



Mercyhurst Center for Applied Politics

The Mercyhurst Poll Nature and the Environment

Gas Extraction from the
Marcellus Shale Formation

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Methodology

This report summarizes the results of a survey of adult residents of Pennsylvania that was conducted between September 19 and October 7. During the 19 day field period interviewers called weekday evenings between the hours of 6:00 and 9:00 PM, and between 11:00 AM and 3:00 PM on selected weekdays. For each working phone number, interviewers made no less than six attempts to contact the residents of households for which landline numbers were generated. Respondents categorized as refusals were frequently called back to further insulate against bias in our sample. To minimize selection bias, interviewers were instructed to not administer the questionnaire to the first person in the household to whom they spoke, but to “the adult in the household with the most recent birthday.”

Calls were generated by CATI software and relied on a list of randomly generated landline telephone numbers (cell only households were not included in the population from which the sample was drawn). In this study, 426 adults were interviewed. For a sample size of 426, there is a 95 percent probability that the results are within plus or minus 4.75 percentage points (the margin of sampling error) of the actual population distribution for any given question. For subsamples, the margin of error is higher. For example, questions 15 through 28 were asked only of individuals who indicated that they had heard of “fracking.” As a result, the margin of error for questions 15 through 28 is plus or minus 5.68 percentage points (N=295). Aside from the margin of sampling error, there are several factors that prevent the results obtained through a probability sample from being a perfect representation of those that would be obtained if the entire population was interviewed. This non-sampling error is the result of a variety of factors including,

but not limited to, response rates and question order. In this survey, a variety of techniques were employed to reduce common sources of non-sampling error.

Response Rate

Calculating a response rate for a particular study involves considering a number of variables. Simply stated, it refers to the percentage of individuals in a sample that, when contacted, elect to participate in a study by responding an interviewer's questions. In recent years, researchers have documented a sharp decline in response rates. Today, a typical study that relies on telephone interviews can expect a response rate of between 20 and 30%. Although it is unclear if, or to what extent, response rate is a source of non-sampling error, most polls strive to maximize response rate by making multiple attempts to contact individuals and taking steps to secure their cooperation once they have been reached. In this way, our study of adult residents of Pennsylvania is no different than most polls: Up to six attempts were made to contact hard-to-reach individuals. These attempts occurred during weekday mornings, afternoons and evenings. To ensure a high rate of cooperation, interviewers received training on conversion techniques that are consistent with research ethics as defined by the Mercyhurst College Institutional Review Board. As a result of these efforts, our study obtained a response rate of 24%, which is within the range of what was expected.

Questions

This report contains the questions as worded on the questionnaire and in the order in which they were asked. Some of the questions include bracketed information, which is, in every case, an instruction to the programmer or interviewer.

Whenever possible, question order was randomized to ensure that respondents did not receive a set order of response options, which allowed response set bias to be

minimized. For structured (close-ended) questions, interviewers were trained to probe for clarity when respondents' answers were not identical to the predefined response options. For unstructured (open-ended) questions, interviewers were trained to record verbatim responses whenever possible.

Data

Data collected during this study was prepared for analysis by director and associate director of Mercyhurst Center for Applied Politics. Data preparation included, but was not limited to, removing partial interviews (respondent-terminated interviews) from the dataset. To maximize the accuracy of our results, sometimes data is weighted. Simply stated, weighting is when data collected from survey respondents are adjusted to represent the population from which the sample was drawn. In this study, the variables “age” and “gender” were weighted in order to adjust for differences between the population and the sample (see Table 1).

Pennsylvania Population Characteristics v. Sample

	Pennsylvania	Sample
Adult Population	9,910,224	428
Sex		
Female	52%	61%
Male	48%	39%
Age		
18-29 years	21%	4%
30-59 years	52%	47%
60 and older	27%	49%
Race		
White	82%	89%
Black	11%	6%
Latino	6%	2%
Other	2%	3%
Region		
Northeast	9%	9%
Southeast	43%	42%
Central	22%	22%
Southwest	21%	23%
Northwest	5%	6%

The survey was conducted by the Mercyhurst Center for Applied Politics (polisci.mercyhurst.edu/mcap) under the direction of Dr. Joseph M. Morris (Director), Dr. Rolfe D. Peterson (Methodologist) and Sean Fedorko (Project Manager). It may be used in whole or in part, provided the survey is attributed to the Mercyhurst Center for Applied Politics at Mercyhurst College. Data will be available for free download at the center's website thirty days after the release of this report. Direct questions to Dr. Joseph M. Morris, Director, Mercyhurst Center for Applied Politics, Mercyhurst College, 501 E. 38th Street, Erie, PA, 16546.

Summary of Findings

Pennsylvania residents' opinions on extracting gas from the Marcellus Shale formation through the process commonly known as "fracking" reflect uncertainty about the practice and the state's regulatory response to the developing shale gas industry. While Pennsylvanians are generally supportive of gas extraction through "fracking," they have concerns about where it occurs and the regulatory framework that ensures it is done safely. Pennsylvanians believe the potential economic benefits of gas extraction from the Marcellus Shale formation are substantial, but are evenly divided on the potential costs of the activity for the environment and human health.

These results are based on interviews with 426 adult residents of Pennsylvania that were conducted between September 19 and October 7, 2011. Of note, this survey employed a screening question to select respondents who are unaware of the practice of "fracking" out of the analysis. The screening question allows researchers to gauge the opinion of individuals who actually hold attitudes toward "fracking" and limits the problem of non-attitudes in policy surveys. In short, questions regarding the specifics of the gas extraction in Pennsylvania are only asked to respondents who initially answered affirmative to having heard about fracking (N=295, margin of error +/-5.68), which should give researchers a clearer picture of public opinion on the issue.

Support and Opposition to Gas Extraction

Roughly seven out of ten Pennsylvanians (70%, N=297) have heard about "fracking" to extract gas from the Marcellus Shale formation. Of these individuals 55% favor "fracking" to extract natural gas, while 27% oppose it and 18% say it

“depends” or “don’t know.” This level of support decreases substantially when asked if they favor or oppose “fracking” to extract gas within the boundaries of state forests and state parks. A clear majority of Pennsylvanians (57%) oppose the practice in state forests and a sizable majority (67%) opposing “fracking” within the boundaries of state parks.

Gas Extraction and the Environment

Pennsylvanians are uncertain about the effects of “fracking” to extract gas from the Marcellus Shale formation. A clear majority of Pennsylvanians (60%) say that they don’t believe corporations extracting gas from the Marcellus Shale formation “truly care about protecting the environment” and that “more regulations are needed” (67%). Pennsylvanians are evenly divided on the question of whether “fracking” poses “a significant threat to our environment” generally (43% saying it does pose a significant threat and 42% saying that it does not), but roughly a majority (54%) indicate that they believe it poses “a significant threat to our water resources.” A plurality (44%) of Pennsylvanians say that “fracking” to extract gas poses a threat to human health, while 37% said that it does not.

Economic Impact of Gas Extraction

Pennsylvanians hold largely positive views on the economic benefits of “fracking.” Roughly seven out of ten Pennsylvanians (73%) say that gas extracted from the Marcellus Shale formation should be taxed, but 55% believe that gas extraction, even if it is not taxed, will “significantly help” Pennsylvania’s financial situation. Likewise, a clear majority (62%) believe that gas extraction has brought “a significant number” of new jobs to Pennsylvania, that it will “significantly increase” the nation’s energy independence (59%) and that a “significant number”

of private landowners are “making a lot of money” leasing land to gas companies (66%).

In the End

In the end, Pennsylvanians recognize the tradeoffs of “fracking” and are narrowly split on whether the benefits are worth the risks; slim pluralities favoring the practice are within the margin of error for the survey. For example, 44% of Pennsylvanians say that the “potential benefits” of “fracking” to extract gas are worth the “potential risks to human health,” while 40% say they are not. Similarly, 46% say that the “potential benefits” of “fracking” are worth the “potential risks to the environment,” while 43% say they are not.

Frequency Report

Results may not total 100% due to rounding.

Q.14 – Q. 30 report frequencies after weighting on respondent age and gender.

Now, I'd like to get your opinions on a current energy issue in Pennsylvania. Nearly all of Pennsylvania is situated on top of a rock feature called the Marcellus Shale. Recently, companies have become interested in extracting natural gas from the Marcellus Shale. Over the past few years, these companies have begun drilling gas wells using a process called "fracking."

Q.14 Have you heard about fracking to extract natural gas in Pennsylvania's Marcellus Shale region?

Yes	70%
No	30%
DK	0%
RF	0%

[IF THE ANSWER IS 2 OR 8-9, THEN SKIP TO QUESTION 30]

Q.15 Do you favor or oppose extracting natural gas through fracking in Pennsylvania's Marcellus shale region?

Favor	55%
Oppose	27%
Depends (volunteered)	9%
DK	9%
RF	0%

Now, I have some questions about gas extraction from the Marcellus Shale and its impact on Pennsylvania. For these questions, I want you to think only about natural gas extracted from the Marcellus Shale in Pennsylvania through the process of fracking.

[ASK QUESTIONS 18 TO 30 IN RANDOM ORDER]

Q.16 Do you think gas extraction should or should not be allowed to occur in state forests?

Allowed	35%
Not Allowed	57%
Depends (volunteered)	4%
DK	4%
RF	0%

Q.17 Do you think gas extraction should or should not be allowed to occur in state parks?

Allowed	25%
Not Allowed	67%
Depends (volunteered)	4%
DK	4%
RF	0%

Q.18 Do you think Pennsylvania should or should not tax gas extracted from the Marcellus Shale?

Tax	73%
Not Tax	19%
Depends (volunteered)	2%
DK	5%
RF	1%

Q.19 Do you believe that gas extraction, even if it is not taxed, will significantly help our state's financial situation?

Yes	55%
No	35%
Depends (volunteered)	6%
DK	4%
RF	0%

Q.20 Do you think local communities are receiving significant financial benefits from gas companies drilling in their area?

Yes	35%
No	46%
Depends (volunteered)	5%
DK	14%
RF	0%

Q.21 Do you think gas extraction has brought a significant number of new jobs to Pennsylvania?

Yes	62%
No	25%
Depends (volunteered)	1%
DK	11%
RF	0%

Q.22 Do you think fracking to extract gas poses a significant threat to our environment?

Yes	43%
No	42%
Depends (volunteered)	5%
DK	10%
RF	0%

Q.23 Do you think fracking to extract gas poses a significant threat to our water resources?

Yes	54%
No	30%
Depends (volunteered)	5%
DK	11%
RF	0%

Q.24 Do you think more regulations on extracting gas are needed in Pennsylvania?

Yes	67%
No	19%
Depends (volunteered)	3%
DK	10%
RF	0%

Q.25 Do you think fracking to extract natural gas poses a threat to human health?

Yes	44%
No	37%
Depends (volunteered)	5%
DK	14%
RF	0%

Q.26 Do you believe gas extraction will significantly increase our nation's energy independence?

Yes	59%
No	26%
Depends (volunteered)	5%
DK	10%
RF	0%

Q.27 Do you think a significant number of private land owners are making a lot of money leasing land to gas companies?

Yes	66%
No	20%
Depends (volunteered)	5%
DK	19%
RF	0%

Q.28 Do you think corporations extracting natural gas from the Marcellus Shale truly care about protecting the environment?

Yes	30%
No	60%
Depends (volunteered)	5%
DK	5%
RF	0%

Q.29 In the end, do you believe that the potential benefits of fracking to extract natural gas from the Marcellus Shale in Pennsylvania are worth the potential risks to human health?

Yes	44%
No	40%
Depends (volunteered)	5%
DK	11%
RF	0%

Q.30 In the end, do you believe that potential benefits of fracking to extract natural gas from the Marcellus Shale in Pennsylvania are worth the potential risks to the environment?

Yes	46%
No	43%
Depends (volunteered)	3%
DK	8%
RF	1%

Our last few questions are used to ensure that our sample for this survey reflects the population as a whole. Again, all information will be kept confidential.

Q.49 Generally speaking, do you usually think of yourself as a Republican, a Democrat, or an Independent?

Republican	29%
Democrat	30%
Independent	39%
Other	1%
DK	0%
RF	1%

[IF THE ANSWER IS 2, THEN SKIP TO QUESTION 51]

[IF THE ANSWER IS 3, THEN SKIP TO QUESTION 52]

[IF THE ANSWER IS 8, THEN SKIP TO QUESTION 52]

[IF THE ANSWER IS 9, THEN SKIP TO QUESTION 52]

[IF THE ANSWER IS 4, THEN SKIP TO QUESTION 52]

Q.50 Would you call yourself a strong Republican or a not very strong Republican?

Strong Republican	52%
Not Very Strong	44%
DK	2%
RF	1%

[IF THE ANSWER IS 1, THEN SKIP TO QUESTION 53]

[IF THE ANSWER IS 2, THEN SKIP TO QUESTION 53]

[IF THE ANSWER IS 8, THEN SKIP TO QUESTION 53]

[IF THE ANSWER IS 9, THEN SKIP TO QUESTION 53]

Q.51 Would you call yourself a strong Democrat or a not very strong Democrat?

Strong	58%
Not Very Strong	41%
DK	1%
RF	0%

[IF THE ANSWER IS 1, THEN SKIP TO QUESTION 53]
[IF THE ANSWER IS 2, THEN SKIP TO QUESTION 53]
[IF THE ANSWER IS 8, THEN SKIP TO QUESTION 53]
[IF THE ANSWER IS 9, THEN SKIP TO QUESTION 53]

Q.52 Do you think of yourself as closer to the Republican Party or to the Democratic Party?

Closer to Republican	37%
Closer to Democratic	34%
Neither	12%
DK	13%
RF	4%

Q.53 Generally speaking, would you consider yourself to be a liberal, a conservative, a moderate, or have you not thought much about this?

Liberal	14%
Conservative	32%
Moderate	25%
Have not thought much about this	23%
DK	4%
RF	2%

Q.54 In what year were you born?

[Record Year]

Q.55 What is the highest level of education you have completed?

Less than High School	3%
High School/GED	29%
Some College	15%
2-Year College (Associates) or Professional	13%
4-Year College Degree (BS or BA)	23%
Masters Degree	14%
Doctoral Degree	3%
DK	0%
RF	1%

Q.56 What is your religious affiliation?

Protestant	29%
Catholic	37%
Jewish	3%
Muslim	0%
Other	17%
Not affiliated with a religion	11%
DK	1%
RF	1%

Q.57 What is your race?

White or Caucasian	89%
Black or African American	6%
Asian or Pacific Islander	0%
Hispanic or Latino	2%
Arabic	0%
DK	0%
RF	2%

Q.58 What is your marital status?

Single, never married	15%
Married	62%
Separated	2%
Divorced	10%
Widowed	9%
Other	0%
Partnership	0%
DK	0%
RF	1%

Q.59 If you add together the yearly incomes, before taxes, of all the members of your household for the past year, would the total be...

[Read all Categories]

Less than \$30,000	22%
\$30,000 to \$60,000	25%
\$60,000 to \$90,000	17%
\$90,000 to \$120,000	10%
Greater than \$120,000	11%
DK	2%
RF	12%

Q.60 What is your current employment status?

Employed	49%
Unemployed	10%
Laid off / Furloughed	0%
Retired	36%
Disabled	3%
DK	0%
RF	1%

[IF THE ANSWER IS 1, THEN SKIP TO QUESTION 62]

[IF THE ANSWER IS 4, THEN SKIP TO QUESTION 62]

Q.61 Are you currently seeking employment?

Yes	39%
No	58%
DK	0%
RF	3%

Q.63 Gender.

Male	...39%
Female	...61%

[DEBRIEF]

We are at the end of the survey. I want to thank you for your participation and let you know that: Research at Mercyhurst College which involves human participants is overseen by the Institutional Review Board. Questions or problems regarding your rights as a participant should be addressed to Mr. Timothy Harvey: Institutional Review Board Chair, Mercyhurst College, 501 East 38th Street, Erie, Pennsylvania 16546. Telephone (814) 824-3372