



TECHNICAL
TOOLBOXES

WHITEPAPER

TALENT PIPELINE STRIPPED

AS MIDSTREAM VETERANS RETIRE, COMPANIES NEED TO
CHANGE PRACTICES TO AVOID A BRAIN DRAIN
CATASTROPHE



Summary

Moving oil through pipelines has always been a risky business. A hazardous spill can not only damage the environment but also torpedo a company's reputation and bottom line. So, companies practice emergency response. They draw up plans, they practice crisis scenarios. They implement strict safety protocols. They do whatever they can to mitigate the risk and potential for human error.

Sadly, leaders at midstream operations are struggling to address another huge risk: the knowledge and talent brain drain due to retirement and the need to train younger workers to replace them. In a [survey](#) about midstream industry challenges, senior industry leaders ranked the top issues as 1) "Attracting New Talent" and 2) "Retiring Expertise" ahead of cyber security, aging infrastructure, supply chain, and a host of other thorny topics.

Unlike an explosion, this challenge doesn't appear at one moment. Rather, it emerges over time but with the same power to take down a company that isn't ready to respond.

Challenges for Oil & Gas

Like a mature well nearing the end of its supply, the pipeline of newly minted petroleum engineering graduates is drying up. High starting pay and job opportunities have failed to counter a huge decline in petroleum engineering majors at universities. Too many potential future workers are turning away from petroleum engineering in pursuit of job stability or due to perceptions surrounding climate change.

Clearly, the world has shifted around petroleum engineering. New dynamics make the playbook of 20 or even five years ago useless.

What happened? How did we get here? Here are some of the factors midstream leaders face:

Renewable energy is a competitor. Renewable energy companies now compete for talent with fossil fuel companies, and they are winning. The [2023 Global Energy Talent Index \(GETI\)](#) found 75 percent of energy professionals are considering a career change within three years with a majority seriously eyeing a move to renewables. Job stability is a factor. Workers and executives told [The New York Times](#) they jumped to renewable energy because they were tired of oil's boom and bust cycles and the resulting hiring and layoffs. By 2022, the oil and gas industry had 700,000 fewer workers than six years earlier, the article reported. But over roughly the same time, employment in wind energy had grown 20 percent.

75%

The number of energy professionals considering a job change within three years, with the majority looking at moving into renewable energy, *2023 Global Energy Talent Index (GETI)*

-75%

The drop in the number of undergraduates pursuing petroleum engineering degrees from 2014-2023, according to *The Wall Street Journal*

-700k

The drop in oil and gas workers in the industry from 2016 to 2022 according to *The New York Times*

Less petroleum engineering majors. Despite renewables' advance, oil and gas continue to be the prime energy source and will be for some time. Yet, that fact fails to counter a narrative that fossil fuels are on the way out. Coupled with young people's perception of climate change, many engineering undergraduates are opting for industries they think have better long-term prospects. The Wall Street Journal reported undergraduate petroleum engineering majors declined 75 percent in the past decade. That dire trend is already showing up in the field. U.S. Department of Education statistics reveal the number of petroleum engineering graduates working in the industry declined by more than half between 2016 and 2021, according to the article.

Workers have more leverage. Competition for oil and gas talent is fierce. Salaries have now shot up past pre-pandemic levels. The GETI survey found more than 40 percent of oil and gas workers expect a raise of 5 percent or more within the next year. Nearly one in three oil and gas workers report they were **headhunted more than six times** in the past year, according to the survey. While some individuals will benefit and some well-capitalized companies will thrive in this competitive environment, most operators will struggle to compete for experienced and skilled workers.

The "Great Crew Change" continues. Voices in the oil and gas industry have warned for years of the coming retirement wave widely known as the "Great Crew Change." By some estimates, nearly half of the workforce could be eligible to retire in the next few years. As the last of the large Baby Boomer cohort prepares to retire, they take with them a vast amount of knowledge and hard-earned experience necessary to operate pipelines safely and efficiently. Not having enough experienced petroleum engineers slows projects, costs money, and introduces more risk into the supply chain.

The skill gap is real. Compounded by the lack of younger people entering the industry, companies face a serious skills gap crisis. There simply are not enough newer workers ready to receive the necessary knowledge and training from mentors and older workers who will soon be gone. Companies must acknowledge that younger workers learn differently than previous generations. They are used to asynchronous online platforms that allow them to study and learn when it is convenient for them. They seek answers on their phones and watch short video clips for information. Traditional training practices and knowledge transfer will not achieve desired results.

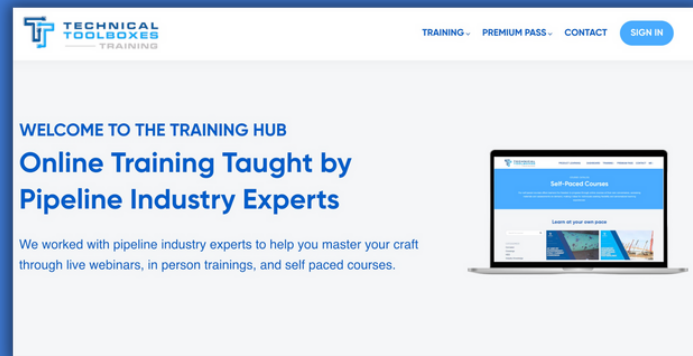
Change is Necessary

Today, midstream executives face the daunting reality that workers will cost more, there will be fewer of them, and they will learn differently. To survive, they must put new emphasis on recruitment and retention. Leaders need to rethink the messaging surrounding the industry and its opportunities to potential workers.

Once companies do hire new oil and gas workers, they must develop and prepare them to take on critical roles in pipeline operations. Today, the skill gap is a growing chasm between veterans and a smaller pool of younger oil and gas workers. Industry veterans have hard-earned wisdom and technical knowledge to share. Younger workers need to acquire that know-how and apply it going forward. However, the way many companies train is akin to putting a veteran and a new hire in the same office and hoping they talk to each other rather than using a rigorous training program to ensure knowledge capture and transfer. Hope is never a plan. A failure to focus on developing training methods to transfer knowledge is highly detrimental to the safety and long-term health of a company and the overall midstream industry. ■

Start the Change with the Training HUB

Help get ahead of the coming midstream talent shortage with the Technical Toolboxes Training HUB, an all-encompassing online learning platform with live and on-demand courses, focused specifically on training the future generation of midstream professionals.



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