

How Can the Oil and Gas Industry Rebuild Our Personnel Infrastructure?

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It is common knowledge that the oil and gas industry has a shortage of personnel. This issue has become obvious over the last several years because the industry is in an "up" cycle, requiring even more people than we have had in the past. Oil and gas usage is expected to increase, resulting in a need for experienced personnel to continue to find oil and gas, develop new technologies for their extraction and continue to maintain the current production levels.

It is estimated the average employee's age in our industry is approximately 50 years old, meaning we will see more than half in the industry retire in the next 10 to 15 years. To make matters worse, the significant layoffs we experienced in the 1980s and 1990s led to a huge gap in the 30- to 40-year-old category. Our industry is not highly thought of by most of the world, making it difficult to recruit those with experience as well as those newly out of college. In evaluating what has caused the current situation, I see the following factors.

Older Workforce

The current age of the workforce continues to be a concern. Not only are half of the employees over 50, but there is a large gap just below these individuals. The American Petroleum Institute (API) published a study entitled "Workforce Challenges Survey Results" dated May 2005, documenting that there were more than 860,000 jobs in oil and gas in 1982, but more than 500,000 of these were terminated between 1982 and 2000. During that period, few individuals were able to gain the industry experience we need now. In addition, this employment slowdown caused other talented individuals to avoid our industry for many years. While this type of employment cycle is not unusual for some industries, such as aerospace, automotive and even the dot-com activities of a few years ago, the oil and gas industry's situation is made worse because it suffers from a perception of being "unfriendly" to the general workforce.



Industry Perception

The general public tends to think of the oil and gas industry in a negative way. We are considered an industry focused on profits to the detriment of our customers, the environment and the world in general. While most of us in the industry would disagree with this perception, we also have to admit we recognize it is of real concern. This negative perception has a direct affect on our ability to recruit new talent, yet there does not appear to be an industry focus on working together to improve the general perception of the oil and gas business.

Passing the Torch

Another question to answer is how to pass down the experience and knowledge of the more senior personnel to those who are less knowledgeable today and those we will hire tomorrow. Because of the age gap in the 30- to 40-year-old range, for another generation there will be approximately 10 years of experience that younger employees need to make up for those we are "missing." A key concern here is that our industry is focused on technology, and we must continually train the current workforce as well as pass down experience from the more senior personnel. This makes training programs imperative. Unfortunately, the workload carried by current personnel, both those at senior and junior levels,

often prevents the training and knowledge sharing we would like to achieve. This vicious circle of not having time to train personnel continues to cause problems because these inexperienced personnel make mistakes or have to "relearn" what is known by their more senior counterparts. This cycle can result in poor efficiencies in the use of personnel and significantly more rework than would be required if we trained on an ongoing basis.

Availability of Engineers

Companies who actively recruit at the university level are often confronted by articles stating the United States is not producing enough engineers while huge numbers are coming out of China and India. Duke University carried out a study, published as "Framing the Engineering Outsourcing Debate" in December 2005, to determine the actual number of graduates who might be available, with a focus on the United States, China and India. They found the often-cited statistical information was skewed because the number of engineering graduates in China and India often included those from programs of less than four years as well as a number of non-engineering categories, such as automotive mechanics and technicians. In evaluating the actual data, Duke determined the correct number of graduates in 2004 with four-year engineering and related degrees was 137,000 in the United States, 350,000 in China and 112,000 in India. However, a recent McKinsey study estimated only 10 percent of the Chinese and 25 percent of the Indian graduate engineers might be candidates for the international oil business for a variety of reasons, suggesting these resources alone won't solve the engineer shortage any time soon.

Musical Employers

In the current hot labor market, companies tend to rob from one company to staff the next. This results in an ongoing game similar to musical chairs. This has several negative impacts. The first is higher labor costs, because in almost every job move, the employee gets a pay increase. The second is the loss of key expertise in any given company. For example, if a company develops deepwater expertise while performing a specific project, and then the project team splits up as employees go to new employers, the company is unlikely to be as knowledgeable or as effective for challenging new projects. In addition, the team's knowledge, while still in the industry, is not available in its undoubtedly more effective combined form for the next project. A third concern is the inefficiency that results when a new employee must take time to understand the work procedures, culture and personnel in his or her new company. This inefficiency occurs

every time an employee relocates. The fourth concern relates to the number of individuals who are moving into contract roles and are not generally available on a long-term basis to any single company, but simply move around the industry as opportunities arise. Many employers consider such workers unlikely to be company focused, or even project focused, instead simply "drawing a paycheck." Their employers will not likely spend time training and improving their skill set because the contract

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employee is not considered a long-term player. A fifth concern is the amount of time and money spent in recruiting by individual companies to steal from other companies in the same industry to replace those who had been stolen from them. This effort is expensive for the employer, adds no value to the industry and only augments the significant amount of work needing to be performed.

Potential Solutions

These issues are significant, demonstrating there are a number of factors having led to the lack of skilled personnel in the oil and gas industry. There are several ways our industry can increase its workforce through recruiting and retaining talented personnel today and in the future, including the following ideas.

Improve the industry's reputation. While some major oil and gas operating companies advertise about their particular attributes, there seems to be very little common effort across the industry to improve its image. With the record profits being made by the oil and gas industry, some of these profits could be used for positive publicity and advertising, improving the industry's image, which would also help recruiting. A better public perception should provide other advantages, too, such as lessening the interest in windfall profits tax and influencing public opinion to allow drilling in areas currently not open, including many offshore locations of the United States. This publicity could promote the industry's technological achievements, accomplishments in minimizing pollution and worldwide initiatives to improve local economies. This promotion could be done through API or another industry group, but it should be focused worldwide and it should support the entire industry, not just one company

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or type of companies. This publicity could include direct advertising or documentaries about specific activities, and it should provide information about how the industry operates, what safety and environmental protection measures are taken, and the risks and enormous expenses required to find, produce and refine oil and gas. It might even be possible to produce one or more full-length motion pictures related to the oil and gas industry with a positive view as to how we operate. Movies have certainly been used to discredit us, including the 2005 movie *Syriana* and Steven Seagal's 1994 film *On Deadly Ground*, which features an evil oil tycoon with no regard for the environment.



Encourage engineering and science as career paths. A study group from the National Academies, appointed by the U.S. Congress, published a report in 2006 called "Rising Above the Gathering Storm." This study, as well as the API study mentioned earlier, made a number of specific recommendations for how to improve the number of individuals entering engineering and science fields of study in the United States. These recommendations, applicable worldwide, include the following:

1. Encourage middle school and high school students to take more math and science courses so they have the background to pursue technical degrees at the university level. As an industry, we can actively promote this by making presentations at middle schools and high schools, mentoring students interested in technical careers and helping young people understand the contributions of the oil and gas business to the world's economy.
2. Encourage students finishing high school and students early in their college careers to major in technical careers. This could be done by meeting with groups on high school and college campuses to explain the value of a technical degree and the broad opportunities it can provide. Most high school students believe engineers sit at a desk all day, and these students are looking for something more exciting as a career path. We can demonstrate that people in our industry work in interesting locations around the world, are often in the field or offshore and are on "treasure hunts" for oil and gas. By helping these students better understand the industry and what it provides, including an average salary better than most occupations, we should be able to attract some of the brightest and best to obtain technical degrees and then to join the industry at the entry level. Other activities that can promote interest in our industry include field trips to visit manufacturing facilities, shipyards and offshore facilities. Students exposed to our industry find it interesting and in many cases choose it as a long-term career. In general, not enough young people are exposed to the industry, and these prospective employees are aware only of the negative perception of our industry.
3. We can also encourage high school and college students by hiring them as summer interns or in co-op programs, where they are exposed to the industry early in their academic activities and would hopefully then want to join the industry upon graduation. As an example, I grew up in the Panhandle of Texas and had an interest in becoming an ocean engineer but knew very little about ocean-

related careers. I became a co-op student, rotating semesters at school and working, and had the opportunity to work first in a manufacturing facility making downhole tools and then spend eight months offshore working as a wire-line helper. This experience left me impressed with the industry and its capabilities, resulting in my interviewing with companies involved in oil and gas.

4. Extend visas to international students in the United States. International students with technical degrees should be allowed to pass a security screening test so they can remain in the United States after graduation to pursue their careers. Those hired by international companies in our industry may end up working not only in the United States, but around the world.

Collectively recruit. While each of our companies needs employees, there are ways we can work together to help recruit and train these new employees so they better understand the industry and can move into positions of responsibility more quickly. As an example, an initiative in the Houston area, the New Entrant Training Program, was started several years ago with INTEC Engineering as one of the program's initial supporters. The group consists of eight operating companies and eight consulting/contract engineering companies with a focus on making sure the oil and gas companies work with the consulting companies to use new engineers on projects so consulting/engineering companies are more motivated to hire young engineers. In addition, this group is looking at ways training can take place across the various companies so these individuals are exposed to a broader spectrum of industry activities. While some of these individuals may leave the initial hiring company, it is hoped they will stay within the industry and will find the company best fitting their skill set and interest. The general goal is to increase the industry's pool of personnel and train them as quickly as possible.

Train. The oil and gas industry has trained new employees for years, but much of this has been on-the-job training. We need to coordinate our training programs and where possible, work together to develop programs that are applicable to multiple employers. This could include working with industry organizations such as API, professional societies such as the Society of Petroleum Engineers and universities with strong industry involvement, such as Texas A&M or Heriot-Watt.

Reduce musical employers. As the number of total employees grows due to recruiting more personnel into the oil and gas industry, employers will have less pressure

to hire from each other. Each company will be able to focus on training and promoting their personnel. This should reduce the inefficiency that occurs when people "job hop" on a regular basis.

Conclusion

In summary, we must face the reality of a shrinking workforce worldwide and take industry-wide action to recruit and train qualified individuals on a fast-track basis. It is clear that the world requires oil and gas in ever-increasing quantities, and the oil and gas industry is expected to meet this need. Consolidated, industry-wide efforts now to recruit and train more personnel are the key to fulfilling our role as the primary energy provider for many decades to come. ■

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With expertise in serving both international operators and suppliers, Mr. Crager has focused his career on leading teams and companies in the evaluation and selection of field-development solutions. His forte includes floating production systems and subsea production initiatives.

Mr. Crager was president of ABB Offshore Systems Inc. from September 2001 through March 2004. At ABB he was responsible for all company activities, including profit and loss, company growth, strategic planning and coordination with other ABB divisions.

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