Addressing the Aging Utility Workforce Challenge: ACT NOW

Attrition within the ranks of high-value/mission-critical employees is increasing, putting critical organizational know-how at risk.

For several years, industry writers have been warning of the “impending aging workforce crisis.” Demographic data has been analyzed and presented, and numerous conferences have been held to discuss the issue. However, utilities can no longer view this as a theoretical or future risk – it is already critically impacting operations.

With over half of utility employees aged 45 or older, significant costs are being incurred already at utilities that are directly attributable to insufficient preparation for losses of key skills to knowledge attrition and the workforce changeover. Take, for example, the following scenarios:

A snowstorm begins while a utility is restoring power after an outage. For this reason, tire chains are required for crews working the next shift. The shift manager notices that dispatch is moving slowly during the first hour. When the manager asks the service center why the delays are occurring, the response is: “Well, the person who usually does these preparations retired back in August. Now no one can find the chains for the trucks, so the next shift has to wait around.”

A work supervisor at a nuclear generating station admits that it now takes him much longer to solve nonroutin problems that he encounters. He explains: “I used to have a network of people at other similar plants in which someone would have come across a similar problem and knew how to solve it. They’re retired, and I don’t know and trust the new folks the way I did the old ones.”

The utility industry must acknowledge that the awareness-building stage is over – the time to act on the problem is at hand. Key skill shortages are already emerging. For the balance of the decade, aging is predicted to drive major shortages of qualified workers.

Workforce Challenges

Utility knowledge is complex, and someone can’t be hired off the street to perform switching or to monitor transmission grid operations. Baby boomer retirements are having, and will likely continue to have, major operational and business continuity implications. Continued losses of technical knowledge and specialized skill sets are expected to occur in union/craft workers, nonunion professionals and management positions. This situation creates numerous serious challenges:

- There are not enough younger employees being recruited to replace the baby boomers that are approaching retirement;
- Continuous loss of experienced employees will affect productivity, responsiveness, competitiveness, regulatory compliance and morale;
- Many managerial and labor positions are highly specialized and require extensive and costly training; and
- Evaluation of initiatives for extended employment, mentoring programs or contracting retired employees to work part time requires advance planning and changes in personnel policies.

While it is natural to focus on the issue of losing experienced talent and the challenges associated with replacing that talent, utilities must keep reliability, safety and security linked to aging workforce planning. The North American Electric Reliability Council’s (NERC’s) Final Report on the August 14, 2003 blackout in the northeastern United States and Homeland Security initiatives make it clear that maintaining industry skill sets is critical. But doing so won’t be easy, and it will be costly.

An example we are already seeing is the imbalance in sheer numbers between exiting workers and incoming prospects, which is already causing intense competition among utilities (not to mention between utilities and other industrial sectors) for workers. The annual Lineman’s Rodeo, for example, has become a virtual “scouting combine” for line workers, and participation in activities sponsored by industry organizations is seen by some as an opportunity to seek out high-performing specialists and aggressively recruit them.

While this means of acquiring talent has not yet erupted into open warfare among utilities yet, as the scarcity of trained, experienced talent grows over time, the danger of escalating labor costs will grow – and the inter-utility cooperation we have seen in recent years as so critical to recovering from natural disasters may be threatened.

Looking at data that the U.S. Department of Labor maintains regarding where utilities will face the greatest hiring needs over the next six years, we think that several layers of the utility workforce will be affected (see Figure 1). Therefore, utility executives must ask critical questions now, before it is too late to plan effectively. What level of experience will be available for the next emergency? Are transmission operators, engineers, line personnel, field supervisors or other key disciplines exiting the workforce faster than they can be replaced? What are the

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workforce and skill deficiencies in place today costing companies, and how will this grow over time?

Why This Is an Issue Today
The costs of an aging workforce that impact utilities today can be placed into three categories: operational costs, productivity costs and opportunity costs. Taken together, these costs can run into millions of dollars per year, and, unless effectively managed, can grow quickly. Utilities not aware of these impacts and not currently tracking these costs should begin as soon as possible to gauge workforce knowledge attrition issues in their organizations today. Understanding these impacts is an important step in targeting the areas to address with mitigation strategies.

Operational Costs
The examples above fall into the category of operational costs of an aging workforce. These costs are the ones that directly impact the bottom line through a wide variety of forces to which aging workforce impacts can contribute, including:

- Lost revenue due to extended outages;
- Penalties from regulatory agencies, higher maintenance costs; and
- Increased frequencies of forced outages and accidents caused by human error as highly experienced operators retire, since human error rates would be expected to significantly decrease with experience.

Many of these forces – particularly those relating to operations and maintenance (O&M) costs in generation and transmission – can be tracked with data already being collected and reported to meet regulatory requirements (e.g., service reliability reports, FERC Form 1 or 2 data). As new systems needn’t be created to collect data, “smart metrics” that capture knowledge attrition impacts should be identified and trended to note emerging problem areas.

Productivity Costs
Productivity costs are being seen over a wide variety of areas, including:

- Increases in the duration of planned outages are expected as the new hires gradually build the expertise and efficiency in their jobs that the current workforce has; and
- Work time lost in recovery from injuries is expected to be much greater for older workers; between ages 19 to 29, the number of average days lost is 10.4, but the number of average days lost for those 50 to 59 is 47.5.[6]

Among OSHA, state workers’ compensation systems and insurance companies, most utility companies are required to maintain information on worker injury frequency and days lost from work. Capturing worker ages and attributing costs specifically incurred for an injury to the event will provide insightful information.

Opportunity Costs
Lost or delayed opportunities to take costs out of the business are the opportunity costs of the aging workforce, including:

- Executing performance programs ends up costing more than budgeted and extends planned ROI time frames;
- Internal resources may be limited and prevent the performance program from ever beginning.

It is difficult to create metrics for this and trend it, but it is possible to estimate the costs of ignoring such programs.

More Than a Human Resources Issue
These impacts on work processes and organization structures – and, consequently, the financial health of the company – should make it clear this is not the type of traditional hiring problem with which human resources departments have traditionally dealt. A strong, coherent strategic response from the top of the organization will be required. Serious discussion, commitment and action by a cross-functional section of workforce and union leadership, led by utility executives, will be required.

Some of the key strategic and financial issues to consider in these discussions include:

- The need to look at hiring as an investment – not a cost – and treat human asset management the same as physical asset management;
- The potential impact of workforce attrition on the financial health and (for publicly held companies) market capitalization of the organization;
- The need for workers – older and younger – with the mathematical, problem-solving, technical and communications skills to operate a world-class utility’s assets, particularly as next-generation technologies become available;
- The value proposition of knowledge management and its most effective applications to training, staff development and knowledge retention;
- The ever-escalating cost of workforce turnover, which some sources have pegged as high as double the salary of the employee in the position and which will only move higher as competition for workers increases; and
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• The benefits and drawbacks of changes to retirement benefits, retirement policies and post-retirement employment programs, which can keep key knowledge circulating in the organization – or drive it out in droves.

Each utility has company-specific attrition data, organization demographics, training development, knowledge capture and bargaining union initiatives to address. Unlike other industries faced with aging workforces, shortages in skill sets are painfully more obvious in services provided to the public. Major system failures like the 2004 Northeast blackout not only hurt public relations, but adversely affect financial health through such aspects as loss of revenue, increased pressure from competitors and regulators, and penalties and fines.

Solutions

Effective solutions to address the impact of workforce retirements will not come easily. However, the problem can be addressed in a structured manner by considering what can be done in the short term (now), the midterm (six to 18 months) and the long term (18 months-plus). If these time frames may seem condensed, consider it a reflection of the nature of the accelerated action this first-of-a-kind workforce transition requires.

How well-prepared is the company’s next generation of leaders?

Short Term

To help ensure that aging workforce mitigation programs have a solid foundation, evaluation of the aging workforce impacts specific to each organization and knowledge retention efforts should begin now. Quantifying the impact of retirements on institutional knowledge and understanding the actions that will be required in the future to mitigate the impact of the losses are critical first steps to helping ensure a smooth generational transition. There are structured processes for initiating aging workforce planning, which provide utility organizations with a structured set of templates, questionnaires and interviews to accomplish this important goal. Using these tools, a utility’s executives identify and analyze how the organization’s membership decline by 30 to 35 percent over the past decade due primarily to attrition.[7] Hunter knows the impact of the problem firsthand as he has seen his organization’s membership decline by 30 to 35 percent over the past decade due primarily to attrition.[7]

Increasingly, utilities are realizing these “quick win” measures are only part of the solution; more comprehensive midterm and long-term steps are necessary to truly gain the upper hand in the lengthy struggle to come.

Midterm

While the baby boomers prepare to move on to their post-work life, the generation Xers of today are on the cusp of taking over the reins of the company’s key managerial and executive positions. What wages, benefits and work environment will maintain an effective skills mix thorough this transition? How well-prepared is the company’s next generation of leaders? These types of questions lead to retention, leadership and work design/planning as the next focal areas beyond the critical short-term needs.[8]

Employee retention and leadership development programs will perhaps be the most critical pieces of the aging workforce mitigation strategy for one simple reason – skill sets that aren’t lost don’t have to be replaced. These strategies must be built on three pillars:

• Retention of current early- and mid-career workers, whose knowledge is obviously very valuable to their employer but is also valuable to a host of other potential suitors from inside and outside the industry;

• Leadership programs that identify the high-potential individuals suited for key roles provide targeted mentoring and help ensure the compensation and work flexibility packages these future leaders can be offered meet the new expectations of this generation.[8]

• Communities of practice addressing key business challenges;

• Mentor and apprenticeship programs to build important technical and leadership skills;

• A directory of subject matter experts to whom staff can turn for specific problem-solving needs;

• Implementation of a content life cycle management system to electronically file, index and store data in key areas such as regulatory, asset management and operations;

• Creation and dissemination of a knowledge process map to direct solution seekers to applicable content and experts;

• Initiation of lessons-learned capture process to document knowledge from retiring employees regarding critical issues (e.g., safety, regulatory, design and start-up); and

• Foster organizational change management to build and sustain a culture of collaboration and knowledge sharing.

While initiatives in planning, knowledge retention and training can yield both short- and long-term benefits, Jim Hunter, the utility director for the largest union in the industry, the International Brotherhood of Electrical Workers (IBEW), pointed out in a January 2006 interview that the workforce doesn’t stop aging while these activities are conducted. Hunter knows the impact of the problem firsthand as he has seen his organization’s membership decline by 30 to 35 percent over the past decade due primarily to attrition.[7]

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The other midterm component, organizational and work planning, facilitates more efficient staffing for the work that needs to be done to help ensure safe, reliable and profitable operation in the future. Evaluation areas include:

- Spans of control for managers (most likely by benchmarking versus other companies as there is no one mathematical formula for “calculating a proper span of control”);
- Supply chain and other logistics which can create delays in starting or executing work; and
- Work planning, route scheduling and creative work arrangements (e.g., work-from-home technicians).

Most utilities would admit there is still room for improvement in these areas – but this should be seen as an opportunity to apply a little creativity and flexibility to potentially create tremendous benefits.

**Long Term**

Longer-term solutions will be the toughest, particularly to investor-owned utilities whose shareholders want to see ever-decreasing quarter-over-quarter costs. These will take investment; however, executives that have the vision and salesmanship to explain the benefits to shareholders in the long run will be viewed in retrospect as having been superior stewards of the company through what may be its most challenging era. While not the only long-term investments needed to survive the generational transition, those made in technology and educational partnerships are likely to be the most significant.

In addition to providing new tools to keep skilled, older workers in the mix and retain critical knowledge, technology is likely to play an increasingly vital role in attempts to reduce the costs of running a safe, reliable and profitable utility company. A good example of this is the concept of the intelligent network.[9] Among the many potential benefits foreseen from the next-generation electric grid are:

- Data gathered from the network are used to guide more effective asset management;
- Investment is focused on components and systems approaching their optimum sustainable capacities or the end of their actual lives;
- Real-time reconfiguration of the network allows components to operate within their safe capacity limits to enhance long-term reliability and infrastructure life; and
- Real-time information provides detailed information on faults, keeping outages as short as possible.

This will have much impact, which could reduce both system life cycle costs and the number of employees required to keep the transmission and distribution infrastructure in top operating condition. Smarter asset management can mean fewer hours spent on emergency repairs (and restorations related to service failures due to these). Fewer and shorter outages can help reduce labor hours expended on emergency restoration. Possible regulatory penalties, which will likely increase over time, may potentially be reduced.

For decades, the utility industry had been seen as staid and far from the cutting edge. Whether that was true is debatable, but the necessary responses to the aging infrastructure and the volatile energy markets make that decidedly not the case in the 21st century. So while utilities reap financial and operational benefits from application of new advances in the state of the art, they should not miss the opportunity to use them as a powerful and timely recruiting tool as well.

To address educational gaps, the industry is stepping up its influence on the nation’s classrooms to help ensure a population of motivated and well-educated young men and women who see great promise in a career in working for utilities. This is in response to the alarming realization that today’s high school graduates are increasingly short on mathematical, communications and mechanical skills necessary to effectively perform the types of operational and maintenance work that utilities require. The most high-profile effort to achieve this goal is the Utility Business Education Coalition (UBEC), a national alliance of leading electric and natural gas utility companies committed to elevating the visibility of workforce development as a strategic business imperative. However, a number of utilities, such as Progress Energy, Cinergy, PSE&G and AEP, have launched successful partnerships on their own at levels ranging from K-12 through graduate programs to help foster these skills and build awareness of career opportunities with utilities.

**Conclusion**

Utilities have a huge investment in employee experience. Managing the transfer of these skill sets as a part of a succession strategy concurrent with managing operations may require innovative investments in human assets. Utilities that successfully manage these changes will set and employ a strategy that incorporates short-term, midterm and long-term approaches. Utilities need to start today to quantify the magnitude of the problem and undertake knowledge-retention efforts, quickly followed by work redesign, staff retention and leadership planning. In the longer term, utilities should look to technology investment and deployment and educational partnerships to sustain an effective workforce – and a profitable, safe and reliable future for the company.

**Endnotes**


7. The IBM authors of this article, Patty Bruffy and John Juliano, interviewed Jim Hunter, Utility Director, International Brotherhood of Electrical Workers (IBEW), on January 6, 2006.

8. For a perspective on the significant differences in the expectations of generation Xers versus those of baby boomers, see “Teaching Them the Business” by John Juliano in the June 2004 issue of Public Utilities Fortnightly.

9. For more information, see “The Intelligent Power Grid” by Jeffrey Taft, on page 74 of this publication.