OHIO STATE UNIVERSITY EXTENSION

Building Sustainable Communities in Ohio's Shale Region:

Leveraging Manufacturing Clusters and Local Assets with Strategic Planning

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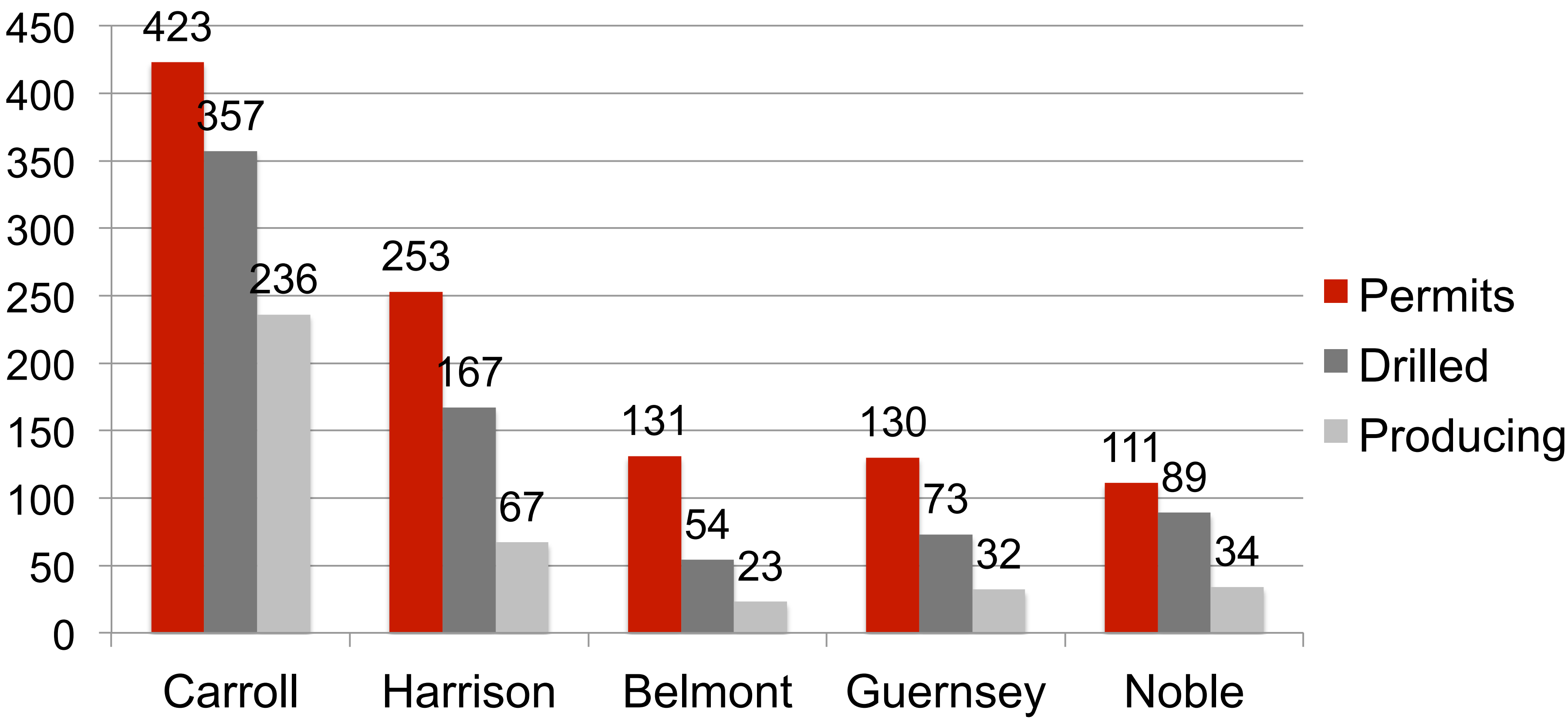
Program Objectives

- Situation Overview
- EDA Project Overview
  - Project Partners
  - Scope of Work
  - Timeline
- Economic Analysis
- Business Database & Survey Template

Situation Overview

Utica Development Update



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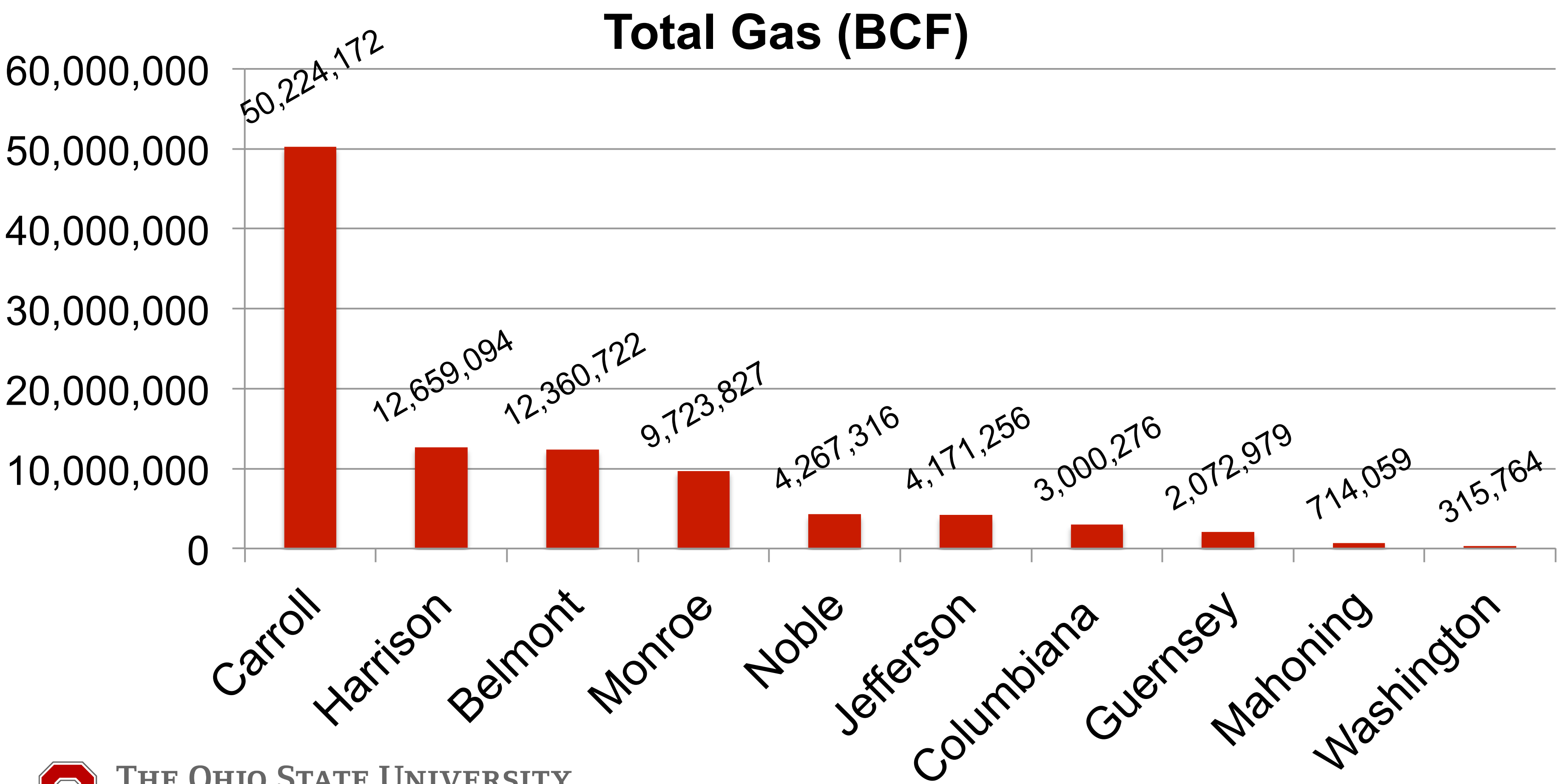
Source: ODNR 7/26/2014

2013 Horizontal Well Gas Production



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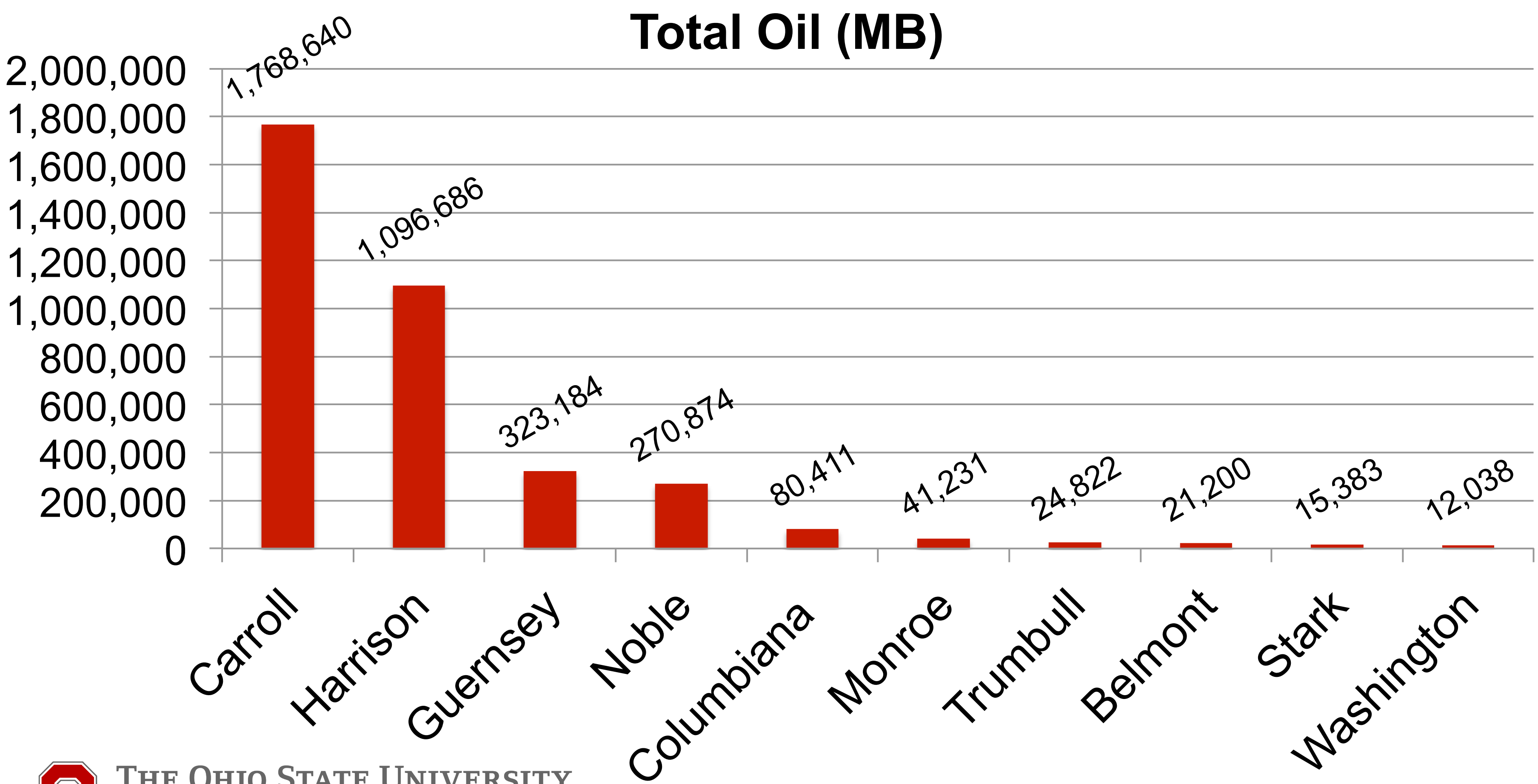
2013 Horizontal Well Oil Production



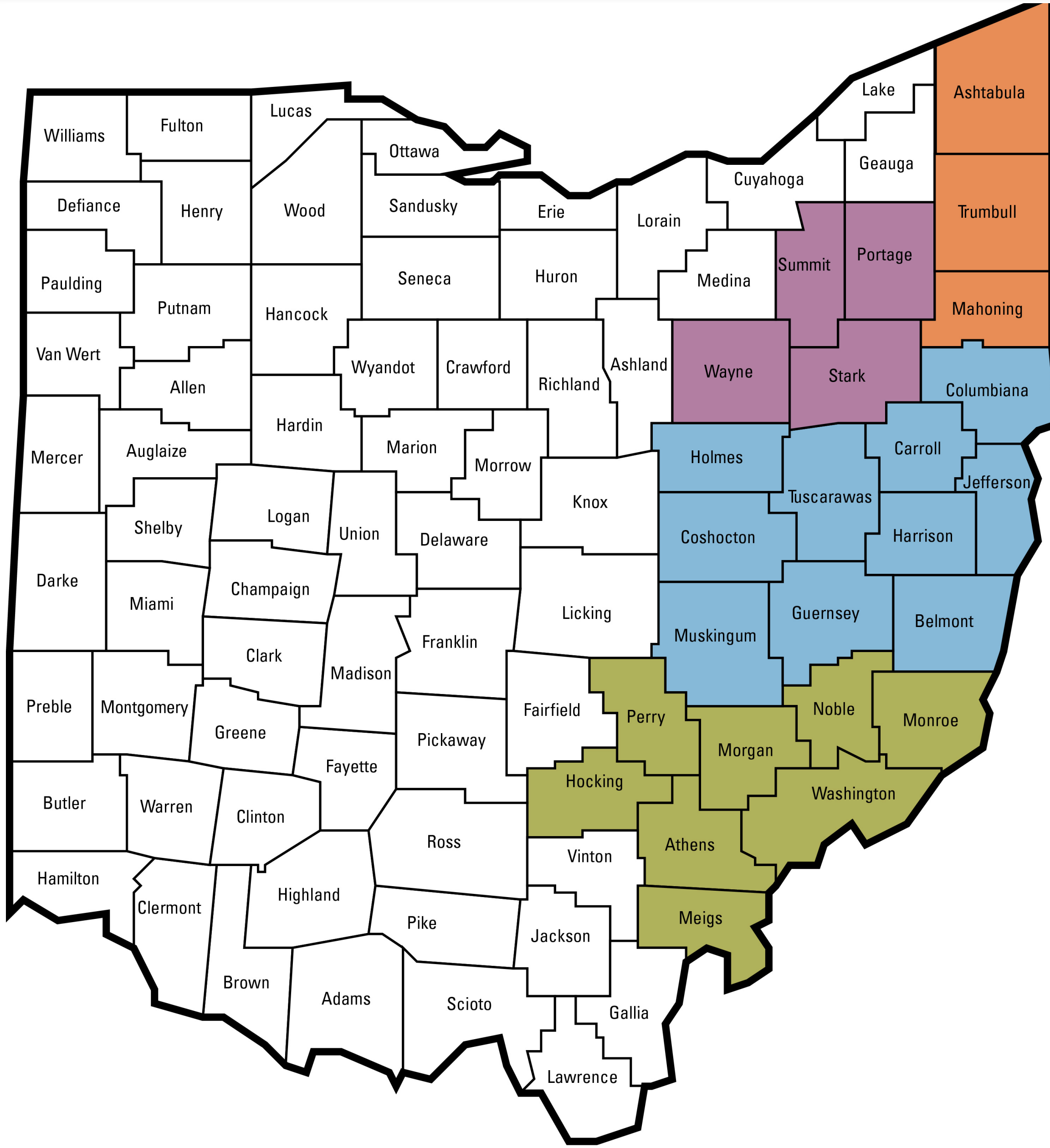
Source: ODNR 7/26/2014

Ohio Department of Job & Family Services Core Shale Industries 2010 - 2013

NACIS	Description	# of Businesses	Jobs
237120	Oil and Gas Pipeline and Related Structures Construction	6	164
211111	Crude Petroleum and Natural Gas Extraction	23	145
213111	Drilling Oil and Gas Wells	6	24
213112	Support Activities for Oil and Gas Operations	20	281
	Total	**55**	**614**

EDA Project Overview

EDA Teams & Partnership



Long Term Goal	Sustainable Regional Economic Prosperity Capable of Transcending the Boom / Bust Cycle				
Short Term Impacts	Economic Diversification Supported by Growth in Manufacturing and Entrepreneurship Development			Sustainable Community Planning	
Project Deliverables	1) Cluster Analysis	2) Industry Capacity Assessment	3) Asset Mapping	4) Strategic Planning Analysis of Shale Gas Impacts	5) Develop Implementation Strategies
Project Inputs	OSU Extension Research and Planning	Collaboration with 4 EDA Economic Development Districts	Comprehensive Economic Development Strategies	EDA Financial Support	State and Regional Demographic and Economic Data

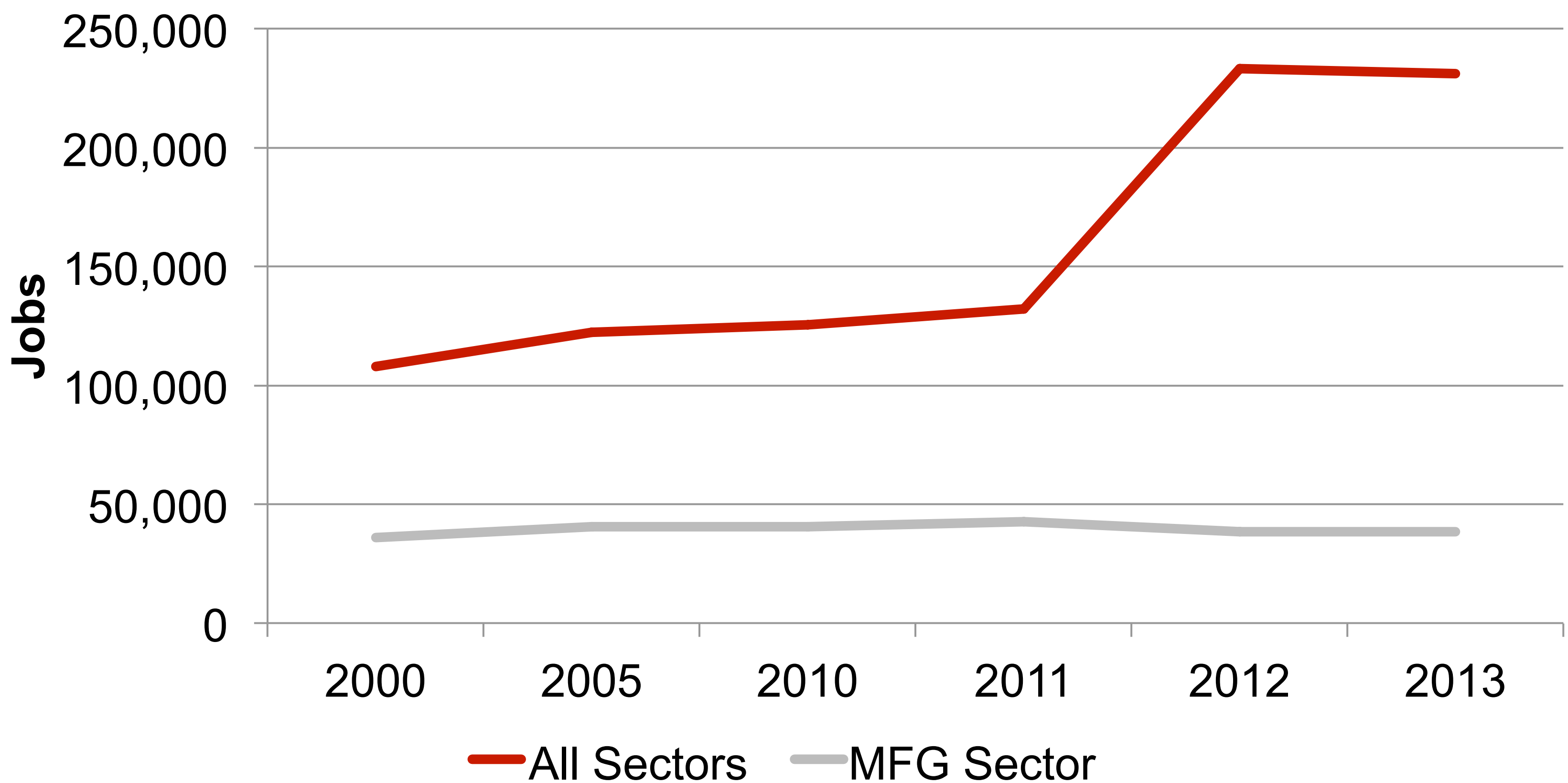
Scope of Work

Currently Finishing economic analysis & beginning STEP 1.5

1. Advanced Industry Cluster Analysis
2. Industry Capacity Assessment
3. Asset Mapping
4. Sustainable Strategic Planning to Elevate and Expand CEDS
5. Develop Implementation Strategies

Economic Trends

NEFCO Employment Trend (All Sectors vs MFG)



Top Ten Total Employment (2013)

NACIS	Description	2010 Jobs	2013 Jobs
622110	General Medical and Surgical Hospitals	1,088	17,722
611110	Elementary and Secondary Schools	12,083	10,963
551114	Corporate, Subsidiary, and Regional Managing Offices	2,645	8,691
722513	Limited-Service Restaurants	400	6,081
722511	Full-Service Restaurants	971	5,589
561320	Temporary Help Services	3,662	5,587
624120	Services for the Elderly and Persons with Disabilities	900	5,205
621111	Offices of Physicians (except Mental Health Specialists)	2,875	4,221
445110	Supermarkets and Other Grocery (except Convenience) Stores	1,647	3,051
561422	Telemarketing Bureaus and Other Contact Centers	1,747	2,899
Source: Center for Human Research Resource (CHRR)			

"But Global Data also flagged the competitive advantage that U.S. companies will receive from the lower cost provided by shale gas. And this opportunity is attracting investment from some of the industry's bigger names. Just last week the International Energy Agency said some **30 million European jobs** are at risk as manufacturers of petrochemicals, plastics and fertilizers are relocating to the U.S."

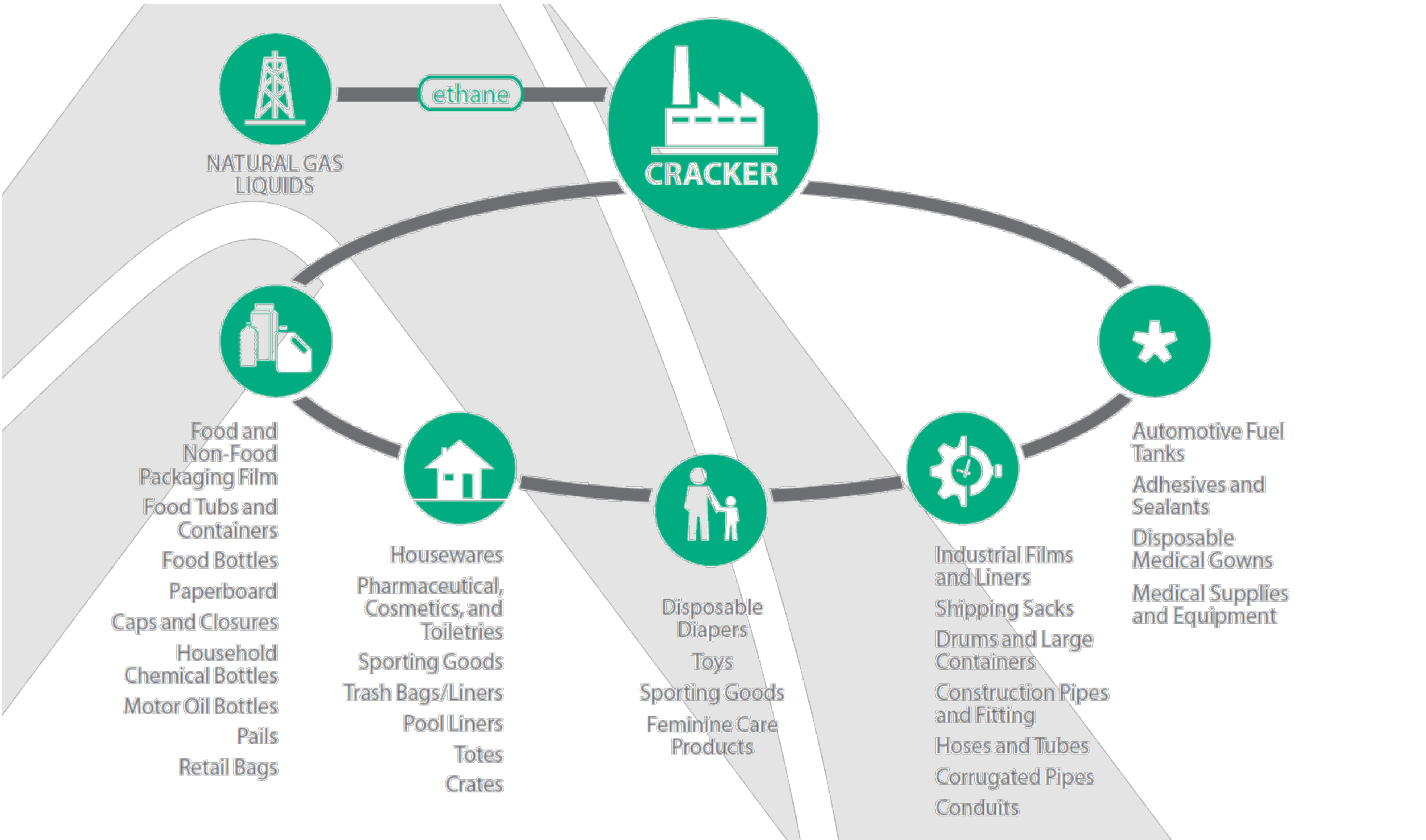
Source: *Shale Reshapes Petrochemicals Business*. The Wall Street Journal. Ben Winkley (July, 2014)

Ohio Getting Ethane Cracker Plant

"Appalachian Resins Inc., a Houston company, has leased 50 acres of land in Monroe County. When built, the Ohio plant would process about 18,000 barrels a day of ethane."

Source: *the Columbus Business First* (August, 2014)

Downstream Value Chain Markets



Economic Analysis

Top 15 Manufacturing by Employment Change

NACIS	Description	2010 Jobs	2013 Jobs	2013 # of Businesses
326199	All Other Plastics Product Manufacturing	504	2371	27
325620	Toilet Preparation Mfg	0	1381	2
332410	Power Boiler and Heat Exchanger Manufacturing	76	1224	4
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	3	830	7
332420	Metal Tank (Heavy Gauge) Manufacturing	89	912	1
332912	Fluid Power Valve and Hose Fitting Manufacturing	0	772	2
311352	Confectionery Manufacturing from Purchased Chocolate *	65	808	3
326121	Unlaminated Plastics Profile Shape Manufacturing	253	908	5
336370	Motor Vehicle Metal Stamping	36	611	1
326291	Rubber Product Manufacturing for Mechanical Use	87	653	10
Source: Center for Human Research Resource (CHRR)				

For purposes of cluster analysis, we are concentrating on the export industries clusters that begin with the core and include the secondary, tertiary (or ancillary) sectors. That is a true cluster.

Top 15 Manufacturing by Employment Change (Cont.)

NACIS	Description	2010 Jobs	2013 Jobs	2013 # of Businesses
331523	Nonferrous Metal Die-Casting Foundries *	34	510	3
325991	Custom Compounding of Purchased Resins	13	480	4
333511	Industrial Mold Manufacturing	87	548	23
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	782	1234	2
333515	Cutting Tool and Machine Tool Accessory Manufacturing	0	450	11
Source: Center for Human Research Resource (CHRR)				

For purposes of cluster analysis, we are concentrating on the export industries clusters that begin with the core and include the secondary, tertiary (or ancillary) sectors. That is a true cluster.

Location Quotient

- Definition: Over 1.0 means that the region has a higher concentration of employment in a particular industry than the national average

- A LQ of 6.72 or 2.58 means the region is HIGHLY specialized. For instance if you have an LQ of 6.72 in the Glass and Ceramics cluster, that means that the number of firms is over 600% more concentrated than the national economy.

Top 15 Manufacturing by Location Quotient

NACIS	Description	2010 LQ	2013 LQ	% Change
326199	All Other Plastics Product Manufacturing	0.90	3.19	253.70%
325620	Toilet Preparation Mfg	0.00	9.87	#DIV/0!
332410	Power Boiler and Heat Exchanger Manufacturing	1.58	18.08	1044.32%
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	0.01	2.85	19939.40%
332420	Metal Tank (Heavy Gauge) Manufacturing	1.49	9.48	535.73%
332912	Fluid Power Valve and Hose Fitting Manufacturing	0.00	7.53	#DIV/0!
311352	Confectionery Manufacturing from Purchased Chocolate *	0.95	9.87	937.28%
326121	Unlaminated Plastics Profile Shape Manufacturing	5.19	14.38	177.10%
336370	Motor Vehicle Metal Stamping	0.29	3.01	944.36%
326291	Rubber Product Manufacturing for Mechanical Use	1.58	8.50	436.61%
Source: Center for Human Research Resource (CHRR)				

Location Quotient (LQ) is the concentration of employment in one area relative to the U.S. An LQ over 1 represents a greater than average concentration, or an industry strength.

Top 15 Manufacturing by Location Quotient (Cont.)

NACIS	Description	2010 LQ	2013 LQ	% Change
331523	Nonferrous Metal Die-Casting Foundries *	0.71	7.44	942.27%
325991	Custom Compounding of Purchased Resins	0.39	10.54	2618.22%
333511	Industrial Mold Manufacturing	1.24	5.47	341.86%
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	6.50	6.48	-0.22%
333515	Cutting Tool and Machine Tool Accessory Manufacturing	0.71	7.44	942.27%
Source: Center for Human Research Resource (CHRR)				

Location Quotient (LQ) is the concentration of employment in one area relative to the U.S. An LQ over 1 represents a greater than average concentration, or an industry strength.

Shift Share Analysis

- The national share explains how much of the regional industry's growth is explained by the overall health of the national economy: if the nation's whole economy is growing, you would generally expect to see some positive change in each industry in your local region (the proverbial "a rising tide lifts all boats"analogy).

- The industrial mix effect represents the share of regional industry growth explained by the growth of the industry/cluster/occupation at the national level.
- The regional competitiveness share is the most important of the three indicators, as it explains how much of the change in a given industry is due to some unique competitive advantage that the region possesses, because the growth cannot be explained by national trends in the industry or the economy as whole.

Top 15 Manufacturing by Regional Share

NACIS	Description	National Share	Industry Mix	Regional Share	Total
326199	All Other Plastics Product Manufacturing	85	-49	1,831	1,867
325620	Toilet Preparation Mfg	-	0	#DIV/0!	#DIV/0!
332410	Power Boiler and Heat Exchanger Manufacturing	13	-3	1,138	1,148
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	1	0	827	827
332420	Metal Tank (Heavy Gauge) Manufacturing	15	11	796	823
332912	Fluid Power Valve and Hose Fitting Manufacturing	-	0	#DIV/0!	#DIV/0!
311352	Confectionery Manufacturing from Purchased Chocolate *	11	-13	745	743
326121	Unlaminated Plastics Profile Shape Manufacturing	43	-32	644	655
336370	Motor Vehicle Metal Stamping	6	5	564	575
326291	Rubber Product Manufacturing for Mechanical Use	15	-4	555	566
Source: Center for Human Research Resource (CHRR)					

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Shift Share measures the influences of job growth based on national growth trends, regional growth trends or sectoral changes. A positive regional share indicates positive growth trends supporting that industry in the region/county.

Top 15 Manufacturing by Regional Share (Cont.)

NACIS	Description	National Share	Industry Mix	Regional Share	Total
331523	Nonferrous Metal Die-Casting Foundries *	6	0	471	476
325991	Custom Compounding of Purchased Resins	2	-1	466	467
333511	Industrial Mold Manufacturing	15	-2	448	461
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing	132	82	238	452
333515	Cutting Tool and Machine Tool Accessory Manufacturing	6	0	471	476
Source: Center for Human Research Resource (CHRR)					

Shift Share measures the influences of job growth based on national growth trends, regional growth trends or sectoral changes. A positive regional share indicates positive growth trends supporting that industry in the region/county.

Manufacturing Cluster Development

What's a Cluster?

A geographic concentration of interdependent, collaborating and/or competing businesses and related institutions that draw productive advantage from their mutual proximity and connections…

Companies Cluster Together Because…

- Each one benefits from being located near other similar or related companies
- They have competitive strengths and needs

Steel Product and Machinery Manufacturing Mega-Cluster Map (NAICS 33)

Primary/Core Industries:

Fabricated structural metal, cutlery and flatware, metal buildings, plate and sheet metal work, heavy machinery manufacturing

Services/Support:

Engineering services, metal heat treating, metal coating and electroplating, machine shops, metal heat treating

Secondary/Suppliers:

Iron and steel forging, custom roll forming, metal stamping, fabricated pipe and pipe fitting, powder metallurgy parts mfg.

Specialized Infrastructure:

Clean water supply

Hazardous waste disposal

Wholesale and distribution services

NEFCO Clusters for Shale Energy

4-Digit NACIS	Description	# of Businesses	Jobs
3261	Plastics Product Manufacturing	50	3,739
3251	Basic Chemical Manufacturing	8	545
3253	Agricultural Chemical Manufacturing	1	26
3262	Rubber Product Manufacturing	22	966

Industry Capacity Assessment (BR&E)

Industry Capacity Assessment

- To acquire specific data from businesses in the region illustrating the strengths, assets, and supply chain supporting manufacturing advancements related to the shale industry and to determine how reliant the businesses are on continued shale production in eastern Ohio.

Industry Capacity Assessment

1. Develop an electronic survey to measure key indicators of the industry.
2. Disseminate the survey and collect valuable data
3. Collaborate with economic development partners to establish a database of businesses (as identified by cluster analysis), contacts, and email addresses.

What's Next?

Continue to analyze data to measure economic changes that occur using IMPLAN and CHRR data sets, in addition to new data being released

Round out list of indicators to include socio-economic changes

- Housing, environmental, education, public services, crime, etc.

Combine IMPLAN results with socio-economic changes and survey research to "tell the story"

Review results annually and at five year intervals

Thank You!

Eric Romich

Field Specialist, Energy

Marion, Ohio

Romich.2@osu.edu

David Civittolo

Field Specialist, Economics

Wooster, Ohio

Civittolo.1@osu.edu