Nemacolin Energy Institute

Capitol Integrity Group

Jim Samuel

Principal

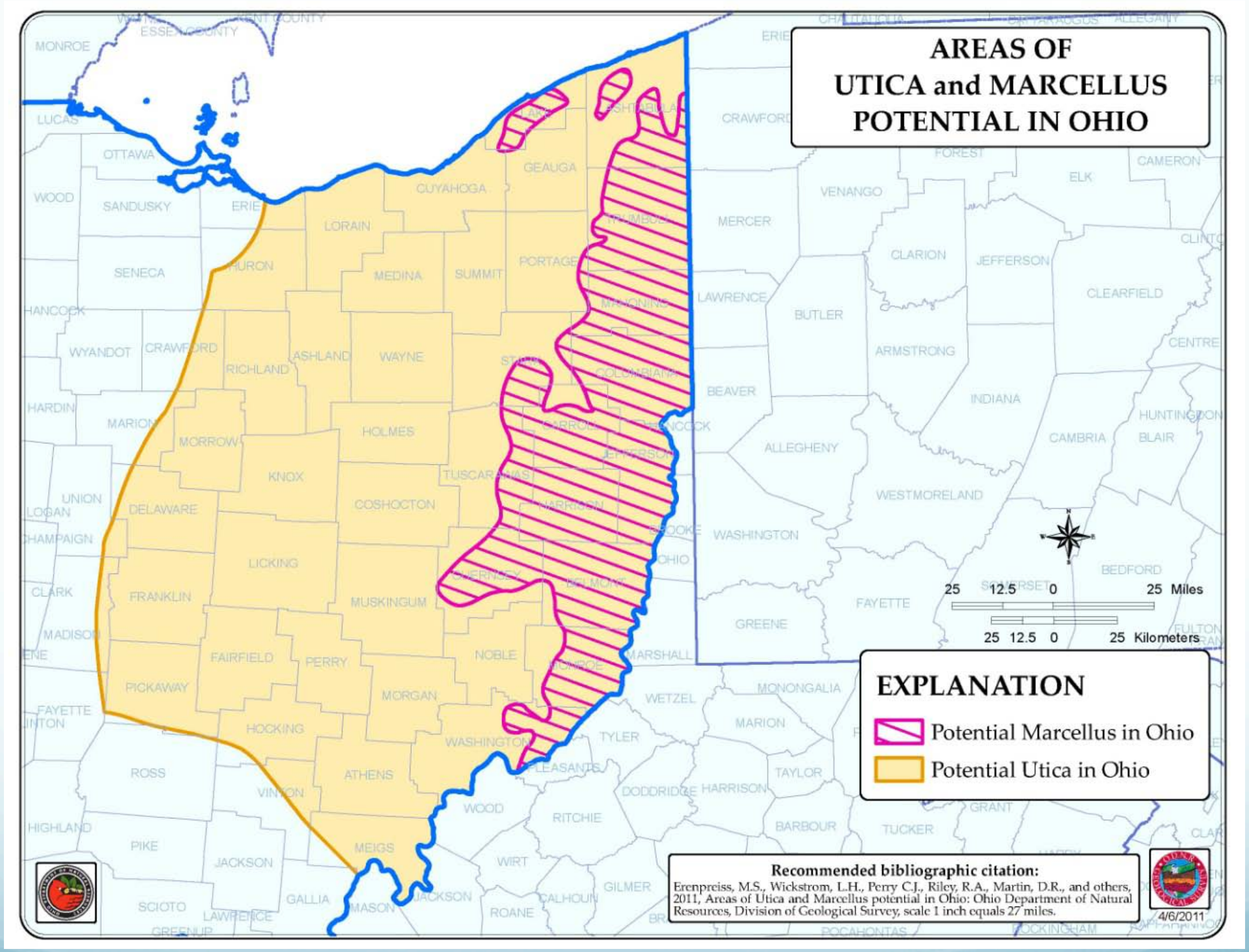
Licking County Energy Summit
March 22, 2012

Panel: *Impact of the Utica Shale on the Regional Economy and the Supply Chain*

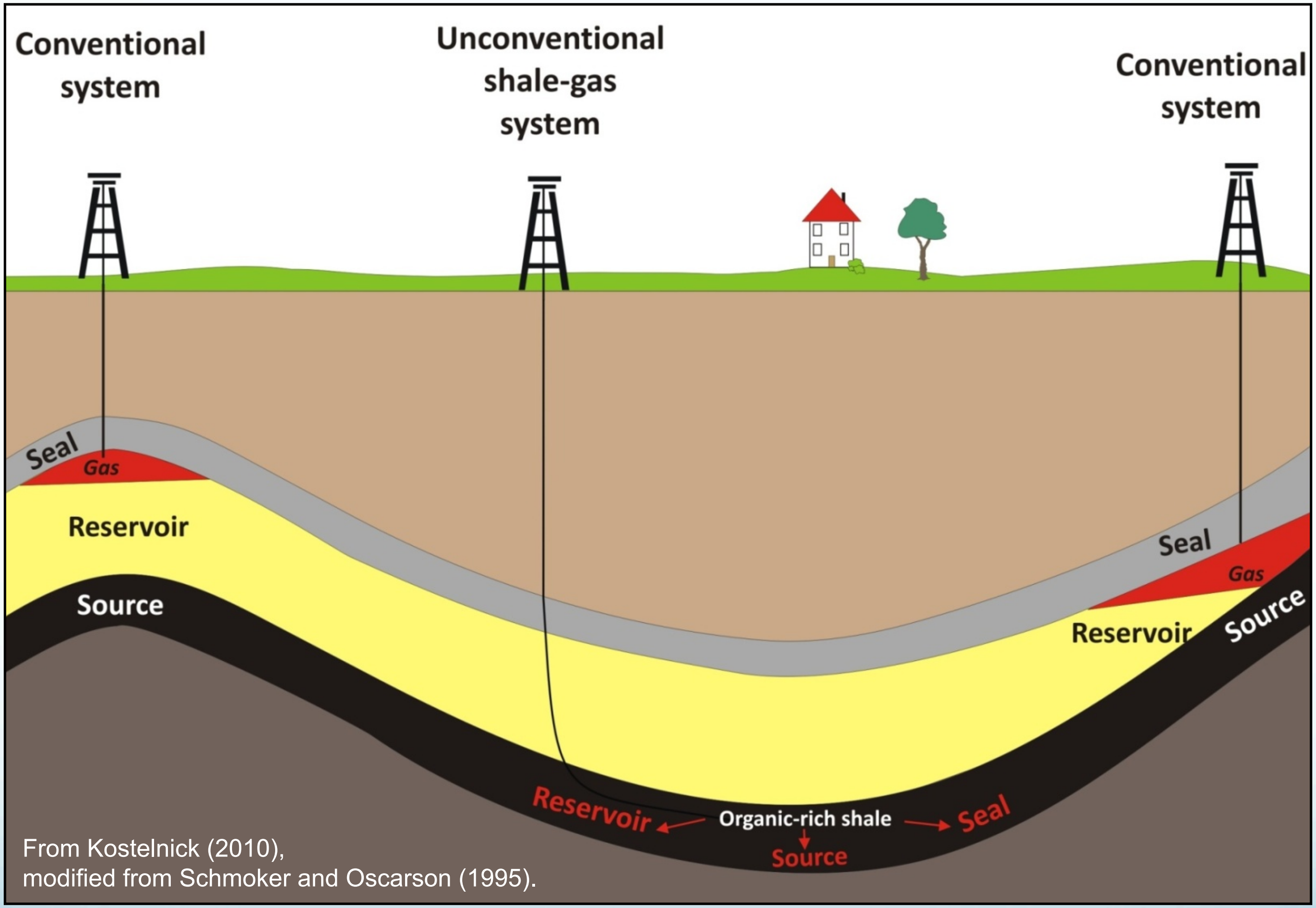
America's Major Shale Plays

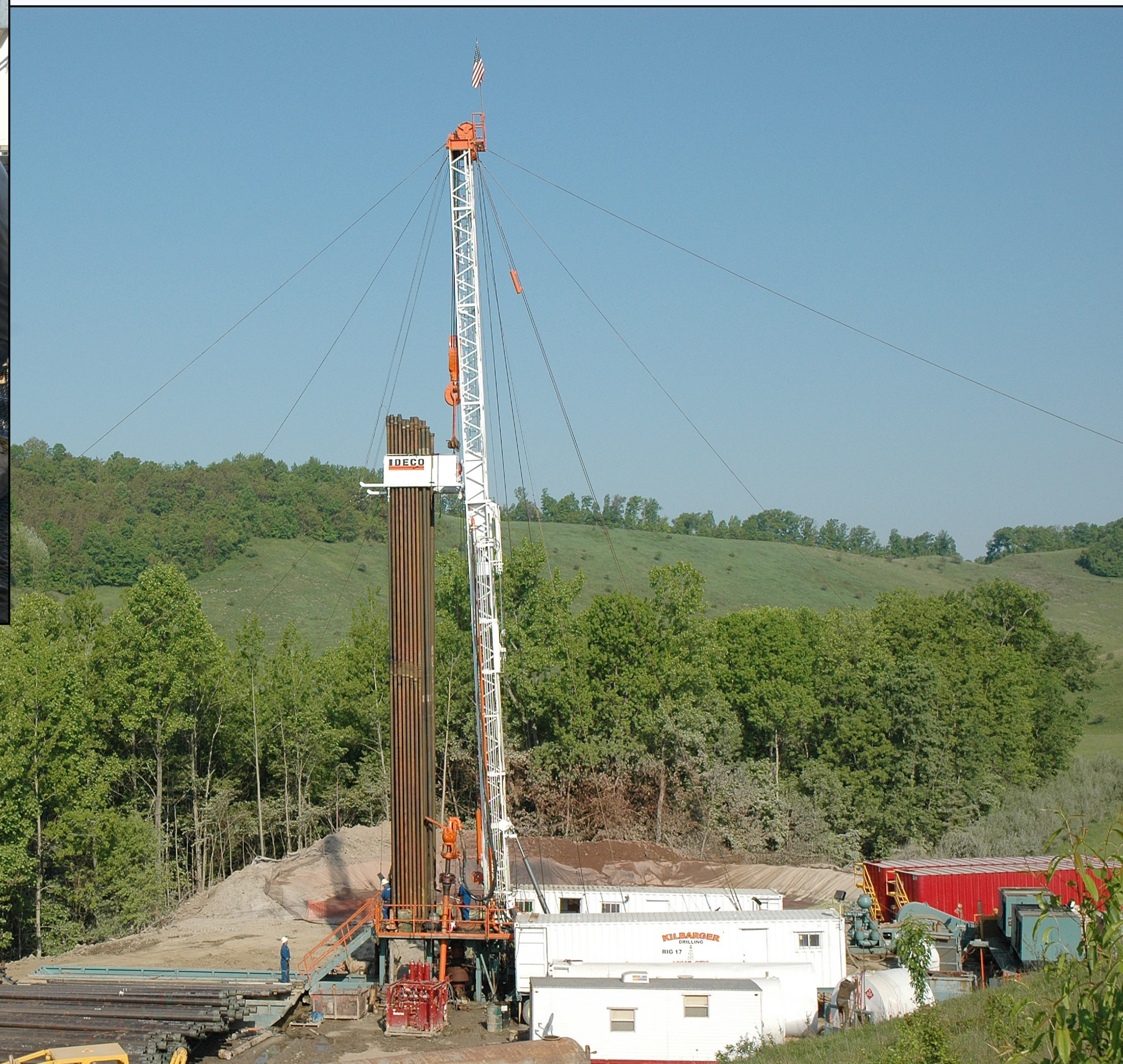
Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

Ohio's Shale Potential



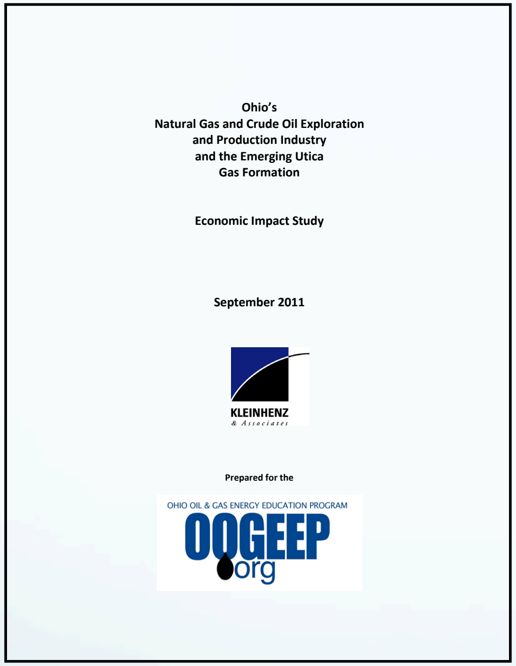
What makes this so different...

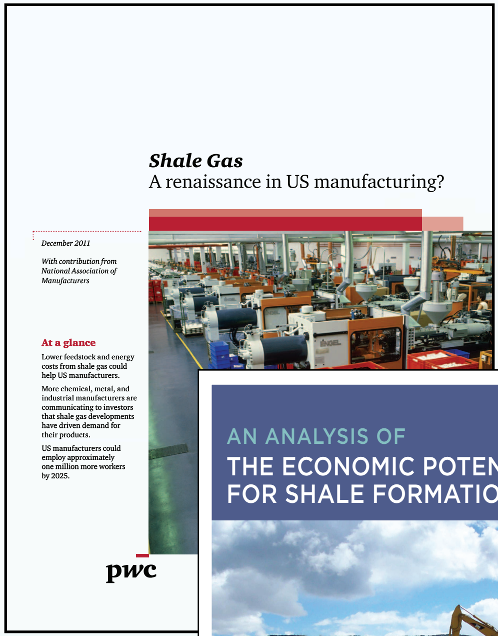


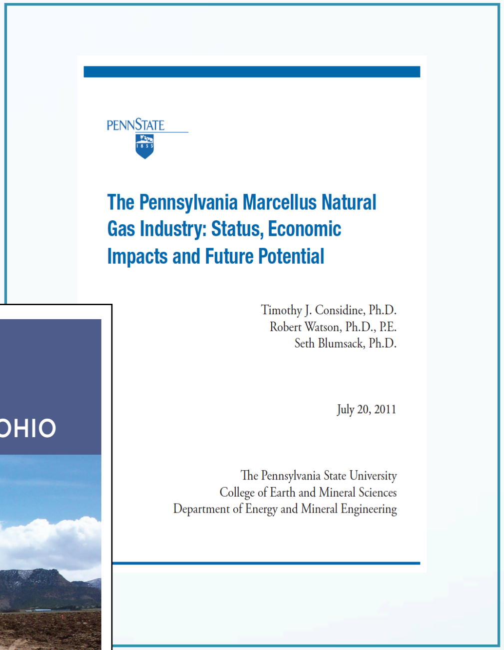


Horizontal operations are much larger than conventional operations.

There are a LOT of studies!







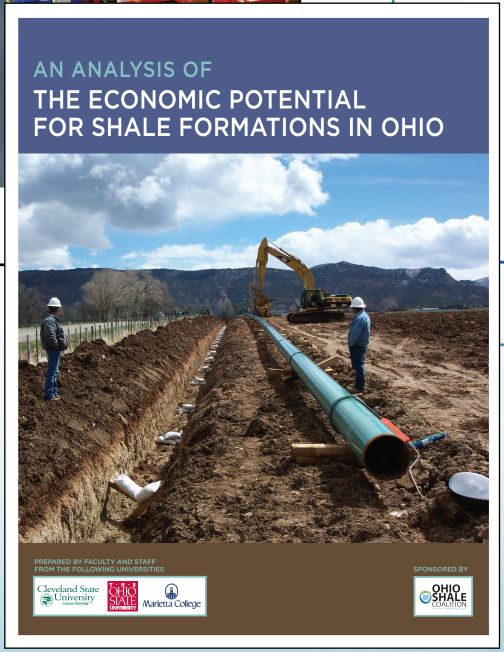


Table 10: Value Added and Employment Total Impacts from Planned Spending

	Value Added in Millions of 2010 Dollars		Number of Jobs*	
Sector	2011	2012	2011	2012
Ag, Forestry, Fish & Hunting	25.3	28.8	872	999
Mining	1,747.6	1,914.1	18,445	20,199
Utilities	210.8	244.8	531	610
Construction	1,768.6	1,939.4	29,315	32,144
Manufacturing	418.5	477.6	3,359	3,810
Wholesale Trade	1,618.0	1,791.2	12,053	13,344
Retail trade	906.5	1,055.8	17,781	20,780
Transportation & Warehousing	415.4	465.8	5,703	6,399
Information	308.8	353.1	1,935	2,217
Finance & Insurance	743.7	852.2	5,608	6,411
Real estate & rental	1,266.8	1,486.9	5,645	6,653
Professional- scientific & tech services	1,261.8	1,405.1	13,159	14,658
Management of companies	229.7	257.3	1,551	1,737
Administrative & waste services	309.8	349.9	7,388	8,340
Educational services	144.2	178.8	3,302	4,050
Health & social services	779.4	916.3	13,586	15,963
Arts- entertainment & recreation	91.6	110.6	2,678	3,214
Hotel & food services	235.8	281.4	8,044	9,557
Other services	270.6	317.5	6,989	8,237
Government & Misc.	90.8	104.5	1,749	2,012
Total	12,843.7	14,531.3	159,695	181,335

* Number of jobs represents estimated direct, indirect, and induced jobs during each year that result from Marcellus activity in Pennsylvania

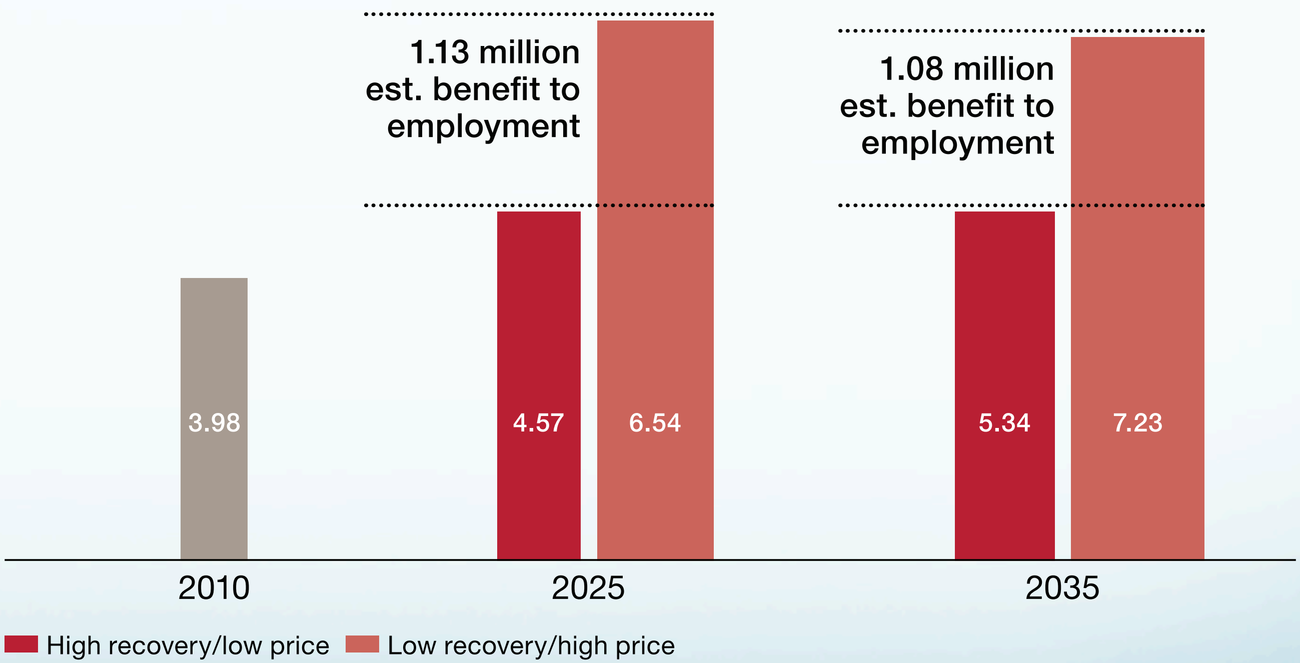
KLEINHENZ & Associates

OHIO OIL & GAS ENERGY EDUCATION PROGRAM OOGEEP.org

Table 50: Utica Employment Impact Analysis: Industries in Ohio with at Least 10 Employees

Category	2011	2012	2013	2014	2015
Support activities for mining	2,473	13,521	63,118	105,709	117,204
Retail trade	166	1,007	4,948	8,990	10,743
Professional and technical services	149	885	4,299	7,675	8,988
Administrative and support services	107	625	3,023	5,365	6,236
Ambulatory health care services	106	634	3,215	5,911	7,060
Construction	98	660	3,235	6,673	9,077
Food services and drinking places	71	434	2,156	3,994	4,940
Wholesale trade	54	321	1,539	2,722	3,162
Real estate	43	259	1,287	2,307	2,670
Personal and laundry services	33	201	1,010	1,834	2,158
Private households	24	148	737	1,349	1,606
Monetary authorities - central bank	23	133	647	1,155	1,348
Repair and maintenance	22	128	616	1,084	1,247
Rental and leasing services	21	117	550	948	1,078
Hospitals	21	125	634	1,168	1,420
Membership associations and organizations	18	109	537	967	1,144
Nursing and residential care facilities	15	93	470	873	1,075
Fabricated metal product manufacturing	13	75	351	588	633
Securities, commodity contracts, investments	12	69	334	598	699
Management of companies and enterprises	11	65	309	526	575
Educational services	10	63	324	619	786
Performing arts and spectator sports	10	61	297	543	658

Figure 4: Natural gas employment sensitivity analysis
Estimated change in US manufacturing employment under high and low shale recovery/price scenarios, million



Source: BLS, EIA, PwC analysis

Table 7. Employment Impacts Due to Ohio Utica Shale Development

	Industry	2011	2012	2013	2014
Field Development & Supply Chain	**Subtotal**	**575**	**4,369**	**16,646**	**28,153**
	Support activities for oil and gas operations	59	1,058	5,450	10,843
	Construction of new nonresidential manufacturing structures	169	1,232	4,746	7,670
	Construction of other new nonresidential structures	173	994	2,552	3,213
	Wholesale trade businesses	66	398	1,374	2,228
	Transport by truck	49	253	965	1,591
	Transport by water	3	37	148	243
	Lessors of nonfinancial intangible assets	1	7	30	51
	Cement manufacturing	3	28	114	187
	Valve and fittings other than plumbing manufacturing	2	45	186	313
	Commercial and industrial machinery and equipment rental and leasing	7	39	155	262
	Electric power generation, transmission, and distribution	6	26	81	127
	Fabricated pipe and pipe fitting manufacturing	1	32	133	223
	Natural gas distribution	1	6	23	38
	Maintenance and repair construction of nonresidential structures	8	72	232	427
	Services to buildings and dwellings	28	141	459	736
Mixed Sources of Demand	**Subtotal**	**270**	**1,257**	**3,958**	**6,279**
	Real estate establishments	105	452	1,367	2,123
	Insurance carriers	28	125	373	572
	Monetary authorities and depository credit intermediation activities	28	135	430	689
	Nondepository credit intermediation and related activities	14	67	204	318
	Telecommunications	11	55	178	284
	Employment services	39	206	699	1,140
	Securities, commodity contracts, investments, and related activities	29	148	501	836
	Insurance agencies, brokerages, and related activities	15	69	206	318
Professional Services	**Subtotal**	**138**	**872**	**3,299**	**5,712**
	Architectural, engineering, and related services	30	232	877	1,502
	Management of companies and enterprises	15	103	405	721
	Legal services	32	151	522	841
	Environmental and other technical consulting services	15	122	553	1,019
	Management, scientific, and technical consulting services	10	56	246	482
	Accounting, tax preparation, bookkeeping, and payroll services	16	93	325	543
	Business support services	13	73	259	433
	Office administrative services	6	43	111	172
Personal Services	**Subtotal**	**858**	**3,676**	**10,627**	**16,066**
	Imputed rental activity for owner-occupied dwellings	NA	NA	NA	NA
	Retail Stores	289	1,318	3,853	5,840
	Food services and drinking places	190	856	2,527	3,865
	Private hospitals	95	367	1,014	1,498
	Offices of physicians, dentists, and other health practitioners	88	361	1,019	1,520
	Nursing and residential care facilities	77	266	730	1,083
	Medical and diagnostic labs and outpatient and other ambulatory care	25	94	264	395
	Civic, social, professional, and similar organizations	40	180	547	850
	Automotive repair and maintenance, except car washes	21	100	302	460
	Individual and family services	35	133	372	554
	Total	**2,275**	**12,150**	**40,606**	**65,680**

Table 7. Employment Impacts Due to Ohio Utica Shale Development

	Industry	2011	2012	2013	2014
Field Development & Supply Chain	**Subtotal**	**575**	**4,369**	**16,646**	**28,153**
	Support activities for oil and gas operations	59	1,058	5,450	10,843
	Construction of new nonresidential manufacturing structures	169	1,232	4,746	7,670
	Construction of other new nonresidential structures	173	994	2,552	3,213
	Wholesale trade businesses	66	398	1,374	2,228
	Transport by truck	49	253	965	1,591
	Transport by water	3	37	148	243
	Lessors of nonfinancial intangible assets	1	7	30	51
	Cement manufacturing	3	28	114	187
	Valve and fittings other than plumbing manufacturing	2	45	186	313
	Commercial and industrial machinery and equipment rental and leasing	7	39	155	262
	Electric power generation, transmission, and distribution	6	26	81	127
	Fabricated pipe and pipe fitting manufacturing	1	32	133	223
	Natural gas distribution	1	6	23	38
	Maintenance and repair construction of nonresidential structures	8	72	232	427
	Services to buildings and dwellings	28	141	459	736

Marcellus Shale Activity Pennsylvania

2012:	144 Marcellus wells drilled in Jan.
2011:	1,937 Marcellus Shale wells drilled
2010:	1,454 Marcellus Shale wells drilled
2009:	763 Marcellus Shale wells drilled
2004:	Range credited w/1st Horizontal Marcellus

* Pennsylvania DEP's Office of Oil and Gas Management

Shale Activity Ohio

As of March 2012, Horizontal Shale wells drilled:

- 50 Utica/Point Pleasant Shale Wells
- 7 Marcellus Shale Wells

OH is about where PA was in 2005/06

* Ohio DNR's Division of Oil and Gas Resources Management

Economic Development

The “Boom- to-Bust” Cycle?

- Real or perceived? It’s about timing and location.
- As drilling becomes production, jobs and economics change.
- Regional goal is to create sustainable economic impact up and down the supply chain and industry stream.

Economic Development

Ohio regions are poised to prosper:

- Tax Structure for Manufacturing
  - ✓ No tax on capital investment in machinery & equipment, no tax on inventory, no corporate profits tax.
- Infrastructure
  - ✓ Roads, communities, people…
- Regional Industry Strengths & History
  - ✓ Steel, polymers, chemicals, compressors, engines …

Upstream
Midstream
Downstream
and Beyond...

Thank you!

All studies and references in this presentation are available at

WWW.CAPITOLINTEGRITY.COM