Gaps in the Energy Workforce Pipeline

2007 Workforce Survey Report from the
Center for Energy Workforce Development

Executive Summary

Within the next five years, the Baby Boom generation will start to become eligible for retirement, sending ripples across the U.S. economy. The aging U.S. workforce presents a significant challenge to the energy industry, which faces the prospect of losing roughly half of its skilled workforce at a time when growing demands for electricity – coupled with a growing population and economy – are fueling demand for these workers. The NERC 2007 Survey of Reliability Issues states that the "Aging Workforce and a Lack of Skilled Workers" is ranked first among all business issues, with the highest likelihood and highest impact on reliability.

Americans are consuming electric energy as never before. Our use of cell phones, high-definition televisions, MP3 players, digital cameras, laptop computers and cordless phones helped create an unprecedented demand for uninterrupted power at home and at work. According to a 2006 report prepared by *The Brattle Group* for the Edison Foundation, American homes today are bigger and use 21 percent more electricity than they did three decades ago. Likewise, all industries rely heavily upon the latest technology and electronics to increase efficiency and stay connected to the American consumer.

Not only do we use more electric energy as individuals, the number of individuals using electricity continues to grow. The U.S. Census Bureau estimates that one baby is born every eight seconds in America, and that our population will grow 23 percent by 2030. Consequently, the Energy Information Administration (EIA) expects national electricity consumption in the U.S. to grow by at least 40 percent by 2030.

Meeting new demands for electricity will require energy providers to make major investments in new power plants, as well as the transmission and distribution systems used to deliver electricity where it is needed. Cambridge Energy Research Associates estimates that, nationwide, the electric power industry will invest approximately $900 billion in infrastructure projects over the next 15 years.

Natural gas supplies about one-fourth of all energy consumed in the United States. It is one of the largest sources of energy for all major stationary consumers – residential, commercial, industrial and electricity generators. Significant growth is anticipated in natural gas demand over the next two decades, particularly for electricity generation.

At the same time, there will be the need to replace and install new pipelines at the local level to continue to deliver natural gas safely, reliably and cost-effectively.

In order to estimate the supply of workers in electric and natural gas related jobs that will be needed in the future, the Center for Energy Workforce Development (CEWD) has sponsored the first CEWD Workforce Pipeline Survey. This survey looked at workforce needs in the electric and natural gas utility industries and projected shortfalls for the next five years and beyond. The Nuclear Energy

Future Outlook

By 2012:

- More than half of all non-nuclear power plant operators may need to be replaced.
- 52% of Generation technicians will reach retirement eligibility.
- Nearly 40% of line-worker jobs may need to be filled.
- Roughly 46% of all engineering jobs could become vacant.

Institute (NEI) recently conducted a similar survey for the nuclear energy industry. Both surveys reached similar conclusions: If aging and experienced workers retire as they become eligible to do so, the energy industry, as a whole, will face critical labor shortages, with little time to train new hires.

In short, the need for skilled workers has never been greater. Yet, this increased need hits just as our most experienced workers prepare to retire and the median age of U.S. workers also begins to climb. The U.S. Department of Labor reports the median age of American workers will reach 41.4 by 2012. The median age of the workforce surveyed in this report is already 45, and by 2012 will be nearly nine years older than the national figures. This indicates electric and natural gas companies could face a worker shortage earlier than most other segments of the U.S. economy. In fact, in some job categories, such as lineworkers and engineers, companies are already experiencing difficulty recruiting sufficient talent to match current needs.

Specifically, by 2012:

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- 52 percent of Generation technicians will reach retirement eligibility.
- Nearly 40 percent of lineworker jobs may need to be filled.
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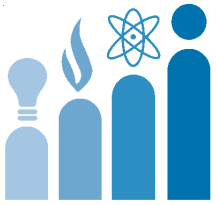
While the data does show that some companies have begun to hire replacement workers – particularly engineers – the number of new hires may not be sufficient to stave off potential gaps. Some companies have also implemented strategies to delay the need for replacements, such as offering incentives for employees to delay retirements. Others may turn to contractors, who traditionally supply supplemental labor for linework, plant outage work or scheduled maintenance, to meet their needs. However, those contractors are facing the same issues and report similar shortages in their workforce.

Other industries with similar skill sets, such as manufacturing and construction, are also competing for the same limited pool of workers. What's more, even companies that have worked to fill the workforce pipeline should heed signals of an industry-wide shortfall, since companies facing more substantial shortages may try to hire away from those that are fully staffed.



Electric and natural gas companies could face a worker shortage earlier than most other segments of the U.S. economy.

And all will feel the pressure from an expanding industry, as new power infrastructure systems come on line to compete with existing systems for the same pool of labor. The data reported in this survey reflect direct hires for electric and natural gas utilities that will be needed to replace retiring workers. The figures shown represent current estimates of attrition from retirement and other factors. The study does not take into account the increased demand for workers that will emerge from the new electric transmission and distribution lines, natural gas pipelines and power stations scheduled for construction within the next few years. At this point, it is difficult to predict the number of workers that will be needed for new construction efforts until planning is completed by the utilities involved.

Though many workers may choose to delay retirement, the industry cannot afford to wait five years to see what happens. Many companies are already seeing the results of the first wave of retirements by having to hire double and triple the number of workers from the previous year. If aging workers do choose to retire en masse, companies will lose, along with them, a wealth of experience and institutional knowledge that cannot quickly be regained. For example, some positions, such as lineworkers, may require five years of training before workers are fully prepared to do the job.

As the data in this report reveal, new workers must be brought into the pipeline now, giving older, more experienced workers an opportunity to transfer knowledge and training before they move on.