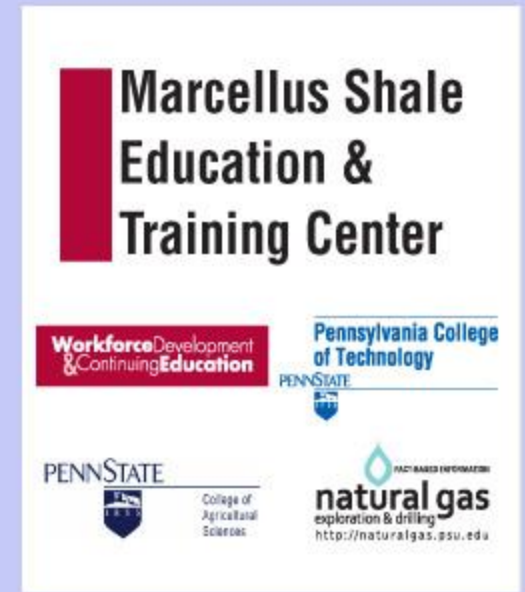


Marcellus Shale

Penn College Professional Development Series

February 10, 2011

Marcellus Shale Education and Training Center

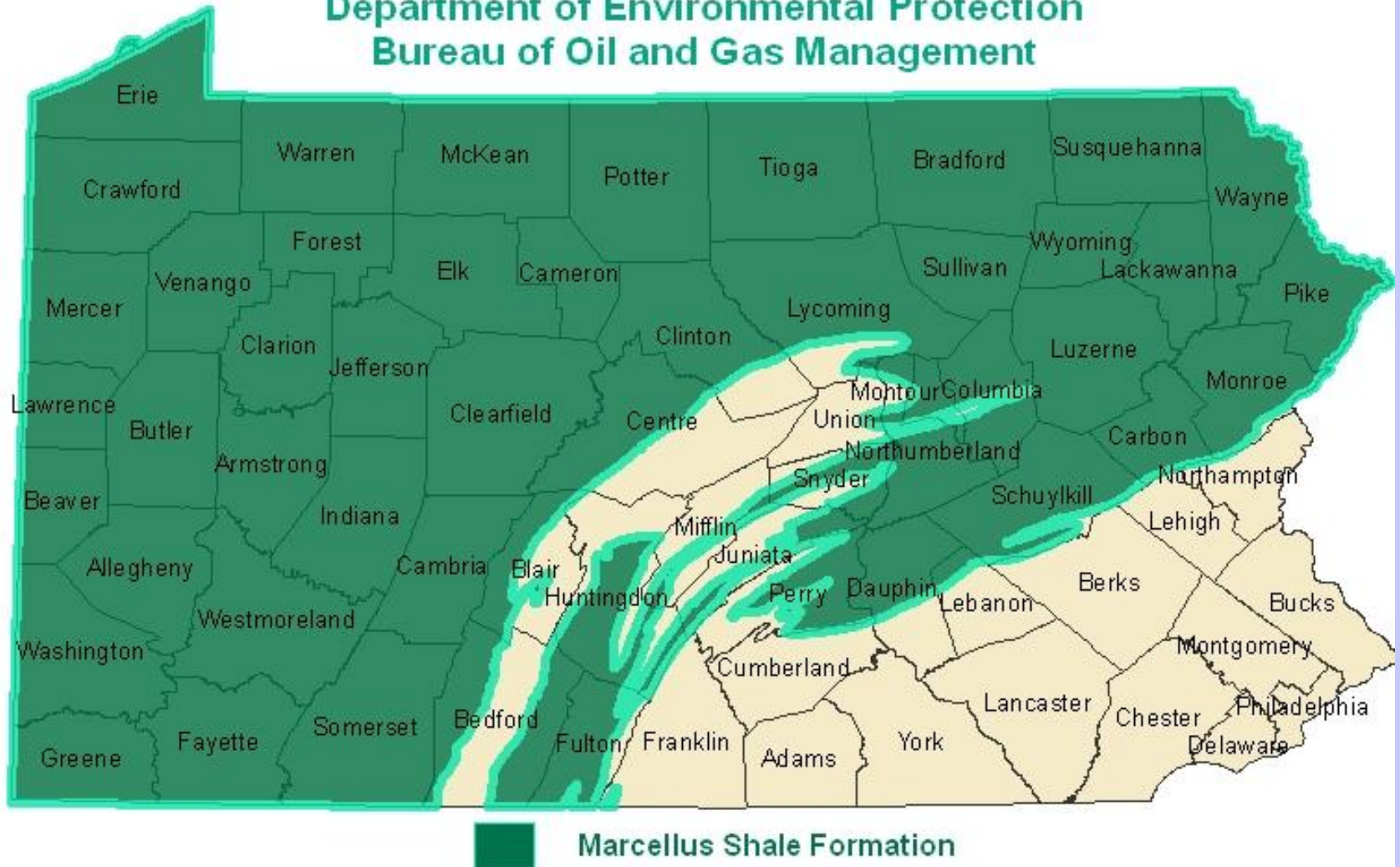


Presentation Outline

- History of MSETC
- Employment Projections
- Penn College Programs



Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Oil and Gas Management



World's 10 Largest Natural Gas Fields (1)

	Field Name	Country	Recoverable Reserves, Tcf
1	South Pars/North Dome	Iran and Qatar	1,235
	MARCELLUS	UNITED STATES OF AMERICA	489 (2)
2	Urengoy	Russia	222
3	Yamburg	Russia	138
4	Hassi R'Mel	Algeria	123
5	Shtokman	Russia	110
6	South Iolotan-Osman	Turkmenistan	98
7	Zapolyarnoye	Russia	95
8	Hugoton	Unites States of America	81
9	Groningen	Netherlands	73
10	Bovanenko	Russia	70

(1) Rafael Sandres, Global Natural Gas Reserves – A Heuristic Viewpoint, March 2006

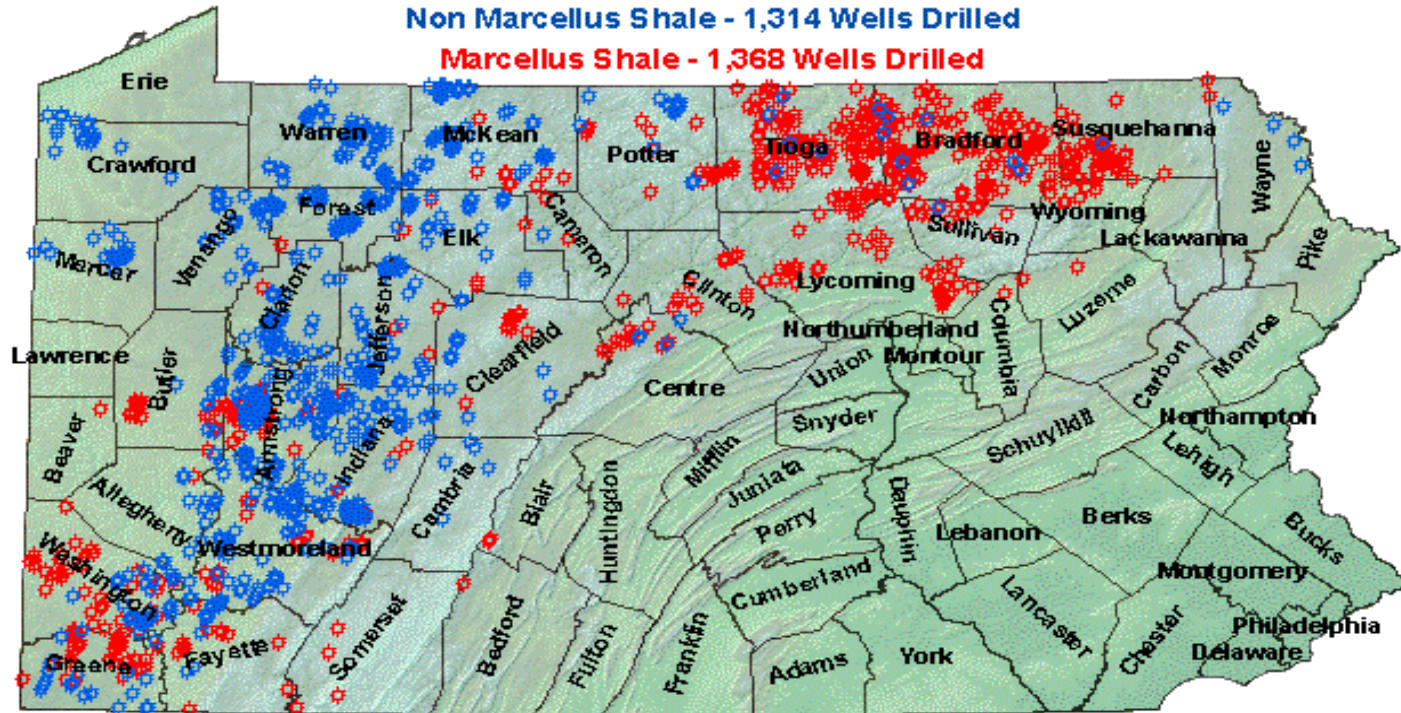
(2) Dr. Terry Engelder, Penn State University – from August 2009 issue of Fort Worth Basin Oil & Gas Magazine

Department of Environmental Protection Bureau of Oil and Gas Management Wells Drilled

2010 January-November Wells Drilled - 2,682

Non Marcellus Shale - 1,314 Wells Drilled

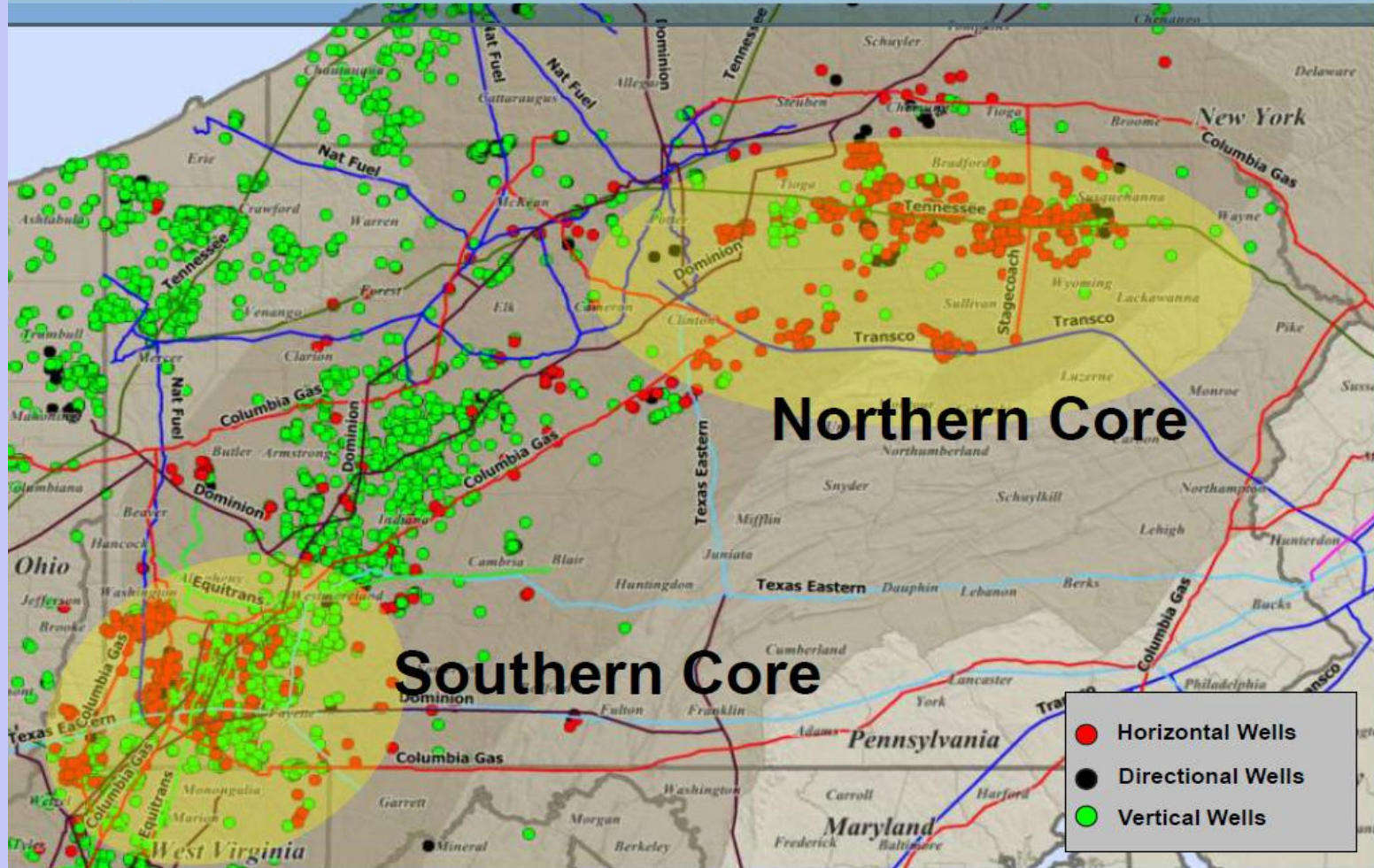
Marcellus Shale - 1,368 Wells Drilled



As Reported by Operators

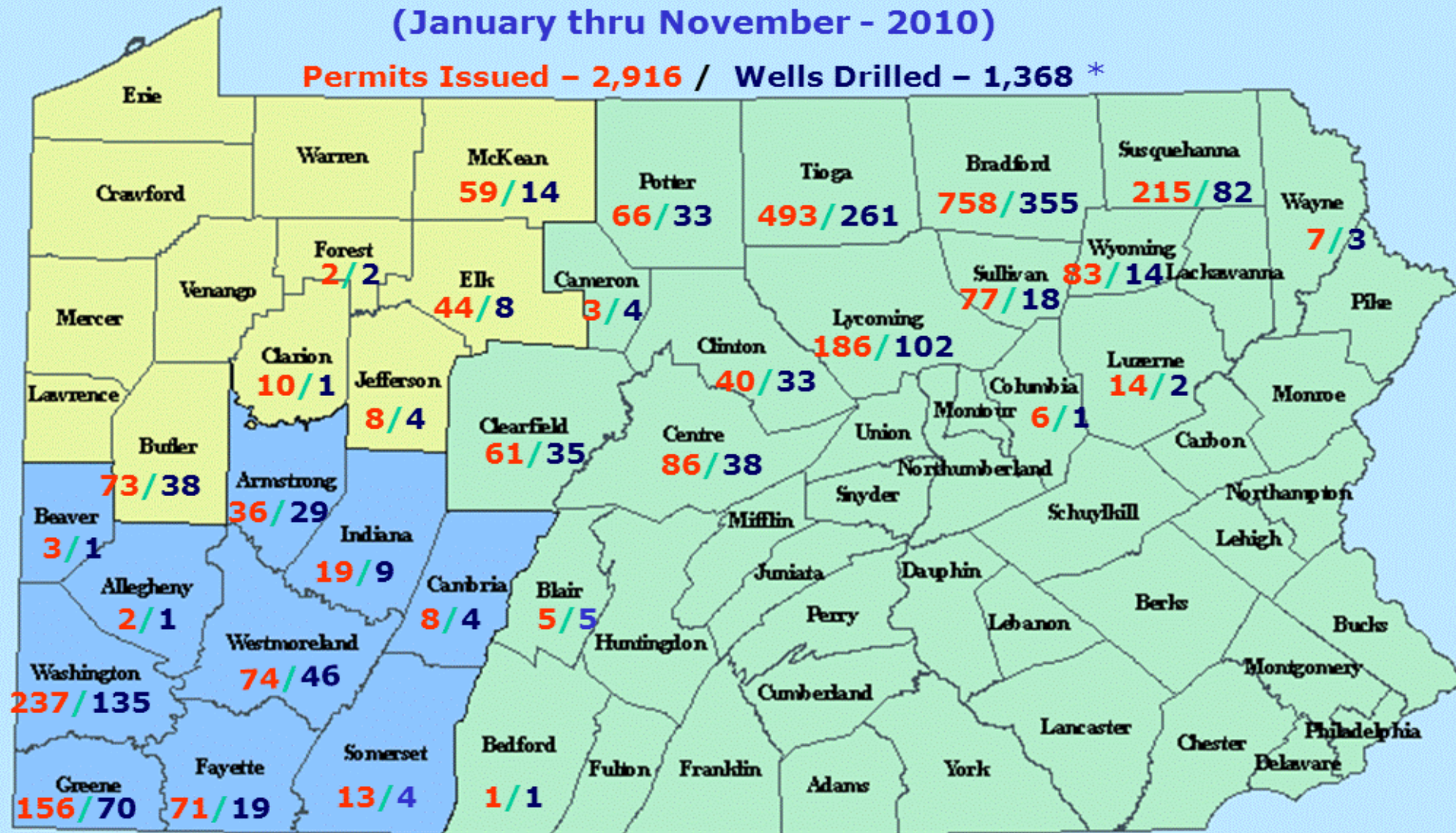
Updated 12/08/2010

Marcellus Shale Region Wells Drilled 2008 – 2010YTD



Department of Environmental Protection
 Bureau of Oil and Gas Management
 Marcellus Shale Permits Issued & Wells Drilled
 (January thru November - 2010)

Permits Issued - 2,916 / Wells Drilled - 1,368 *



Updated 12/08/2010

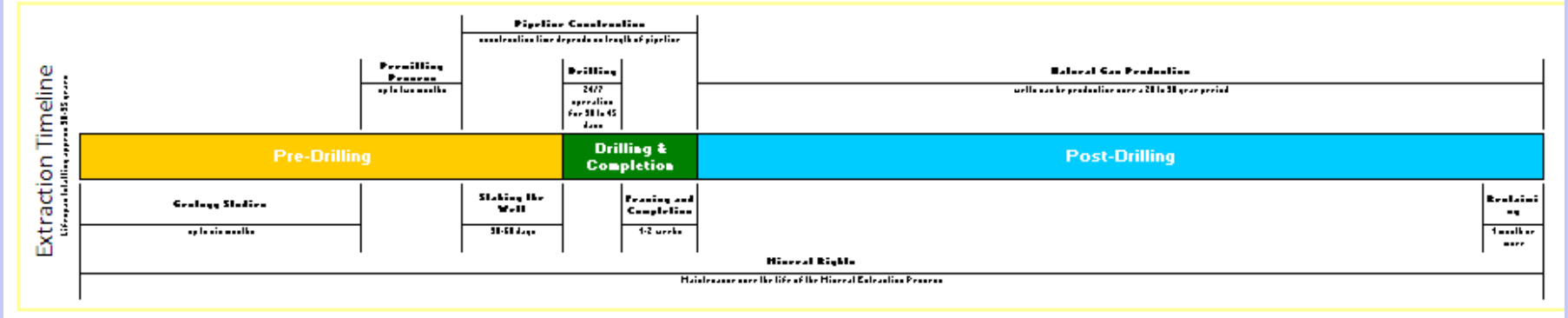
* As reported by Operators

Where is all started for PCT

- Marcellus Shale Education and Training Center (MSETC) formed in November 2008
- Collaboration between:
 - Pennsylvania College of Technology - WDCE
 - Penn State Cooperative Extension
- First initiative – Workforce Assessment

Where It All Started

Natural Gas Extraction Education / Job Matrix

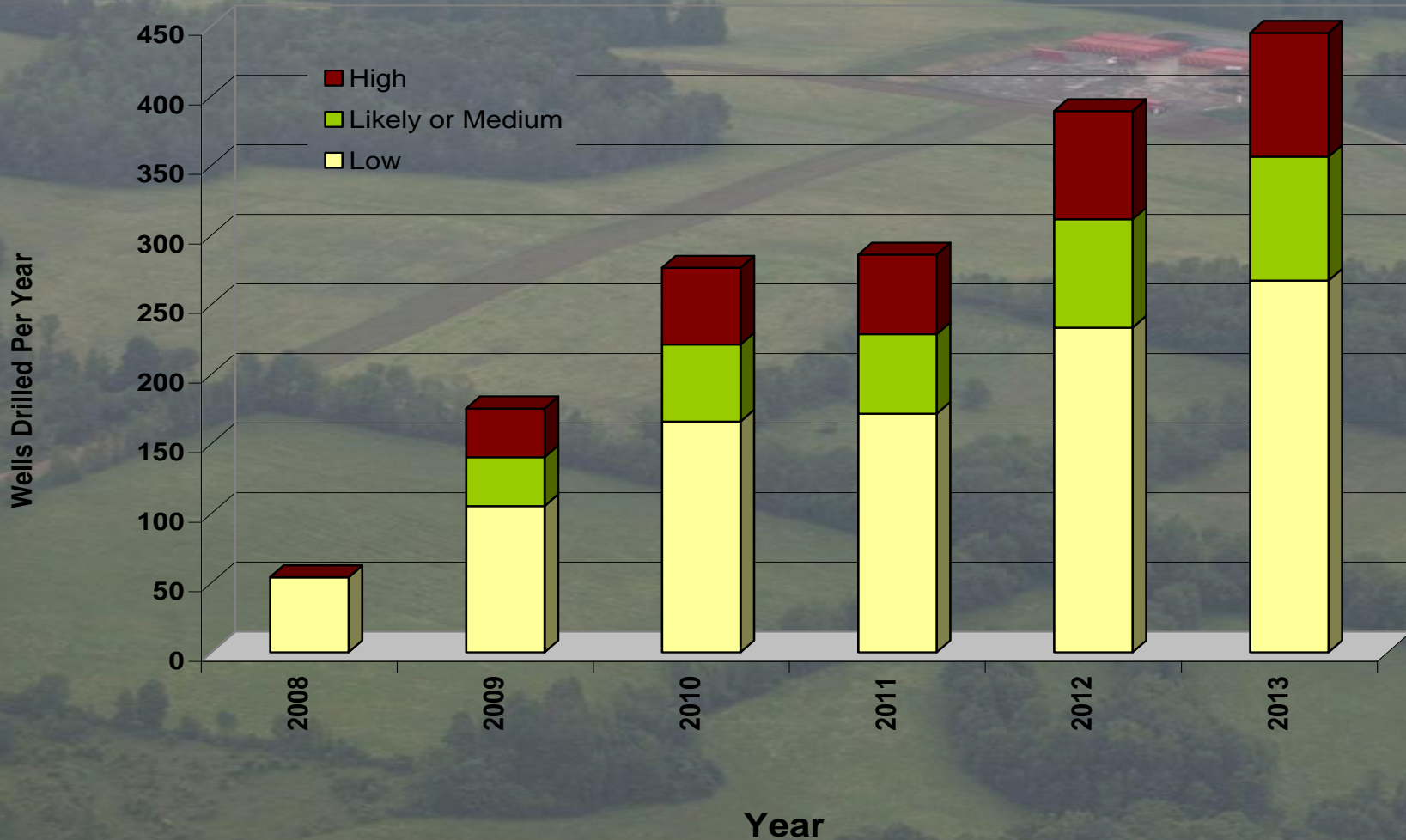


Drilling Down (The Matrix)

Pre-Drilling	Associated Jobs	Secondary/ Career and Technical Centers	Work Experience/ Certification	Post Secondary/ Higher Education
Geological Studies	Geologists			✖
	Petroleum Engineers			✖
	Computer tech			✖
	Project Management		✖	✖
	CDL Drivers		✖	
	Seismic		✖	✖
	Hydro Geologist			✖
	Helicopter Pilot/Crew	✖	✖	
	Cartographer			✖
	GIS Technicians		✖	✖
	Archeology			✖
	Petroleum Chemists			✖
	Water Management			✖
	Biologist			✖
	Geophysicists			✖
Mineral Rights	Landmen-for drilling/leasing		✖	
	Lawyers			✖
	Legal Professionals			✖
	Para-legal	✖	✖	✖
	Title-Abstract	✖	✖	✖
	Operational Landmen for pipelines		✖	
	Title Attorney			✖
Permitting Process	Environmental Engineers			✖
	Environmental Technicians		✖	✖
	Office operation	✖		✖
	Water Sampling	✖		
	Civil Engineers			✖
	Local Government		✖	
	Instrument Chief			✖
Roadman		✖		
Supervisor		✖	✖	

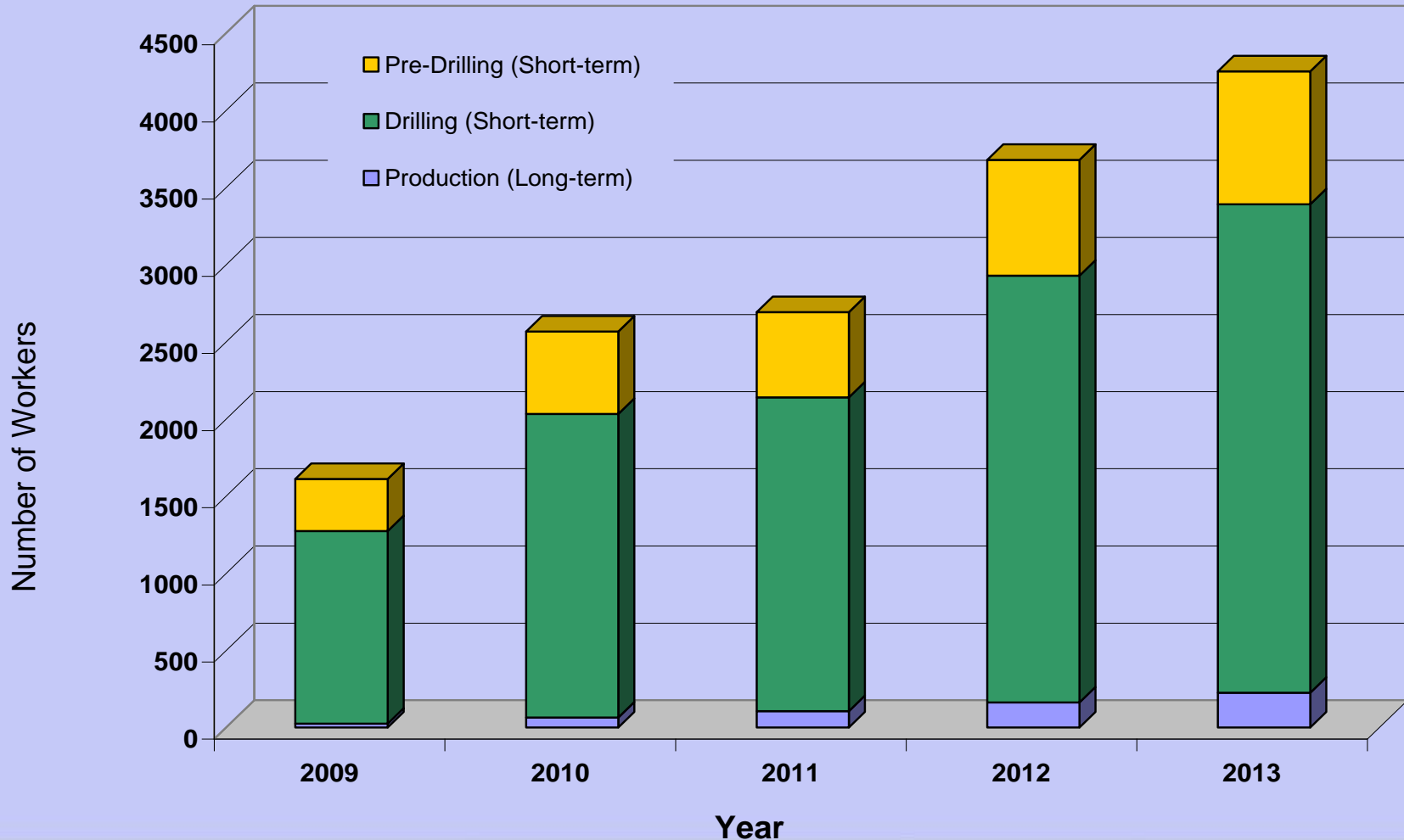
What Does This Mean in Terms of Wells?

Projected Northern Tier WIB Scenarios - Wells Drilled Per Year

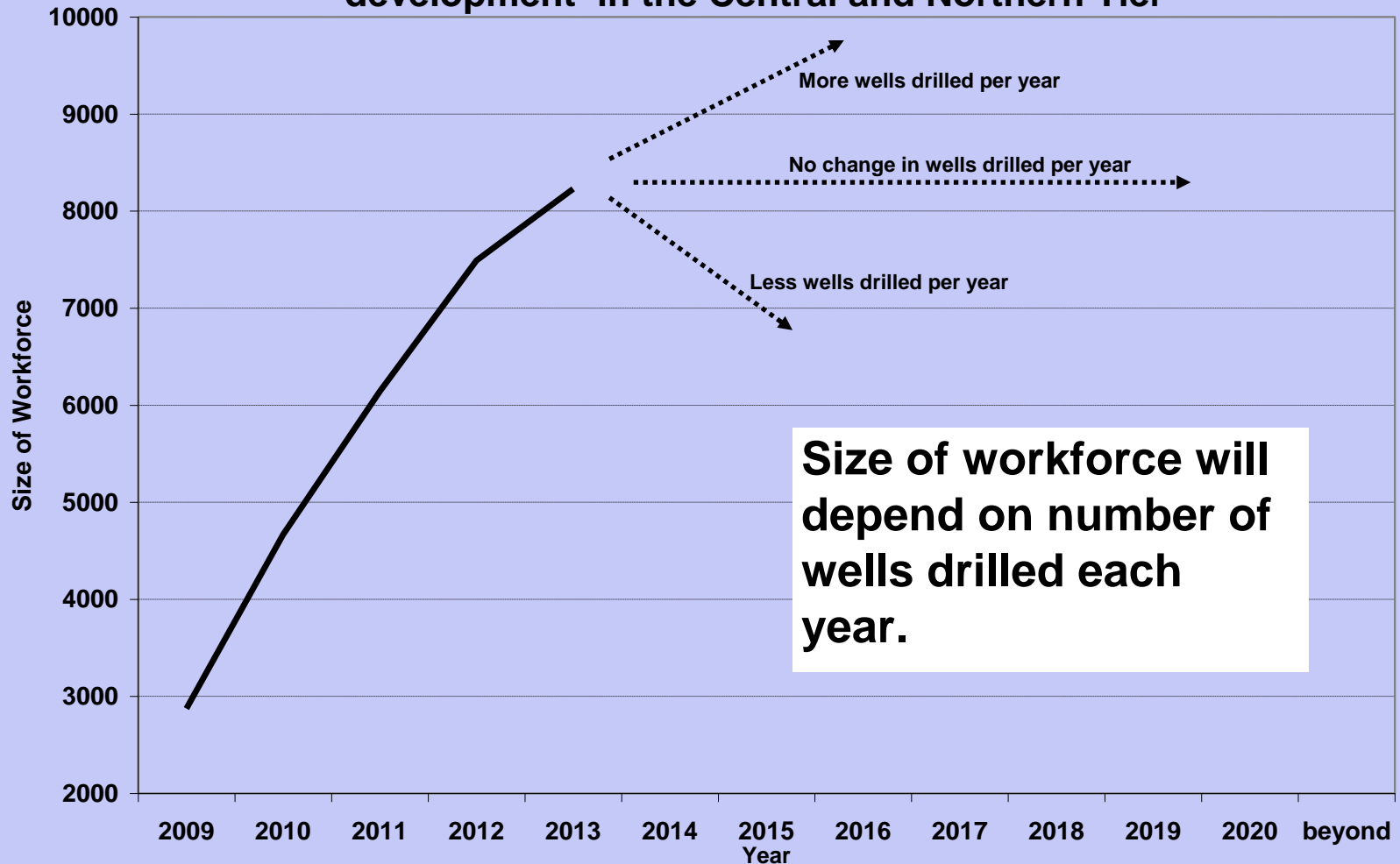


What Does This Mean in Terms of Jobs?

"Likely" Scenario Northern Tier WIB Region Marcellus Shale Workforce Requirements By Phase



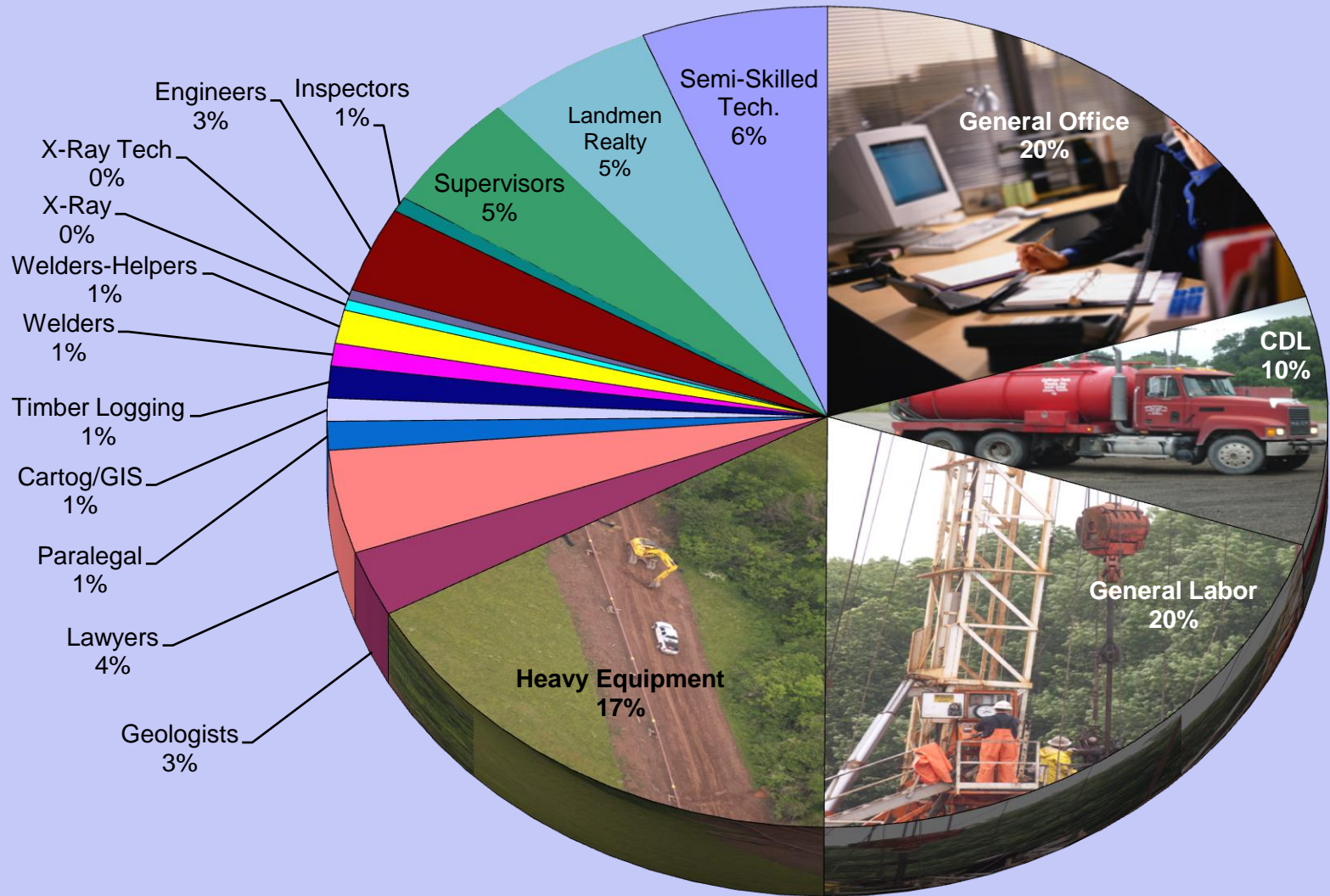
Direct Workforce Requirements of Marcellus Shale development in the Central and Northern Tier



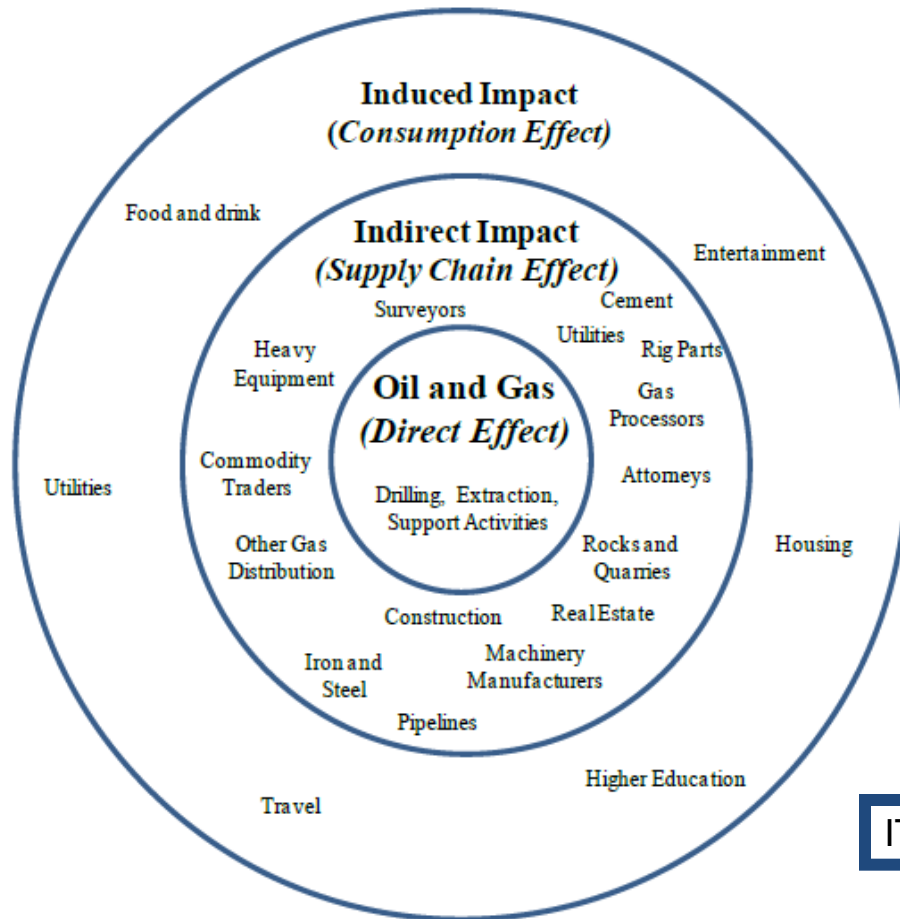
JOBS

- Many different occupations involved (over 150), mostly 'blue collar'
- Jobs will increase dramatically over next 5 years
- Approx. 8,000 full-time 'directly-related' jobs will be needed in our region over the next 5 years
- Indirect jobs will increase significantly
- Local education and training programs will help to increase the number of local workers hired

What Specific Jobs Are Required?



Each Direct Job Is Estimated to Create 1.53 Indirect And Induced Jobs



Heavy Equipment



Construction



IT support



Pipe Inspection

PCT Degrees - Directly Related

Automated Manufacturing Technology - A.A.S.

Civil Engineering Technology – A.A.S. and B.S.

Computer Aided Drafting Technology – A.A.S.

Computer Aided Product Design – B.S.

Construction Management – B.S.

Diesel Technology- A.A.S.

Electric Power Generation – A.A.S.

Electrical Technology – A.A.S.

Electronics & Computer Engineering Technology – A.A.S.

Heavy Construction Equipment Technology – A.A.S.

Machine Tool Technology - A.A.S.

Welding - A.A.S. Welding & Fabrication Engineering Technology – B.S.

PCT Degrees – Indirectly Related

Accounting – A.A.S. and B.S.

Business Administration – B.S.

Business Management – A.A.S.

Information Technology – A.A.S. and B.S.

Legal Assistant – Paralegal – A.A.S.

Culinary Arts – A.A.S. and B.S.

Hospitality Management – A.A.S.

Health Sciences, esp. Radiography – A.A.S.

High School Preparation

- Math is important!
- Low absenteeism
- On time
- Physically fit
- Able to work as a team
- Safety first
- No DUI
- No criminal offenses
- No drugs
- Clean driving record

Current MSETC Workforce Assessment Projects

- Statewide Workforce Assessment
- West Virginia Workforce Assessment

Current MSETC Economic Impact Analysis Projects

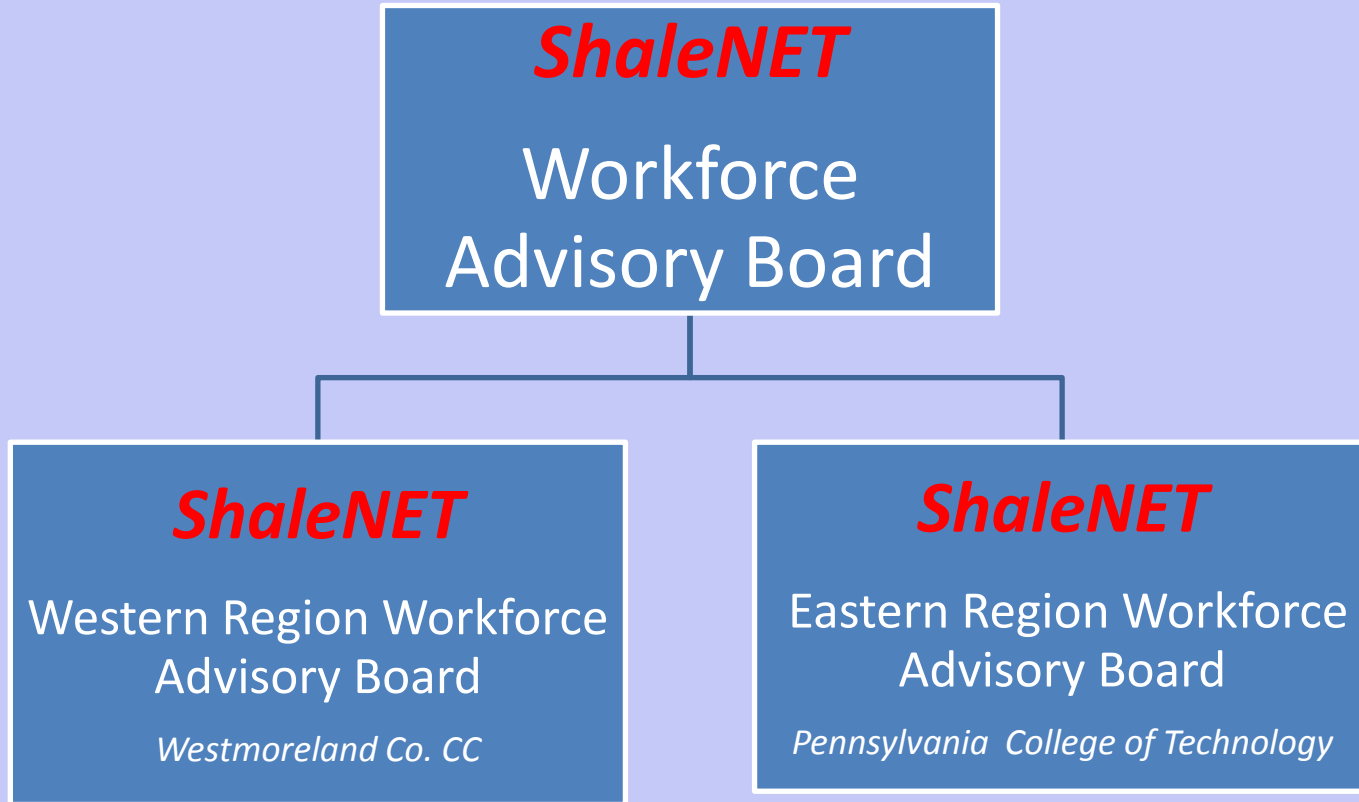
- Five-county Northern Tier PA
- Statewide Economic Impact Analysis

Grants

- National Science Foundation
 - \$900,000, 3-year, 20-county project with approx. 20 school districts
- PA Dept. of Labor & Industry
 - \$250,000 training grant (pre-employment and incumbent)
 - Industry Partnership grants for two regions in PA (SW & NC)
- U.S. Dept. of Labor
 - \$4.9 million for Marcellus wide pre-employment training



ShaleNET



MSETC Training



Current MSETC Programs

- “Fit 4 Natural Gas”
 - Roustabout Pre-emp. Training
- API 1104 welding training
 - Level 1
 - Level 2
- API 1104 certification and testing
- OSHA Rough Terrain Forklift Certification
- Commercial Driver Training (CDL Class A)
- PEC/ Premier SafeLand USA
- Certified Operations Technician
- OSHA 30 hour certifications (Online)
- OSHA 10 Hour Construction
- First Aid/ CPR

MSETC Offerings – Coming

- Emergency Responders
- Roughneck Training (Hands-on)
- OSHA Regulatory Training
- Well operator / tender
- Oilfield Heavy Equipment Safety
- Well Control
- Trenching/ Soils
- Instrumentation and Calibration
- DOT compliance training
- SCADA/ HMI
- Title Abstracting / Landman
- Welder's Helper/ Pipe fitting
- Fall Protection
- Erosion and Sediment Control

Natural Gas Training Site



Questions???

Marcellus Shale Education & Training Center - Pennsylvania College of Technology - Windows Internet Explorer


http://www.pct.edu/msetc/

File Edit View Favorites Tools Help

x Convert Select

Favorites ArcMap Data Community Develop... Directory Services Natural Gas Penn State Personal Pages

Marcellus Shale Education & Training Center...



Workforce Development & Continuing Education

Marcellus Shale Education & Training Center (MSETC)

- Courses
- Online courses
- Workforce Forum
- Partners
- What Is Marcellus Shale?
- Request Information
- Resources
- Photo Gallery
- Contact MSETC

Marcellus Shale Education & Training Center

Center for Business & Workforce Development (DIF 29) · (570) 327-4775 · Fax 570.321.5546

PEC/SafeLand Orientation available now!

Course and registration information for [PEC/SafeLand Orientation](#).


API 1104 Downhand Welding classes offered this fall in our newly renovated, state-of-the-art labs!

Call (570) 327-4775 for more information or to reserve your seat today!

Marcellus Shale Education & Training Center (MSETC) is a partnership established to provide both the regional community and the natural gas industry with a central resource for workforce development and community education needs related to Marcellus Shale gas.

Sample Programs and Capabilities

- Workforce needs assessment
- New technology development
- Access to student interns and graduates
- Research
- Advisory boards
- Customized training
- On-site training
- Industry-specific training
- Facility for meetings/events including videoconferencing capabilities

Upcoming Classes 

American Petroleum Institute (API) 1104 Down-Hand Welding - Level I (9/18/2010)

PEC Basic-SafeGulf/SafeLand Orientation (10/6/2010)

American Petroleum Institute (API) 1104 Down-Hand Welding - Level II (10/9/2010)

Commercial Driver (CDL) Training Specific for the Oil and Gas Industry (10/11/2010)


PEC Basic-SafeGulf/SafeLand Orientation (10/12/2010)

Commercial Driver (CDL) Training Specific for the Oil and Gas Industry (11/1/2010)

Commercial Driver (CDL) Training Specific for the Oil and Gas Industry (11/29/2010)

[View class offerings...](#)

PENNSTATE



College of Agricultural Sciences

