

### Background

The fifth “Gaps in the Energy Workforce Pipeline” survey conducted by CEWD once again revealed a common story: the energy industry workforce is getting older and there are a large number of employees who are set to retire in the next five to 10 years. But, the 2013 survey also shows the progress electric and natural gas utilities are making to bring in younger workers and fill the gaps left by experienced, skilled workers.

There is a distinct difference in forecasting potential retirements and other attrition and in predicting the number of positions that will be filled, the skill levels required to fill them, and the size of the pipeline of workers currently being trained to fill the positions. CEWD has spent considerable time since the last survey defining the Essential Elements of Strategic Workforce Planning, which will help utilities assess not just the number of employees who are projected to leave, but the resource and skill levels required to staff the changing organization requirements for the future.

#### Industry Game Changers

- *Grid Modernization*
- *Generation Mix / Carbon Management*
- *New Build*
- *Regulation / Policy Changes*
- *Aging Workforce*
- *Mergers / Acquisitions*
- *Significant Organization Decisions*
- *Adoption of New Technology*

Key among the steps in identifying the true gap in the workforce is the idea of identifying the workforce implications of relevant “Game Changers” in the industry. CEWD has identified eight key Game Changers that have implications for the future workforce and impact the decisions utility executives make on replacing those who are leaving and creating new jobs for the skilled workers being educated in community colleges and universities. The CEWD survey provides data at the national level on one of the Game Changers—aging workforce—and provides additional data on changes in normal attrition and the timing of potential employee exits. It is critical, however, to consider the impact of the other Game Changers when forecasting workforce development needs at a state or regional level.

CEWD again focused on the four key job categories that are considered critical to the industry: Lineworkers, Technicians, Plant Operators, and Engineers. However, in the current data, the categories were broken down more finely to distinguish between employees in Electric Transmission, Distribution, and Generation, and Natural Gas Transmission, Distribution, and Generation. 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. The data was used to forecast patterns of retirement and attrition over the next 10 years within each of the job categories.

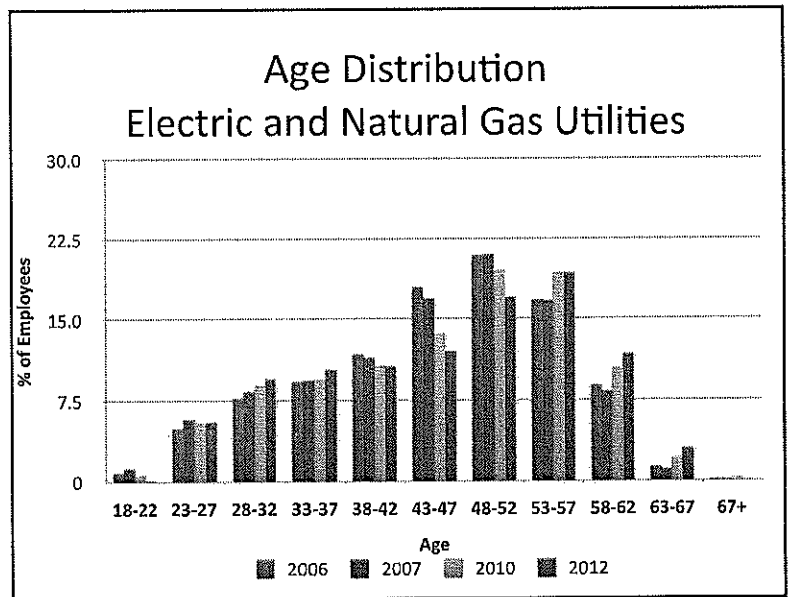
## 2013 Survey Findings

In 2013, Electric and Natural Gas Utilities across the country completed a detailed survey on the workforce size, age, and years of service, along with actual and projected hiring and attrition rates of the existing generation, transmission, and distribution workforce. The survey requested actual data as of December 31, 2012, and projected data through 2018. The information collected from industry was supplemented with data from Economic Modeling Specialists International (EMSI). The data collected from utilities represent about two-thirds of the total employee population of the industry.

### Workforce Demographics

The change in the total number of employees in the industry is leveling off, but there are still fewer employees than in 2010. In 2010, EMSI calculated approximately 525,000 employees while in 2012, there are approximately 517,000. Almost 40%, or 204,000, of the employees in the industry are in the job categories considered critical, and there were changes in the number of employees in each of those job categories:

- Engineers decreased by 3.2%
- Plant / Operators decreased by 2.3%
- Lineworkers and Technicians decreased by about 1.4% each



Overall, the industry has continued to mature with more employees than in previous surveys over the age of 53. But the survey also showed an increase in employees under the age of 37, indicating a steady increase in hiring younger workers. The average age continues to increase and has gone from 45.7 in the 2006 survey to 47.2 at the end of 2012. In looking at the more defined breakdown of critical jobs, Lineworkers and Engineers are the youngest, and Electric Transmission and Distribution Technicians are the oldest.

Clearly the retirement wave has begun. CEWD calculates a percentage of workers who are "Ready Now," ready to retire over the next five years, and ready to retire over the next 6-10 years. This percentage of "Ready Now" has increased by a full percentage point from 8.9% in 2010 to 9.9% in 2012. Those ready to retire in the next five years remains steady at around 15%, and the number of workers potentially ready to retire in the next 6-10 years has decreased by almost 3% from 16.4% to 13.5%. This change shows that older workers have begun to leave and more are in that critical age and years of service range, which means they could leave at any time.

### Industry Demand

For the industry as a whole, almost 55% of the workforce may need to be replaced in the next 10 years, down from previous estimates and reflecting the progress of workforce development efforts across the industry. This includes all jobs in the company, such as supervision, clerical, accounting, and information technology, as well as the key job categories.

Almost half of the skilled Technicians and Engineers in the industry may need to be replaced in the next 10 years, with the potential for the next five years estimated at 36%. Technicians and Plant Operators have the highest potential percentage of replacements. Attrition for other reasons, such as separating from the company, transferring to other jobs, or promotions within the company, total approximately 11% of employees in these job categories. The normal attrition rate for utilities is historically low, ranging between 2-3% a year for most job categories. In 2013, the survey forecasts that the rate of retirements will increase above normal attrition and continue to rise during the forecast period.

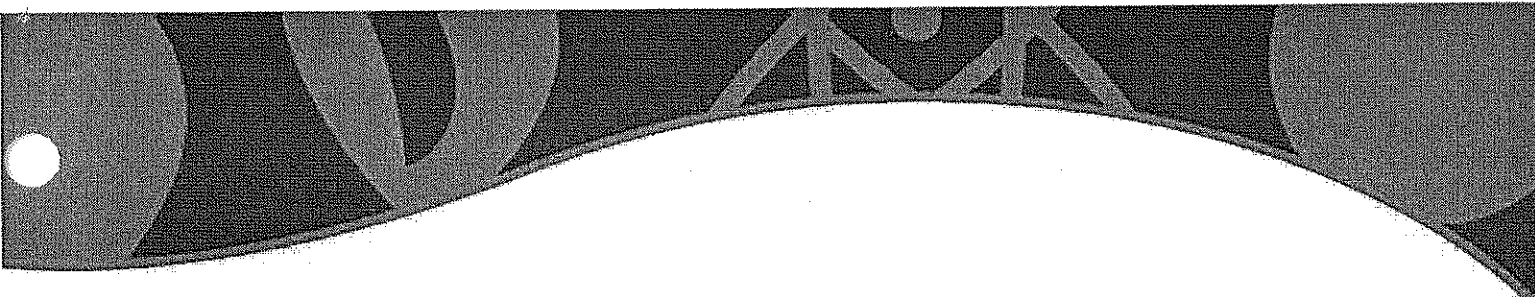
Job Category	Potential Replacements 2013 - 2017		Potential Replacements 2018 - 2022	
	Potential Attrition & Retirement	Estimated Number of Replacements	Potential Retirement	Estimated Number of Replacements
Lineworkers	32%	24,100	14%	10,300
Technicians	41%	28,300	14%	10,100
Plant Operators	42%	14,900	13%	4,600
Engineers	34%	9,200	12%	2,900
<b>Total</b>	<b>36%</b>	<b>76,500</b>	<b>14%</b>	<b>27,900</b>

*Totals exclude Nuclear*

More critical than the number of potential retirements, however, is the forecast for hiring. As the economy began to improve, so did the number of employees hired to replace those leaving and, in 2012, companies replaced nine out of 10 workers, showing a steep increase from 2009 and 2010. This is reflected in the growing number of younger workers across the companies. The forecasts for hiring remain steady at the 2012 rates for the rest of the decade.

In 2013, CEWD launched a nationwide effort, Troops to Energy Jobs, to increase the percentage of veterans in the utility workforce. As part of the 2013 survey, companies were asked to identify the current percentage of veterans in the workforce. Although the percent can vary significantly by job category and company, overall, survey respondents reported around 6% of their current workforce are military veterans.

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.



### *Conclusions and Recommendations*

Specific recommendations for building the future energy workforce pipeline 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 developed for generation, transmission, and distribution to create programs that will reduce the skill gaps in applicants and provide quantifiable benefits to the companies.
- Create industry-recognized credentials that will allow students to demonstrate the skill level attained.
- Continue to develop mature 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, and American Gas Association 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, Electric and Gas T&D Technicians, Non-nuclear Generation Operators, Technicians, and Engineers), and total number of employees. The survey was administered by Vemo and all company data is confidential.

The survey did not include data on nuclear positions; that information is collected in a separate survey conducted by the Nuclear Energy Institute. Shareholder-owned electric companies 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 two-thirds of the total electric and natural gas utility workforce.

Members of CEWD may view survey details at [www.cewd.org](http://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, and National Rural Electric Cooperative 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.

701 Pennsylvania Ave., NW, Washington, DC 20004-2696 • 202-638-5802

[www.cewd.org](http://www.cewd.org)

[www.getintoenergy.com](http://www.getintoenergy.com)

For information, please contact us at [staff@cewd.org](mailto:staff@cewd.org)

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