

**The Search
is Over.**

- > Post jobs easily.
- > Hear from qualified local candidates instantly.

POST A JOB NOW

monster[®]

Workforce
MANAGEMENT

Research Center

SITE CONTENTS

Feature: Nuclear Reaction: Staffing the Nuclear Power Renaissance

-- keyword search --

Home Page

Research Center

Community Center

Vendor Directory

Conferences,
Commentary & More

The Hot List

Blogs

CHANNELS

Compensation,
Benefits & Rewards

HR Management

Legal Insight

Recruiting &
Staffing

Software &
Technology

Training &
Development

 = Member Only

WorkforceHRJobs

Post Your Job

Post Your Resume

PRINT EDITION



Subscribe Now

Current Issue

Subscriber Help

E-NEWSLETTERS

Workforce Week

Dear Workforce

Workforce Recruiting

Workforce Benefits

Workforce Training

Nuclear Reaction: Staffing the Nuclear Power Renaissance

Surprised by its own resurgence, the nuclear power industry scrambles to replace retiring engineers and technicians. The rush for talent in the nuclear power business illustrates how other business can handle the one-two punch of retirements and talent shortages.

By Bridget Mintz Testa

Since 1998, the nuclear power industry has enjoyed a surprising and still little-publicized renaissance of plant re-licensing and even new plant proposals. Until that point, the industry was moribund and focused mostly on eventually shutting plants down. Then one plant showed that re-licensing was possible, and a trickle of new applications followed. The terrorist attacks of September 11, 2001, were also a stark reminder that the U.S. is heavily dependent on energy sources from foreign and frequently hostile regions.

It took about three years for the revival's hidden trap to spring: a potential workforce shortage. From mechanic to engineer to CEO, the average employee's age industrywide is 48. By 2011, a wave of personnel could exit the industry—27 percent through retirement and 13 percent for other reasons, according to the Nuclear Energy Institute, an industry group in Washington. There's an added twist: In the 1980s and most of the 1990s, the nuclear power industry simultaneously stopped hiring and ceased supporting college and university nuclear education. Not only is the industry heading toward a retirement cliff, but there's no safety net of new recruits or midcareer engineers behind them.

Once the industry realized the issue, it took action on multiple fronts. A number of nuclear utilities, such as AmerenUE, based in as St. Louis, have helped set up new two-year technical school, college and university programs to create a pipeline of nuclear technicians and engineers. Companies like Warrenville, Illinois-based Exelon, which is the largest nuclear utility in the U.S., are aggressively recruiting young engineers and finding on- and off-the-job strategies to keep them committed. The Tennessee Valley Authority's nuclear power division, headquartered in Knoxville, Tennessee, developed an award-winning program to capture knowledge from its retiring personnel. Other companies are following suit.

Although the missing educational pipeline is specific to the nuclear industry, the dearth of technical and scientific college and university grads is a national problem. Nuclear power's retirement cliff isn't unique, either, since corporate America is woefully aware that the experienced, workaholic baby boomers who created a modern global business culture will soon be retiring by the millions. Just as nuclear power's workforce problems aren't unique, neither are its solutions. They can be adopted by any company or industry facing the double-barreled issue of too many looming retirements and too few technical recruits.

Pipeline for techs



Feature Contents

1. An Industry Recharged

The nuclear power industry once had more trained professionals than it could use. Then came Three Mile Island.

2. Sharing Talent, Recruiting From Other Industries

The nuclear power business could go after top talent from other industries that rely heavily on engineering.

Similar Documents

[1993 Managing Change Optimas Award Profile: Philadelphia Electric Co.](#)

[An Industry Recharged](#)

[Proactive People Planning Helps Nuclear Unit Thrive](#)

[Selling HR: How To Get CEO Support](#)

Related Topics

[Workforce Trends](#)

[Candidate Sourcing](#)

 [E-mail this document](#)

 [Printer-friendly version](#)

 [Write to the Editor](#)

 [Reprint Information](#)

**FREE
WEBCAST**

vuvv

MEMBER SERVICES

[Log In](#)
[Update Profile](#)
[Log Out](#)
[Help](#)
[Site Guide](#)

Get full access. Become a
Registered Member


Register!

ABOUT WORKFORCE

[Permissions](#)
[Reprint Info](#)
[Editorial Info](#)
[Contact Us](#)

ADVERTISING

[Media Kit](#)

 = Member Only

**Make Workforce
My Homepage**

AmerenUE and Linn State Technical College in Linn, Missouri, aren't contractual partners in the school's nuclear technology program in radiation protection, but the program wouldn't exist without the utility. Chris Graham, a consulting health physicist at AmerenUE's Callaway Nuclear Plant near Columbia, Missouri, about 50 miles from Linn, conceived the idea when he grew concerned about an impending shortage of health physicists. These specialists manage the use of radiation produced by nuclear reactors or radioactive materials and protect people from its hazards. Since radiation protection technicians could help mitigate the shortage, Graham approached Linn State about starting up such a two-year technical program. Linn State, a two-year college, was interested, but had no funds for a new department.

Graham then contacted William H. Miller, professor at the Nuclear Science and Engineering Institute at the University of Missouri in Columbia. Miller's institute had won a \$4.8 million Department of Energy grant to improve nuclear infrastructure and education. The institute planned to use some of the money to upgrade its research reactors, but Miller and the DOE agreed that Graham's idea fit in with the grant's scope. By early 2004, the program was approved. The money allowed Miller to hire program department chair Bruce Meffert in May 2004, which got the program going, Graham says.

Linn State's nuclear technology program in radiation protection first opened its doors in the fall of 2004. Ten students walked in, and seven of them had graduated by August 2006, each with multiple job offers. Typical starting salaries were around \$50,000, plus benefits. "I get calls from all over the country for grads," Meffert says.

In the next two years, 33 more students signed up, and perhaps 18 of them will finish the math-intensive curriculum.

"It takes a lot of effort to recruit the right people," Meffert says. "[They must be] good at math and problem solving, so we're competing with four-year schools."

Although AmerenUE hasn't hired any Linn State grads yet, it took the entire first-year class on for their required eight-week internships in the fall of 2005. It wasn't charity; the plant needs additional help for periodic "outages" for refueling, repairs and maintenance. "Usually junior techs get hired off the street with no experience and no special expertise," Graham says. "You hit them with a magic wand and they become junior techs. The Linn State students came with lots of knowledge and a good work ethic."

Graham says the Callaway plant will hire Linn State grads as soon as positions open up in the company. By then, the grads will be experienced techs. "Since they're local," he says, "we hope they'll want to stay."

The company's support for the program includes funding internships every three years at the Callaway plant, touting the school and its grads in the industry and even donating radiation dosimetry equipment that Meffert sold at auction for \$210,000. The funds were plowed back into the program.

Linn State's program is being duplicated at four other schools in Virginia, Arizona, California and Texas through a \$2.3 million Department of Labor grant Miller obtained with some help from AmerenUE. These schools, which are all partnered with local nuclear utilities, will open in the fall of 2007.

Wanted: young engineers

When Michelle Yun graduated from Princeton University in June 2006 with a bachelor of science in chemical engineering, she stepped right into a licensing engineer job with Exelon Nuclear. An internship with Exelon in the summer of 2005, in which Yun quickly came to feel like a team member, was key in her decision to sign up with the utility.

"When I went back to campus in the fall of 2005, a lot of companies were

monster®

[Click here
to post a job](#)

Sponsored Tools

Applicant Tracking System

Software for Recruiting, Applicant Tracking, Onboarding, Succession Planning, Performance Management

Discover PCRecruiter HR Solutions

Versatile web-based HR solutions used by over 2700 organizations worldwide. Schedule a demo now!

Time & Attendance Systems

Easily collect time data with our exclusive clocks, and manage it through our software, TimeForce.

Hiring Success with Resource Associates testing

Don't settle for one test for all jobs, we can create a testing system to match your unique needs.

Total Talent Management Software by StepStone Solutions

Motivate, develop, manage, and retain employees with software from StepStone Solutions.

[Get Listed >>>](#)

on campus recruiting," she says. "None of these companies had a vision I believed in. I also saw that I wouldn't be a person; I'd be a number. I wanted to go where people are excited to have me there."

Exelon has worked hard to create that environment for Yun and young engineers like her. After a demographic survey completed last June revealed that 12 percent to 38 percent of Exelon's workforce could retire within 10 years, the company conceived an integrated plan to address the issue. Recruiting and retaining new talent are key elements. "These aren't HR programs," says Debbi Shimanis, manager of staffing for Exelon. "It's a strategic management issue right now."

In recruiting, Exelon's reach extends from institutions of higher education all the way into high schools. "We may be in the sixth, seventh and eighth grades soon," Shimanis says.

Exelon works with two-year schools to develop nuclear technology programs. For four-year schools, Amir Shah-karami, the company's senior vice president of engineering and technical services, serves as an advisor to colleges and universities like Texas A&M and Tulane. "Exelon gives money to a number of universities, and DOE matches it," Shahkarami says.

Because the market is so tight for technicians and engineers, "We are aggressively over-hiring for more than replacement so we can get them trained and be in front of attrition," Shimanis says. That translates to current annual hiring of 45 to 50 engineers. "That's probably twice what it was in 2002," she says.

To help retain these young techs and engineers, "Exelon has programs to assess talent and provide career development, succession planning and leadership training," says Diana Sorfleet, vice president of HR for Exelon Nuclear's parent, Exelon Generation.

The company knows that 20-something techs and engineers also need social support to feel comfortable in a workplace where the average age is 46. So it developed information kits and recruited community mentors to help newcomers feel at home in the communities where they'll work and live. Given that these communities are homes to nuclear power plants, many of them are quite remote. "We helped one person find a new vet for her cat and helped someone else find a dog park," Shimanis says.

Exelon also joined North American Young Generation Nuclear, a national organization founded for new engineers in the industry. The group focuses on community outreach, philanthropy and social networking.

"It's important to build a social network so you feel like you're part of a family," Yun says.

Capturing critical knowledge

The Tennessee Valley Authority recognized its retirement situation in 1998. In its nuclear generation business, TVA's average employee age is 46.

"We saw that one-third of the workforce could retire in five years, and many did," says Ed Boyles, manager of workforce planning for TVA from 2000 to 2005 and now an independent industry consultant. "Long-term, very qualified personnel were approaching retirement, and we knew we had to capture that knowledge."

It took two years for a team comprising HR, training and line management to develop a process for capturing knowledge. "We had to quantify the risk to make it meaningful to the technical people and engineers," Boyles says. "Engineers want to quantify things."

Quantifying risk means ranking criticality of knowledge and retirement

urgency on five-point scales, with five at the top. Criticality of knowledge goes from irreplaceable, a 5, down to generally known, a 1. Retirement urgency goes from leaving within two years, with a rank of 5, to leaving in six years or more, at 1. Multiply the two rankings and an individual's knowledge-capture score lies somewhere from 1 (not at all urgent) to 25 (critical).

"We really must focus on the retiring workforce, rather than the aging of the workforce," says Keith Fogleman, senior HR manager at TVA. "People don't necessarily retire at 62 or 65. We must understand when they plan to retire."

Line managers, being closest to the technical work, identify and rank employees with the "5 by 5" process. Several reviews with HR and senior management take place before an employee may finally be identified as a "high critical"—i.e., someone with a "5 by 5" score of 20 to 25 whose knowledge must be captured as soon as possible.

Once these individuals are identified, Boyles cites four methods for capturing their knowledge: training and educating other employees; documenting or otherwise codifying their expertise; finding alternative resources with the knowledge, such as contractors or other on-site experts; or using technological improvements to automate the skill or even eliminate the need for it. This last option, known as "engineering it out," might occur when an individual has irreplaceable expertise in a system or device that is obsolete and could be replaced with newer technology.

Boyles was a subject for knowledge capture before he left TVA in 2005. "The knowledge I transferred was about workforce planning," he says. Techniques included file transfers, meetings and conversations with other departments and one-on-one work with another employee for several months.

Today, TVA's nuclear operation has identified about 50 "high criticals" out of a workforce of 2,700. Although knowledge is at risk, it's not the crisis TVA originally feared in 1998.

"Our biggest lesson is that the sky's not falling," Fogleman says.

Because events have made the U.S. nuclear power industry a tightly knit community, it was able to recognize the recruiting and staffing issue and take action relatively quickly. It continues to ramp up its recruiting, retention and knowledge-capture efforts.

"The industry understands that what affects one plant affects them all," Boyles says. "There is a lot of willingness to share information, practices and processes."

Workforce Management, April 23, 2007, p. 18-22 -- [Subscribe Now!](#)

Bridget Mintz Testa is a freelance writer based in Houston. E-mail editors@workforce.com to comment.

Next Article: 1. An Industry Recharged

The nuclear power industry once had more trained professionals than it could use. Then came Three Mile Island.

[Features Archive](#)



E-mail this document



Printer-friendly version



Write to the Editor



Reprint Information

Reproductions and distribution of the above article are strictly prohibited. To order reprints and/or request permission to use the article in full or partial format, please contact our Reprint Sales

Manager at (732) 723-0569.



[Home](#) | [Research Center](#) | [Community Center](#) | [Commerce Center](#) | [Conferences](#)
[Benefits](#) | [HR Management](#) | [Recruiting & Staffing](#) | [Software & Tech](#) | [Training & Develop](#) | [Legal](#)
[Current Print Issue](#) | [Print Subscription](#) | [Subscriber Help](#) | [E-Newsletters](#)
[Contact Us](#) | [Site Help](#) | [Terms of Use](#) | [Privacy Statement](#) | [Rights & Permissions](#) | [Advertising Info](#)

Copyright © 1995-2008 Crain Communications Inc.
All Rights Reserved. [Terms of Use](#) [Privacy Statement](#)