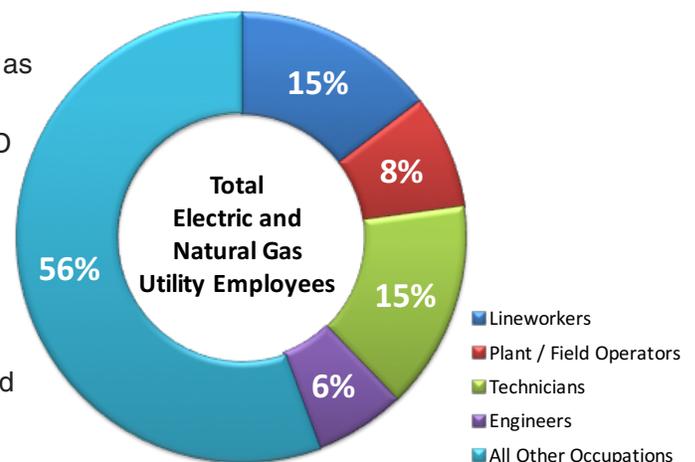


Overview

In 2015, CEWD conducted the sixth “Gaps in the Energy Workforce Pipeline” Survey and the news is good. CEWD again focused on the four key job categories that are considered critical to the industry: lineworkers, technicians, plant operators, and engineers. Overall, the Electric and Natural Gas Utility workforce is getting younger, with lineworkers, engineers, and nuclear operations being the youngest of the surveyed jobs. Hiring has increased, particularly in the 23-38 age group, and a little over half of the hires reported were in Key Jobs, with almost 20% of all hires in the lineworker category.

At the same time, the number of older workers has declined as workers in Key Jobs are retiring, with retirement forecasts in future years trending downward for the first time since CEWD began surveying. The non-nuclear generation workforce, specifically Operators and Technicians, show the largest number of employees still eligible to retire. Efforts to build a sustainable talent pipeline are paying off, but show more promise in some jobs than in others. The results clearly reflect a need to put more emphasis on skilled technician and engineering positions.



The survey forecasts the impact of the aging workforce and the number of positions that may need to be filled as workers retire, but there are other factors that must be considered. The workforce implications of what CEWD has termed “Industry Game Changers” may have as great or greater influence. As workers retire in one area, their replacements may be hired in another as the generation mix at the company changes, or as new technology changes the skills required for new employees. It is critical to consider the impact of the Game Changers when forecasting workforce development needs at a state or regional level.

Workers in Key Jobs make up 44% of all employees in the industry and many of these positions are unique to the utility industry. The survey collected data on the age and years of service of current employees as well as data on the actual rate of retirements and other types of attrition.

For the first time, CEWD included data for the nuclear generation workforce, data previously collected by the Nuclear Energy Institute. By incorporating the nuclear workforce data, the survey results more accurately reflect the needs of the entire industry.

2015 Survey Findings

THE UTILITY WORKFORCE IS GETTING YOUNGER

Overall, the workforce is getting younger compared to when CEWD began surveying Electric and Natural Gas Utilities in 2006. For critical Key Jobs, there has been an increase of slightly over 6% in employees under the age of 37 since 2006, with the biggest gains in the 28-32-year-old category as earlier hires are retained and gain experience. Overall, this change shows the impact of talent pipeline development initiatives, hiring, and retention efforts in the industry. The overall age curve in the age distribution graph is flattening, which shows the effect of hiring at younger ages and the impact of retirements that have already happened.

For the first time, the survey shows that hiring percentages were greater than attrition percentages in all Key Jobs except technicians. A little over half of the hires reported were in Key Jobs, with almost 20% of all hires in the lineworker category.

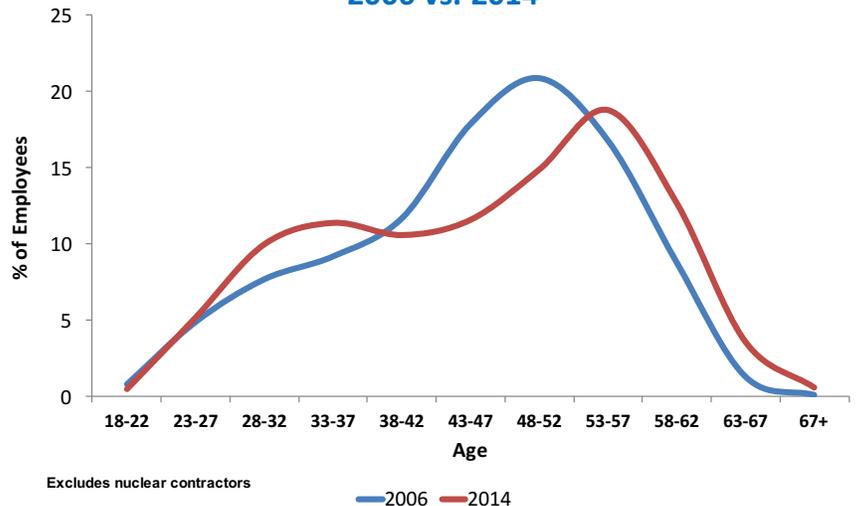
Lineworkers are the youngest of the surveyed jobs, with over half of the workforce under the age of 42, and 25%

under the age of 32. Balance that with the fact that only 23% of lineworkers are over the age of 53 and the industry can see real strides in hiring and retention to address the issues with replacing experienced workers who have retired or left the position over the last few years. Considering that it can take up to five years for a newly hired apprentice lineworker to reach journey status, this is a significant impact.

In the engineering job category, which includes electrical, civil, nuclear, and mechanical disciplines, 25% of engineers in nuclear generation and 20% of engineers in other generation, transmission, and distribution segments are now under the age of 32. In contrast, however, a little over a third of all engineers are over the age of 53.

In nuclear operations, 23% of nuclear plant operators are under the age of 32, demonstrating the impact of intensive focus in this critical position.

Electric and Natural Gas Utilities
Age Distribution Total Company
2006 vs. 2014



RETIREMENT FORECASTS ARE TRENDING DOWNWARD

Retirements in Key Jobs are continuing, with retirement forecasts in future years trending downward for the first time since CEWD began surveying. Overall, fewer people are forecasted to retire, with a reduction of 7.4% in the number of employees with the potential to retire in the next 1-10 years.

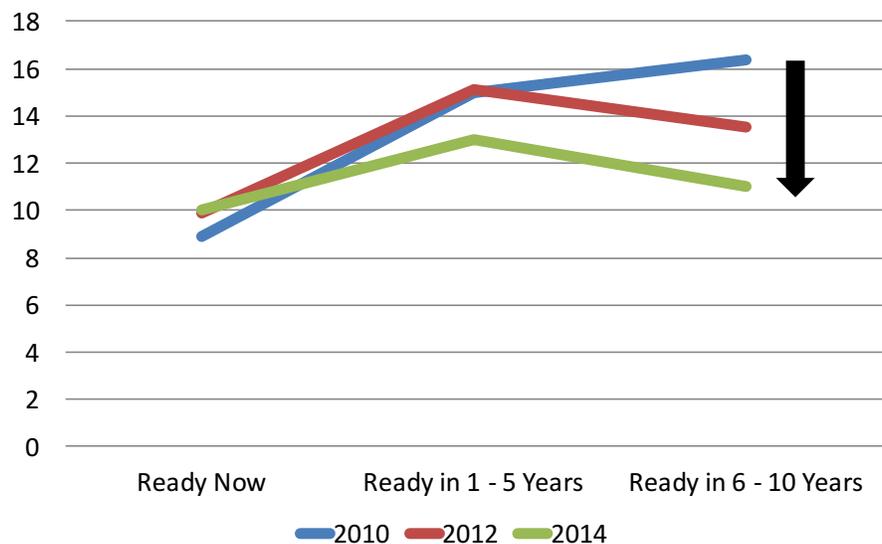
The greatest reduction is in the number of employees who have the potential to retire in the next 6-10 years, showing the impact of retirements that have already happened. The number of employees who have the ability to retire at any point (“ready now”) has stayed fairly steady between 9% and 10% since the 2010 results. Since the total number of employees in Key Jobs has stabilized to 2009 levels, and coupled with the increase in hiring, this change represents a real decrease in the number of employees who will need to be replaced due to retirement.

The impact is not consistent across all key jobs, however. Both lineworkers and operators show a decrease in potential retirements of 8% each, while technicians show an increase in potential retirements of 2% and engineers show an increase of 13%. Estimates for “ready now” retirements are up for technicians and engineers. Overall, engineers tend to stay on the job longer than employees in the skilled technician professions.

Nuclear has seen a small decrease in the number of potential retirees as compared to previous surveys. However, nuclear is predicting fewer future hires from key pipelines for all Key Jobs due to mainly the closure of other nuclear power plants that provide a source of experienced nuclear workers to fill vacancies.

When other types of attrition are factored in, the total number of potential replacements is down by almost 5% from the 2012 estimates for all Key Jobs.

Key Jobs Potential Retirement Percentage (Excludes Nuclear)

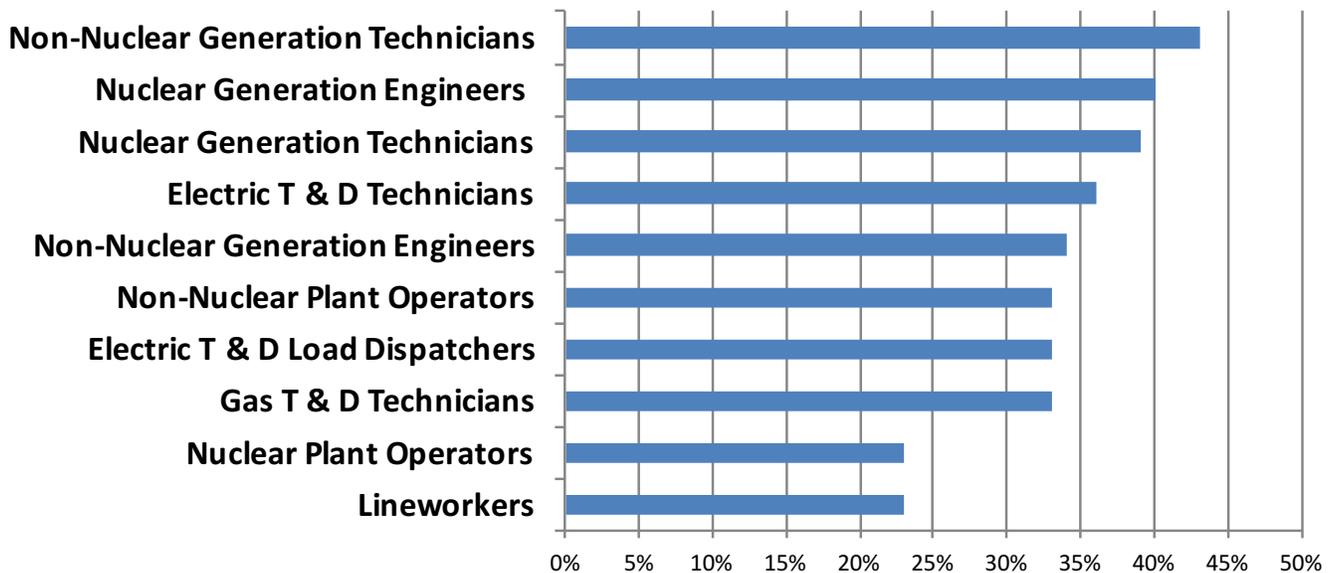


ENGINEERS AND TECHNICIANS NEED INCREASED FOCUS

Employees in the generation workforce are the oldest of the job categories surveyed with the highest percentage of employees over the age of 53. Engineers and technicians have the highest attrition and retirement forecasts and account for over half of the potential replacements in the next five years.

The issue is particularly acute with the Non-Nuclear Generation Technician category, which has the lowest percentage (11%) of employees under the age of 32, indicating a lack of hiring in the younger age groups. Technicians in general are the only job category where the percentage of hires did not exceed attrition for 2014. With the change in generation mix and the closure of both coal-fired and nuclear plants, the results are not surprising, but workforce efforts will need to be increased to plan for the appropriate skill requirements in the coming years.

Percentage of Employees Over Age 53



Engineers, on the other hand, have shown an increase in hiring in younger age groups over the last few years, but the lowest percentages of employees are in the 38-47 or mid-career age group. Couple this with an increase in engineers who are “ready now” to retire (13%) and the issue becomes having a sufficient supply of experienced engineers to replace them.

INDUSTRY DEMAND

The number of potential replacements in skilled technicians and engineers is down from the last survey with a little over a third of employees with the potential to retire in the next 10 years. Of that number, 24% have the potential to retire in the next five years. Technicians and lineworkers make up almost two-thirds of employees in the Key Job category and have the highest potential number of potential replacements.

Attrition for other reasons, such as separating from the company, account for an additional 10% of employees in these job categories that may need to be replaced. The normal attrition rate for utilities is historically low, ranging between 2-3% a year for most job categories.

More critical than the number of potential retirements, however, is the forecast for hiring. Although survey results showed a significant increase in hiring in 2014 from previous years, the changes in the industry will heavily influence which positions will be replaced and when for future years.

The industry continues its focus on increasing the number of veterans in the utility workforce and respondents reported that veterans make up a little over 8% of the current workforce and account for 10.4% of new hires. That's an overall increase of 2% over 2012 survey results. For the nuclear workforce, veterans make up 13% of the current workforce and 23% of new hires.

Companies also reported a strategic focus on increasing the diversity of the applicant pool and of hires. Companies are working on a variety of strategic initiatives to change the demographic makeup of the employee population to more closely reflect the communities they serve.

Potential Replacements by 2024 for Key Jobs
(Excludes Nuclear)

Job Category	Potential Replacements 2015-2019		Potential Replacements 2020-2024	
	Potential Attrition & Retirement	Estimated Number of Replacements	Potential Retirement	Estimated Number of Replacements
Lineworkers	29%	22,000	11%	9,000
Technicians	39%	29,000	13%	9,000
Plant Operators	36%	13,000	11%	4,000
Engineers	38%	10,000	11%	3,000
Total Key Jobs	34%	74,000	11%	25,000

Potential Replacements by 2019 for Nuclear Operations

Job Category	Potential Replacements 2015-2019	
	Potential Attrition & Retirement	Estimated Number of Replacements
Operations	29%	3,000
Maintenance	42%	4,000
Engineering	39%	3,000
Total Nuclear Jobs	38%	10,000



RECOMMENDATIONS

Specific recommendations for building sustainable energy workforce pipelines include:

- Support existing efforts to balance the supply and demand for workers by developing programs that can be scaled as demand increases and decreases.
- Continue to build partnerships with those in the education, labor, and government sectors to develop secondary and postsecondary programs specific to skilled energy positions.
- Use the Energy Industry Competency Model and Get Into Energy Career Pathway Model developed for generation, transmission, and distribution careers to implement programs that will reduce the skill gaps in applicants and provide quantifiable benefits to the companies.
- Implement sustainable workforce planning strategies, utilizing the CEWD Essential Elements of Strategic Workforce Planning Model.

SURVEY METHODOLOGY

The Gaps in the Energy Workforce Pipeline Survey was sent to all CEWD, Edison Electric Institute, Nuclear Energy Institute, and American Gas Association utility members, asking them to provide data on actual and forecasted hires and attrition (both retirement and other attrition), age and years of service of the current workforce, number of employees in specific positions (lineworkers, technicians, plant operators, and engineers), and total number of employees. Nuclear contractors were also asked to complete the survey. The survey was administered by Vemo and all company data is confidential.

Electric and natural gas utilities from across the country responded to the survey. Information on electric cooperatives was provided by the National Rural Electric Cooperative Association. The companies who responded to the survey collectively represent approximately three-fourths of the total electric and natural gas utility workforce and 100% of the industry's nuclear utilities, as well as nine major supplier companies.

Members of CEWD may view survey details at www.cewd.org.

Formed in March 2006, the Center for Energy Workforce Development (CEWD) is a non-profit consortium of electric, natural gas, and nuclear utilities and their associations—Edison Electric Institute, American Gas Association, Nuclear Energy Institute, National Rural Electric Cooperative Association, and American Public Power Association. CEWD was formed to help utilities work together to develop solutions to the coming workforce shortage in the utility industry. It is the first partnership between utilities, their associations, contractors, and unions to focus on the need to build a skilled workforce pipeline that will meet future industry needs.

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