



Report on the Feasibility and Desirability of the North Carolina Community College System Developing a Program to Prepare Students with a General Education Foundation and Technical Competencies for Employment Opportunities in the Oil and Natural Gas Drilling, Gathering, and Field Operations Industry

Submitted by the State Board of Community Colleges to the:

Joint Legislative Energy Policy Commission
and
Joint Legislative Education Oversight Committee

As Required by
Part VII. Section 24 of Senate Bill 786

In response to Senate Bill 786, Part VII (Studies), Section 24.(a) (S.L. 2014-4), the State Board of Community Colleges is directed to report to the Joint Legislative Energy Policy Commission and the Joint Legislative Education Oversight Committee progress that the North Carolina Community College System has made on studying the feasibility and desirability of developing a program to prepare students with a general education foundation and technical competencies for employment opportunities in the oil and natural gas drilling, gathering, and field operations industry, giving particular consideration to developing such a program at one or more of the community colleges located where the potential for shale gas resources is highest. The legislation also directs that research of potential programs shall include evaluation of similar education programs in community college systems in other states.

At its September 2014 meeting, the State Board of Community Colleges approved \$10,000.00 of State Board reserve funds for a feasibility and desirability study. Central Carolina Community College (Central Carolina), located in a region where the potential for shale gas resource is high, (Triassic Basin), agreed to lead the study to include evaluation of similar education programs in community college systems in other states.

Overview.

Based on interaction with peers across the country already providing training to this industry, Central Carolina anticipates that there may be local opportunities for positions as roustabouts, floor hands, production technicians, field technicians, CDL drivers, welder's helpers, heavy equipment operators, safety and inspection, and power generation maintenance. Some of the skills needed for these positions are found in existing programs; however, the college would need to make a significant investment in equipment, instructors, and physical space in order to properly meet the workforce needs of this industry.

Central Carolina identified more than a dozen unique job titles, based on industry needs that align with existing and additional training programs that will be needed throughout North Carolina's Triassic Basin, where it is anticipated that this industry will be the strongest. This report provides a summary of efforts to date, and outlines anticipated next steps that will well position North Carolina Community Colleges to be prepared to train workers for the Energy Industry.

Research Conducted

Central Carolina staff:

- Developed a draft **Natural Gas and Petroleum Technology** Associate of Applied Science degree, from which a diploma and certificates can be developed to meet the needs of the Energy Industry.
- Conducted a site visit at the **School of Energy in San Juan College, New Mexico**, a potential partner for curriculum content, consultation regarding set up of classrooms for industry training, and leverage of industry relationships for potential donations of equipment in North Carolina.
- Participated in the **ShaleNET conference in Pennsylvania at West Moreland Community College**, gained insights about industry needs, and workforce training available through private organizations.
- Engaged in the **Power Generation** conference in Savannah, Georgia, resulting in expansion of focus areas for training for Energy Industry.
- Interviewed chair (former) of the **NC Mining and Energy Commission** regarding timeline for rules approval and beginning of workforce needs in North Carolina.
- Identified key needs.
- Reviewed the curricula from the following institutions:
 - Lackawanna College: <http://www.lackawanna.edu/academics/school-of-petroleum-and-natural-gas/>
 - San Juan College: <http://www.sanjuancollege.edu/pages/4957.asp>
 - Houston Community College: <http://www.hccs.edu/district/departments/hcc-global-oil-and-gas-drilling-training-center/>

Anticipated Workforce Needs

Based on current understanding, the local opportunity for the workforce exists after the initial drilling is complete. Once the wells are drilled, North Carolina Community College trained students would be involved in addition to being employed for on-going maintenance.

Programs Anticipated

- Safety and OSHA
- Power Generation
- Commercial Driver's License (CDL)
- Well Production, Maintenance, and Inspection
- Pipe Welding
- Power Generation Maintenance
- Emergency Responder Training

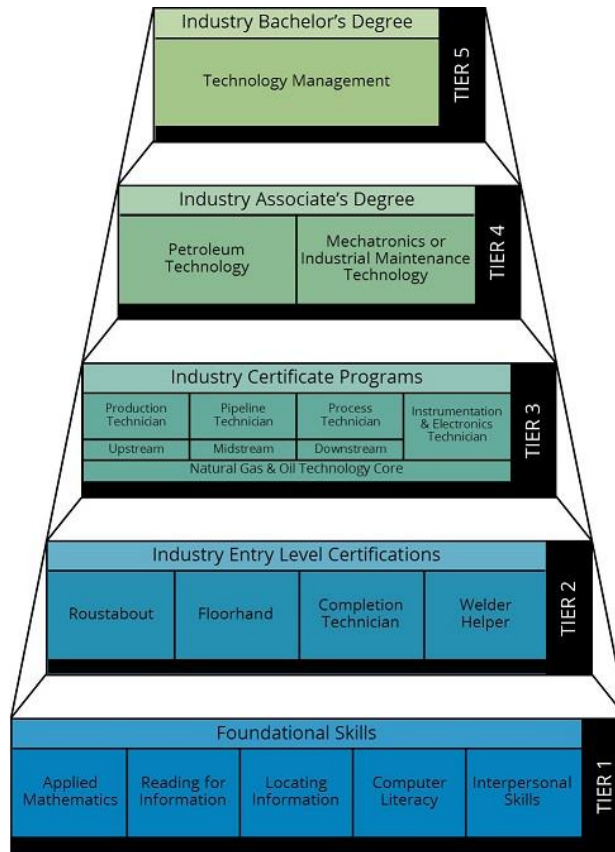
Critical Needs

- Industry engagement and support
- Industry requirements for initial and ongoing training/professional development
- Financial support from industry for purchase of training equipment
- Financial support from industry trainers

| | | Educational Requirements. | Pay Rate |
|--|---|--|----------------------------|
| Entry Level Positions | Completion Technician | Short Term | \$10.00 – \$11.00 per hour |
| | Floorhand | Short Term | \$10.00 – \$11.00 per hour |
| | Roustabout | Short Term | \$10.00 – \$11.00 per hour |
| | Welder | Short Term | \$16.50 – \$19.50 per hour |
| | Welder helper | Short Term | \$11.00 – \$14.00 per hour |
| | Plumbers, pipefitters, and steamfitters | Short Term | \$11.00 – \$14.00 per hour |
| | Professional | Electronics/ Instrumentation Engineering Technicians | Long Term Diploma/AAS |
| Occupational Health and Safety Technicians | | Long Term AAS | \$12.50 – \$15.50 per hour |
| Industrial Machinery Mechanics | | Long Term Diploma | \$14.50 - \$17.50 per hour |

Note: Short term indicates that the training can be completed with full time or less education in less than one semester, or sixteen weeks. This may include the attainment of an industry credential that includes affirmation of skills through knowledge and/or skill tests in order to earn the credential. Long term indicates that an Associate degree or diploma is required. Pay rates are based on federal wage rates for entry level workers. Pay rises with corresponding experience.

This information corresponds to the work of ShaleNET and West Moreland Community College in terms of the overall workforce development needs for this industry.



<http://www.shalenet.org/about>

Building a Broader Awareness of Workforce Training Needs

As the lead college, Central Carolina Community College will host a Spring one day drive in conference open first to community colleges within the Triassic Basin, and then to other interested colleges. The conference will seek to educate those colleges about the workforce implications for the industry and how colleges will partner to efficiently and effectively deliver such training when and where it is needed.

Next Steps

1. Have an all-day workforce educational forum for affected Triassic Basin Institutions.
2. Submission of Associate of Applied Science Degree in Natural Gas and Petroleum Technology to the State Board of Community Colleges.
3. Formalize partnership agreement to offer CDL training, ultimately moving to be able to provide this under college accreditation.
4. Formalize Memorandum of Understanding with San Juan College for curricula and faculty.
5. Meet with industry leaders about the establishment of training standards and support.

6. Establish training schedule for critical needs and assist in identification of workforce based on industry timeline.
7. Meet with industry partners with who have received permission to drill within North Carolina.
8. Explore the potential for apprenticeship opportunities within the Energy Industry.

Triassic Basin institutions include the following:

- Central Carolina Community College - Lead Institution (Lee, Chatham and Harnett counties)
- Sandhills Community College (Moore and Hoke counties)
- South Piedmont Community College (Union county)
- Richmond Community College (Richmond and Scotland counties)
- Stanly Community College (Stanly county)
- Rockingham Community College (Rockingham county)
- Forsyth Community College (Forsyth county)

Selected Resources and References

American Petroleum Institute

Information for both the general public and professionals, as well as news releases for the media. <http://www.api.org/>

North Carolina Mining and Energy Commission

The Clean Energy and Economic Security Act of 2012 reconstituted the state's Mining Commission as the N.C. Mining and Energy Commission. <http://portal.ncdenr.org/web/mining-and-energy-commission/home>

Office of Fossil Energy / Department of Energy

Included in this site is information on Oil & Gas Research and Development, Gas Regulation, and Oil Reserves. <http://www.fe.doe.gov>

Oil & Gas Journal Online

<http://ogi.pennnet.com/home.cfm>

Oil & Gas News Online

<http://www.oilandgasnewsworldwide.com/pages/>

Petroleum Primer -- Drilling the Well

This comes from a larger document published by the Kansas Geological Survey and includes excellent diagrams of rigs, well heads, casings, etc.

<http://www.kgs.ku.edu/Publications/Oil/index.html>

SafeLand USA

A volunteer organization comprised of major and independent operating companies, industry associations, and educators with the purpose of developing a standardized orientation which sets minimum requirements for the US Onshore E&P Industry. <http://www.safelandusa.org/>

ShaleNET

Leverages the collective experience of industry, the public workforce system, and our consortium colleges to help individuals build lasting careers in the oil and natural gas industry.

ShaleNET career guide <http://careerguide.shalenet.org/#/>

The University of Texas Center for Petroleum & Geosystems Engineering

Links to latest research from UT. <http://www.cpge.utexas.edu/>

USGS - National Oil & Natural Gas Assessment

Includes assessment and geologic reports for various areas of the US. Includes excellent interactive maps. <http://energy.cr.usgs.gov/oilgas/noga/>