

interest as a chance to try out a technology to see if they would like it and succeed in a particular field. This could have a bearing on what the students choose to do after graduating from high school. The second is to take a serious look at the energy industry. Based on my presentations, I have had almost two-dozen students express interest in entering the field.

Next school year, the energy industry will be a more formal part of what I teach. Around an engineering curriculum, I plan to do focused projects, take field trips, and set up relationships for hands-on internships with a number of companies. Contacting companies and organizations in the industry to establish relationships, primarily for internships, information and guest speakers will be my summer activities. The intent is to put together a portfolio of companies with whom we have excellent relationships and who cover the full range of energy organizations — from electric utilities to oil companies to renewable energy concerns. BP Solar is one such company. It has donated to us a solar panel for the building of a solar-powered vehicle next year.

Our intent is to ensure prospective students are equipped to make educated choices about selecting their careers. For example, if a student wishes to become a technologist with an electric utility, we would look at her educational and background, and then tailor her



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THE UTILITY  
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educational experience to best prepare that student for the career choice. Core courses and electives will be included in the mix. This would include classroom education and the specific internship — both selected on an individual basis. As any school system has more general course requirements that may affect a student's time availability, it may be necessary for a student to take one or more courses outside of school time. This certainly would apply to the internship, which is a valuable summer experience.

As area students are well versed in mathematics and science, their education would focus on the specific technical areas of the energy technology of interest. I also believe that each student should have some exposure to international business and be literate.

A successful transition into the energy industry includes elements such as establishing opportunities for hands-on experience, encouraging student exposure to international business, and creating a high degree of English literacy in our curriculum. Careers in the utility industry have an unlimited future. I encourage other educators not only to expose their students to the energy industry but also to provide them with meaningful education and experience.

*Clark W. Hand is an instructor at Montgomery Blair High School, in Silver Spring, Md.*

## Worker Pool Dries Up

A FLOOD OF PROJECTS AHEAD // BY DON MUNDY



**If you were a young teenager** the first time you heard the phrase “Will the real \_\_\_\_\_ please stand up?” or if you were in high school when Gilligan and the Skipper were shipwrecked, then you are probably part of the problem. The problem is that many of us are approaching that time of life when we are looking forward to more leisure time and less time, if any time at all, being on the clock. You’ve probably read about this Baby Boomer retirement issue a 100 times over the past several years, but maybe you haven’t connected that event with the need to perform an increasing and long overdue amount of work on the power grid.

The grid, by general definition, is all of the wires, poles, meters, substations, switchyards and other equipment that form the nation’s power delivery system. It is also known as “transmission and distribution.” The work on the grid covers the full spectrum of studies, planning, development, design, construction, operation, maintenance and related activities. Basically

that’s about everything necessary for “keeping the lights on” except for power generation. Generation has some of the same issues, but that’s for another article.

While the retirement wave is going to hit virtually all of business, the impact on electric utilities may be most pronounced. For the last 20 years, electric utility employment has been on a near-steady decline with an overall reduction of about 25 percent or more since the industry’s employment peaked in the mid-1980s. This change has been the result of several ever-increasing influences, including mergers and acquisitions, re-engineering, changes in the regulatory picture, increased development of independent generation and other factors. Some of this downsizing was merely a shift of internal headcount to outsourcing, but in many cases it was all about doing the same or more with fewer resources. Some would call that productivity improvement; others might see that as having to work harder with greater stress. In addition to the general reduction, the entrant pool has been shrinking. Many students today are pursuing a future in health care, communications or computer technology and are not becoming linemen, technicians or power engineers. Overall the effect is an increasingly smaller utility worker

pool — internal and outsourced — that is fast approaching a wave of retirement.

At the same time, the grid by most accounts has been undernourished for the past 20 years, and the time has come to reinvest, rebuild and expand. Depending on your review of the data, a majority of the grid, with a design life of 30 to 40 years, is either old or very old. For example, some estimates place 70 percent of our transmission lines at more than 30 years old and about one-quarter at least 50 years old. As to the distribution network, the estimates vary considerably. But consider that the age of the network in general is about the same as the age of the facility being served. That happens to be about 35 to 40 years for the average home in the United States. If the age of the grid is not enough of a driver, we also need to play catch-up from at least two decades of under investment in transmission. These catch-up additions will be needed to serve growing loads, allow for economical power transactions and sustain overall reliability. Some estimates place this need at levels of three times or more of our planned expansion of about 1,000 miles of new transmission line a year.

In essence, we have a smaller workforce with fewer new entrants, which is about to get even smaller with an inevitable wave of retirements, facing a growing workload and trying to catch up with a somewhat-neglected investment pattern in an absolutely vital infrastructure.

#### SO, WHAT DO WE DO ABOUT ALL OF THIS?

*Start now.*

*Do a Web search on the retiring utility grid worker problem and read a few of the several hundred thousand hits.*

*From that material develop a good plan. Retain someone to help if needed, but don't wait for a perfect plan, because we don't have time.*

*Recruit, train, write things down, download, collaborate, mentor and definitely get everyone engaged.*

*Look to your partners, vendors, consultants, organizations, labor groups, schools and others for help.*

*Again, start now.*

And will the real grid worker of tomorrow please stand up? That way we can keep the lights on and avoid a future shipwreck in the dark. ☺

*Don Mundy is senior vice president, Black & Veatch Enterprise Management Solutions Division, in Denver.*

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