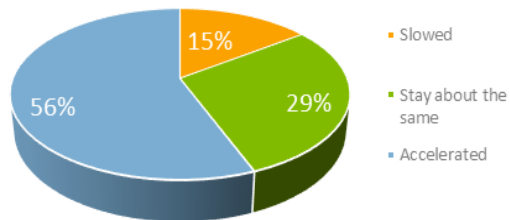


2019 BRIDGE Index™ Utility Industry Survey

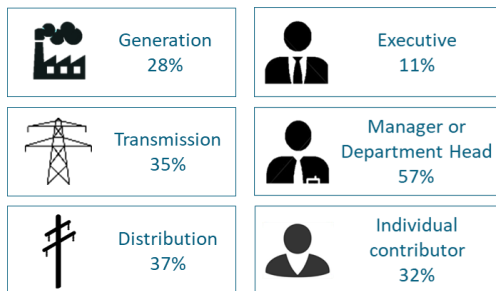


An Industry in Transformation – The People

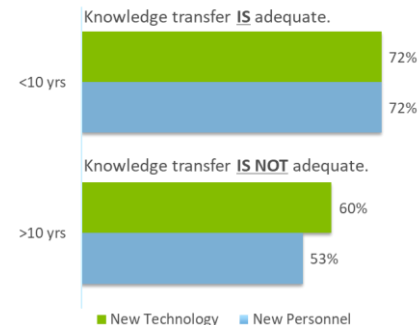
Accelerating Influx of New Personnel



Broad Industry Reach



Adequacy of Knowledge Transfer



Contents

- Executive overview: An inflection point
- Authorized usage
- Survey respondents
- Survey findings
- Contact information
- Legal notice

Executive Overview: An Inflection Point

Celebrating its 8th year, the BRIDGE Index™ survey was created to provide objective, research-driven insights to current and future priorities across a broad cross-section of North American utility decision-makers.

The utility industry continues to be at a crossroad – but transformation is accelerating. While industry participants are at different stages of the transformation maturity model, many have moved beyond just contemplating changes to taking action supported by substantive investments in capability, infrastructure and talent.

To better understand and describe this acceleration, a shift in research approach was adopted. The 2019 BRIDGE Index has been redesigned and reformatted to deliver the following reports.

1. Industry in Transformation – The People
2. Industry in Transformation – The Technology
3. Industry in Transformation – The Business

BRIDGE is available to work with you to achieve a deeper understanding by tailoring an analysis to your unique market, regulatory, and business environment.



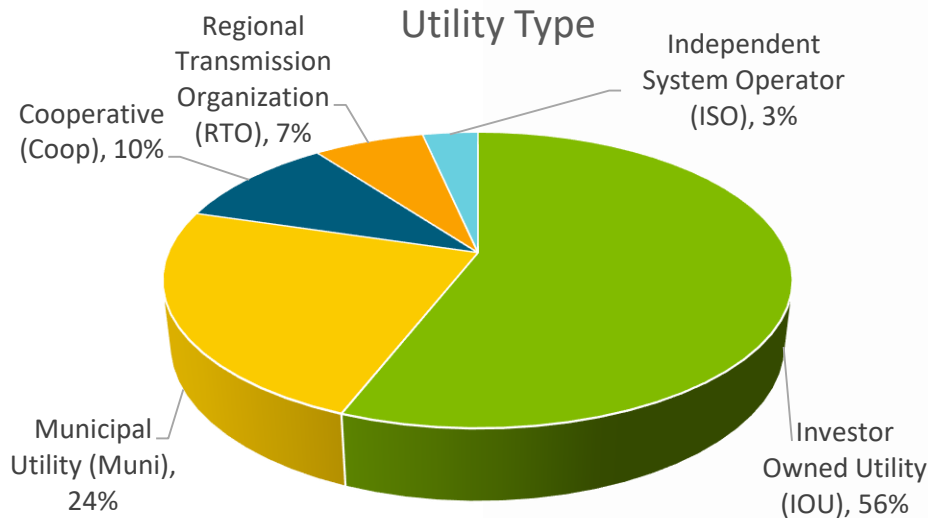
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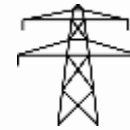


Broad Range of Utility Respondents

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



Generation
28%



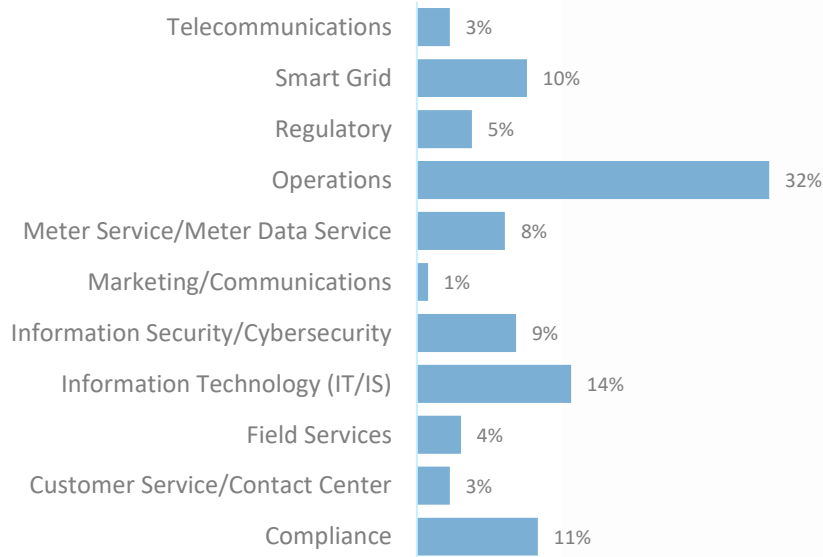
Transmission
35%



Distribution
37%

Respondents by Organization / Role

By Organization



By Role



Executive
11%



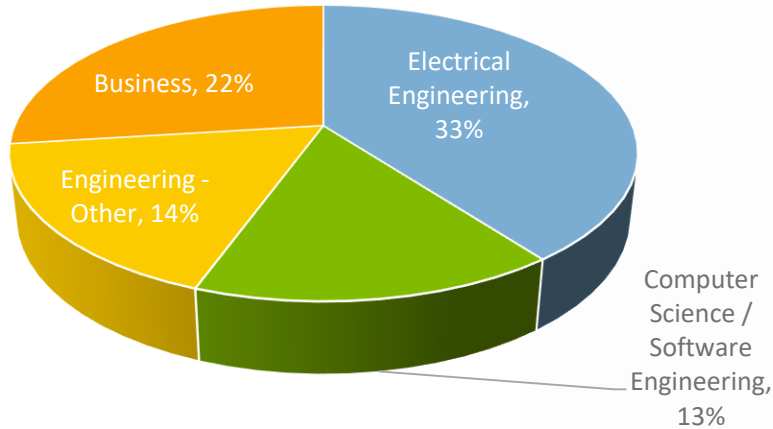
**Manager or
Department Head**
57%



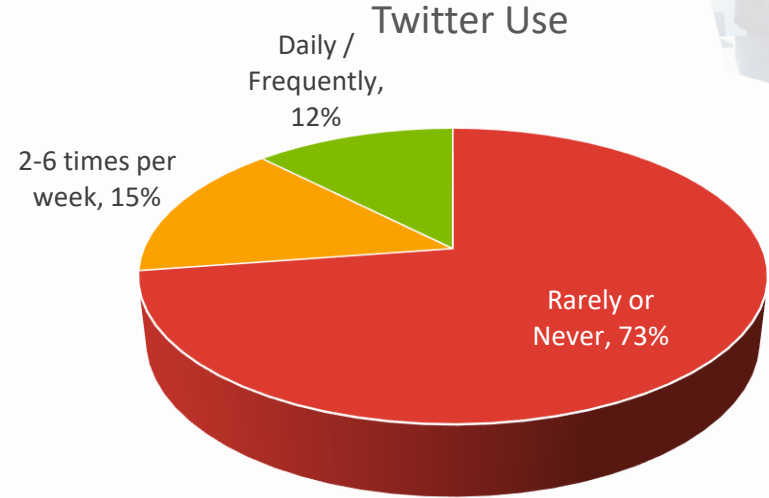
**Individual
contributor**
32%

Additional Respondent Attributes

Undergraduate Area of Study



Twitter Use



Representative Set of Respondents

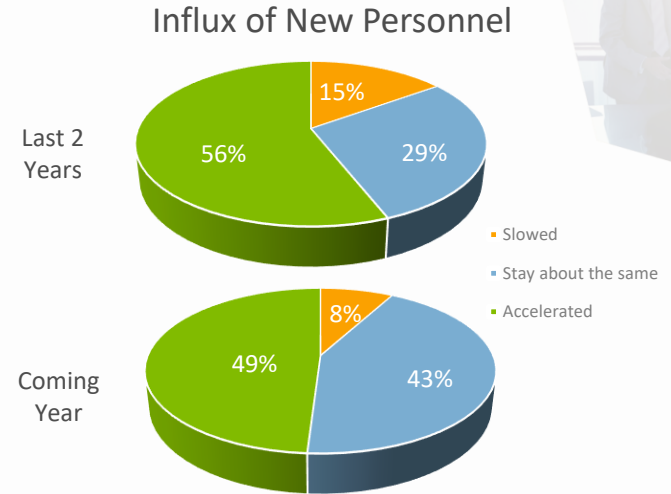
- Ameren
- Arizona Public Service
- Austin Energy
- Avangrid Networks
- Avista
- BC Hydro
- Black Hills Energy
- Bonneville Power Administration
- Central Hudson Gas & Electric
- Cleco Power
- Consumers Energy Company
- Cuming County Public Power District
- DTE Energy
- Duke Energy
- Entegra TC
- Eversource
- Eversource Energy
- Fort Pierce Utilities Authority
- Golden Spread Electric Cooperative
- Great River Energy
- Huntsville Utilities
- Imperial Irrigation District
- IPL
- Lakeland Electric



- National Grid
- Naturener
- NaturEner LLC
- Newport Utilities
- Nova Scotia Power Inc
- NV Energy
- Oglethorpe Power Corporation
- Orlando Utilities Commission
- PacifiCorp
- Pasco County Utilities
- Pattern Energy Group
- Peak Reliability
- PG&E
- Portland General Electric
- PPL Electric Utilities
- San Diego Gas and Electric
- Sempra
- Southern California Edison
- Tri-State G & T
- United Illuminating
- Unitil Service Corp
- Vectren
- Westar Energy
- Xcel Energy

Signs of Accelerating Industry Transition

- 56% of respondents experienced accelerated influx of new OT/IT personnel over past 2 years
- 49% expect influx of new personnel to accelerate this coming year
- 80% added analytics staff this past year (94% of IOUs)



“With transitions come opportunities and challenges. Augment internal staff with experienced external staff and augmented reality tools, to enable and mentor staff while documenting processes. Also, look for areas to apply change management to adapt to new technologies, processes and people while keeping the lights on.”

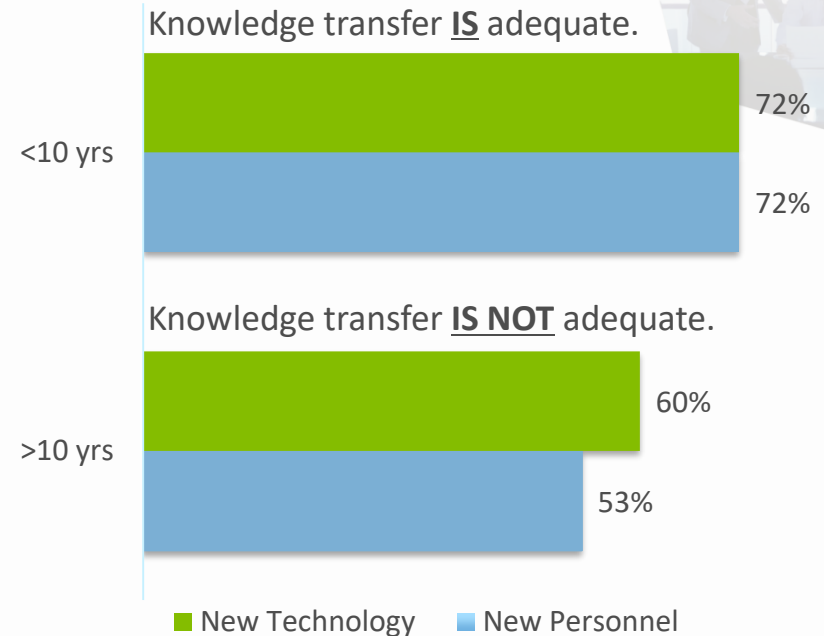
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Old Guard vs the New – 2 Different Perspectives

(1 of 2)

- 95% of all respondents agree that gaps in industry experience in new workers is a MAJOR concern for their organization
- Effectiveness addressing this concern varies by tenure
 - Asked if knowledge transfer is adequate for new technology and new personnel, those with <10 yrs experience responded that it IS adequate
 - However, those with >10 yrs experience responded that it IS NOT

Perspective by Years of Experience

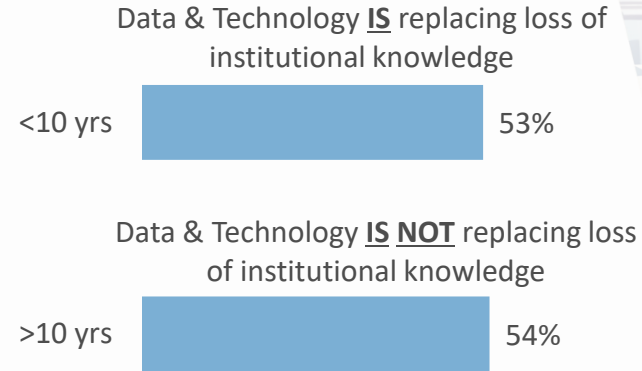


Old Guard vs the New – 2 Different Perspectives

(2 of 2)

- Effectiveness addressing this concern varies by tenure (cont.)
 - Asked about the loss of institutional knowledge at the utility and the ability of data and technology to replace it, respondents with <10 yrs experience believe it IS able
 - Conversely, respondents with >10 yrs experience believe it IS NOT able

Perspective by Years of Experience



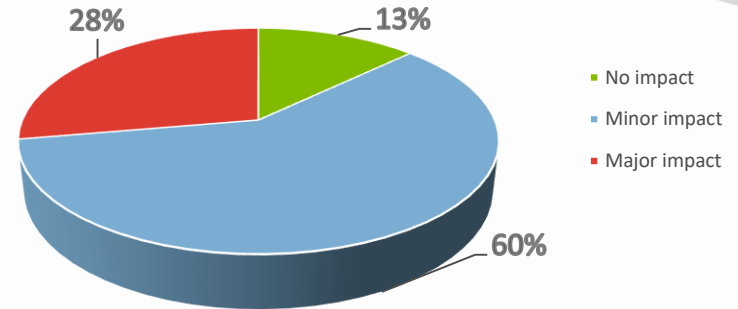
“There is a notable disconnect between less versus more experienced workers in their utility’s effectiveness at addressing gaps in industry knowledge and the use of technology. Less experienced workers don’t recognize the risks of not having knowledge but will embrace technology to support them; More seasoned workers must understand the value of technology for enabling this knowledge transfer. This gap highlights the critical need for a robust change management and knowledge transfer program engaging the entire utility value chain, in order to ensure the reliability of the energy delivery system.

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Virtualized Asset Regulations Bigger Concern than Supply Chain Regulations

- Virtualized Asset regulations
 - 57% will rely mostly on internal staff to assess the impact of new virtualized asset regulations
 - 75% will use some or all external staff to implement future CIP virtualized assets
- NERC CIP Supply Chain regulations
 - 28% - Implementing new NERC CIP Supply Chain regulations will have a MAJOR impact on operations staff and/or budget
 - Only 8% - Enforcing new NERC CIP Supply Chain regulations will have a MAJOR impact on operations staff and/or budget

Impact of New NERC CIP Supply Chain Regulations on Operations Staff & Budget



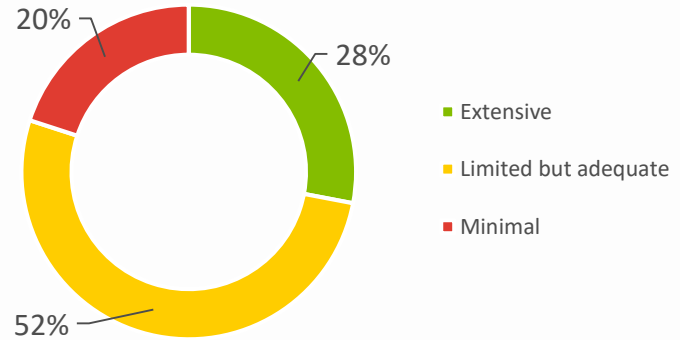
“Utilities continue to underestimate the impact of compliance. Security and compliance organizations believe they have appropriate operating budgets to meet current needs, however data and observations indicate they are not transforming to the more holistic approach needed to meet the ever-evolving security threats and regulations. Shrinking operating margins and budgets coupled with new threats and regulations will force utilities to find an ever-green agile solution”

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Utilities Struggle to Find the Right Skills

- Availability of staff with the required skills ranked as a top concern across operations, analytics and compliance projects
- Only 28% indicated that the depth of industry-specific knowledge/experience at large SI firms used in the last two years was extensive

Depth of Industry-Specific Experience at Large SI Firms

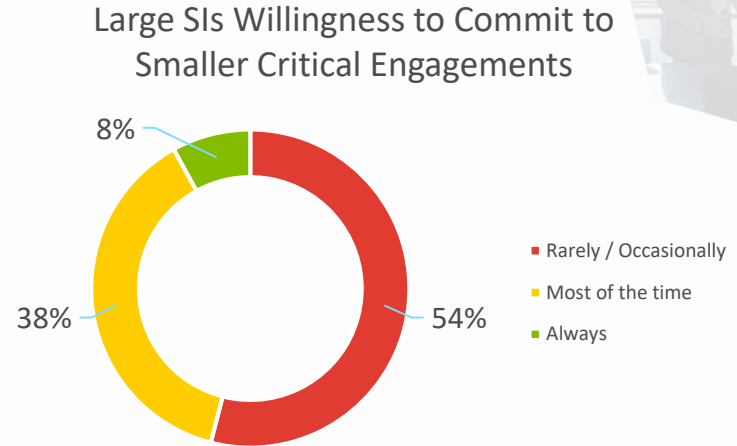


“Supply/availability of staff with the right skills is a universal challenge but these resources do exist. Management must find an agent or partner that can provide access to more utility-centric consultants whose deep industry knowledge can enable their teams to deliver on time and on budget.”

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Business Interests of Large Systems Integrators are Diverging from that of their Utility Clients

- 72% - Large SIs seem to have limited or minimal industry-specific knowledge
- 54% - Large SIs not willing to commit to smaller engagements



“While larger systems integration firms may seem like an obvious choice to fill some observed gaps, the focus needs to be on doing everything that needs to be done while also enabling utility staff for the long-term. A successful partner must deliver more value by leveraging deep industry expertise, facilitating knowledge transfer and demonstrating a willingness to tackle all challenges, big or small.”

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For More Information

Meet Our Experts

Discuss creative and pragmatic solutions to your T&D Operations, Analytics and Security goals.

Contact BRIDGE at:

Main: 1.508.281.7133

Toll Free: 1.888.351.8999

www.BridgeEnergyGroup.com

Join Our Panel

Your opinion matters – Influence the questions by becoming a panelist for the 2020 survey.

Email us at:

Research@BridgeEnergyGroup.com



BRIDGE Energy Group

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Leveraging operations, technology, analytics, visualization and real-time systems expertise, BRIDGE delivers innovative and pragmatic solutions.

BRIDGE focuses on solving utility challenges and improving grid security and reliability while increasing profitability and efficiency for our clients.



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