

Testimony to House Majority Policy Committee Hearing

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Good morning Chairman Reed, Representative Boback, members of the Majority Policy Committee and honored guests. My name is David Pistner, and I am the Director of Energy Initiatives at Pennsylvania College of Technology.

In the past six years, the production of domestic oil and natural gas has transformed America's energy outlook in ways that continue to evolve. For the first time in decades, domestic natural gas production is on a long-term and sustainable growth path.¹ According to the United States Energy Information Administration, the US ranks second to Russia with technically recoverable shale oil resources and fourth with technically recoverable shale gas resources. Natural gas will soon eclipse coal for power generation, and combined with oil is projected to account for almost 38 percent of U.S. energy production by 2040.²

Jack Gerard, President of the American Petroleum Institute (API) said, "The oil and natural gas industry is projected to create another 500,000 jobs over the next seven years and we're going to need a trained and skilled workforce in order to continue to produce and to refine and transport the oil and natural gas we use right here in the United States." Similarly, some in the industry have used the figure of 256,000 new gas jobs in Pennsylvania by 2020.³ Though there remains debate as to just how many jobs will be created, there is consensus that the vast oil and natural gas reserves trapped in these shale formations will profoundly affect our domestic economies in the areas of energy, power generation, manufacturing, pharmaceuticals, and plastics.

Looking at the March 2014 Edition of Marcellus Shale Fast Facts published by the Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis, the six workforce investment areas (consisting of 28 counties) that experienced most of the production activity saw an increase in core employment of 184.2 percent (6,138 to 17,442 positions) from 2009 Q3 to 2013 Q3. These jobs pay an average annual wage of \$89,818 vs. \$49,010 across all industries.

The oil and natural gas industry faces many workforce challenges as it seeks to meet energy demands projected to grow 50-60 percent by 2030. In the 2007 publication, *Identifying and Addressing Workforce Challenges in America's Energy*, representatives from the industry expressed to the US

¹ IHS Global Insight. *The Economic and Employment Contributions of Shale Gas*.

² EIA. (2014). *Annual Energy Outlook*. Energy Production Section.

³ DUG East Conference. (November 2011). *EQT Presentation*.

Department of Labor (US DOL) the need for portable credentials that align with career paths so that job candidates consider energy occupations as a viable career choice with long-term potential.

Industry surveys suggest a growing need for new workers with more sophisticated skills than their predecessors. Several strategies to address these challenges are outlined in the Alaska Gasline Inducement Act -Training Strategic Plan (2009) and Center for Energy Workforce Development (2011) publications. These include:

- increasing awareness of and access to career opportunities
- creating industry-recognized credentials that allow students to demonstrate skill attainment levels
- developing a comprehensive, integrated career and technical-education system that aligns training institutions and coordinates program delivery
- increasing opportunities for development of appropriate training programs for operations, technical and management workers⁴

In its recommended solutions for the education and workforce development system, energy forum attendees (including executives from the oil and natural gas industry, electric and natural gas utilities, nuclear energy, and mining) proposed that:

- partnerships with community colleges, vocational-technical institutions and four-year universities must be strengthened to prepare students to enter the industry's recruitment pipeline
- collaboration with the workforce investment system, specifically One Stops, would enable employers to inform more people about energy career opportunities as well as leverage the workforce system's ability to screen potential candidates.⁵

So what is being done to establish a skills pipeline connecting the workforce of today and tomorrow with these occupations? In this testimony, I will outline activities underway in three initiatives that Pennsylvania College of Technology is involved with: ShaleTEC, ShaleNET and the National Science Foundation.

The Shale Training & Education Center (ShaleTEC) was formed in 2008 as the workforce development resource for the oil and natural gas industry via a partnership between Penn College and Penn State Extension. Formerly known as the Marcellus Shale Education and Training Center (MSETC), its groundbreaking initiatives were published workforce assessments and economic impacts of the

⁴ State of Alaska. (January 2008). Pgs. 5 & 6. and Center for Energy Workforce Development. (2011). Pg. 4.

⁵ US DOL. (March 2007). Pg. 13.

Marcellus Shale for northcentral and southwest Pennsylvania, a Pennsylvania statewide workforce assessment, and a job creation assessment for West Virginia. From these assessments came an economic impact model showing that for every well drilled, 410 individuals working in 150 different occupations are needed. For every 100 wells drilled, 17 long-term, full time permanent jobs can be anticipated. This model has been cited numerous times by industry and other groups looking to measure economic and workforce impact of the production phase of natural gas and oil extraction.

Since its formation, ShaleTEC has trained over 10,000 workers in the natural gas and oil industry and its supply chain. The skill sets taught range from basic to more technically advanced courses including safety, handling hazardous materials, pipe welding, CDL, and instrumentation for gas measurement. Courses are offered after consultation with industry on content, competencies, and need. Flexibility with these courses is critical given the dynamic evolution of this industry as it shifts from production to distribution to utilization, incorporates advances in technology and/or adjusts to regulatory changes.

Complementing its training for incumbent workers, ShaleTEC also conducts emergency responder training for oilfield incidents. These courses are held at Penn College's Energy Technology Education Center (ETEC) which is located a few miles south of Williamsport. ETEC is a 5-acre, \$1.3 million training site that includes multiple instructional props specific to the oil and gas industry. The keystone piece of equipment at ETEC is a fully-functional drilling rig trainer. With this apparatus, individuals receive proper training on hand placement and safe operation. The rig sits atop a 100 foot' cased and cemented well bore and provides crews of trainees with the opportunity to operate a hydraulic hoist system, connect and spin up to five stands of drill pipe using tongs, bails and an elevator. This makes for a very comprehensive educational experience for the student and assists them in becoming a qualified prospect for potential employers.

Many of these props have been donated by industry; some are plumbed for "live-fire" and used to train emergency personnel when responding to an oilfield incident. ShaleTEC is an Educational Training Agent (ETA) for the Pennsylvania State Fire Academy and, as such, is able to conduct Fire Academy courses.

ShaleTEC is the recipient of \$35,000 in Act 13 funds from Lycoming County. The Lycoming County Commissioners decided to invest in their emergency response personnel by offering scholarships for training that is related to oil and gas emergencies. These funds are used to cover training costs not eligible for reimbursement by the Pennsylvania State Fire Academy or other funding sources.

For individuals with little to no oilfield experience interested in oilfield careers, ShaleNET provides the opportunity for their exploration of interest and relevant training, some of which is Web-based. With an original grant of \$4.9 million from the U.S. Department of Labor (US DOL), Penn College, Westmoreland County Community College (PA) and 18 other training providers across Ohio, Pennsylvania, West Virginia and New York have trained candidates for several entry-level, high-priority occupations including roustabout, floorhand, completion technician, CDL and welder's helper. This three-week, non-credit training program exposed students to expectations of the industry in terms of job readiness skills, safety, and technical awareness. The curriculum was designed by industry, written by industry, and was taught by instructors with industry experience. Candidates underwent a drug test, criminal and driver's-license checks and a physical capability assessment prior to enrollment.

The results for the initiative are stellar. Over 14,000 individuals explored the website; 1,177 completed practical training and 3,421 obtained jobs. The placement rate was 79 percent and retention, three-quarters after placement, was 82 percent. The attention ShaleNET has garnered on a national, state, and local level is due in large part to the strong partnership that exists between industry, education and the public workforce system.

Building upon this success, ShaleNET was awarded a second US DOL grant for \$14.96 million which couples the non-credit program mentioned above with college credit programming. Penn College (fiscal agent) and Westmoreland County Community College are joined by Stark State College (OH) and Navarro College (TX). With this grant, individuals are shown a career path using the stackable credential model where, for example, a roustabout could enroll into a one-year college, credit-bearing certificate and then continue his/her education through an associated degree in petroleum technology, mechatronics or industrial maintenance. Credit is given for prior learning assessment, and articulation agreements exist among the partner schools.

Through this grant, Penn College turned an existing classroom into a well-site trainer lab. This lab contains an actual wellhead, separator tank, meter runs, and storage tanks. All of this equipment has application to the entry-level roustabout through a senior-year petroleum engineer. Students receive hands-on training using actual oilfield equipment. A second lab was refurbished under this grant to train students on mechatronics, a program that teaches students in the areas of mechanical, electrical, and automation skills. When inventorying the greatest needs of employers, skills in these areas quickly came to the forefront. To date, we are exceeding our performance measures. This grant runs through September 30, 2015.

Testimony to the success of this training is the recent allocation of \$50,000 in Act 13 funds by the Lycoming County Commissioners for scholarships to train County residents in the ShaleNET, non-credit program. In less than one year, 39 residents have completed the program and 95 percent have secured employment at self-reported hourly wages ranging from \$13.50 - \$21.75. Of particular significance is that 23 of these 39 individuals were unemployed prior to training, and five are veterans. The County Commissioners have requested that Penn College submit a second application for an additional \$50,000. To the best of my knowledge, Lycoming is the only county in Pennsylvania using Act 13 funds to invest in the training of its residents.

The oil and natural gas industry can offer the right candidate life-long employment at family-sustaining wages. The skill sets in demand are wide-ranging, and candidates that have a strong background in science, technology, engineering, and math (STEM) are set to exceed. This is true not only today, but into the foreseeable future. To communicate this opportunity and the skills needed for success, staff from ShaleTEC, ShaleNET, Penn College's K-12 Department and Admissions frequently participate in outreach sessions with middle and high school students. During these sessions, students learn the importance of STEM education, class attendance, staying in school, saying "No" to drugs and alcohol, and avoiding behavior that may result in a criminal record as emphasized by staff. These are all recommendations that, regardless of vocation, will follow that student throughout their career path – whether that path takes them into post-secondary education or the job market. If the latter, these are records an employer will use to determine if that student is a viable candidate for a job.

Penn College has worked with school districts and career and technical centers in Pennsylvania to deliver college classes in their local high schools in technical areas that are in demand in the natural gas industry. This dual enrollment program (called Penn College NOW) allows students to get a head start on learning core knowledge included in associate and bachelor degree majors in natural gas-related fields. Included in these offerings are 16 college courses in electronics, computer-aided drafting, welding, computer networking, construction management, plastics and diesel. Over 790 students have taken these courses at the high school or career and technology center between 2012 – 2013.

Beginning in 2014-15, dual enrollment classes taught at high schools will have their tuition cost reduced to zero. With this reduction, it is anticipated that enrollment in these courses will grow substantially, offering equitable access to college courses for current high school students regardless of their financial situation. Penn College NOW is accredited by the National Alliance of Concurrent Enrollment Partnerships, which ensures that rigorous standards are followed in program design, delivery and assessment.

Subscribing to the model that “seeing is believing,” secondary education students are invited on campus to learn more about technology-based careers. Students are provided with tours of the Mechatronics and Well Site Trainer Labs, ETEC, and other labs that teach disciplines related to the oil and natural gas industry. To reinforce the strength of this development pipeline, ShaleNET staff serve on the mechatronics advisory board at the local school district and have participated in high school career nights.

Now is an exciting time to be involved with the energy industry. Most rewarding is the role Penn College plays to help people improve their lives. From those that are unemployed and wondering where their next mortgage or rent payment will come from, to single moms working two or three part-time jobs with no benefits and children to care for, to veterans wanting to know the next steps as they transition from active duty to civilian life, to those seeking training as a way to advance in their careers, the recent development of this industry and what it means to the wellbeing of these families is undeniable. By the efforts underway at Penn College and with our partners, we are contributing to the economic vitality of Pennsylvania, the Appalachian Basin, and the nation.