

SOCIOECONOMIC,
ECONOMIC DEVELOPMENT,
AND WORKFORCE
DEVELOPMENT ANALYSIS
FOR THE MARCELLUS SHALE
DEVELOPMENT IN
PENNSYLVANIA

The Institute for Public Policy &
Economic Development

About the Institute

The Institute for Public Policy & Economic Development is a research based think tank founded and managed by Wilkes University in collaboration with:

Keystone College, King's College, Luzerne County Community College, Marywood University, Misericordia University, Penn State Wilkes-Barre, The Commonwealth Medical College, & University of Scranton.

The Institute for Public Policy & Economic Development (The Institute) provides research, technical assistance, and facilitation and convening services to: analyze components for regional prosperity; create state and local government development strategies; impact studies; market; and feasibility studies.

The Institute's mission is to empower our customers to make good choices based on sound research, objective data, and best practices. It mobilizes the resources of regional institutions of higher education to engage business and communities in planning that is informed by research, energized by broad participation, and validated by successful implementation.

Commissioned Studies

- ▣ Two beginning in 2009 & completed in 2010
- ▣ NE and Northern Tier WIB – Economic Development & Workforce Development Implications
- ▣ Appalachian Regional Commission – Socio-economic study
- ▣ Appalachian Regional Commission – Housing & Community Development – underway in 2011

Economic Development & Workforce Development Study

- ▣ Commissioned by WIBs in NE & Northern Tier
- ▣ Evaluate changes in business composition, number of firms, employees, and payrolls
- ▣ Evaluate key economic indicator changes
- ▣ Establish a PA baseline for further study
- ▣ Evaluate gaps in education/training programs
- ▣ Identify linkages

Sample

- ▣ 16 counties in Texas, Arkansas, Louisiana, and Oklahoma
- ▣ Core and adjacent
- ▣ Benchmarks:
 - population
 - education attainment
 - median income
 - median housing value
 - poverty level
 - migration patterns
 - employment
 - number of establishments
 - payrolls
 - types of firms
- ▣ pre-post drilling (1997 – 2007)

County Samples

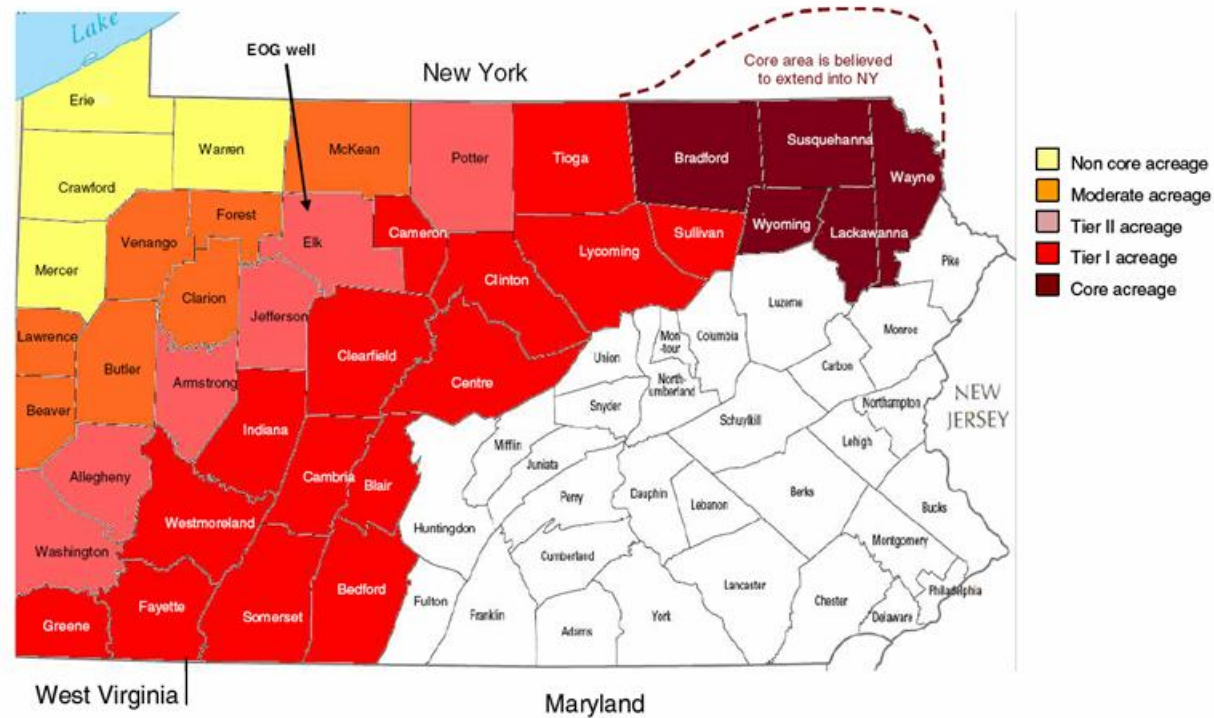
	Arkansas	Louisiana	Oklahoma	Texas
Core	Faulkner	Caddo	Garfield	Denton
	White	DeSoto	Pittsburg	Wise
Adjacent	Independence	Sabine	Wagoner	Cooke
	Pope	Webster	Garvin	Ellis

PA

- ▣ 12 counties
- ▣ Benchmarks
 - population
 - education attainment
 - median income
 - median housing value
 - poverty level
 - migration patterns
 - employment
 - number of establishment
 - payroll
 - type of establishments
- ▣ Pre-drilling – baseline 2007
- ▣ Same multi year comparison (1997-2007) of indicators
- ▣ Bradford, Lackawanna, Wayne, Wyoming, and Susquehanna, Tioga & Sullivan Counties
- ▣ Adjacent areas include: Carbon, Luzerne, Monroe, Pike and Schuylkill Counties

PA Counties

Estimated rankings of PA counties based on depth, thickness and thermal maturity



Source; Bernstein Estimates

Research Methods

- Secondary Data
 - US Census
 - IRS
 - County Business Patterns
 - WIBs
 - Education websites
 - Newspapers
 - Primary Data
 - Interviews

Major limitation – Recession 2008

Population & Migration

- ▣ All core counties in all states saw population growth
- ▣ All but one adjacent county saw population growth
- ▣ Texas saw the most growth and in some cases, staggering numbers.
- ▣ Population from migration.
- ▣ All counties saw it from counties within their states
- ▣ Other influences - Texas
- ▣ Texas same pattern, but demonstrated growth from all over the world

Median Income & Poverty

- ▣ Increases in median income in all counties
- ▣ 19 percent +
- ▣ Increases in poverty levels in most core and adjacent (could be result of recession).

Median Priced Home & Education Attainment

- ▣ The median priced home grew in all counties ranging from 20 – 40% percent.
- ▣ Two core and two adjacent counties saw losses in population with Associate, Bachelors, Masters and Professional degrees

PA County Population & Migration

- ▣ All counties except for Pocono counties saw population decreases
- ▣ Migration from within PA counties to a major degree
- ▣ Pocono migration from New York and New Jersey counties
- ▣ Lackawanna & Luzerne also experienced part of the westward migration

Median Income & Poverty

- ▣ Median income showed similar jumps in PA counties
- ▣ Despite jump many counties still below state and national median
- ▣ Poverty levels increased in all PA study counties except for Wyoming

Median Priced Home & Education Attainment

- ▣ Home values increased in similar patterns to counties in other states
- ▣ Education attainment increased across the board

Number and Types of Firms

- ▣ Consistent growth over period
- ▣ Growth less noticeable in adjacent unless there was a major urban center
- ▣ Small firms (19 or less employees)

Number and Types of Firms

- ▣ Growth industries by number and employment:
- ▣ mining
- ▣ financial
- ▣ insurance
- ▣ food service and accommodations
- ▣ health care and social assistance
- ▣ construction
- ▣ real estate
- ▣ warehousing
- ▣ transportation

Workforce

- ▣ Development & production
- ▣ Geoscientists
- ▣ Marketing and public relations
- ▣ Government relations
- ▣ Engineers
- ▣ Lawyers
- ▣ Administrative

Education & Training

- ▣ More production related programs
- ▣ Oil and gas high school
 - Vocational & Technical studies
 - Strong math and science curriculum

Summary

- ▣ Texas showed the most growth – other influences
- ▣ All show positive business and job growth in drilling, drilling support, and other sectors
- ▣ Strong education and training programs

Conclusions

- ▣ Collaboration on programming and coordinated delivery system of education and training
- ▣ Coordinate entrepreneurial support with documented growth industries and collaboration with energy companies
- ▣ Develop a workforce program for businesses susceptible to employee loss due to energy industry growth

Baseline Socio-Economic

- ▣ PA Household Surveys
- ▣ Interviews in three states

Research Methods & Limitations

- ▣ Mail Survey – 36 % response
- ▣ 100% verification process
- ▣ Females underrepresented
- ▣ Younger population underrepresented
- ▣ Lower high school grad only underrepresented
- ▣ Baseline should have been completed prior to commencement of drilling
- ▣ Samples not weighted in survey or interviews
- ▣ Semi-structured interviews
- ▣ Digitally recorded
- ▣ Nvivo evaluated – no statistical analysis
- ▣ All sectors not balanced equally in interviews

The Survey

- ▣ 5000 households – multiple mailings
- ▣ 421 unusable
- ▣ 1,461 Pennsylvania residents
- ▣ 36% response rate
- ▣ 57 questions
- ▣ 150+ categories for analysis

Survey Document

- ▣ Understanding and Knowledge of Marcellus Shale
- ▣ Community Evaluation
- ▣ Demographic –Economic – Education – Income profile of respondents

Self-Perceived Knowledge

How much do you know about each of the following? (Questions B2 and B3).						
Item	None or almost none	Very little	Some but not much	A good bit	A great deal	Number of cases*
Economic impacts	18.3	25.1	28.7	22	5.9	1439
Social impacts	19.1	26.9	31.1	17.6	5.3	1428
Environmental impacts	16.3	22.2	27.9	23.6	10.1	1435
Implications for water quality and quantity	17.9	22.9	27.5	22.9	8.8	1435
Drilling procedures	27.9	30.8	24	13.3	4	1443
Legal Implications of leasing	31.4	31	22.2	11.6	3.9	1440
Impact on local government	32.6	31.8	23.6	9.1	2.9	1439
Government regulations	36.5	34.5	18.8	7.6	2.6	1440
Jobs and job-training	34.9	32.9	22.1	7.4	2.7	1440
<i>*Number of cases varies due to nonresponse to the items</i>						

Sources of Knowledge

- ▣ 76 % have NOT sought out information on shale
- ▣ 24% reported the media as their primary source

Trust

How much trust do you have in each of the following related to natural gas? (Question B20)

Item	No trust	Very little trust	Some trust	Great deal trust	Don't know	Number of cases*
Natural gas industry	10.6	26.6	42.1	8.2	12.5	1397
State departments of environmental protection/conservation	9	23.3	47.3	8.5	11.9	1393
Scientists/researchers	4.8	11.4	51	20.3	12.5	1390
Cooperative Extension or other educator	5.3	15.1	47.7	14	17.9	1389
Local environmental groups	8.5	21.6	46.3	9.8	13.8	1391
Local task forces/committees	9.2	23.4	41.5	4.8	21.1	1390
<i>*Number of cases varies due to nonresponse to the items.</i>						

Perceived Impact

How much do you expect Marcellus Shale gas development to impact each of the following? (Question B6)

Item	Don't know	Get better	Stay same	Get worse	Number of cases*
	%				
Availability of good jobs	22.6	41.2	34.1	2.1	1432
Quality of public schools	21.6	9.1	65.1	4.3	1435
Quality of health care	20.8	7.6	67.7	3.9	1432
Availability of affordable housing	19.7	8.4	52.7	19.2	1432
Roads and streets	16.6	10.2	43.2	30	1432
Freedom from crime/violence	20.7	3.3	53.1	23	1433
Quality of natural environment	18.1	4.1	31.2	46.6	1428
Neighborliness/friendliness	20.7	4	66.4	8.9	1433
Drinking water	22.9	3	34.5	39.6	1431
Recreation opportunities	21.6	5.2	59	14.2	1432
Cultural events	24	5.5	65.7	4.8	1428
Job training opportunities	22	30.3	43.7	3.9	1431
Overall cost of living	20.8	9.2	43.1	26.9	1435

*Number of cases varies due to nonresponse to the items.

Attitudes About Drilling

How do you feel about each of the following? (Question B19)						
Item	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Number of cases*
	%					
Negative impacts can be prevented	17.3	43	28.1	8.5	3.1	1404
Know enough about impacts to move forward	6.2	22.6	44.1	19.1	8	1401
Benefits outweigh costs	8.4	24.4	45.9	14.2	7.1	1396
Worry about catastrophic accident	7.3	20.8	36.8	25.9	9.2	1403
Negative aspects can be fixed	3.9	18.8	42.6	25.3	9.3	1396
Only a few people will benefit	13.8	33.9	31.4	16.4	4.6	1406
Extraction should be encouraged to decrease reliance on imports	20.5	35.9	34.2	6.1	3.3	1402
Industry will provide employment/keep kids in area	8.3	25.3	42.9	18.4	5.1	1402
Will create long lasting environmental problems	7.9	18.9	48.5	19.3	5.4	1399
Development makes me optimistic about the future of our communities	6.6	26.3	48.5	14	4.6	1400
<i>*Number of cases varies due to nonresponse to the items.</i>						

Residents Attitudes Toward Community

Rate your present community as it is today in regard to each of the following. (Question A1)

Item	Very poor	Poor	Neither poor nor good	Good	Very good	Number of cases*
	%					
Availability of jobs	25.3	40.6	24.4	8.7	1	1444
Public schools	1.2	6.5	23.7	54.4	14.1	1445
Medical services/health care	3.7	9.8	23.4	50.1	12.9	1442
Availability of affordable housing	5	16.4	37.3	34.6	6.6	1426
Roads and streets	6.6	20.8	34.9	33.9	3.8	1445
Freedom from crime/violence	3.7	11.6	29	44.4	11.4	1443
Natural environment	1	4.6	18.4	50.8	25.2	1438
Neighborliness/friendliness	1.7	4.9	18.9	53.4	21	1446
Drinking water	3.2	8	18.8	49	21	1447
Recreation opportunities	5.2	13.7	25.9	40.5	14.8	1446
Cultural events/activities	7	19.8	32.6	32.4	8.2	1443
Job training opportunities	12.8	30.9	37.5	16.5	2.3	1419
Overall quality of life	1	5.5	26.5	55.3	11.6	1443

*Number of cases varies due to nonresponse to the items.

Survey Summary

- ▣ Knew little about natural gas industry
- ▣ 2:1 support development
- ▣ 25% hoped to gain employment in industry
- ▣ Media – primary source of information
- ▣ Many do not believe there will be impact on community services or overall QoL
- ▣ 67% rated the overall QoL as good or very good
- ▣ Men held more favorable attitudes about drilling than women
- ▣ Higher education – less positive about drilling
- ▣ Higher income – more positive
- ▣ Increased age – more positive

Pennsylvania Interviews

- ▣ Informants in 5 counties in northeast and southwestern PA – Greene, Westmoreland, Lackawanna, Luzerne, and Susquehanna
- ▣ 50 interviews
- ▣ Business owners, educators, elected officials, environmental, industry, landowner, local organizations/agencies

Pennsylvania Interview Questionnaire

- ▣ County Issues – past, present and future
- ▣ How did you first become aware of Marcellus Shale exploration/ development?
- ▣ How do you think your county is being affected by the development of natural gas? Social, economic, environment. Who benefits? Who doesn't?
- ▣ How do you think the county has reacted to Marcellus Shale Development?
- ▣ How would you describe the level of trust county members have with the natural gas industry?
- ▣ How do you think you will personally be affected by changes from natural gas development?
- ▣ What do you think the county will look like in the next couple years, as natural gas development continues?
- ▣ Is there anything else about this topic or your specific community that we have not discussed that you feel is important?

PA County Interview Summary

- ▣ Economic benefit evident
- ▣ Housing shortage – Affordability an issues
- ▣ Overall cost of living increasing
- ▣ Gentrification & Tension
- ▣ Mineral Rights ownership and adjacent property issues
- ▣ Worried about loss of rural ambience
- ▣ Local gov't is struggling – no revenue, but increasing costs
- ▣ Severance tax with proceeds to local gov't
- ▣ Concerns over crime and infrastructure
- ▣ Farmland valuation increasing
- ▣ Bringing people together for discussion

continued

PA County Interview Summary

- ▣ More jobs available
- ▣ Charities seeing increases in giving
- ▣ Education and training programs for locals helping
- ▣ Worried about losing rural nature of county
- ▣ Concern about sprawl
- ▣ Environmental issues – visual and with water
- ▣ Deteriorating roads and increased traffic
- ▣ Noise
- ▣ Worried about compressor stations being built

Pennsylvania Interview Conclusions

- ▣ Despite concerns – very positive about the play
- ▣ Not enough information circulating
- ▣ Need a severance tax with local government allocation

Texas & Arkansas Interviews

- ▣ Informant interviews in 5 counties in Texas and Arkansas
- ▣ 8 interviews in Denton, Navarro, and Tarrant County Texas
- ▣ 3 interviews in Faulkner & White County, Arkansas
- ▣ Economic development, education, local government (elected & staff) and media

Texas & Arkansas Interview Questions

- ▣ Local Government Officials
- ▣ Economic Development Professionals -
- ▣ Education Professionals

- ▣ **ALL RESPONDENTS**

Are there some 'lessons learned' that you would like to share with us, as we develop ideas and recommendations for the Marcellus shale region?

- More successful strategies or approaches? These could be in your organization or others in the community.
 - Priority areas to tackle first? Taxation, regulation, etc.
 - Strategies about how to organize and prepare locally?
- ▣ Looking back.... Are there steps you wish you or your organization would have taken sooner, issues you would like to have prioritized differently, or actions you would like to take back?

Is there anything else about this topic or your specific community that we have not discussed that you feel is important?

Shale Plays

- ▣ Barnett

2nd largest to Marcellus – 5,000 sq mi – 18 co.

Horizontal, hydraulic fracking since 1990s

Texas RR Commission

- ▣ Fayetteville

10 counties in central and eastern Arkansas

Began in 2004

Texas Counties

- ▣ Denton & Tarrant (1990 – present)

Extensive population growth

Increase in household income

Home values

Job growth in all sectors

Arkansas Counties

- ▣ Faulkner and White
- Population growth
Income growth
Housing values

Texas Interview Summary

- ▣ Economic benefit strong
- ▣ Minor job fluctuations in industry with drop in gas prices
- ▣ Increase in wealth positive for residents
- ▣ Eminent domain causes problems with residents
- ▣ Benzene concern
- ▣ Landmen did industry a disservice
- ▣ Public land has been leased on state and local level

Arkansas Interview Summary

- ▣ Economic benefit – companies, jobs, wages
- ▣ Leasing disparities cause tension
- ▣ Wastewater disposal worrisome
- ▣ No water contamination
- ▣ Road damage
- ▣ Mineral rights affecting property values/sale
- ▣ Learned from Texas
- ▣ Believe Arkansas should increase severance tax and increase local allotment
- ▣ Land use and zoning issues

Texas & Arkansas Interview Summary

- ▣ Definite economic benefit
- ▣ Mineral rights trump land rights – tension
- ▣ Education programs helping locals get jobs
- ▣ Road damage

Texas & Arkansas Interview Conclusions

- ▣ See mostly benefits
- ▣ Arkansas more open to talking about challenges
- ▣ Both have seen big economic gains
- ▣ Similar problems to PA Counties

Lessons Learned

- ▣ More information from government to residents
- ▣ SPOC
- ▣ Emphasize production in education/training as opposed to drilling (longer term jobs)
- ▣ Routing – public postings
- ▣ Strong set of regulations and ordinances – all black and white
- ▣ Comprehensive tax structure
- ▣ Industry growth has positive/negative societal and environmental impacts as well as economic – policy needs to reflect that.

Institute for Energy & Environment Research (IEER)

THE INSTITUTE FOR ENERGY & ENVIRONMENTAL RESEARCH FOR NORTHEASTERN PENNSYLVANIA

MARCELLUS SHALE INFORMATION CLEARINGHOUSE

Marcellus Basics | Issues | Library | Law / Policies | Economics | Public Opinion | Education / Training | Employment | Links

RESEARCH + EDUCATION INFORMED DECISIONS

Surface Water Monitoring

Wilkes University's Center for Environmental Quality is establishing a **water quality database** in response to natural gas drilling in our region. The database will provide information about the current state of groundwater and surface water quality and serve as a basis for monitoring impacts related to Marcellus gas drilling activity. The database is the first of its kind in northeast Pennsylvania and targets private wells in Luzerne and Columbia counties. [More >>](#)

Recent News

Former Landholders Ask, 'How What?' [Climate Voice, Wilkes-Barre, PA]

Harvey Luhn Proposes Angry One Defeat of Drilling Ban [Climate Voice, Wilkes-Barre, PA]

Governor Corbett: Natural Gas Tax Could Hurt PA [Climate Voice, Wilkes-Barre, PA]

Conservation Agency Pushes to Drilling Review [Climate Voice, Wilkes-Barre, PA]

Green County Business Owner Charged with Illegally Dumping Millions of Gallons of Gas Drilling Waste Water and Sludge

Under Technology Gas Drilling Proposal Advances [Times Leader, Wilkes-Barre, PA]

Upcoming Events

Mar 22 2011 - 6:30 PM Household Water Well Assistance Program

Mar 23 2011 - 6:30 PM Household Water Well Assistance Program

Mar 29 2011 - 6:30 PM Free Property Owner's Workshop

Mar 30 2011 - 6:00 PM Getting the Waters Tested: The Marcellus Shale Factor

Mar 30 2011 - 7:00 PM Gas Drilling and Your Rights

Apr 2 2011 - 10:00 AM Marcellus Shale - Regional Advocacy/Action Workshop

From the Director

Once again we grow! Welcome to the website for the Institute for Energy and Environmental Research of Northeastern Pennsylvania (IEER) Information Clearinghouse. This online resource is part of the newly formed IEER's effort to provide unbiased, understandable information regarding Marcellus gas extraction to the residents of northeastern Pennsylvania. [More >>](#)

The Institute News

Educational, environmental & economic institutions get together re natural gas (Times-Tribune, Scranton, PA)

Institute hires new staff

Announcement of the Creation of Energy Institute With Wilkes University and Partners and \$1 Million for Marcellus Shale Research

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The Institute for Energy and Environmental Research of Northeastern Pennsylvania is a collaboration between Wilkes University, King's College, the Earth Conservancy, and the Institute for Public Policy and Economic Development. The website of this site are intended to inform thoughtful discussion of issues relating to energy development in northeastern Pennsylvania. The IEER seeks to provide an unbiased perspective to citizens, policymakers, and educators, merging hard science practices with public policy decisions.

IEER website

<http://energy.wilkes.edu>

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