



Penn State  
Cooperative Extension

**Marcellus Shale Educational  
Webinar Series**

April 2010 - September 2010

# **Penn State Cooperative Extension Marcellus Shale Educational Webinars April 2010 – September 2010**

- Six-part series of one-hour on-line educational seminars
- Our goal is to help address the opportunities and challenges related to exploring for gas in the Marcellus shale in Pennsylvania
- Audiences
  - Public officials at all levels
  - Cooperative Extension and other educational organizations
  - Planning and economic development agencies or groups
  - Environmental organizations
  - People who might influence public policy or individual decisions regarding exploration for gas
  - Citizens

For more information:

<http://naturalgas.extension.psu.edu/Events.htm>

# Today's Webinar

*Natural Gas Experiences of  
Marcellus Residents: Preliminary  
Results from the Community  
Satisfaction Survey*

Kathy Brasier, Ph.D.  
Assistant Professor  
of Rural Sociology  
Penn State University

# Natural Gas Experiences of Marcellus Residents

*Preliminary Results from the Community Satisfaction Survey*



**KATHY BRASIER, PHD  
DEPT. OF AG ECON & RURAL SOCIOLOGY  
PENN STATE UNIVERSITY**

**MARCELLUS WEBINAR SERIES  
SEPTEMBER 16, 2010**

# Acknowledgements



**THE SURVEY PROJECT WAS CONDUCTED BY A TEAM  
FROM PENN STATE, CORNELL, AND THE INSTITUTE FOR  
PUBLIC POLICY AND ECONOMIC DEVELOPMENT:**

**MATT FILTEAU  
BUNNY WILLITS  
TIM KELSEY  
DIANE MCLAUGHLIN  
RICH STEDMAN  
STEPHAN GOETZ  
WHITNEY PROSE  
JEFFREY JACQUET  
TED ALTER  
TERI OOMS**

**FUNDING PROVIDED BY PSU COLLEGE OF  
AGRICULTURAL SCIENCES, CORNELL UNIVERSITY, AND  
THE APPALACHIAN REGIONAL COMMISSION**

# Objectives



- Setting the stage – where, when, and how we surveyed Marcellus residents
  
- Sample characteristics – who answered the survey
  
- Preliminary results
  - Experiences with development and leasing
  - Knowledge of Marcellus Shale development
  - Attitudes toward Marcellus Shale development

# Research Objectives



- Develop baseline data for longitudinal research on impacts of Marcellus development
- Understand variability in community satisfaction and social interaction across region now
- Describe knowledge and attitudes toward Marcellus development, and what causes these to vary
- Identify areas of commonality, conflict, opportunities for building consensus

# Counties in the Sample



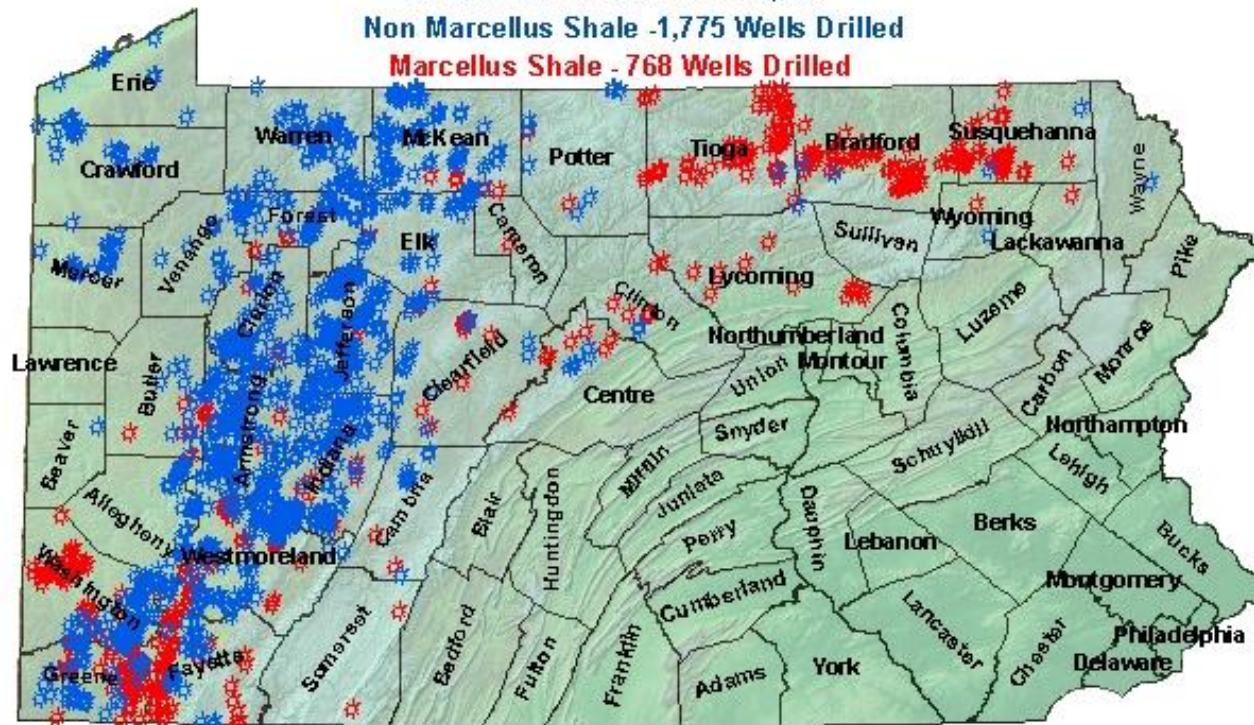
## County, State (wells permitted/drilled 2009)

Bedford, PA	0/0	Lackawanna, PA	28/1	Broome, NY
Blair, PA	2/0	Lycoming, PA	107/24	Chemung, NY
Bradford, PA	430/113	Somerset, PA	18/3	Delaware, NY
Cambria, PA	6/2	Sullivan, PA	1/0	Schuyler, NY
Cameron, PA	5/1	Susquehanna, PA	155/60	Steuben, NY
Centre, PA	42/7	Tioga, PA	300/114	Sullivan, NY
Clearfield, PA	72/27	Washington, PA	209/138	Tioga, NY
Clinton, PA	41/12	Wayne, PA	1/0	Tompkins, NY
Fayette, PA	88/55	Westmoreland, PA	89/46	
Greene, PA	182/91	Wyoming, PA	11/1	
Indiana, PA	19/8			

# Wells Drilled 2009

Department of Environmental Protection  
Bureau of Oil and Gas Management  
Wells Drilled

2009 Total Wells Drilled - 2,543  
Non Marcellus Shale - 1,775 Wells Drilled  
Marcellus Shale - 768 Wells Drilled



As Reported by Operators

Updated 01/25/2010

# Survey Methods

- Sample of 6000 households in 21 PA and 8 NY counties
  - Conducted Oct. 2009 – March 2010
  - Four mailings
  - 1917 out of 5479 valid surveys returned (35%)
- Question topics:
    - Community satisfaction
    - Social capital
    - Community attachment
    - Environmental attitudes
    - MS knowledge, experience, leasing, employment
    - Perceptions of risk re: MS
    - Expectations for community impacts from MS
    - Demographics

# Sample Characteristics



- PA residents: 76%
- Male: 54%
- Age
  - Average age: 57 years
  - Under 45 years old: 21%
  - 45-64 years old: 47%
  - Over 65 years old: 32%
- Education
  - HS or less: 34%
  - Some college: 34%
  - College degree: 32%
- Length of residence
  - All my life: 49%
  - 20 years or more: 31%
  - Less than 20 years: 21%
- Household income
  - Under \$25,000: 26%
  - \$25,000 - \$50,000: 30%
  - \$50,000 - \$100,000: 32%
  - Over \$100,000: 12%

# Community Satisfaction



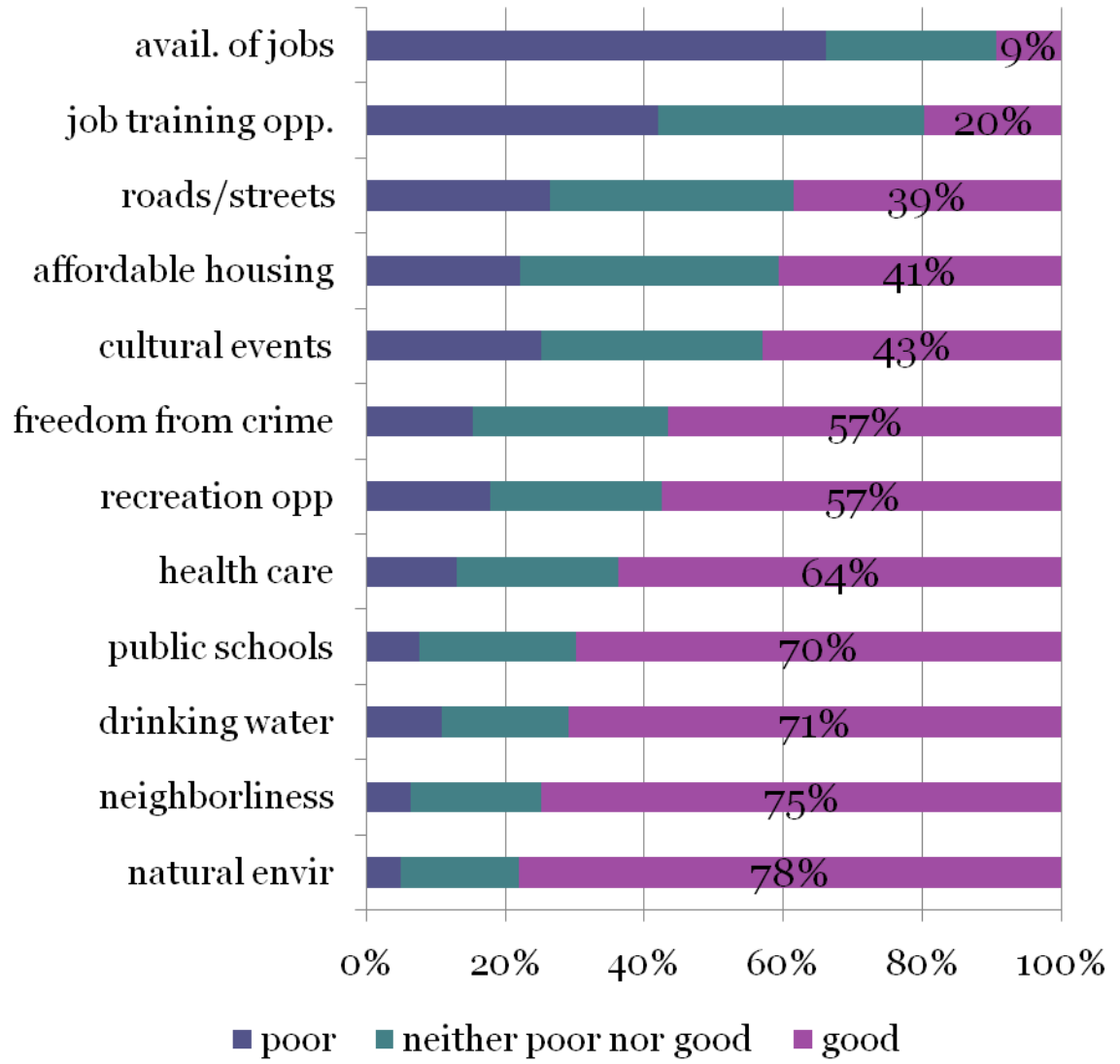
**BASELINE DATA AND OPPORTUNITIES FOR  
FUTURE ANALYSIS**



# In the Future....

Repeated surveys over time will allow us to measure changes in satisfaction and experiences within communities

Now.... Can tell us what people appreciate about where they live



Rating of Quality

# Quality of Life Indicators

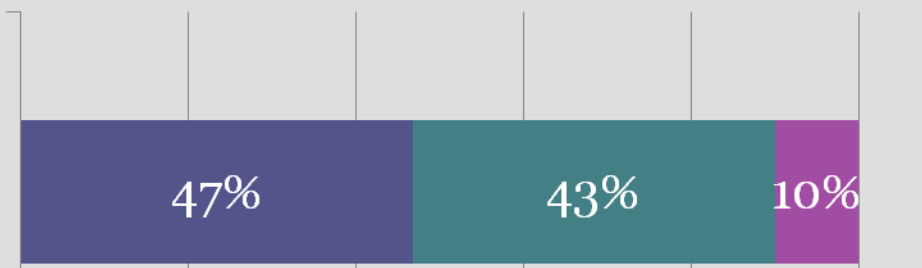


- 68.5% rate overall quality of life as ‘good’ or ‘very good’
- 64.7% rate cost of living as ‘about average’
- 92.5% feel ‘somewhat’ or ‘very safe’

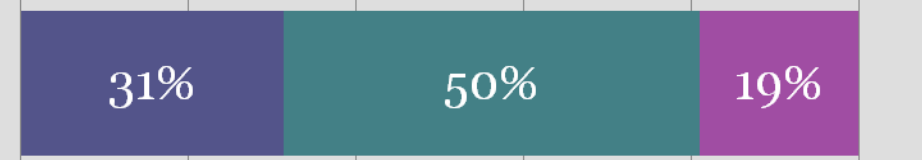
# Community Rating



Compared to 5 years ago, community is...



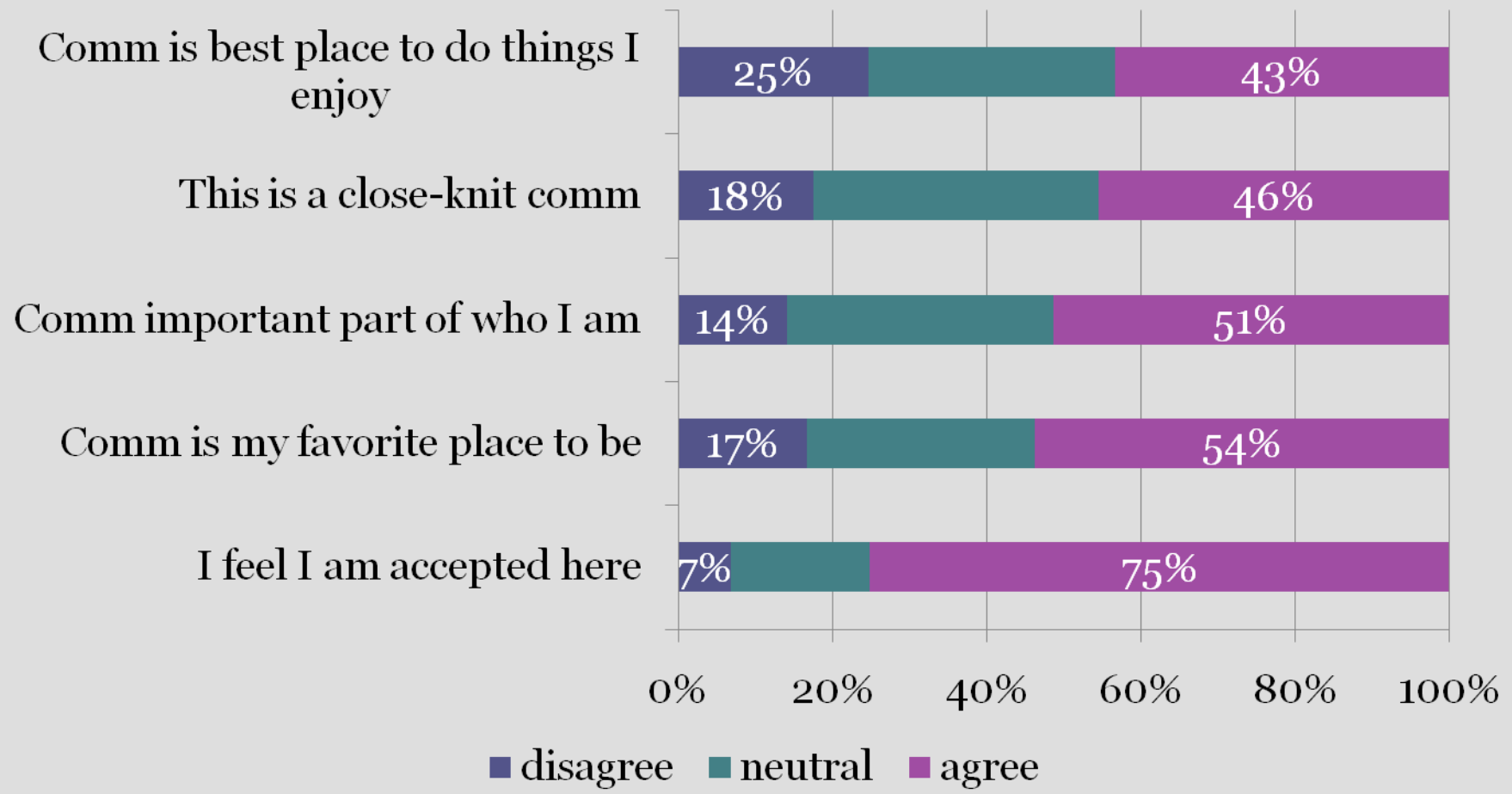
In 5 years community will be...



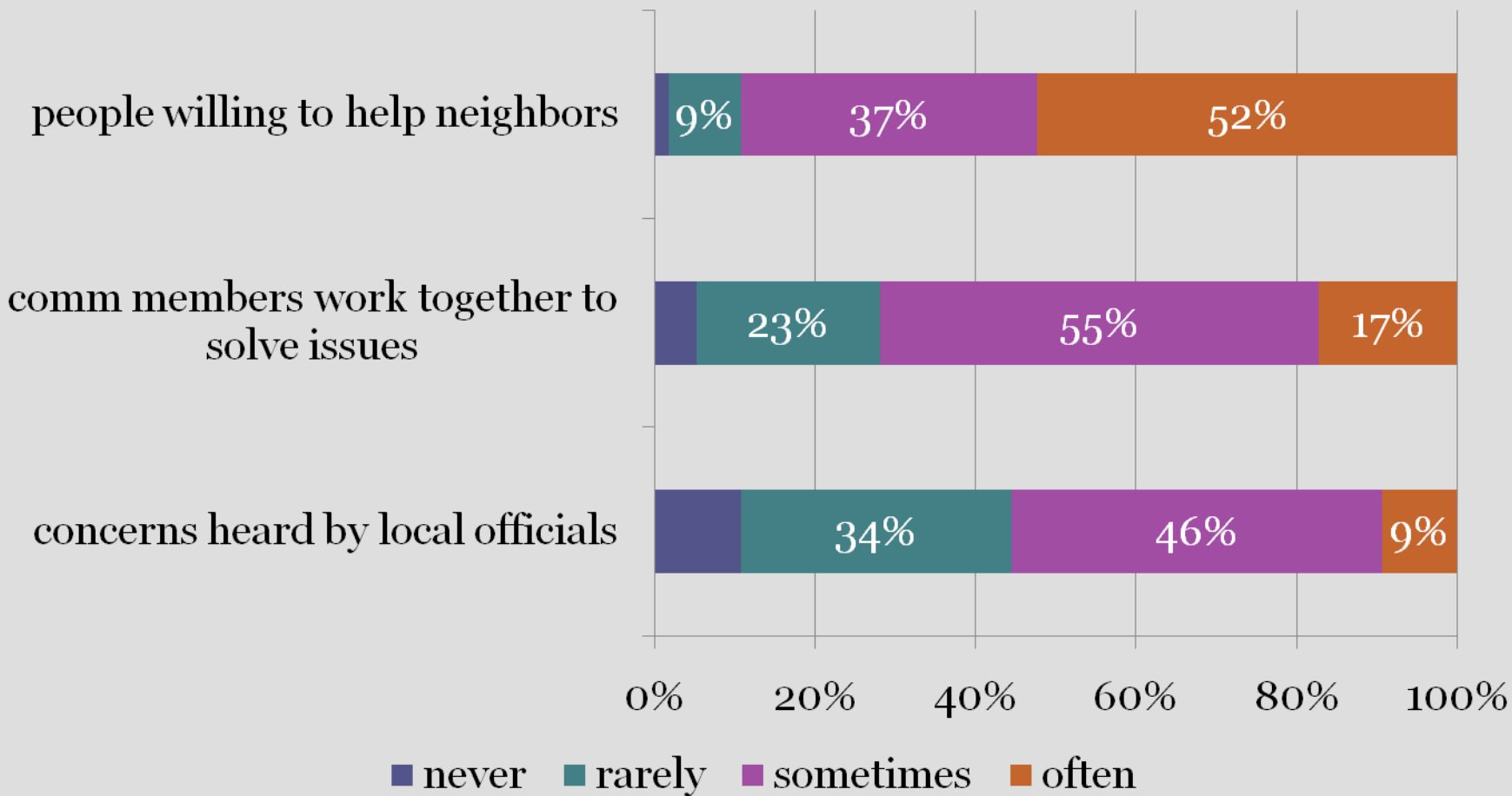
0% 20% 40% 60% 80% 100%

■ worse off   ■ about the same   ■ better off

# Attachment to Community



# Community Interactions



# Questions Specific to Marcellus Shale



**LEASING EXPERIENCES**  
**KNOWLEDGE AND INFORMATION SOURCES**  
**TRUST**  
**EXPECTATIONS FOR FUTURE**  
**OVERALL SUPPORT/OPPOSITION**  
**PERCEPTION OF RISK**

# Leasing Experience

- 44% (825) own land in Marcellus region
- 20% (382) own mineral rights
- 10% (183) have signed a lease
- 1% (26) have had drilling or pipeline on land they own
  
- If own larger acreage, higher likelihood of
  - owning mineral rights
  - being approached for lease
  - signing lease

## Consider signing?

Yes, I have already signed a lease	10%
Yes, I have not signed, but would consider it	24%
No, I would not consider it	27%
Don't know	40%

# Leasing Experience



- Of those who had signed a lease (183):
  - 49% satisfied, 26% dissatisfied with terms
  - 45% had not received royalty or lease payments
  - Of those who had received payments, 71% were satisfied

- Of those who have had drilling or pipe laying on their property (26):
  - 68% were satisfied, 32% dissatisfied

# Marcellus Knowledge



	'none' or 'very little' knowledge	'some but not much' knowledge	'a good bit' or 'a great deal' of knowledge
Environmental impacts	38%	31%	34%
Impacts on water	41%	27%	32%
Economic impacts	43%	29%	28%
Social impacts	45%	31%	24%
Gas drilling practices	59%	24%	17%
Leasing	63%	23%	15%
Impacts on local govt	65%	24%	12%
Gas-related jobs or job-training opps	68%	22%	10%
Govt regulations	71%	19%	10%

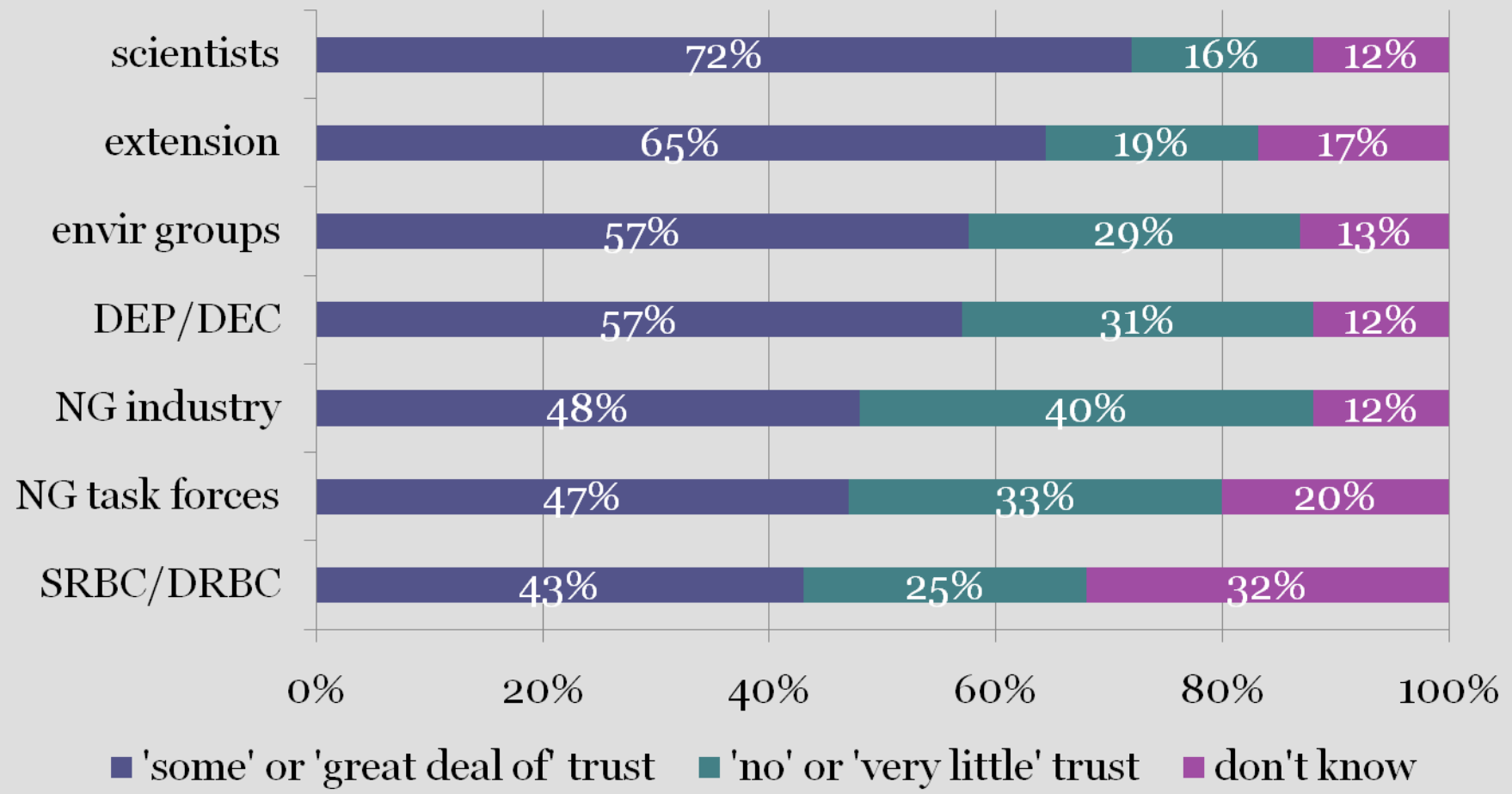
*39% were aware of wells or pipelines within 10 mi of home*

# Information Sources



Contribution to knowledge from:	At least 'some'
Media	61.6%
Neighbors, friends, relatives	47.0%
Internet	30.1%
Natural gas industry	22.8%
Landowner groups	21.5%
Environmental regulatory agencies	20.3%
Extension	19.1%

# Institutional Trust

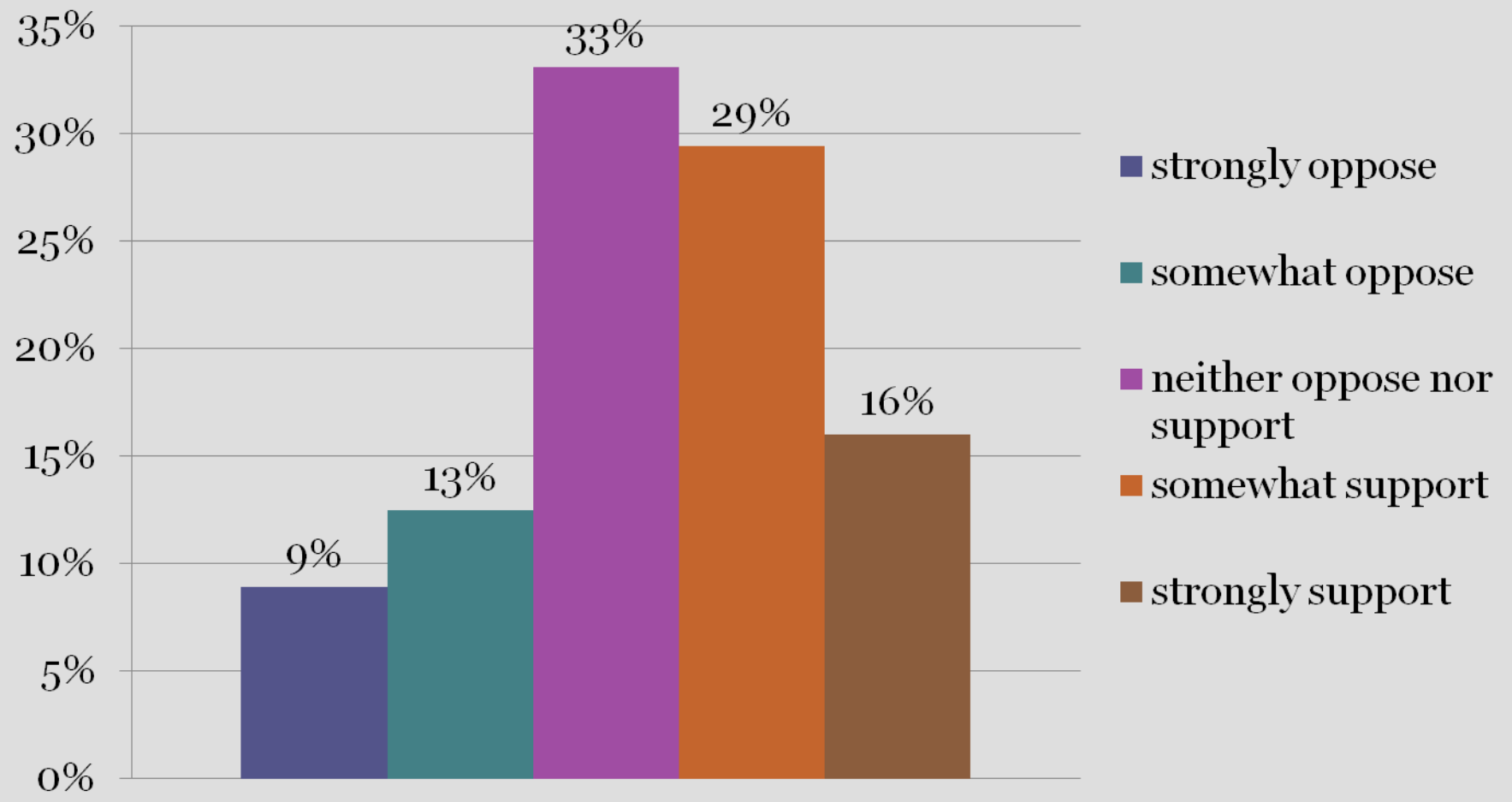


# Expectations

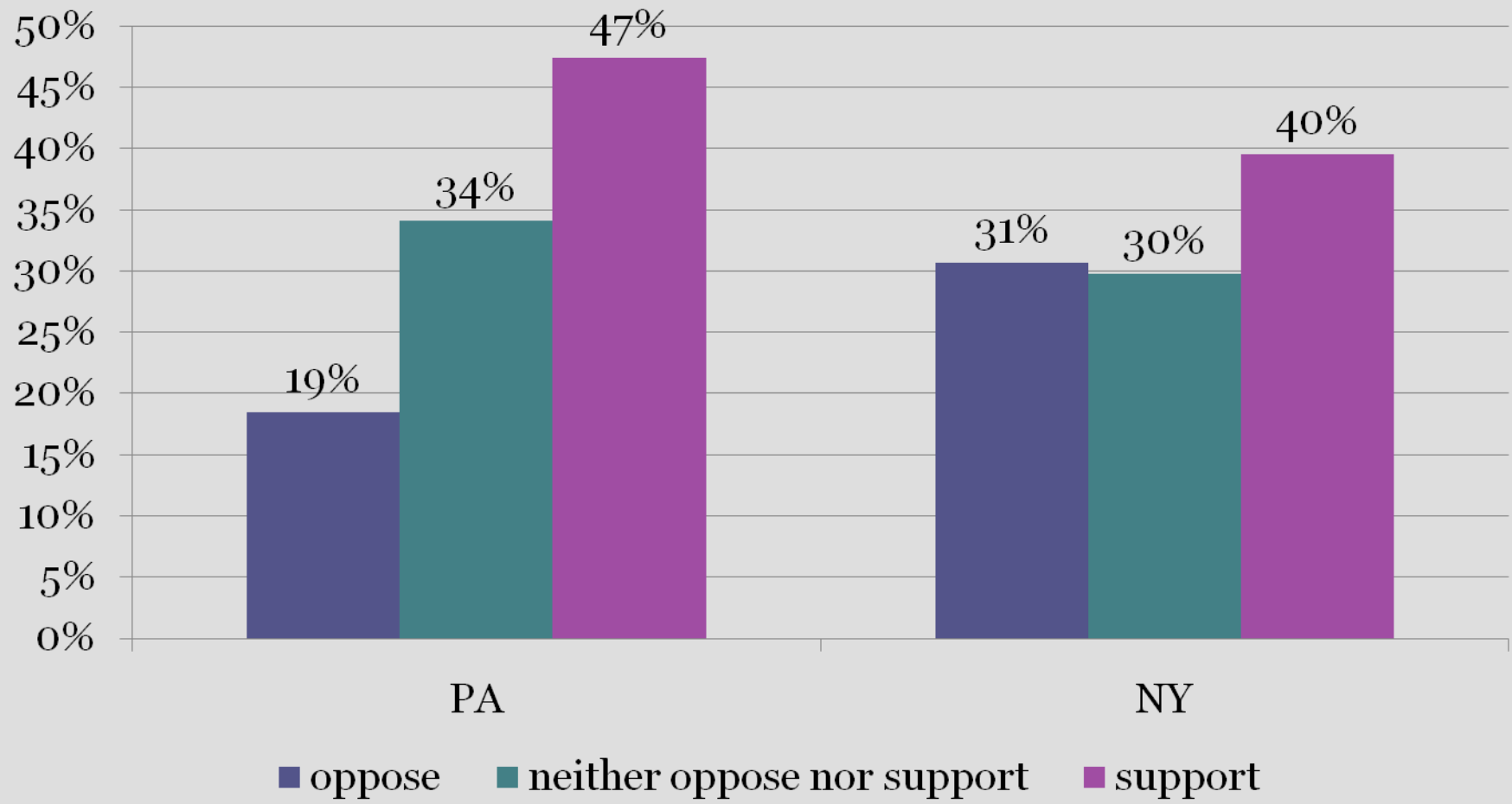


	Get better	Stay same	Get worse	Don't know
Good jobs	42%	34%	2%	23%
Job training	30%	43%	4%	23%
Roads/streets	10%	42%	31%	17%
Affordable housing	9%	51%	20%	20%
Recreation	5%	58%	16%	22%
Neighborliness	4%	65%	10%	21%
Natural environment	4%	30%	48%	18%
Drinking water	3%	33%	41%	23%
Crime/violence	3%	52%	23%	21%
Overall quality of life	14%	48%	19%	20%
Overall cost of living	9%	42%	28%	21%

# Overall Attitude



# Overall Support by State



# Overall Support by 2009 Activity Level

(PA Only)



	< 10 wells drilled	10-90 wells drilled	> 90 wells drilled
Oppose	19.3%	18.2%	17.2%
Neither oppose nor support	35.6%	34.8%	28.8%
Support	45.1%	47.0%	54.0%

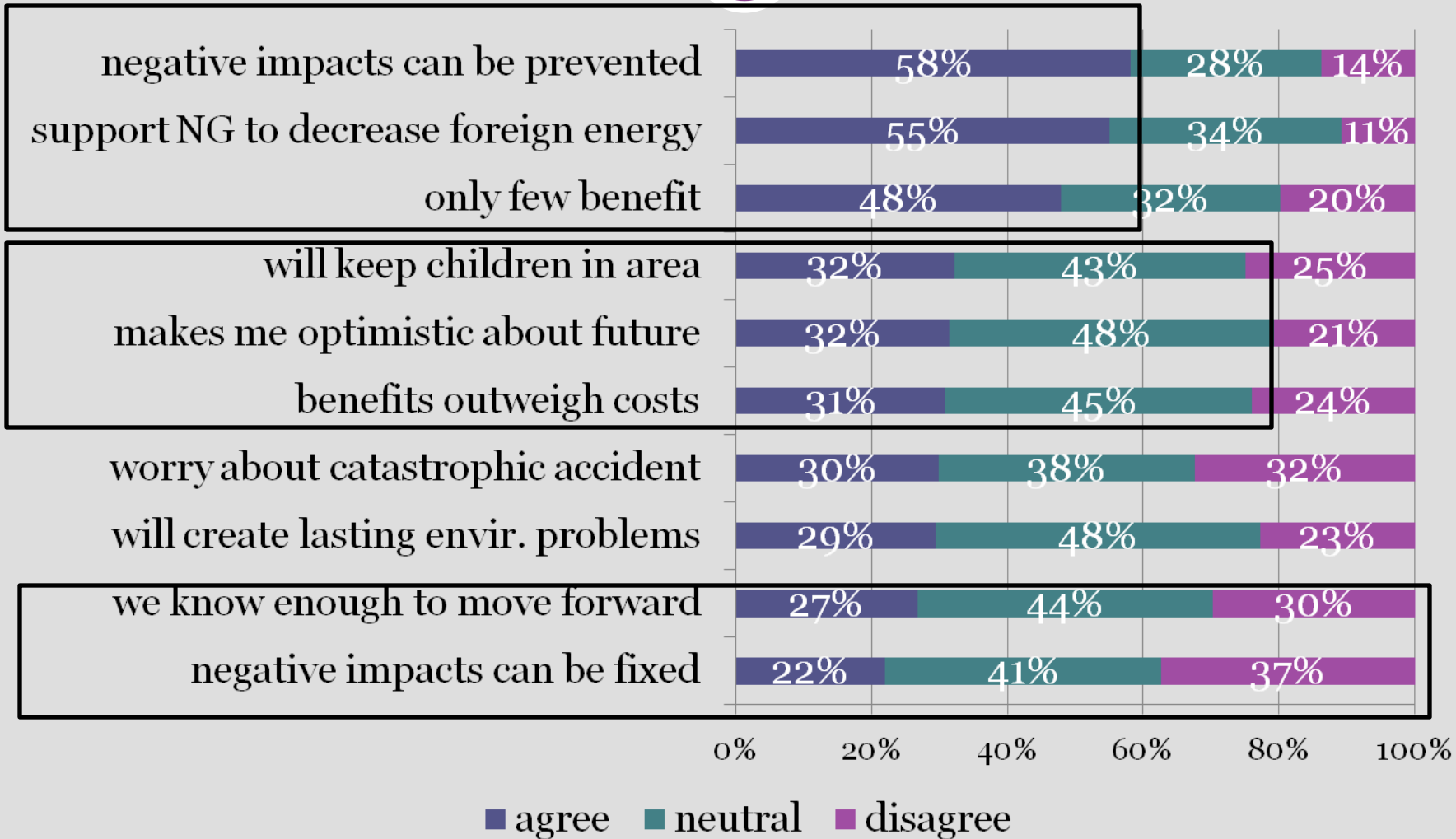
# Predictors of Support/Opposition



Those who <u>support</u> ...	Those who <u>neither oppose nor support</u> ...	Those who <u>oppose</u> ...
Are aware of wells/ pipelines within 10 mi of home	Report less knowledge of Marcellus shale impacts, procedures, etc.	Report less satisfaction with their community
<i>More likely to take actions related to natural gas (info-seeking, etc.)</i>	<i>Less likely to take actions related to natural gas (info-seeking, etc.)</i>	Are less likely to own land in Marcellus
<i>More likely to expect jobs and job training to improve</i>	<i>Less likely to expect jobs and job training to improve</i>	Less likely to be or have family employed in coal industry
<i>Perceive lower risks related to drilling</i>		<i>Perceive higher risks related to drilling</i>

*Note a number of non-related factors: age, income, education, employment in industry, political views*

# Perceptions of Risk



# Predictors of Risk Perception



<b>Those who perceive lower risks also ....</b>	<b>Those who perceive higher risks also....</b>
Have higher trust in natural gas industry	Have lower trust in natural gas industry
Support attitudes reflecting humans as dominant over nature	Support attitudes reflecting humans as part of the ecosystem
Expect environmental quality to get better	Expect environmental quality to get worse
Have lower trust in local environmental groups	Have higher trust in local environmental groups
Expect impacts on jobs to be positive	Expect impacts on jobs to be negative

*Reporting variables with significant coefficients above 0.10*

# Summary



- **Community satisfaction**
  - Residents report relatively high quality of life, especially related to natural assets, social relationships
  - Lower satisfaction with jobs and job opportunities
  - General concern about past trajectory of communities, slight expectation for improvement
- **Marcellus Shale development**
  - 3 main groups:
    - ✦ Middle group of people who aren't sure about development
    - ✦ 2 polarized groups who see different risks and rewards from development
  - Polarized groups have fundamentally different orientations toward natural environment, sources of trusted information, and expectations for impacts

# Suggestions for Using the Information



- For communities trying to navigate conflict...
  - Recognize commonalities across polarized groups
  - Recognize potential for local discussion and action
- For those within or serving polarized groups...
  - Recognize context in which concerns are raised
  - Acknowledge what is at risk, for each group
  - Assemble ‘best’ information, from multiple sources
  - Building trust will require transparency, discussion, commitment to agreed-upon goals, demonstrated capacity, openness
- For those in extension...
  - Recognize sources of conflict
  - Ensure quality dialogue across groups

## Questions?

For additional  
information, contact  
Kathy brasier

[kbrasier@psu.edu](mailto:kbrasier@psu.edu)

814-865-7321





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# Previously Recorded Educational Webinars

*Water Use & Water Quality Issues*

*Minimizing Impacts to Forests & Wildlife*

*Planning for Community Impacts*

*Workforce Needs Assessment*

*Treatment/Disposal Options for Shale Gas Drilling Wastewaters*

*Leasing & Drilling on State-Owned Lands*

*Legislation & Litigation: A Year (2009) in Review*

*Post Leasing-Considerations*

*Underground Injection Wells for Disposal of Shale Gas Wastewaters*

*Impact of Marcellus Shale: What Do the Economic Impact Studies Imply?*

*Perspectives on Shale Gas Development in Southwest PA*

*Lessons Learned from Urban Drilling in Fort Worth*

*Water Quality Monitoring Programs in PA*

*Gas Development Land Use Controls in Lycoming County*

*Local Natural Gas Task Force Initiatives*

**The above webinars can be viewed at:**

**<http://naturalgas.extension.psu.edu/webinars.htm>**

# Marcellus Shale Webinar Series Planning Committee

- Members
  - Neal Fogle, Montour County
  - Joann Kowalski, Susquehanna County
  - John Turack, Westmoreland County
  - Peter Wulfhorst, Pike County
  - Charles Abdalla, Agricultural Economics & Rural Sociology Dept. University Park
- With help from:
  - Mark Douglass, Jefferson County
  - Tim Kelsey & Rachel Perry, Agricultural Economics & Rural Sociology Dept. University Park
  - Nancy Ellen Kiernan, Program Evaluator
  - Peg Shuffstall, Jacki Weikert & Sherry Crum, Information Technology Specialists

**Penn State College of Agricultural Sciences**