



AN AFFILIATE OF THE ALLEGHENY CONFERENCE ON COMMUNITY DEVELOPMENT

# Beaver County's Natural Gas Opportunity

Beaver County Commissioner Joe Spanik  
October 2013

# A Snapshot of the Pittsburgh Region

- 10 counties = 7,200 sq. miles
- Population = 2.6 million
- Within 500 miles:
  - 41% of U.S. businesses
  - 43% of U.S. & Canada populations

*“Pittsburgh stands as a bold example of how to create new jobs and industries while transitioning to a 21<sup>st</sup> century economy. As a city that has transformed itself from the city of steel to a center for high-tech innovation... Pittsburgh will provide both a beautiful backdrop and a powerful example for our work.”*

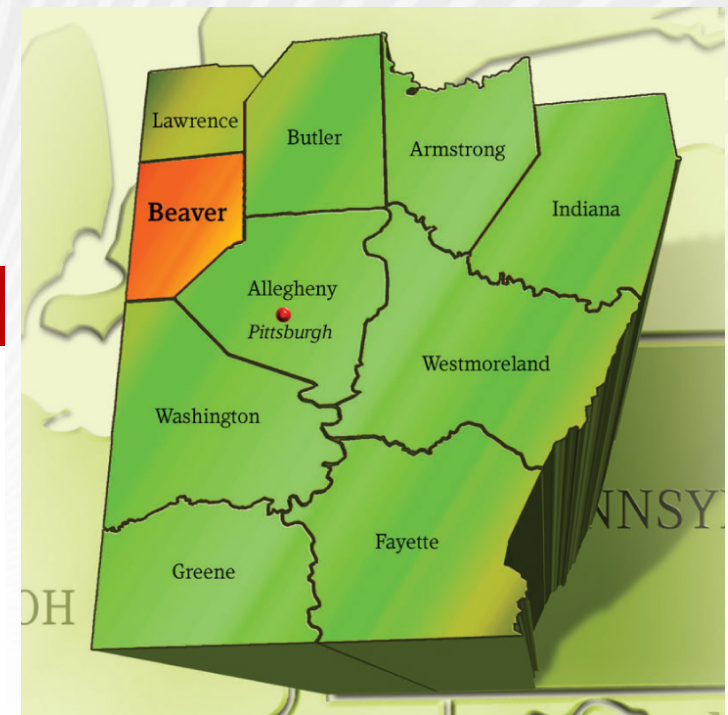
-President Barack Obama,  
Pittsburgh (G-20) Summit



# About Beaver County

## Top private employers

Employer	Product(s)	Employees
Heritage Valley Health System	Health Care	2,000
FirstEnergy Corporation	Electric Utility	1,750
Fidelity National Financial	Financial Services	850
IPSCO Koppel Steel Corporation	Steel Bars & Tubing	700
Horsehead Corporation*	Zinc Oxide	650
Giant Eagle	Retail	500
Eaton Electrical	Electrical Components	430
Geneva College	Higher Education	400
Veka, Inc.	Vinyl Windows & Doors	370
Anchor Hocking Company	Glassware	360



## County Facts

2010 Population:	170,539
Largest Municipality:	Hopewell Township
Land Area (sq. mi.):	434



# Strategic Market Access

The accessible and strategic location of the Pittsburgh Region, combined with a strong physical infrastructure, make it an ideal business location.



- **Within 500 miles of**
  - 41% of U.S. businesses
  - 43% of U.S. & Canada populations
  - 45% of total national manufacturing production
  - 46% of U.S. aggregate earnings and 40+% of total U.S. retail sales
  - 23 of the top 50 U.S. metropolitan retail markets, plus Montreal and Toronto, Canada

# Why Pittsburgh?

- Strategic Location
- Educated, skilled workforce
- Affordable cost of doing business
- Access to world-class innovation
- High quality of place

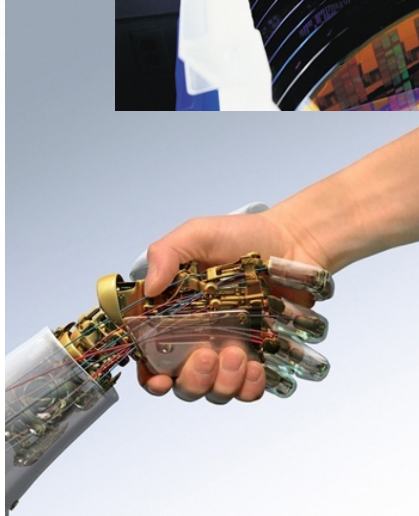


# Regional Economy Built on 5 Strategic Sectors

Health Care &  
Life Sciences



Advanced Manufacturing



Energy

Financial & Business Services

Information & Communications  
Technology



# Energy in the Pittsburgh region

- Pittsburgh is the new center of American energy; ample natural resources and a 150-year history of energy innovation
- **Assets**
  - 800+ firms that directly support 50,000+ jobs
  - Uniquely strong across seven energy industries
- **Strengths**
  - \$1B in energy-related R&D funding
  - National Energy Technology Lab
  - Consol R&D Center, U.S.'s only private coal R&D facility
  - University R&D
  - Energy Alliance of Greater Pittsburgh



# Chemistry in the Pittsburgh Region

- **Regional strengths**
  - 250+ chemistry firms
  - HQs and/or corporate support operations to industry leaders:
    - Almatris, Axiall Bayer, Calgon Carbon, INDSPEC, Koppers, LANXESS, NOVA Chemicals and PPG Industries
  - Significant manufacturing presence:
    - BASF, Eastman Chemical, Nalco
  - More than a dozen major chemistry research facilities
  - Chemicals represent the fourth largest export from the Pittsburgh region – more than \$1.2 billion in 2012





# Recent Expansions



*Alstom Grid's disconnect switch manufacturing facility*



*Valerus Compression Services facility in Smithfield, PA*



*Westinghouse Electric Company HQ*



*Range Resources regional HQ*

# Energy Companies Growing in the Pittsburgh Region



# 150+ Natural Gas-Related Companies Have Expanded into the Pittsburgh Region Since 2007

Accelergy Corporation  
Allied Technology  
Allis-Chalmers Energy ,Inc.  
Baker Hughes Oilfield Operations  
BJ Services Co.  
Bowles Rice, LLP  
Burlson Cooke, LLP  
Cabot Oil & Gas Corp.  
Calfrac Well Services  
Carrizo Oil & Gas, Inc.  
Chesapeake Energy  
Complete Production Services, Inc.  
Core Laboratories, LP  
Crescent Directional Drilling  
Cudd Energy Services  
Direct Energy  
EOG Resources, Inc.  
Express Energy Services, LP

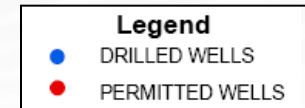
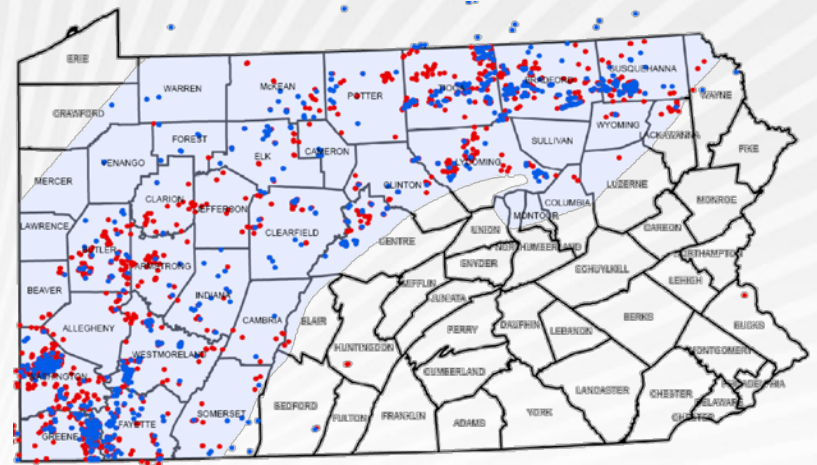
Exterran Holdings, Inc.  
Fagen, Inc.  
Flotek Industries, Inc.  
Flow Data, Inc.  
FMC Technologies, Inc.  
FTS International  
Fulbright & Jaworski  
Green Field Energy Services  
Halliburton Energy Services  
Hunting Energy Service  
Key Energy Services, Inc.  
Kimzey Casing Service, LLC  
Kinder Morgan Energy Partners  
Marathon Oil Co.  
McJunkin Red Man Corporation  
National Oilwell Varco  
Newfield Exploration  
Royal Dutch Shell

Sadler Law  
Schlumberger Limited  
Seneca Resources  
Smith International  
Spectra Energy Corp.  
Stallion Oilfield Services  
Swift Worldwide Resources  
Talisman Energy, Inc.  
Tennessee Gas Pipeline Co.  
Texas Eastern Transmission, LP  
The Williams Companies  
Thomas Petroleum  
TSI Flow Products, Inc.  
Universal Pegasus International  
Valerus Compression Services  
Weatherford U.S., LP  
Wilbros International  
WPX Energy



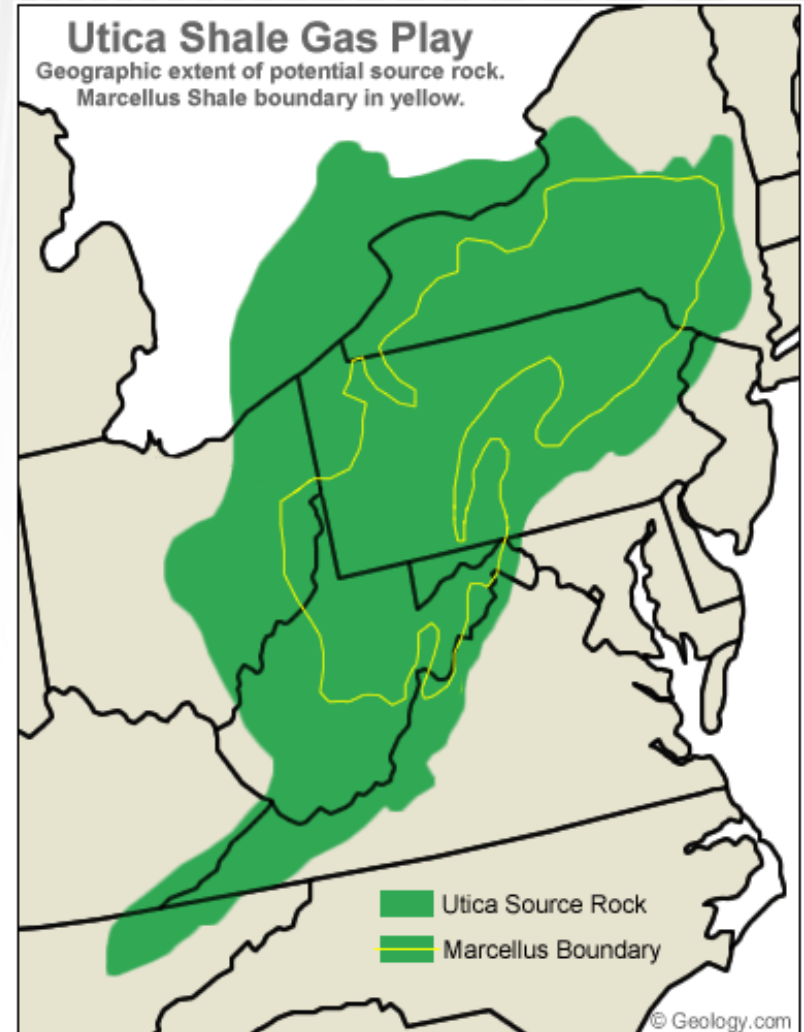
# Marcellus Shale

- The Marcellus Shale geological formation is one of the largest unconventional natural gas reserves in the world:
  - Pittsburgh is the largest metro atop the Marcellus Shale
  - 95,000 square miles of approx. 60% of Pennsylvania's land mass
  - Discovered, recoverable reserves projected at nearly 84 trillion cubic feet
  - In the Marcellus Shale play alone, an estimated 7,000+ wells will be drilled between 2011-2014
  - Prompted 100+ companies to expand their exploration, drilling or service operations in the Pittsburgh region since 2007



# Utica Shale - The Natural Gas Giant Below the Marcellus Shale

- The Utica Shale is located a few thousand feet below the Marcellus Shale
  - Potential to become an enormous natural gas resource
- More geographically extensive and thicker than Marcellus Shale
- Already proven its ability to support commercial production
  - Liquids-rich play oil
  - Early testing indicates it will be a very significant resource
- The Utica Shale has a much higher carbonate content and a lower clay mineral content than the Marcellus Shale



# Wet Gas vs. Dry Gas

## Wet Gas

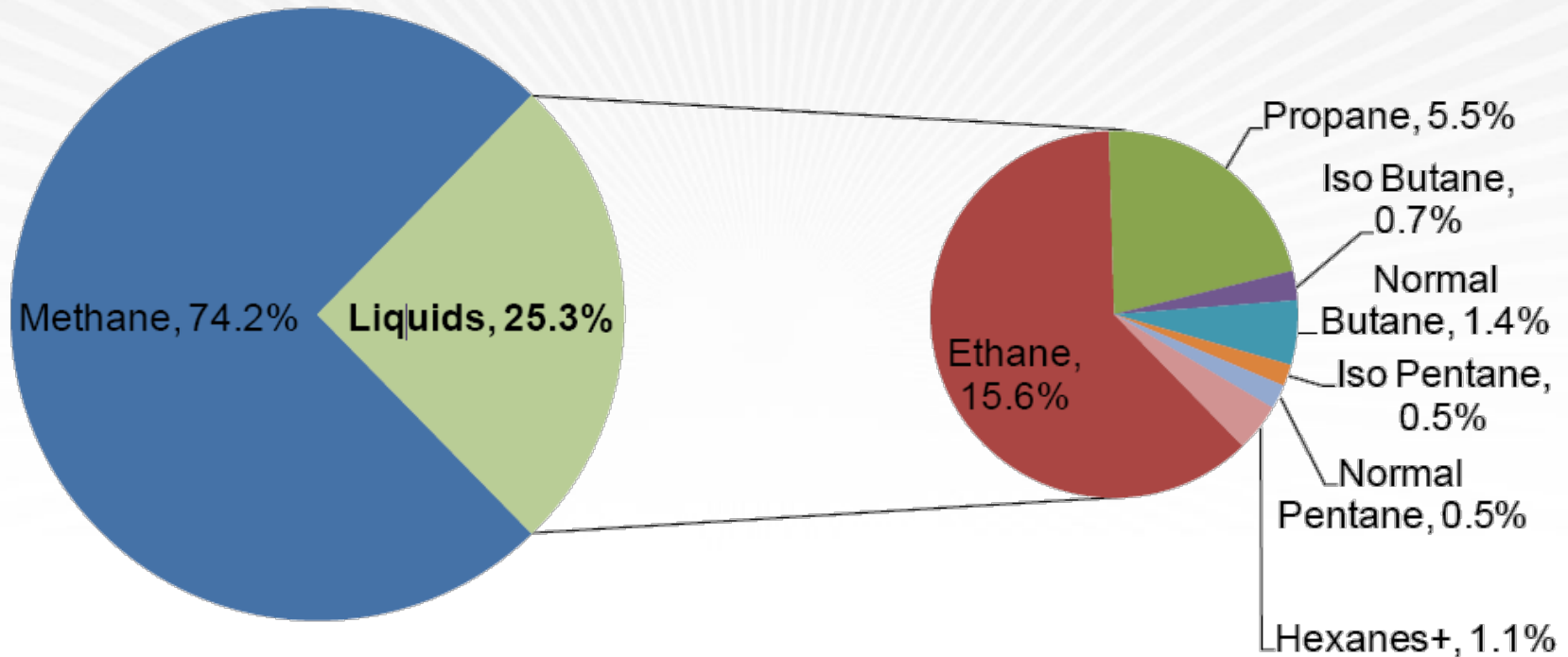
- Natural gas that contains less methane (typically less than 85% methane) and more ethane and other more complex hydrocarbons, such as propane, butane and other liquid hydrocarbon, giving it the “wetness”

## Dry Gas

- Natural gas considered “dry” is always in the gaseous state in the reservoir and produces little condensable hydrocarbons (almost pure methane) when brought to the surface
  - These gases contain very small proportions of hydrocarbons heavier than ethane—butane or propane



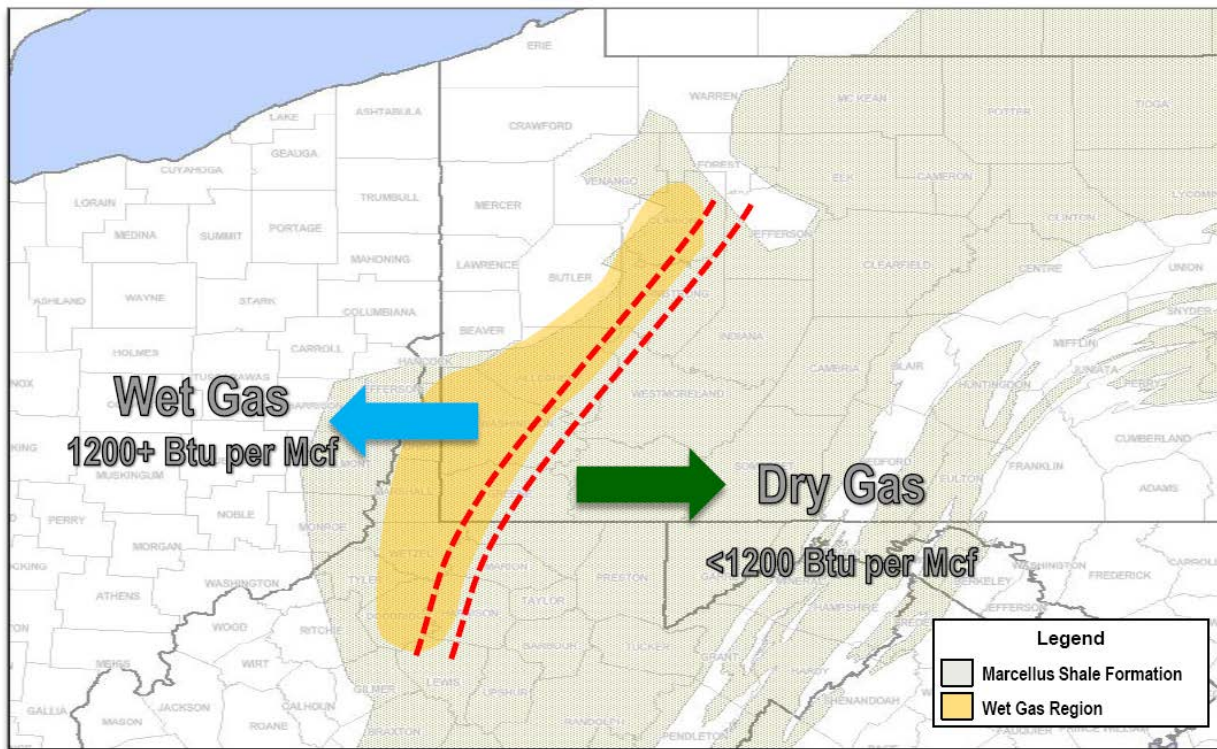
# Average Composition of Wet Gas in Marcellus Shale



- Given the magnitude and longevity of the Marcellus liquids production, these feedstocks could serve to underpin investment in new petrochemical production capacity in western PA

# Wet Gas Opportunity

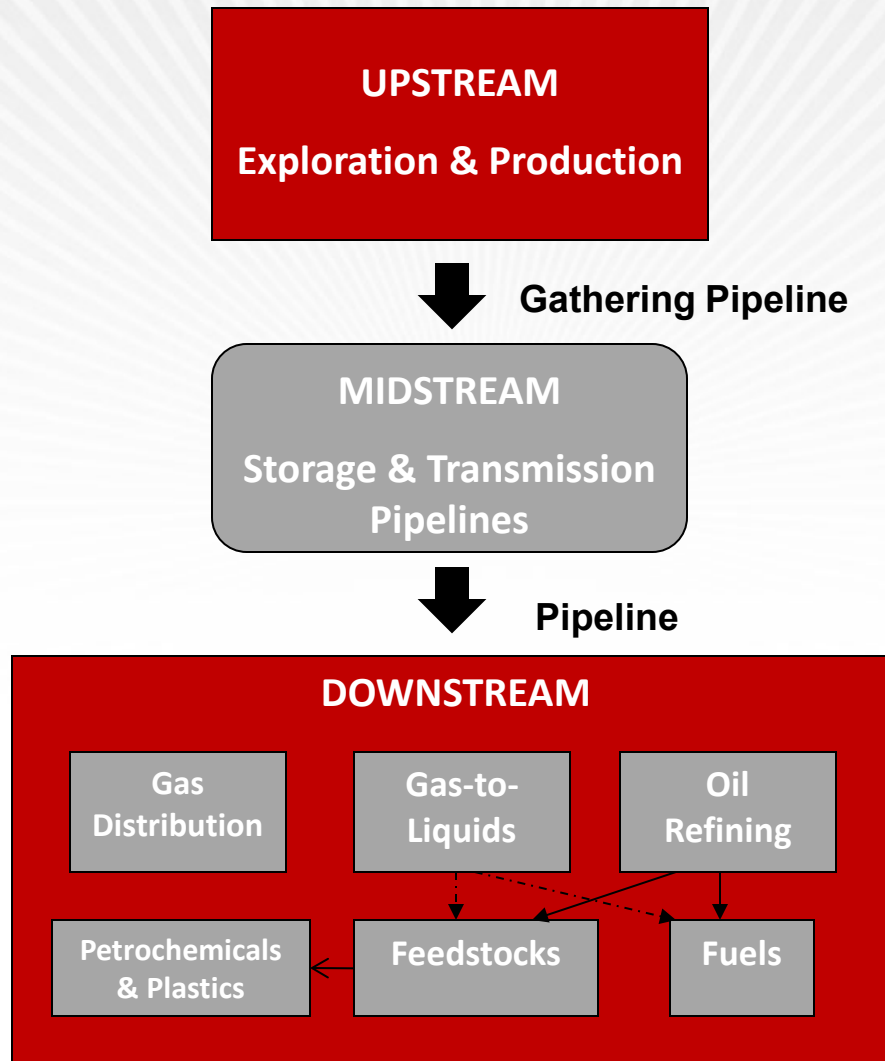
Marcellus gas around Greater Pittsburgh is rich in ethane, propane, other liquids.



Sources: Equitable Resources, MarkWest, Atlas Energy, Range Resources, and Caiman Energy.

- Supply of “wet gas” could lead to new petrochemical production capacity in Greater Pgh.
- Thousands of jobs, billions of \$\$ of investment.

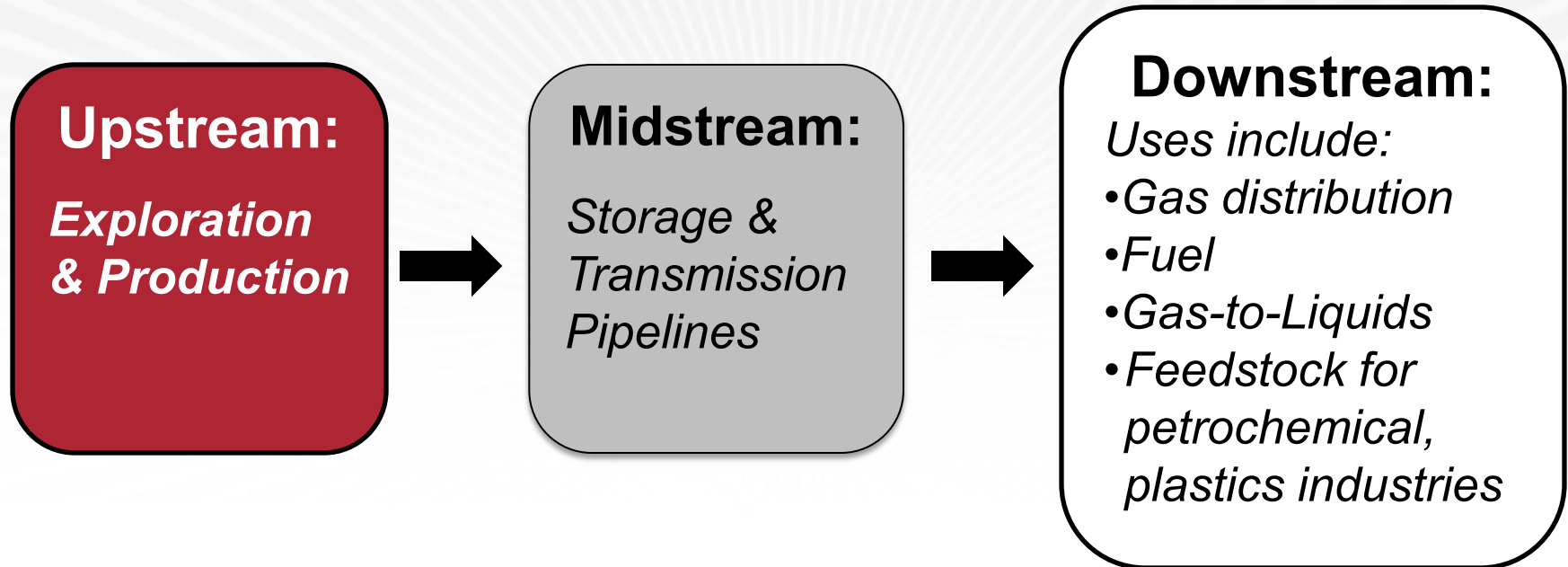
# Three Links in Supply Chain





# Downstream: Wet Gas Opportunity

## Natural gas production & supply chain



- Target is feedstock for petrochemicals, plastics
- Creates high-value manufacturing jobs

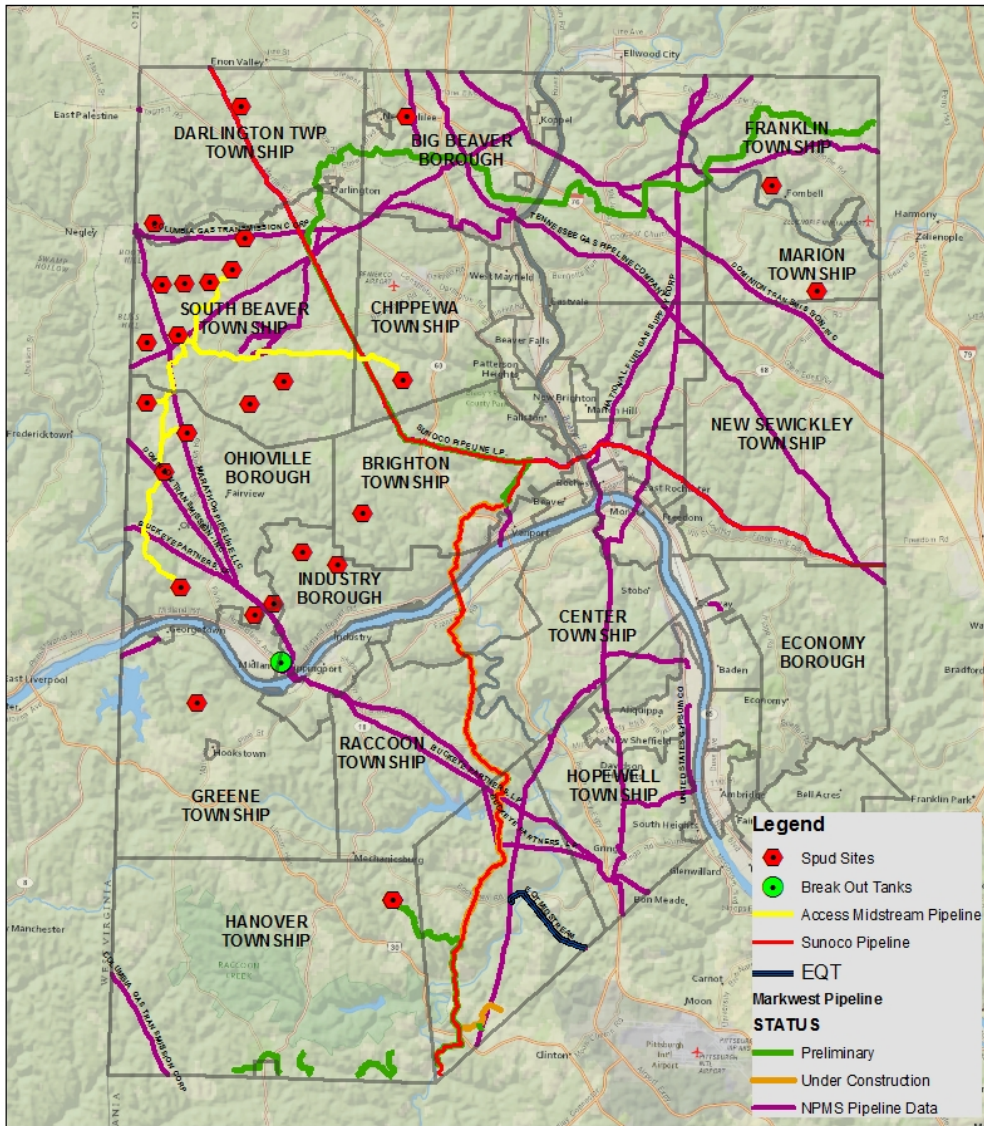
# Downstream: Feedstock for Manufacturing



*NOVA Chemical cracker; Alberta, Canada*

- First process step is to convert ethane to ethylene
- Ethylene crackers located along US Gulf Coast and in Canada
- Need to build cracker in Greater Pittsburgh to take advantage of manufacturing opportunities
- Multiple companies are considering investment in the region

# Natural Gas Infrastructure in Beaver County



- Big Beaver Borough (1)
- Brighton Twp (1)
- Chippewa Twp (2)
- Darlington Twp (2)
- Franklin Twp (1)
- Greene Twp (1)
- Hanover Twp (1)
- Industry Borough (2)
- Marion Twp (1)
- Ohioville (6)
- South Beaver Twp (9)

**TOTAL: 27**

## Beaver County Gas Wells and Pipelines

Prepared by Beaver County Emergency Services

Revised September, 2013





# Shell Announces Preferred Site

On March 15, 2012, Shell announced that its preferred site for a new petrochemical facility is in Monaca, Beaver County





# Shell Petrochemical Project

## Status

- Land option for Beaver County site
- Further evaluation underway:
  - Environmental analysis
  - Engineering design studies
  - Evaluation of ethane supply
  - Economic viability



Shell's Singapore Cracker





# The Site

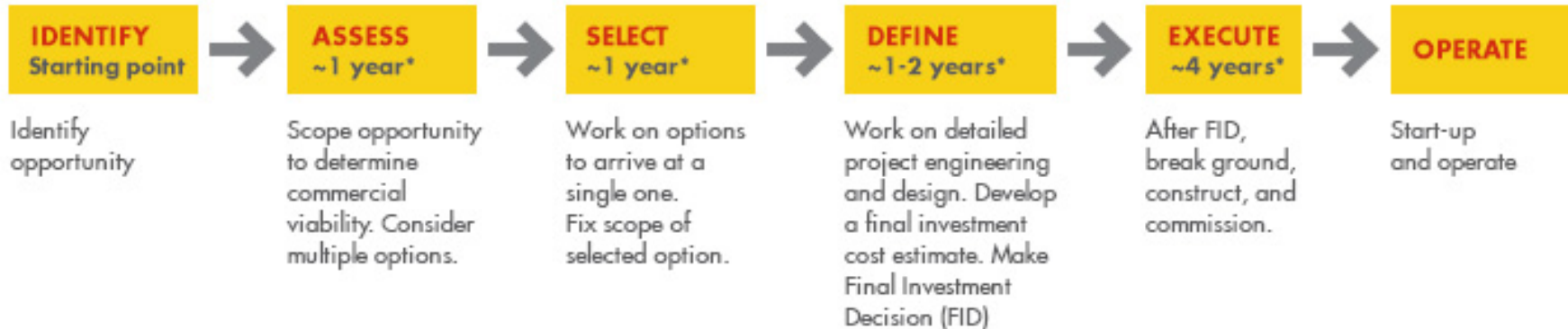
- Re-use of an established industrial site with logistical strengths and skilled workforce
  - Rail, highway, river, air access
- Beaver County has long history of supporting manufacturing and industrial development
- Economic development incentives to grow ethane market in Pennsylvania
  - Keystone Opportunity Zone
  - PA Resource Manufacturing Tax Credit



# Shell Project Timeline

## GENERIC PROJECT STAGES & TIMELINE

\* Approximate 'on average' times.  
Actual time varies by opportunity.



*Current stage  
of project*

# Construction Phase Ripple Effect

- Jobs created across ten county region during peak construction year:
  - **10,000 direct**
  - **18,000 total**
- Economic output during peak construction year:
  - **\$2.8 billion total**

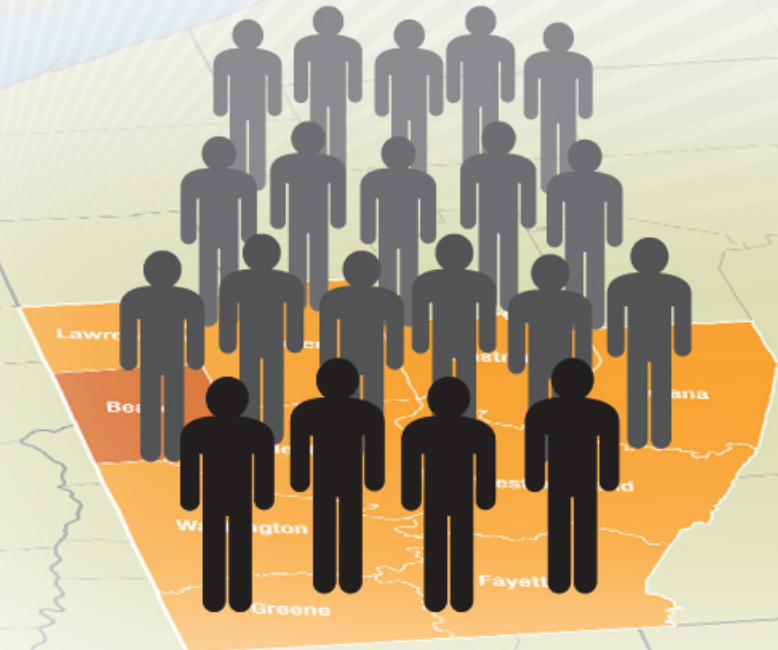


Source: Pennsylvania Economy League of Greater Pittsburgh

# Operation Phase Ripple Effect

- Jobs created across ten county region once in operation:
  - **400 direct**
  - **2,000 up to 8,000 total**
- Annual economic output from operations:
  - **\$4.8 billion total**

Up to 8,000 Total Jobs



Source: Pennsylvania Economy League of Greater Pittsburgh



# Land Option Agreement

- Shell and Horsehead entered into an initial land option agreement for the purchase of the Horsehead property in 2012
- In June 2013, the land option agreement was extended for an additional time period

# Shell Taking Bids from Potential Ethane Suppliers

“Shell began a two-month bidding period Tuesday to supplement commitments it already has secured with Consol Energy Inc., Noble Energy Inc., Seneca Resources Corp., and Hilcorp Energy Co. Shell's own exploration and production company also would feed ethane into a potential cracker.”

*Anya Litvak, Pittsburgh Post-Gazette (August 27, 2013)*

# KOEZ for Proposed Site

- In September 2013, the Beaver County Board of Commissioners, the Central Valley School Board and the Potter Township Board of Supervisors each supported a Keystone Opportunity Expansion Zone (KOEZ) application for the proposed site.
- If approved, the KOEZ will abate some state and local taxes for the new buyer if the buyer makes a \$1 billion capital investment and creates at least 400 permanent, full-time jobs on the site.
- The KOEZ designation applies to 325 acres of the Horsehead site and will last 22 years.



# PILOT for proposed site

- In September 2013, the Beaver County Board of Commissioners, the Central Valley School Board and the Potter Township Board of Supervisors each accepted a Payment In Lieu Of Taxes (PILOT) plan from Shell.
- The PILOT agreement guarantees that each local government will receive a payment from Shell for the amount of property taxes (2011 base) it currently receives from the site owners.
- If the site is redeveloped by Shell and put into operation, each local government is eligible to receive 110% of the 2011 tax amount.
- The PILOT agreement applies to 325 acres of the Horsehead site and is for 22 years.

# Transportation & Planning – Route 18



- The Beaver County Corporation for Economic Development is the lead organization for a Route 18 land use planning study related to the proposed site.
- A contractor for the study has been selected and the study will be underway shortly.
- The study results will help local planning bodies make the best use of the Route 18 corridor near the proposed facility.

# Transportation & Planning – I-376



- The Southwestern PA Commission is launching an I-376 Mobility Study.
- SPC is the Metropolitan Planning Organization (MPO) for the 10-county Pittsburgh region.
- As MPO, SPC is the lead organization for transportation projects and related state and federal funding for the region.
- Study began July 1, 2013; will last 2 years

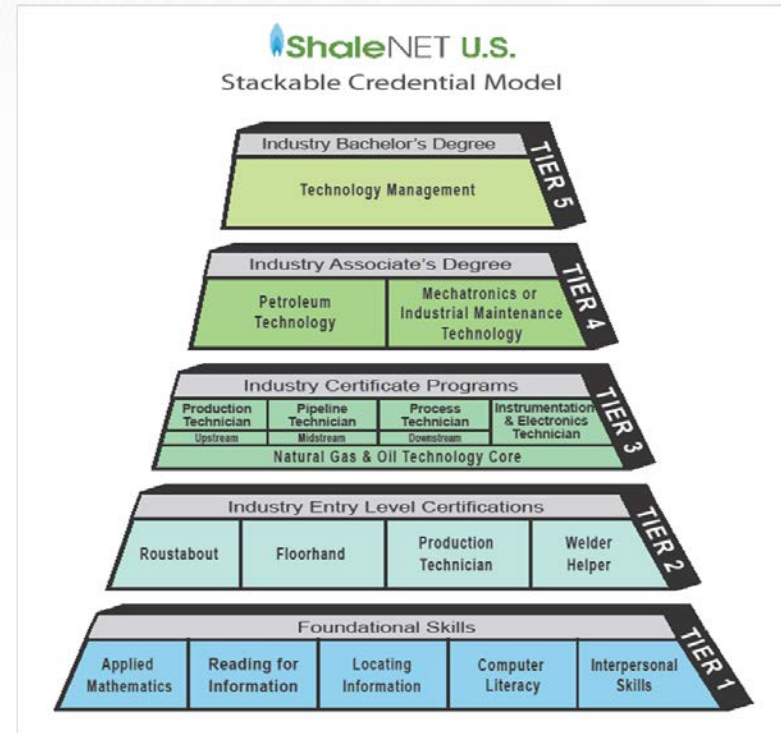




- A coordinated network of the natural gas and oil industries, the public workforce system and training providers
- ShaleNET is an industry supported uniform training, certification and associate degree program for those seeking careers in the natural gas industry
- Launched in 2010 with a \$4.9M Grant from the U.S. Department of Labor Employment and Training Administration (DOLETA) to provide tuition based training into entry-level occupations in the upstream natural gas industry
- Received a follow on grant of \$14.9M from DOLETA in September 2012, to expand the program, in both geographic scope and in programming capacity.
- Geographic scope joins Texas and Ohio to Pennsylvania, W. Virginia and New York
- This round of funding will develop standardized stackable certificate and associate degree programs to serve high demand jobs in upstream, midstream and downstream activities

## ShaleNET Jobs & Training Scorecard

Participants served by ShaleNET	14,800
Beginning education and training activities	9,611
Completing training activities and education	5,468
Completed training with degree/certificate	1,177
Employed in Marcellus Shale-related job	3,421



# For more information

Commissioner Joe Spanik  
Beaver County Board of Commissioners  
Courthouse

810 Third Street

Beaver, PA 15009

Phone: 724.728.5700

Fax: 724.728.0725

[www.beavercountypa.gov](http://www.beavercountypa.gov)