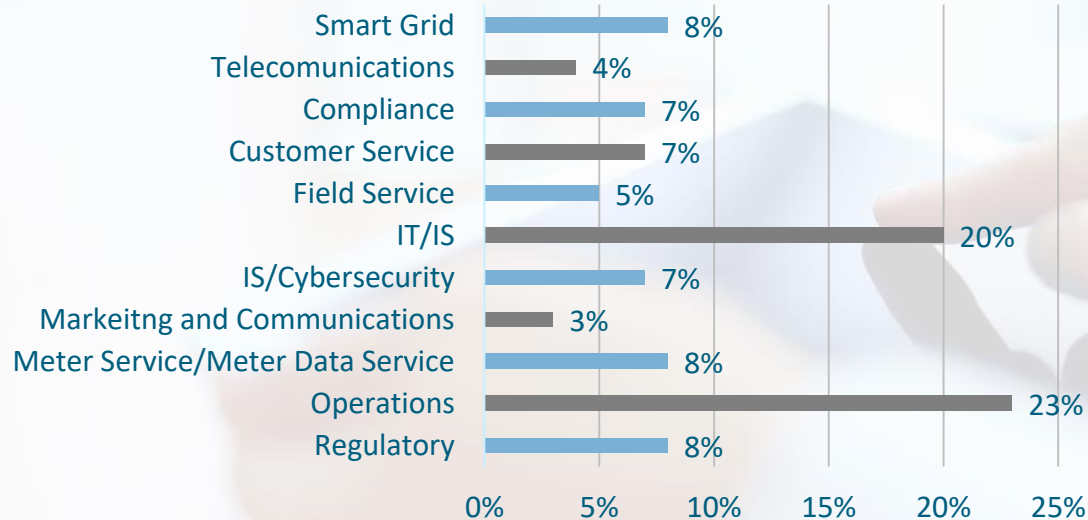
Broad Range of Utility Respondents

Survey reach: Over **20,000** North American Utility Employees

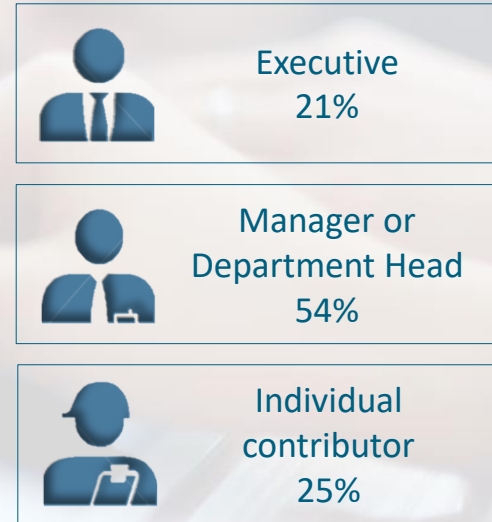


Respondents by Organization/Role

By Organization



By Role



Representative Set of Respondents

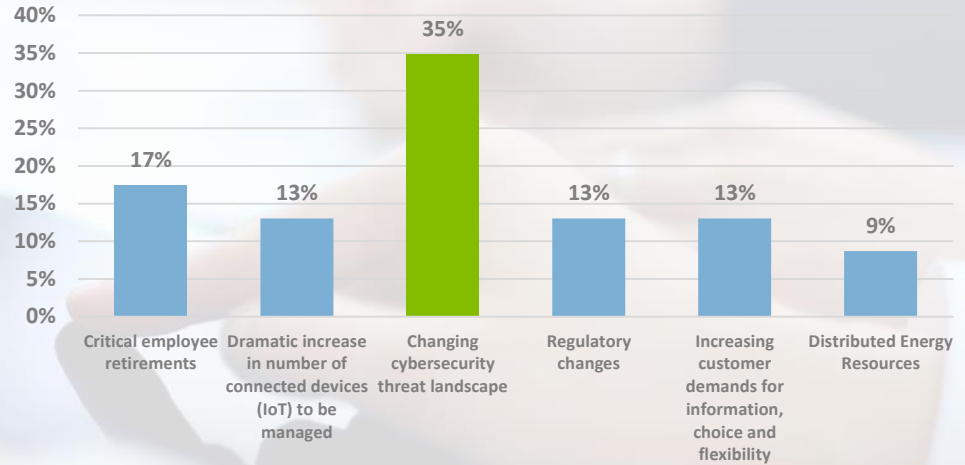
- Ameren
- Arizona Public Service
- Arkansas Electric Cooperative
- Arlington County
- AVANGRID
- BC Hydro
- Central Maine Power
- City of Glenwood Springs
- City of Madison
- City of Pomona
- Clark Public Utilities
- Cleco Power
- Dairyland Power Cooperative
- Dominion Energy
- Duke Energy
- EPCOR
- Eversource Energy
- EWEB
- Exelon
- Frankfort Electric and Water
- Golden Spread Electric Co-op
- Grant County PUD
- GSOC
- Huntsville Utilities



- Hydro-Quebec
- LA Department of Water & Power
- National Grid
- NaturEner
- Nebraska Public Power District
- Northern Rio Arriba Electric Co-op
- Orlando Utilities Commission
- Pee Dee Electric Co-op
- Portland General Electric
- PPL Electric Utilities
- Puget Sound Energy
- San Diego Gas and Electric
- Southern Rivers Energy
- Tri-State G & T
- Tucson Electric Power
- United Power
- Unitol
- UNS Energy
- Vectren
- Vermont Electric Co-op
- Walton EMC
- We Energies
- WEC Energy Group
- Westar Energy

Biggest Anticipated Impact on Operations

- More than double other drivers, cyber threats will have the largest anticipated impact on operations

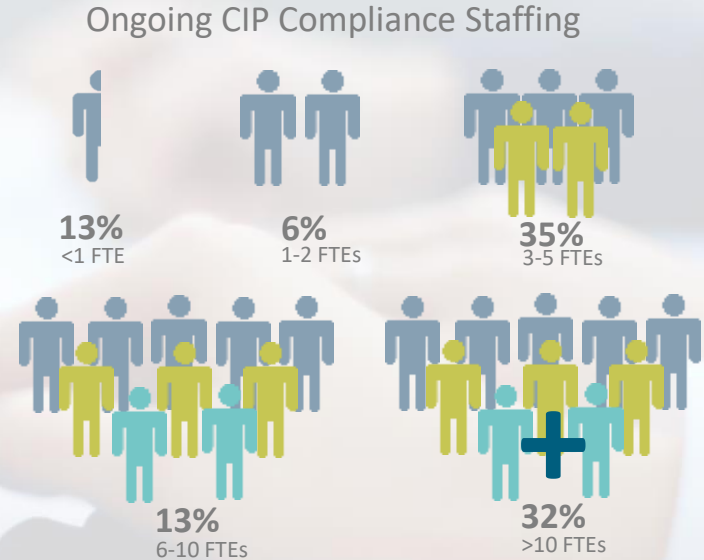


“Utilities will need to re-think their own provisioning of internal Cybersecurity and CIP Compliance services to reduce burdens and free-up minds and resources to address the challenges ahead.”

- BRIDGE Energy Group

CIP Staffing Investment

- On average utilities have 9 FTEs supporting compliance readiness
- 32% of respondents have more than 10 FTEs to support the ongoing assessment of internal controls and CIP compliance readiness

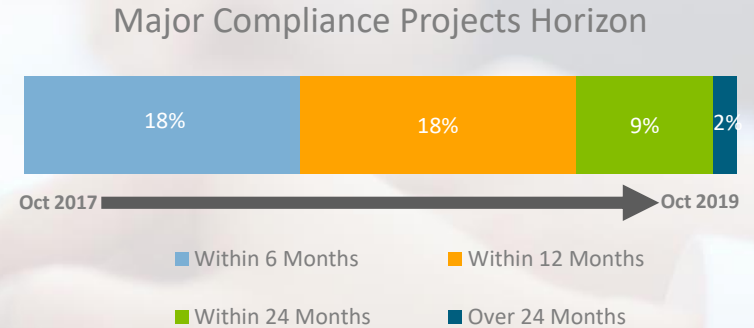


“CIP support represents a significant ongoing investment. Utilities should explore solutions for reducing service costs and employee burdens while improving quality and consistency. Compliance and security managed service options can free up valuable resources and improve readiness and responsiveness to the ever-changing requirements and landscape.”

- BRIDGE Energy Group

Upcoming Compliance Projects Bloom

- 47% have major compliance projects planned for the coming 24 months
 - Significantly higher than last year (28%)
- 65% have minor compliance projects planned

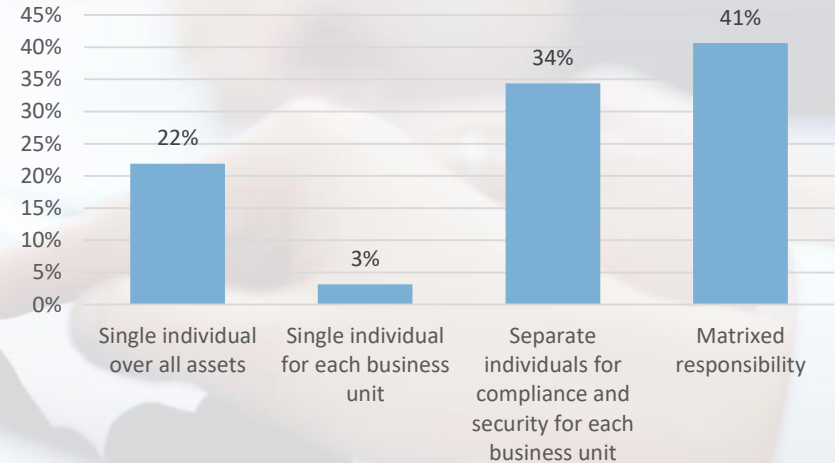


“CIP Compliance expenditures continue to increase. After over 10 years of CIP Compliance it is surprising that utilities have not yet integrated the concepts of compliance into their cybersecurity programs to reduce exposure to change. Utilities cannot afford CIP+ but they can adopt strategic cybersecurity policies that drive sustainable compliance solutions.”

- BRIDGE Energy Group

Accountability for Securing Real-time Operations

- The vast majority (75%) of utilities continue to place accountability for securing their real-time operations under different organizational banners



“As the need to extend operational security reaches out to the grid edge, the potential number of accountable personnel will just continue to increase. It is important, perhaps even essential, that utilities rationalize the operating models for cybersecurity to simplify reporting structures and reduce complexity and risk.”
- BRIDGE Energy Group

Responsibility for Reporting Cybersecurity Risks

- As with accountability for real-time operations security, the reporting of cybersecurity risk has wildly disparate ownership
- Compliance (30%), Asset Owner (27%) and Security team (21%) are most likely to have reporting responsibilities

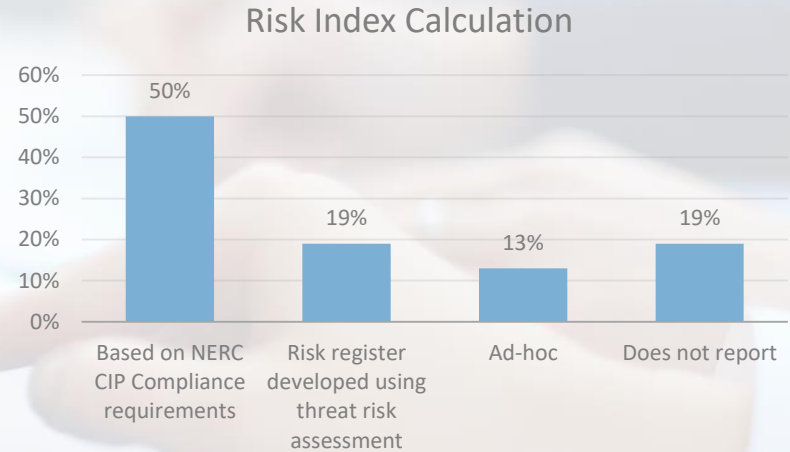


“Interesting to note that different utilities use different models for accountability and reporting of cybersecurity risk. Ensure that the accountable organization is assessing cybersecurity risk enterprise-wide.”

- BRIDGE Energy Group

Real-time Operations Risk Index

- The largest (50%) group by far, calculate risk based on NERC CIP compliance
- A large number (19%) don't report real-time operations risk, or do it ad-hoc (13%)



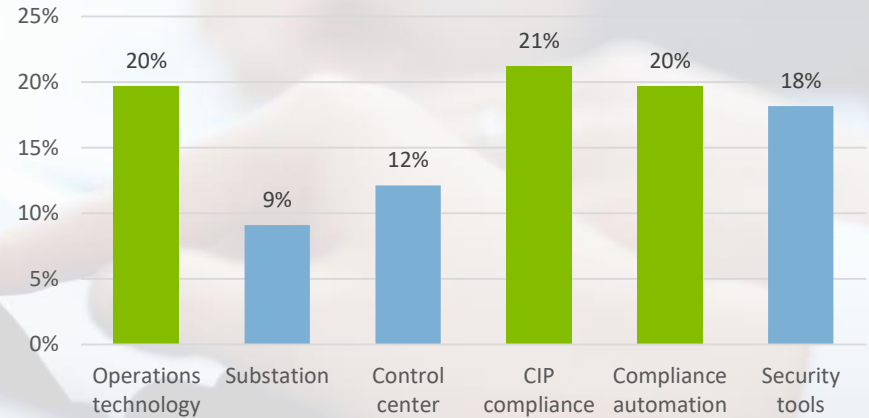
“Only 19% (Risk Register Using Threat Risk Assessment) have adequate insight into their true risk and can objectively plan and manage their security. Risk assessment based on NERC CIP compliance alone, for example, is incomplete and insufficient.”

- BRIDGE Energy Group

Knowledge Gaps

- Knowledge gaps are broad. Most notable are CIP compliance, OT, compliance automation, and security tools

Knowledge Gaps of Current Staff



“CIP compliance and the continual emergence of new cybersecurity threats have resulted in a splintering of knowledge and capabilities across almost every utility. If utilities do not start taking a holistic view of cybersecurity and compliance these gaps will be exploited to the advantage of bad actors looking to disrupt the grid.”

- BRIDGE Energy Group

Top Issues Impacting Ongoing and Planned Security Projects

- Supply and availability of experienced staff
- Integration of related systems/data

“Similar to last year, availability of experienced staff and integration of systems/data are the top issues impacting ongoing/planned security and compliance projects. Utilities should consider freeing up existing staff, leveraging managed service solutions that can reduce burden and costs, in order to focus more on core utility capabilities.”

- BRIDGE Energy Group

For More Information

Meet Our Experts

Discuss creative and pragmatic solutions to your Grid Security goals.

Contact BRIDGE at:

Main: 1.508.281.7133

Toll Free: 1.888.351.8999

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Join Our Panel

Your opinion matters – Become a panelist for the 2019 survey.

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BRIDGE Energy Group

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BRIDGE leverages its operations, technology, analytics, visualization and real-time systems expertise to deliver innovative and pragmatics solutions.

Our focus is on solving utility challenges and improving grid security and reliability while increasing profitability and efficiency for our clients.



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