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EXELON GENERATION'S WORKFORCE DEVELOPMENT AND KNOWLEDGE TRANSFER STRATEGY



By Heather M. Davis

The landscape of Exelon Generation's nuclear business has continued to evolve—even before the complications of a pandemic—but people will always remain the core focus. Our employees and our future employee pipelines are changing almost as fast as technology, which is why the development of the workforce, both present and future, along with the transfer of knowledge across all departments and levels of the organization, must remain adaptable and advance as well.

STEM workshop participants display items received during an Exelon-sponsored event. Photo: Exelon



When we look at workforce development, there are three different demographics that are predominant. The focus is on what we are doing for the future pipeline, our new hires, and our existing personnel. In each of these areas, we factor in the use of innovation, technology, academic partnerships, and industry memberships to optimize and guide our strategies.

We have a large number of personnel who are new to nuclear and very often new to their role, with position changes occurring on average every two to three years. Today's workforce typically doesn't spend 25 to 30 years with a company or remain in the same role for five to 10 years. How do we stabilize and energize the organization and maintain the right level of knowledge to operate safely and error free? How do we continue to improve diversity in our organization? How do we retain the new talent while passing on the knowledge of the experienced?

We focus on three key areas: driving interest in the energy sector among the younger generation, developing talent that is new to nuclear and our organization, and ensuring that the vast knowledge that we already have does not leave the organization as people change jobs or retire. Workforce development and knowledge transfer are essential to that strategy.

FUTURE PIPELINE

We use innovation to engage the next generation, incorporate technology to drive interest and interaction, and leverage our existing partnerships and memberships to build and maintain the focus on the future. Some examples include hosting a community night that brings in people of all ages and letting them sample the virtual reality programs that are used in initial training, letting them manipulate controls in the control room simulator, or providing a tour of the site to capture their interest. Exelon leverages members of Women in Nuclear and the North American Young Generation in Nuclear to support local school STEM programs, to host field trips for middle school classes, and to bring local Scout troops on site to earn the nuclear science merit badge.



Partnering with colleges, both locally and across the country, provides a framework for

next-generation hiring and an opportunity for current employees to advance. Membership and participation in organizations such as Energy Providers Coalition for Education (EPCE) and Center for Energy Workforce Development are key for developing solutions and creating programs to meet the needs of current and future employees. For example, the EPCE partnership between industry and education was key to the development of a unique and fully online Instrument and Controls associate degree program at Bismarck State College.



The Nuclear Uniform Curriculum Program (NUCP), managed by the Nuclear Energy Institute, was developed by the nuclear industry to identify workforce needs and leverage the partnership between industry and colleges to create nuclear degree programs that provide a pipeline for maintenance, technical, and operation positions. We maintain NUCP partnerships regionally, and students in those programs have the opportunity to participate in internship programs while attending courses. These programs provide a degree pathway for high school graduates to enter the industry and are used by current employees who want to change or advance their career paths. To benefit current employees, we worked with college partners to evaluate our initial training programs. Employees can receive college credit for completing nuclear initial training programs that can be applied to degree programs, which builds our pipeline for future positions internally.

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THE DEPARTMENT OF ENERGY INVESTS IN STEM EDUCATION.

The demand for STEM-related jobs has grown three times faster than the demand for all other jobs in the past decade.

Nearly **40 percent** of our federal workforce are in STEM positions, and over **70 percent** of our federal employees have a bachelor's degree or higher.

DOE has supported STEM outreach and workforce development for more than

60 YEARS

WE HAVE

17 award winning

groundbreaking National Laboratories.

Each year, our labs provide programs for more than **250,000 K-12 students**, **22,000 K-12 educators**, nearly 3,000 undergraduate interns, over 2,000 graduate students, and 2,300 postdoctoral researchers.

These programs are run coast to coast, and we reach participants from all 50 states, Puerto Rico and the District of Columbia.

Altogether, through the workforce development programs supported by DOE Office of Science, the National Laboratories annually engage about 440 academic institutions in U.S., including

55 minority serving institutions

98%

of the interns in the Science Undergraduate Laboratory Internships and the Community College Internships program recommend the program to their peers.

For more, visit www.energy.gov/STEM

Infographic on STEM education from the Department of Energy

NEW HIRES

The candidate field has narrowed considerably over the years, while competition for those candidates has increased. We use innovative thinking and solutions to increase the size and diversity of the candidate pool. Updating standards to current processes can be instrumental for workforce development and pipeline strategies. For example, the revision of ANSI/ANS-3.1-2014, *Selection, Qualification, and Training of Personnel for Nuclear Power Plants*, opened a greater pool of available candidates for many power plant staff positions. The changes in the standard recognize accredited training programs and credit work experience and education more comprehensively.

Innovative thinking led Exelon to partner with the Veterans Association, and our initial training programs were approved for the VA tuition program. This provides a competitive edge for staffing maintenance positions and provides veterans the opportunity to use their housing allowance while in initial training.

By changing the design and dynamics of training programs, we improve hiring strategies. Exelon is piloting a non-licensed operator training program that provides fundamentals training through self-paced e-learning modules and systems training on-shift through the use of systems guides, mentoring, and on-shift checkouts. This takes the operators out of the classroom for initial training and immerses them immediately in the dynamics of the plant and the job. This programmatic design change gives us the ability to fill non-licensed operator positions as they become open, instead of basing hiring on class schedules.

Using technology to improve initial training programs enhances the learning experience, as well as job satisfaction and engagement for new hires. For example, virtual reality training provides realism and experience for trainees that wouldn't necessarily be available depending on plant conditions or the availability of training mock-ups. Videos of infrequently performed tasks or complicated evolutions enable trainees to observe and learn at their own pace, and the video libraries provide reference capabilities when workers need to be refreshed on a task.

KNOWLEDGE TRANSFER

Changing our knowledge transfer and retention (KT&R) strategies as we change our department models and dynamics is key as well. Leadership models and how we select our candidates have changed significantly. For example, in years past, our training managers were individuals with an extensive training background, along with the operational/technical knowledge level. When these individuals were promoted, there was not a need to learn the technical aspects of the training process. Our onboarding guide reflected that model and assumed a training department background and simply provided a list of documents to read and reference.

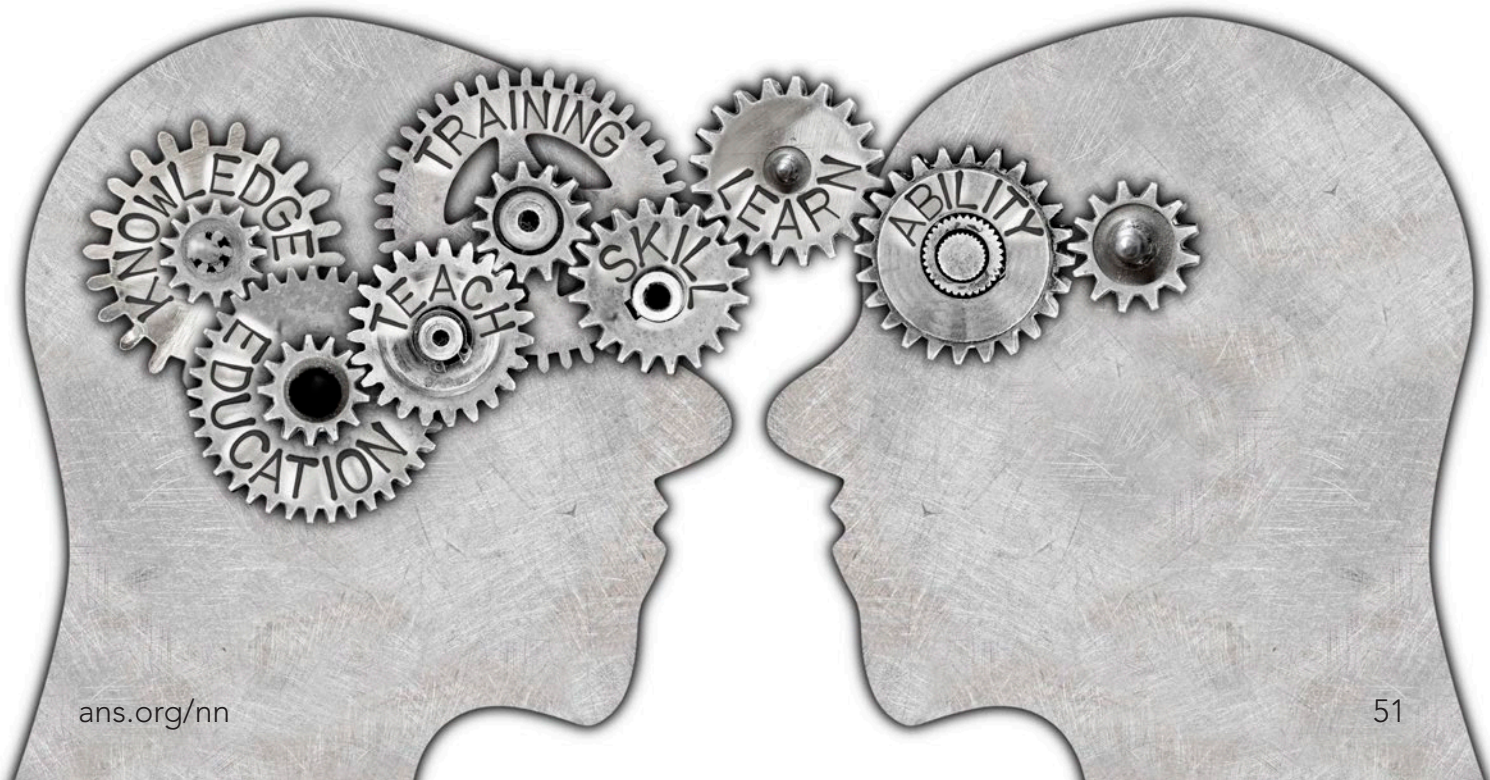
Looking at our training senior management positions across our fleet in the past five years, there was a 90 percent change in personnel, and almost 80 percent changed positions twice in that time frame. Our management model puts high-potential and proven leaders, who are not necessarily training experts, in training roles, and our onboarding has had to change to reflect that evolution. Our latest guide includes activities that must be completed and discussed with the manager's mentor, along with documents that have to be reviewed and discussed with a mentor. Some of the regulatory topics were made into videos that provide the new training leaders with an overview of their roles and responsibilities. It drives the knowledge transfer aspect through each topic.

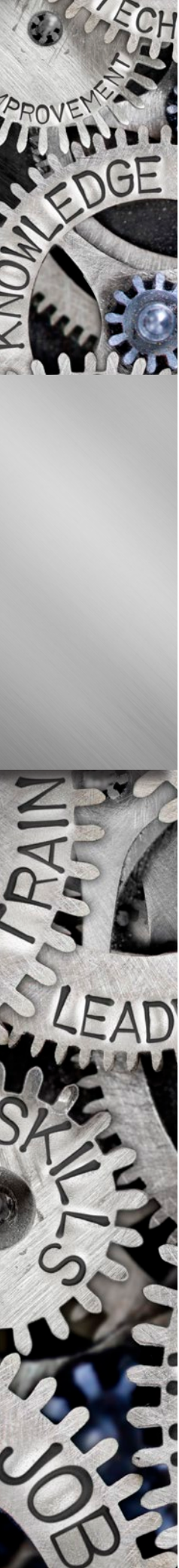
Like the training departments, management positions from all departments were changing fairly frequently across the fleet. This prompted the development of the Exelon Leadership Academy for managers and above who are new to their roles. Developing our leaders and teaching them how to provide effective feedback and develop their people is as important as developing them to proactively identify problems and create solutions. Effective leaders are instrumental to retaining talented workers and developing the leadership pipeline.

The engineering organization has the most frequent personnel changes, since they are feeders to many departments, which makes them the most susceptible to KT&R losses. A unique approach was needed to close this potential risk. Industry wide, the development and implementation of advanced engineering training (AET) modules have provided technical topics in a computer-based, self-paced training module format that supports KT&R efforts.

Internally, Exelon University provides centralized offerings of topics throughout the year, taught in a variety of formats by vendors and subject matter experts. It also supports initial qualification, advanced qualification, and KT&R. Exelon University was started in 2009 as a way for Exelon engineering to leverage fleet expertise in the completion of certification guides and position-specific training, and it has continued to expand and grow since that time.

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LEVERAGING TECHNOLOGY AND INNOVATION

The paperwork and administrative burden associated with each position is an aggravating aspect of any job; it is time-consuming and holds the greatest risk potential for loss of key information. Reducing paperwork and administrative burden not only improves efficiency and streamlines work but also improves job satisfaction and sparks innovation and creativity. Technology and innovation continue to provide solutions to optimize resources and improve processes.

Analyzing retirement projections, determining KT&R impacts, and calculating potential qualification gaps has historically been a complicated, time-consuming process with books of spreadsheets and manual updates needed. We developed software that provides automated and comprehensive reporting of staffing, qualifications, and projected retirements. This not only continuously provides up-to-date staffing projections but also allows us to forecast potential issues with specialty qualification and to update long-range training plans. The process that historically was a site-by-site annual activity relying on Excel spreadsheets is now an automated process that evaluates qualifications and human resources data to provide up-to-date information about the projections and resources across the fleet and to identify potential vulnerabilities to allow for timely and accurate KT&R solutions.

Each department can leverage technology to improve knowledge transfer and keep employees engaged. As an example, using technology and innovation to automate the training processes allows instructors to focus on the technical aspects of their jobs, oversee performance improvement initiatives, develop talent, and execute advanced qualification and training—instead of being mired in paperwork. Automation also reduces the potential for administrative errors that can plague departments. Allowing trainers to focus on training improves their job satisfaction and provides the opportunity to design and implement innovative training with an end goal of improving line performance.

The next generation of employees will enjoy the benefits of having easily retrievable information at their fingertips and will have that same expectation in the workplace. The opportunity to have a career in an organization that is innovative with cutting-edge technology is going to attract the largest talent pool.

Workforce development and knowledge transfer are accomplished in many different ways and are woven through our processes and departments. We maintain a focus on developing and retaining the employees we have today, while also attracting the employees we want tomorrow through engagement with the industry, strong partnerships, strategic planning, and innovative solutions. ☒

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