

# Filling the skills gap

The rush to build cracker complexes in the Gulf Coast area has led companies to take a collaborative approach to finding and encouraging talented and skilled workers

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The US shale boom, strong economic growth and an aging workforce have set the stage for both high demand and a deficit of skilled labour in the US petrochemical industry. In reaction, industry groups have moved to create not only multiple solutions, but an organised formation to address the issue.

“We’re getting involved in partnering so we don’t duplicate each other’s efforts,” senior petrochemical advisor for AFPM Jim Cooper explains. “Everybody is taking a methodical approach to this.”

Over the last few years, industry organisations have called on a variety of methods to bolster the workforce, ranging from launching online resources, to creating stand-alone educational programmes and working with government and academic groups. The economy and the shale boom isn’t staying on ice, however.

“There’s still much of the \$150bn worth of investment in process on the US Gulf Coast alone,” ZRG Partners’ managing director Andy Talkington says. “That certainly drives demand for the welders and other tradesmen.”

The National Association for Business Economics (NABE) is predicting US GDP growth of approximately 2.2% for 2017 after polling 52 analysts in its 2016 year-end outlook survey. Analysts surveyed identified infrastructure investment, US tax code reform and deregulation as factors that President Donald Trump could push to lift economic growth. Under the expectation of such conditions, the demand for skilled labour in multiple industries should only increase.

Cooper notes that for the construction trade, a shortage in general commercial workers could potentially occur in 2017. That’s one industry among several with which the petrochemical industry will have to compete.

“We’re finding pretty similar circumstanc-

es unfortunately,” Cooper says. “But the silver lining here is, if we work together instead of trying to compete for numbers, we can change the mind of the nation.”

## SHORTAGES ACROSS THE BOARD

The shortage of workers is as large as the variety needed. Electricians, pipe fitters, crane operators, millwrights and a host of other blue and white collar workers are needed downstream, mid-stream and upstream.

“It’s across the board,” says Jim Hanna, vice president, craft services and industrial relations at engineering firm Fluor. According to Hanna, the gap between supply and demand of workers widened between 2011 and 2012. “It was, one, driven by industry and the demands of oil/gas shale development,” Hannah explains. “And then two, it was driven by the owners who had their own existing workforces that were nearing retirement. As a result, the demand was tremendous and resources scarce.”

The 2008 recession was also a factor, Cooper adds, noting that although commercial construction decreased during that time, so did vocational instruction. “You saw this huge drop off in apprenticeship training. It couldn’t have been worse.”

**“I haven’t seen the demand [for skilled labour] anywhere as high as it is now”**

**JIM HANNA**

Vice president, craft services and industrial relations, Fluor

At the same time, shale development began to accelerate, especially on the US Gulf Coast. Despite fewer workers in the housing industry, the training drop increased the scarcity of skilled labour. “I’ve been doing this for 35 years with Fluor and I haven’t seen the demand anywhere as high as it is now,” says Hanna. “And I don’t see it changing anytime soon.”

As an alternative to searching for workers



or paying a premium for those available, some refiners have turned to modularisation: constructing refinery equipment off site, then shipping it from as far as one side of a continent to the other.

Fluor’s vice president of project management Denis Menegaz says the firm typically uses its modularisation service, which it started in the 1980s, as an option for areas restricted by environmental factors like weather or remoteness.

The technique is not only useful in extreme environments, but also in areas where labour is expensive, such as in Australia, or lacking, such as in Louisiana. Though modularisation is an effective stop-gap between the training and hiring of new workers, it fails to increase the labour force.

Fluor, like others, began an education programme in response to demand. In 2016 (the programme’s first year) the firm said its US Gulf Coast Craft Training Center graduated 272 students. The tuition-free training ranged from electrical, instrumentation, millwright, pipe-fitting and welding.

Including Fluor’s after-hours training at its job sites for current craft professionals, the company said it trained nearly 2,000 personnel in 2016.



**A student in the classroom at Fluor's US Gulf Coast Craft Training Center**

"It's not going to make them a journeyman in 12 weeks," Hanna notes. "But it gives them the skills to go out with some training under their belt."

**STILL HIRING DESPITE LOW OIL PRICE**

The journey from student to employee in the mid-stream and upstream sectors takes a bit longer, according to Talkington. "I would say a lot of the large companies, and even some of the mid-cap petroleum companies, are still trying to hire students in the low price oil environment," Talkington says. "They know the demographics are now moving talent into retirement."

Despite the retirement pull, Talkington says a surplus of young technical talent could still occur depending on several factors, including work history. Talkington does say that he has recently seen a pick-up in the demand for geology and geophysics talent in shale. Though that pick-up helps demand for recent college graduates entering the industry, companies are still "looking for somebody with a little more experience" he explains.

"That talent gap is still there, created by the lack of interest in oil- and gas-related jobs in the early 1980s and the early 1990s," Talkington

says. "A lot of those graduates went on to other engineering fields, and other industries like food. That's created some gaps not only in the upstream E&P [exploration and production] but also mid-stream and downstream as well."

Regarding the specific gap between baby boomers and millennials, AFPM estimated in 2016 that millennials, aged 19-35, outnumbered baby boomers, aged 52-70, by 75.4m to 74.9m, respectively. Millennials in the total US workforce at that time were estimated to be 53.5m.

In an attempt to reach that younger generation, AFPM began a recruitment challenge programme with EdVenture Partners, with several petrochemical and energy companies acting as mentors. In 2016 the endeavour reached 10 colleges, which lead to 215 students directly participating and more than 2,000 becoming exposed to the industry.

Most of those students fall into the US Bureau of Labor Statistic's category of "prime age workers," which are forecast to be just under 64% of the total US workforce by 2024. But while college-age millennials are career-oriented and prime for work, the industry is also interested in the age group just under them.

"We've got to start at about 8th grade. We

also have to bring back options during high school," Cooper says. "We've got to get these kids squared away with a vocation." By 2024, the Bureau of Labor Statistics forecasts 16-to-24-year-olds will comprise about 34% of the US labour force, coupled with 25-to-34-year-olds. According to most industry groups, getting those young individuals interested is the first step.

CP Chem workforce development and training manager Roy Watson says virtually everyone in the industry works to raise awareness now. Years before CP Chem's programme, Watson says a high school in Houston, Texas, invited him to speak with students who he soon realised had little to no knowledge of the petrochemical industry.

"Kids that were about to graduate – juniors, seniors – they had no idea what they wanted to do," he says. "They didn't know what kind of jobs are right here; high-paying jobs." What was more troubling, Watson explains, was that the high school stood next to a refinery. "At that point I made a conscious decision: We had to do something about this."

At the state level, groups like CP Chem focus on educational programmes, tuition fund-raising and career guidance. But outreach efforts don't stop at age demographics.

The Community College Petrochemical Initiative (CCPI), a partnership between energy/chemical companies and public community colleges in the US Gulf Coast, specifically targets women both in and out of school.



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**ANDY TALKINGTON**  
Managing director, ZRG Partners

The group hosted its second annual one-day Women in Industry conference in February. High school students, women working in the field and women seeking to change their career attend the event, gaining network support and information. The CCPI stated its 2016 event had more than 250 attendees. Its 2017 conference saw 350 women attend, it said.

The CCPI estimates that the shale boom coupled with an aging workforce will require approximately 40% of current petrochemical refinery employees to be replaced over the next decade, and noted that women are a vast untapped resource for the industry. ■