

Preparing the Future Workforce to Generate Jobs and Ensure America's Energy Independence

80th Annual Conference of Mayors

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Presentation Agenda

Overview of the economic opportunity

Workforce Needs Assessment

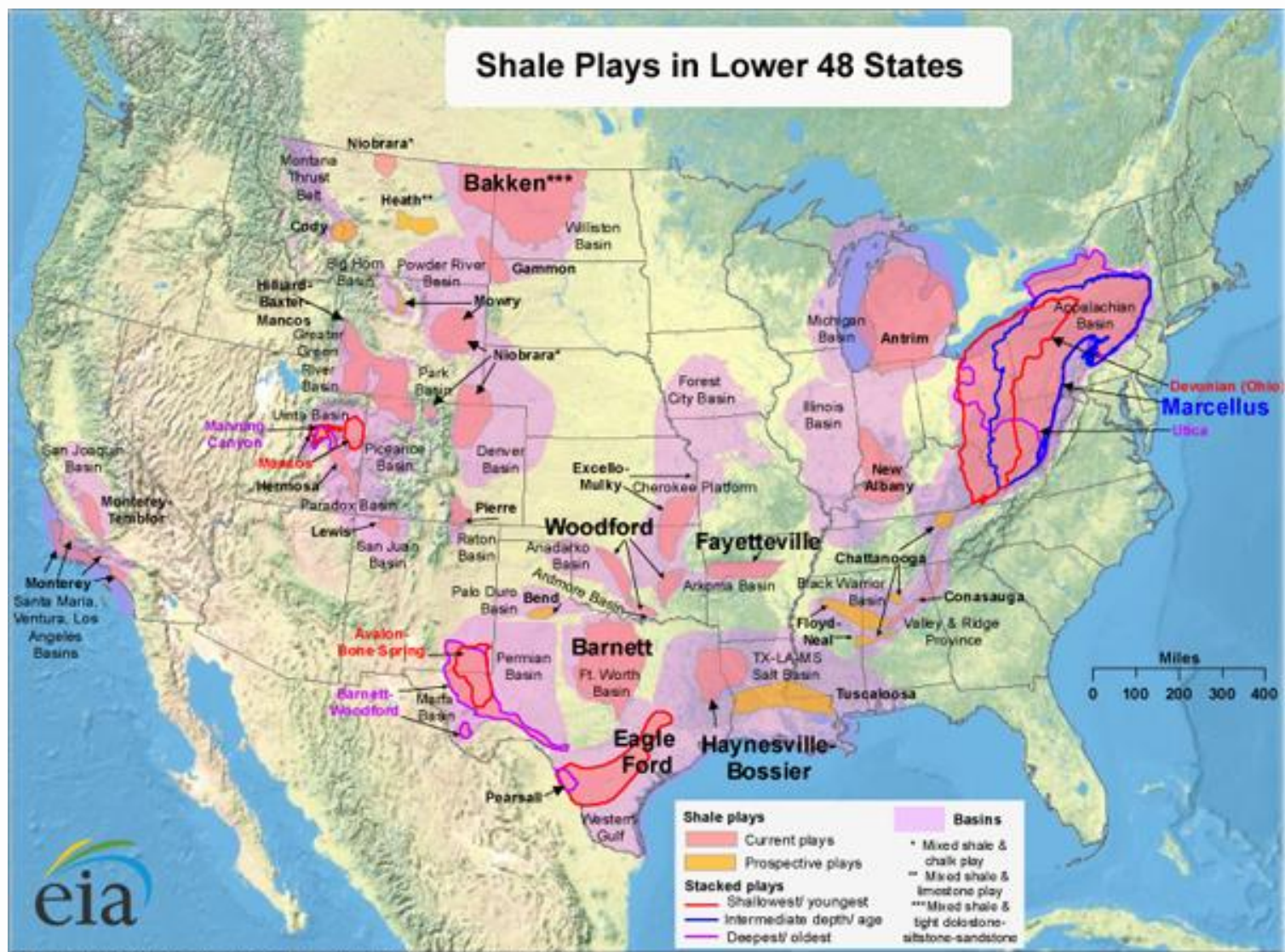
Successful job training case study

Building ShaleNET

What's next?

Q&A

Shale Plays in Lower 48 States



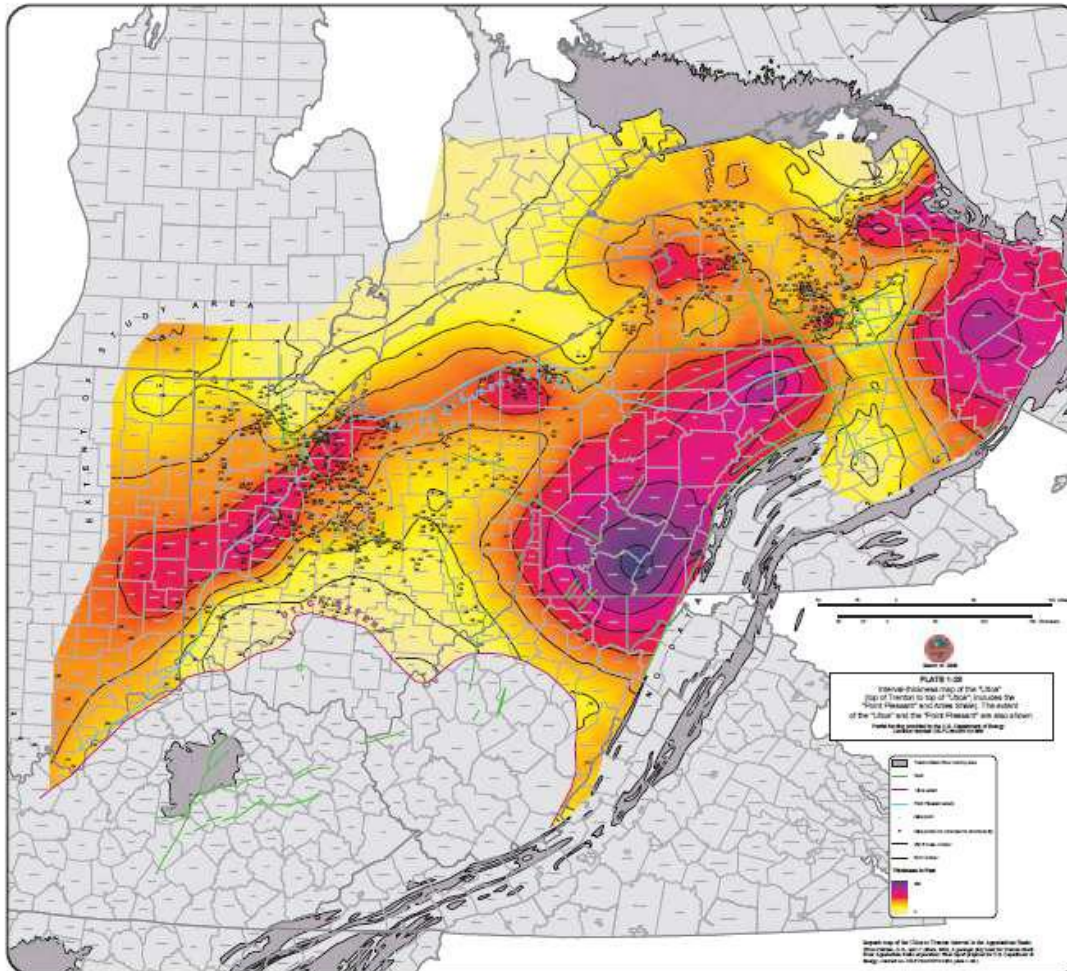
Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

Economic Opportunity in Marcellus Shale

- Production of natural gas in Pennsylvania, Ohio, and West Virginia will occur for decades
- Great opportunity for family-sustaining wages with strong career pathways
- Drilling a single well requires 420 people working in nearly 150 occupations



And then there is Utica....



Where it all started

- Marcellus Shale Education and Training Center (MSETC) formed in November 2008
- Collaboration between:
 - Pennsylvania College of Technology - WDCE
 - Penn State Cooperative Extension
- Mission to provide workforce development services to the emerging natural gas industry

Where we were 4 years ago...



Key Workforce Questions

- Where are the job opportunities
- What occupations are needed? (and how many in each?)
- What programs and strategies currently exist to train a local workforce? How will they evolve?
- How can government, educational institutions, and industry coordinate their workforce development strategies?
- What is the “workforce projection model”?

Understanding Workforce Needs:

The Workforce Projection Model



Where it all started....

What are the occupations needed??

Extraction Timeline

Lifespan totaling approximately 30-50 years

		Pipeline Construction		Natural Gas Production	
		Construction time depends on pipeline length			
Permitting			Drilling	Wells can be productive over a 30-50 year period	
Up to 2 mos.			30-45 days		
Pre-Drilling			Drilling & Completion		Post-Drilling
Geology Studies		Staking Well		Fracing & Completion	Reclaiming
Up to six months		30-60 days		1-2 wks.	1 month +

Mineral Rights

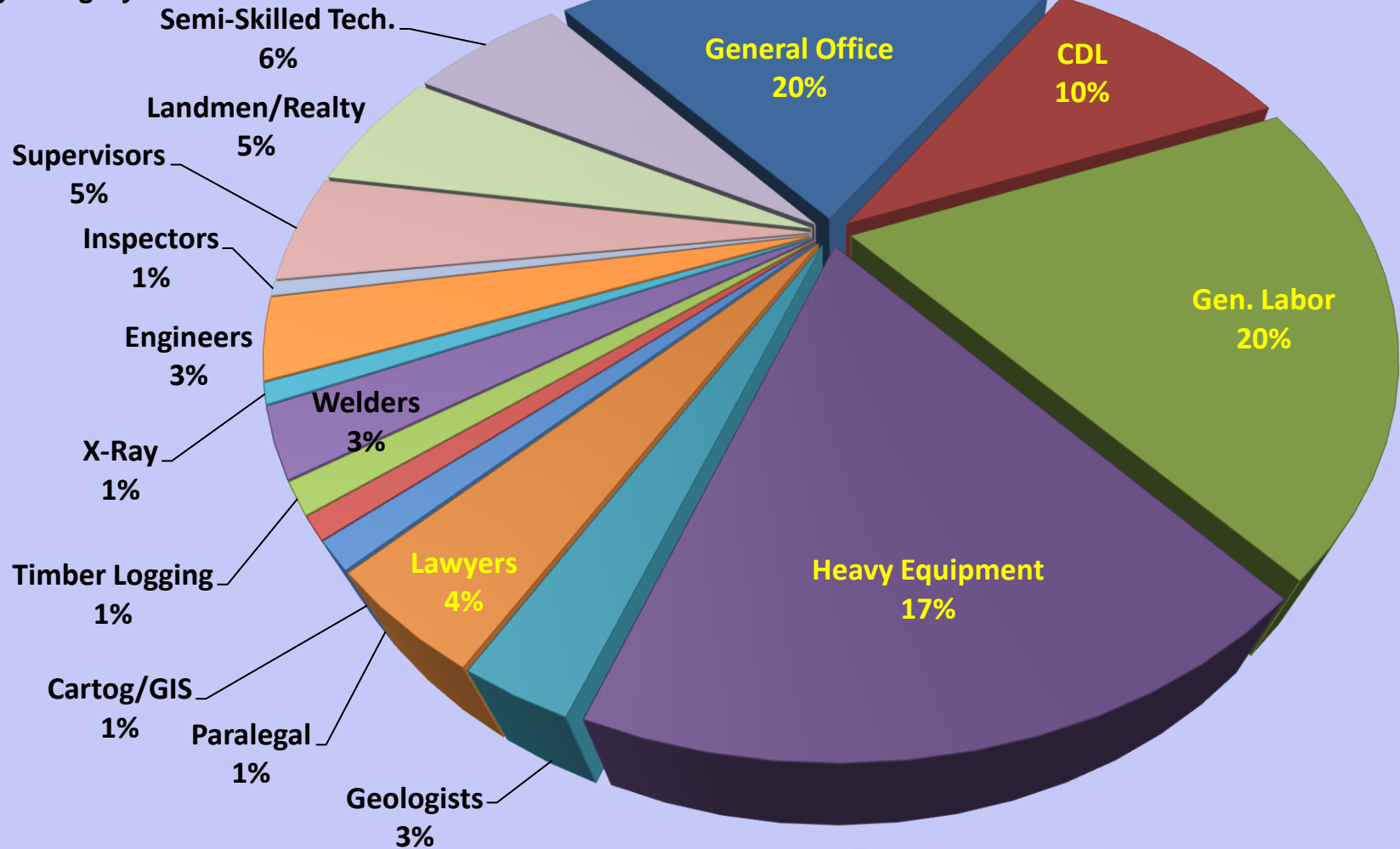
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Drilling Down (The Matrix)

Pre-Drilling		Associated Jobs
	Geological Studies	Cartographer
		Geologists & Geophysicists
		GIS Technicians
		Hydro Geologist
		Petroleum Chemists
		Petroleum Engineers
	Seismic	CDL Drivers
		Helicopter Pilot/Crew
		Landman
		Project Management
		Seismic Crew
	Public Land Only	Archeologist
		Biologist
		Forester
		Lawyers
		Water Management
		Landman

What specific jobs are required?

**Natural Gas Workforce Requirements
By Category**



Workforce Summary...

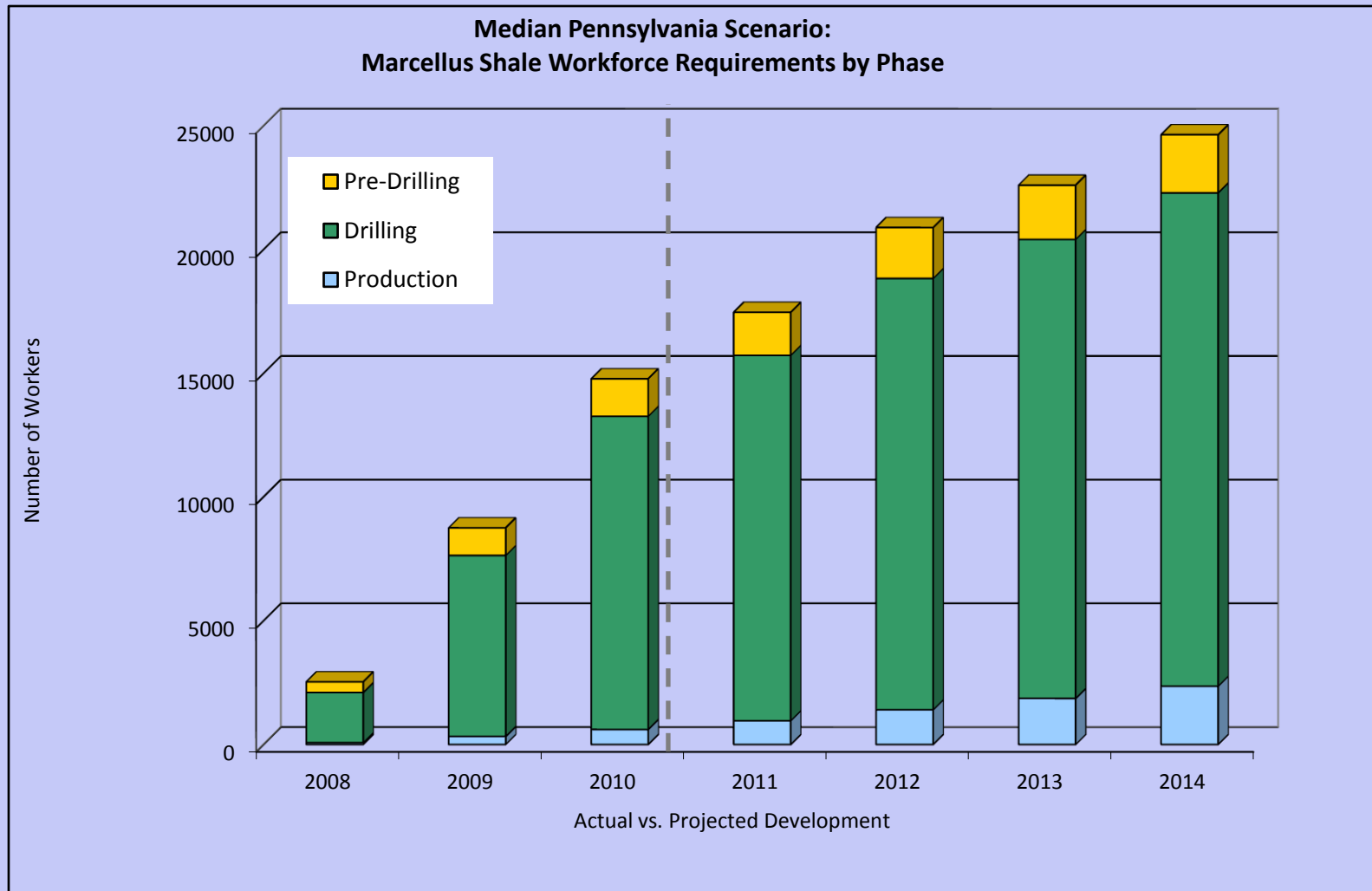
Overview:

- Direct job opportunities will likely increase dramatically by 2014
- Most jobs will be “Blue Collar” (75%)
- Workforce required to drill a single well will require 420 individuals working across 150 different occupations/jobs
- High BTU gas processing increases from roughly two to four FTE’s for every 10 wells drilled
- Natural gas infrastructure (processing capacity, pipeline, storage) may impact job growth

**How many workers
will be needed?**



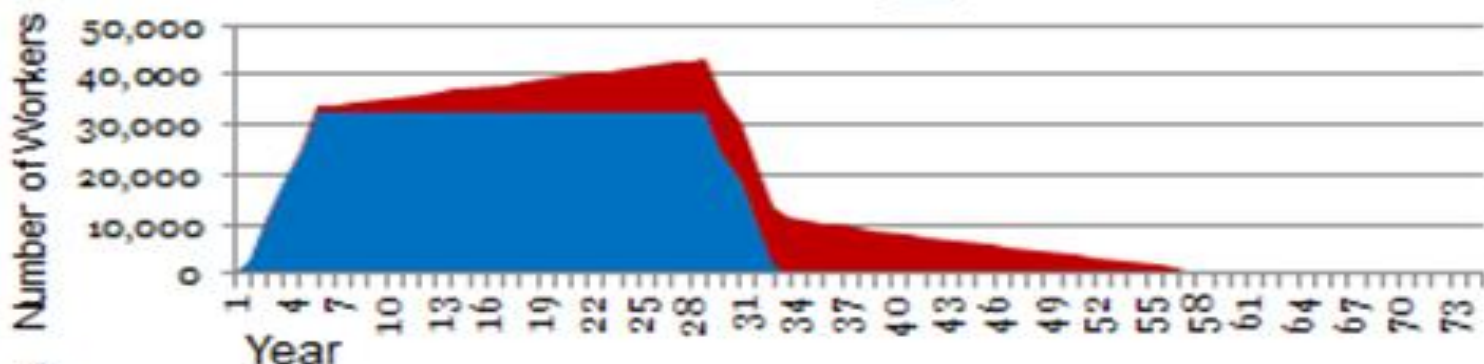
What Does This Mean in Terms of Jobs?



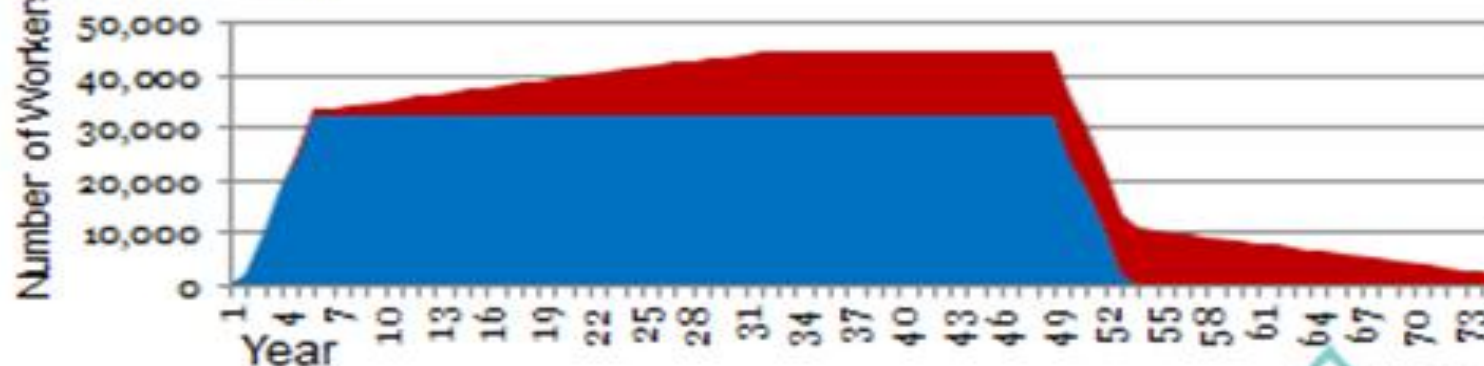
Pennsylvania Estimated Direct Workforce, by Phase

■ = Development phase jobs ■ = Production phase jobs

If 30 years
of active
drilling



If 50 years
of active
drilling



PENNSTATE



Cooperative Extension
College of Agricultural Sciences

Assumes 30 year active life per well
2,500 wells drilled / year pace

Labor requirements based upon MBETO per well workforce estimates

natural gas
Marcellus Shale Education Team
www.naturalgas.psu.edu

Where we are now...

- Implemented the 1st Natural Gas Pre-employment program in the Appalachian Basin
- Implemented over 2 dozen programs related to Natural Gas
- Worked with over 200 Companies to meet their training needs
- Trained over 6,000 students in oil and gas topics
- Provided curriculum basis for ShaleNET

MSETC Training Programs at ETEC

Safety

- PEC Safeland
- IADC Rig Pass
- Shell Blue Book
- OSHA 8hr Oil and Gas
- OSHA 10
- Fall Protection
- Confined Space
- Respiratory Protection



MSETC Training Programs at ETEC Industry

- Rough Terrain Fork Lift
- Aerial Work Platform
- Heavy Equipment Operation
- Well Control (Wild Well)
- Roustabout Training
- Commercial Driver Training
- Live Fire Training
- Rigging and Hoisting



Additional MSETC Training Programs

- 1st Aid/ CPR
- Medic First Aid
- Heavy Equipment Operation
- Defensive Driving
- Hazard Recognition
- Hot Work Air Monitoring
- Marcellus Shale Development and Production Overview

Training available
at Penn College or
your facility



Emergency Responder Training

- Gas Field Burn Props
- Hazardous Materials Emergency Response
- Live Fire Exercises



Grants

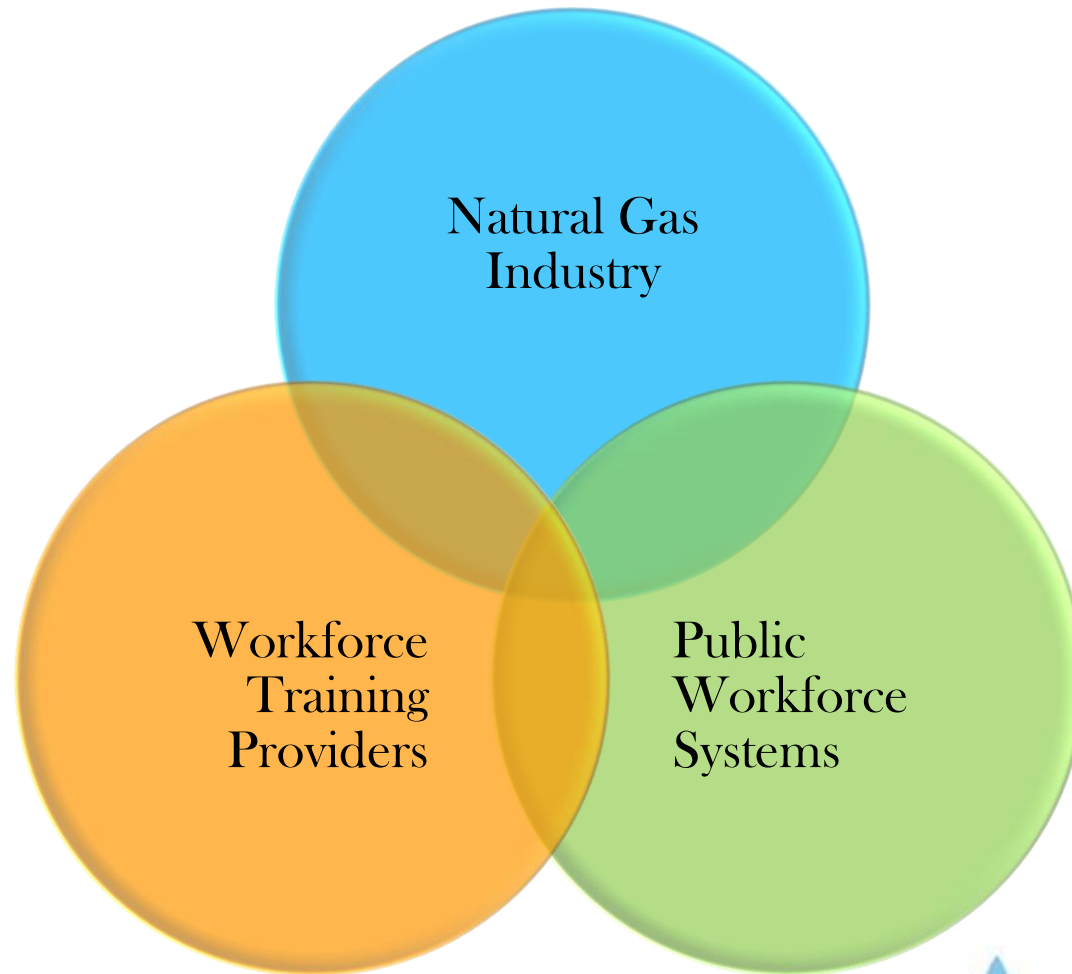
- National Science Foundation
 - \$900,000, 3-year, 20-county project with approx. 20 school districts
- PA Dept. of Labor & Industry
 - \$250,000 training grant (pre-employment and incumbent)
 - Industry Partnership grants for two regions in PA (SW & NC)
- U.S. Dept. of Labor
 - \$4.9 million for Marcellus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

Great Opportunities for Low Income/Low Skill Workers

- Nearly half of the jobs required for natural gas drilling in the Marcellus Shale footprint do not require a two- or a four- year degree.

Positions in gas drilling industry that require less than a 4-year degree	% of workforce
General Labor	20%
Heavy Equipment Operators	17%
Commercial driver's license and off-road license's	10%
Total % of gas drilling workforce	47%

Creating the ShaleNET Collaboration



INITIAL SHALENET OCCUPATIONS

- Roustabout
- Floor Hand – Derrick & Rotary Drill Operator
- Production Technician
- Commercial Drivers License
- Welder's Helper

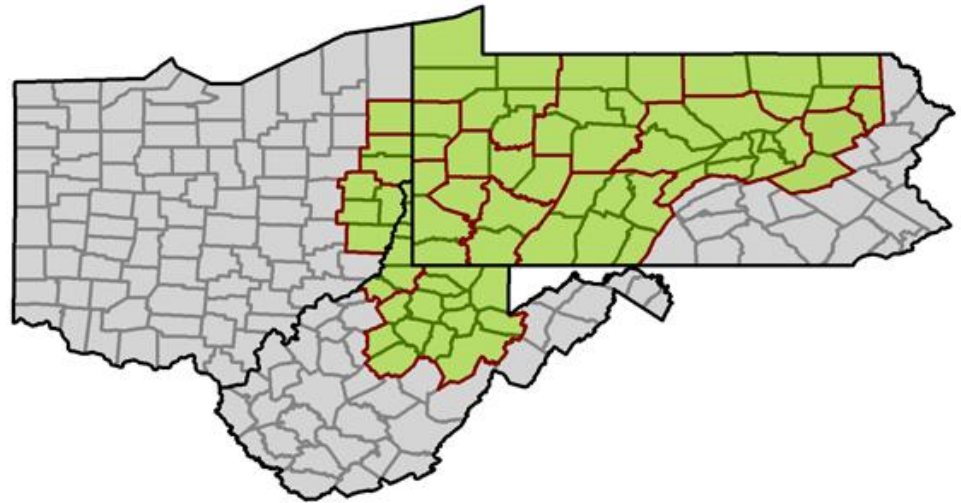
ShaleNET: Scope and Reach

The program is a multi-state, comprehensive recruitment, training, placement and retention program for jobs in the gas industry throughout the Marcellus Shale Footprint

Partner Workforce Investment Areas

The geographic scope is Marcellus-wide:

- Pennsylvania, Ohio, West Virginia (and New York)
- 18 Workforce Boards
- 71 Counties
- Many dozens of training providers but no uniform curriculum, certified instructors



SHALENET GOALS

- Create an industry-led recruitment, job placement, training and retention program for high-priority occupations
- Create accessible tools that present a realistic picture of the work
- Create industry-recognized uniform training and certification programs
- Create uniform screening and assessment tools that look at both technical skill and personal competencies
- Create a comprehensive pre-employment program that includes industry orientation, basic safety training, and job readiness skills

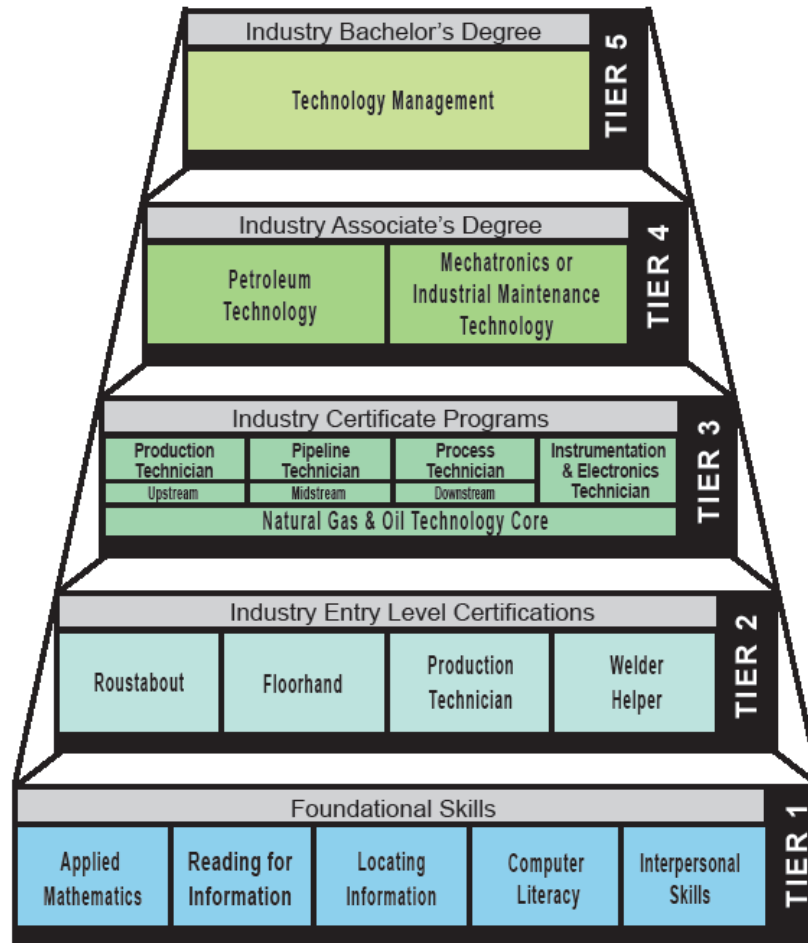
Results to Date: June 2010 – March 2012

- Participants served by ShaleNET 7,183
- Beginning education/training activities 3,475
- Completing training activities and education 1,895
- Completed training with degree/certificate 458
- Employed 954

What's Next? ShaleNET US



Stackable Credential Model



What's Next? ShaleNET US

Questions?