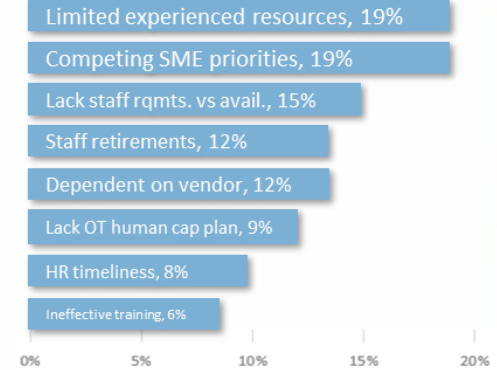


2018 BRIDGE Index™ Utility Industry Survey

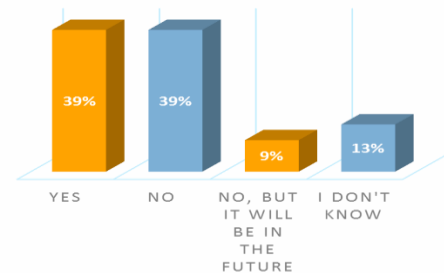
Grid Operations Survey Results

Published: 1/8/2018

Top Resource Challenges



OT Outsourcing Under Consideration



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- Authorized usage
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- Survey findings
- Contact information
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Family of Utility Industry Surveys

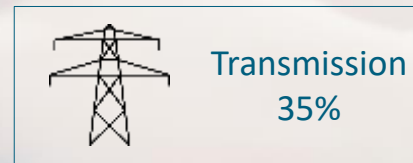
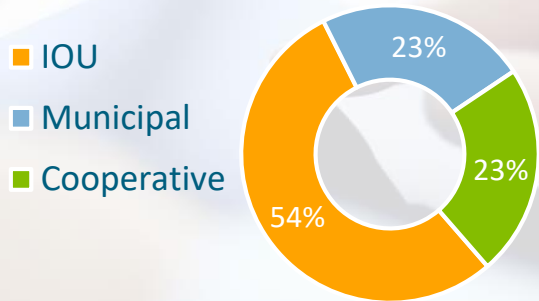
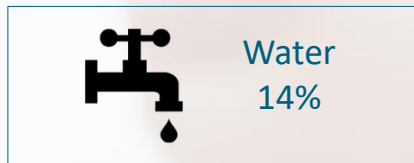
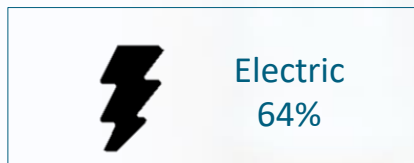
- The BRIDGE Energy Group BRIDGE Index™ family of surveys provides an objective look at the state of both current and future priorities across a broad cross-section of North American utility decision-makers. The insights garnered from this study provide a solid basis for future decision making by industry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

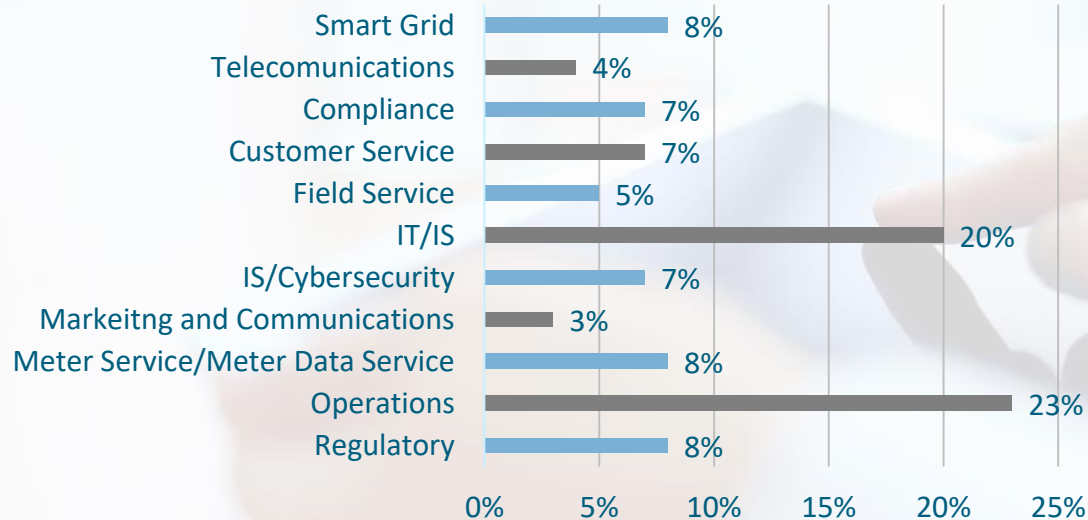
Broad Range of Utility Respondents

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

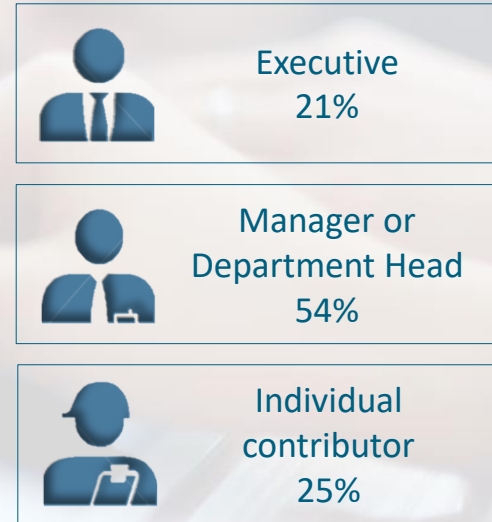


Respondents by Organization/Role

By Organization



By Role



Representative Set of Respondents

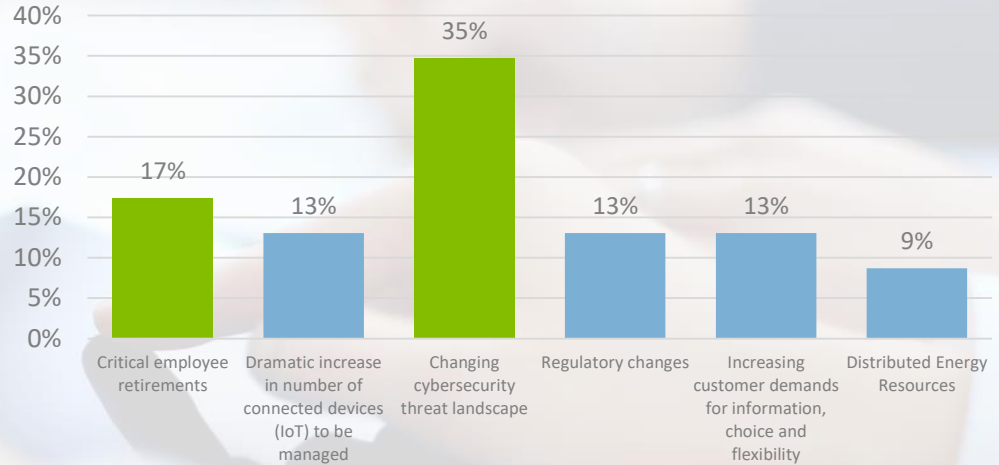
- Ameren
- Arizona Public Service
- Arkansas Electric Cooperative
- Arlington County
- AVANGRID
- BC Hydro
- Central Maine Power
- City of Glenwood Springs
- City of Madison
- City of Pomona
- Clark Public Utilities
- Cleco Power
- Dairyland Power Cooperative
- Dominion Energy
- Duke Energy
- EPCOR
- 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 Impacts on Operations

The changing cybersecurity threat landscape and availability of knowledgeable personnel are expected to have the biggest impacts on operations

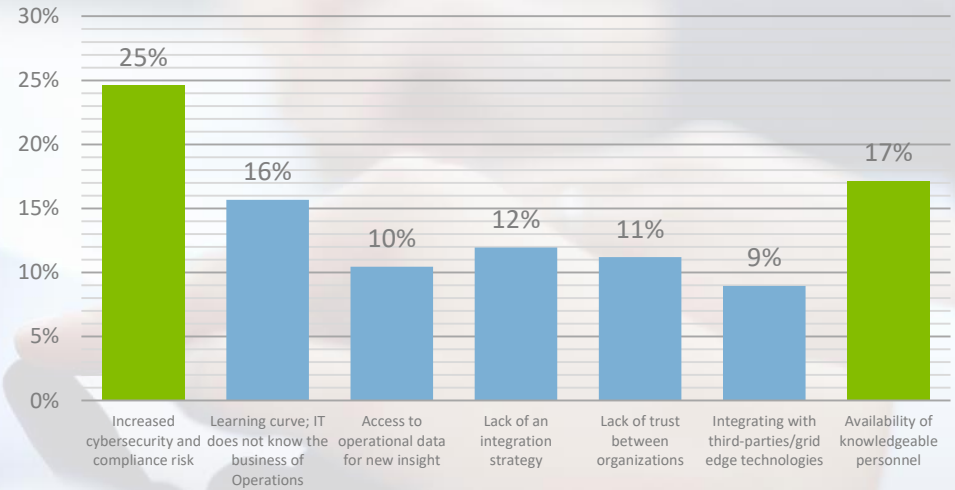


“To address these cybersecurity challenges utilities should leverage cybersecurity and compliance assurance services, and outsourced subject matter experts, to achieve the flexibility, adaptability and efficiencies needed to optimize T&D operations.”

- BRIDGE Energy Group

Top Challenges with IT/OT Convergence

Consistent with their response to Biggest Impacts on Operations, availability of knowledgeable resources is the second greatest challenge



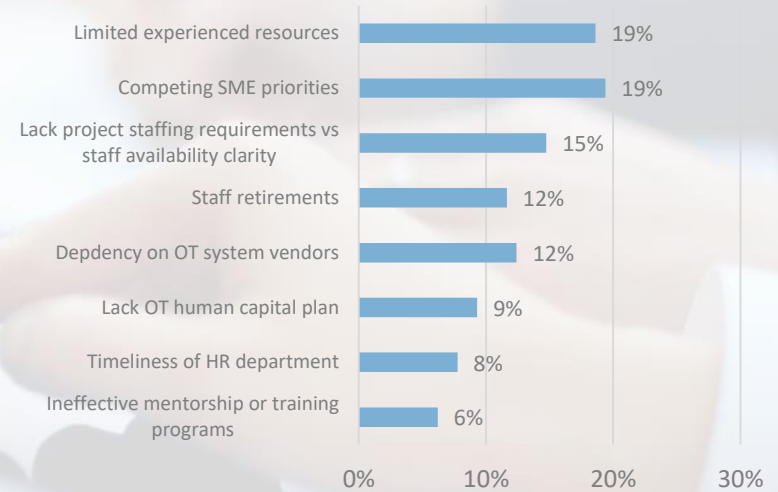
“To solve these growing resource challenges utilities should leverage outsourced subject matter experts and innovative, digital worker solutions, such as augmented reality, that can both attract younger talent and solve legacy workforce challenges in new, creative ways.”

- BRIDGE Energy Group

Real-Time Systems Operation Challenges

- Limited supply of experienced resources (19%) and SME project staffing conflicts (19%) lead this year's real-time systems operation challenges
- 48% are, or will be, considering outsourcing of OT Operations and Support functions

Top Resource Challenges



“Clear trend toward outsourcing, once considered unthinkable, now deemed necessary to meet operational performance and cost goals as well as help ensure adequate staffing and subject matter expertise is available to support real-time operations.”

- BRIDGE Energy Group

IT/OT Organizational Alignment

72% of utilities structure OT/IT under separate organizations, and roll up to different senior level managers

“Operational excellence is the foundation for exploiting grid transformation. Tight alignment and integration of utility operations with information technology is required to achieve operational excellence in the technologically advanced energy delivery system of the future.”

- BRIDGE Energy Group

Separate Organizations/Separate Senior Level Manager

72%

Separate Organizations/Same Senior Level Manager

10%

Same Organization

18%

0%

50%

100%

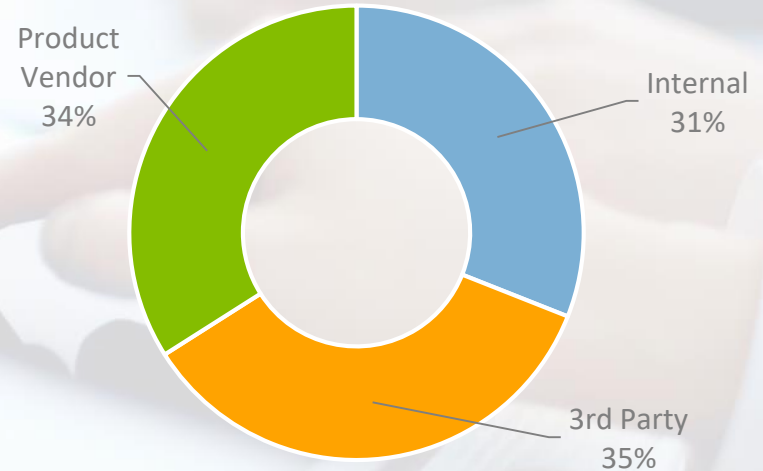
Integration Resources for New IT Systems

Utility plans for system integration responsibility are nearly evenly split

“Relying on software vendors for the integration of their technology often miss the critical operational impacts, leaving the utility to make significant modifications after the vendor is gone.”

- BRIDGE Energy Group

New IT System Integrator

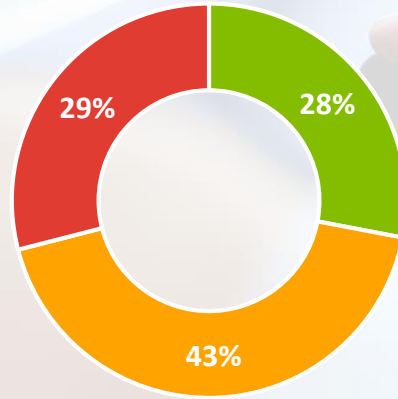


OT Data Architecture and Governance

72% of utilities don't have a defined data architecture and governance process for operational data

OT Architecture & Governance for Operational Data Management

- Defined
- In Planning
- Do Not Have/Not Planning



“Without a well thought-out and consistently applied approach to data and analytics, the full value of grid modernization cannot be achieved.”

- BRIDGE Energy Group

Top Projects in the Coming 24 months

- Analytics projects (77%)
- GIS initiatives (71%)
- DA projects (70%)
- EMS/SCADA upgrades (61%)
- ADMS projects (51%)
- DER provisioning projects (50%)

“The increased focus on enhanced situational awareness and desire to get more value from available data appear to be driving project priorities in the coming 24 months. Utilities should create an integrated, holistic strategy and plan to ensure optimization of operations and realization of business benefits.”

- BRIDGE Energy Group

For More Information

Meet Our Experts

Discuss creative and pragmatic solutions to your Grid Operations goals.

Contact BRIDGE at:

Main: 1.508.281.7133

Toll Free: 1.888.351.8999

Research@BridgeEnergyGroup.com

www.BridgeEnergyGroup.com

Join Our Panel

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

Email us at:

Research@BridgeEnergyGroup.com

BRIDGE Energy Group

BRIDGE Energy Group is a consulting and systems integration firm transforming Transmission & Distribution operations.

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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