

Raised Awareness of Fracking in Pennsylvania

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This article presents survey results from 2013 to 2016 that show an increase in public awareness of fracking in Pennsylvania. It suggests that the increased awareness of fracking is due to the expansion of the industry in the Commonwealth, lowered gas prices, and increased political discussion following the 2014 gubernatorial race and that it is also part of a national trend. Results of a Pennsylvania survey and three national surveys show opinions split along gender and partisan lines.

Increased Public Awareness of Fracking

Hydrolic fracturing, which the industry refers to as “fracing” and much of the media colloquially refer to as “fracking,” is the process by which shale deposits far below the surface of the earth are stimulated. The stimulation is used to release natural gas that is trapped within the shale deposits. Horizontal drilling was demonstrated as a commercially viable technology in the early 1980s and the technology has rapidly progressed ever since. Today’s wells can be drilled more than two miles below the earth’s surface and can travel horizontally more than eight miles. The processing, technology, and chemicals used in the horizontal drilling process took a number of years to master until the technology could be considered economically feasible.

The Marcellus Shale formation lies underground in West Virginia, Ohio, and New York, but the largest portion lies in Pennsylvania. In recent years drilling of the Marcellus shale has seen a storm of activity. In 2010 gas production from this formation was below two billion cubic feet per day (bcf/d), and in 2015 production averaged almost 18 bcf/d (U.S. Energy Information Administration 2016b). A ninefold increase over a five year period is a substantial change and with that change came a lot of publicity, awareness, interest, and scrutiny. In the beginning of the gas boom there were many political, environmental and even economic concerns associated with the drilling and fracking process. The natural gas boom in Pennsylvania brought with it many new jobs, a revival of manufacturing in the region, and a new economic stimulus. It also brought about tax and environmental clashes between industry, environmental groups and lawmakers.

Nevertheless, in 2012 the public had limited knowledge of many aspects of the natural gas production process, including a lack of understanding of fracking, horizontal drilling, fracking water disposal, well casing, gas leaks, pipeline distribution, environmental issues, taxation, land management, land royalties, etc. A national survey conducted by the Pew Research Center found that only 26% of the public indicated that they had heard “a lot” about fracking. The remainder of the sample was split between those who indicated they had heard only “a little” or “nothing at all” (Pew Research Center 2012). The September 2012 national Climate Change in the American Mind Survey further confirmed just how much the American public was in the dark concerning fracking (Boudet et al. 2014). Those results are presented in Table 1.

In Pennsylvania, the Muhlenberg College Institute of Public Opinion completed three public opinion polls on fracking (Borick, Rabe, and Lachapelle 2014; Brown et al. 2013; Borick and Rabe 2011). These results are presented in Table 2.

As can be seen from these polls, the general public’s knowledge about fracking was very low when the gas boom began. There is evidence, however,

Table 1. National Awareness of Fracking, 2012	
How much have you heard about fracking?	
Heard “a lot”	9%
Heard “some”	22%
Heard “a little”	16%
Have not heard anything at all	39%
Do not know	13%
Source: Hilary Boudet et al., “‘Fracking’ Controversy and Communication: Using National Survey Data to Understand Public Perceptions of Hydraulic Fracturing,” <i>Energy Policy</i> 65 (2014): 57–67.	

Table 2. Awareness of Fracking in Pennsylvania, 2011–2014

	October 2011	October/November 2012	April/May 2014
Following the issue of fracking very closely or somewhat closely	48%	59%	49%
Heard a lot about fracking		46%	37%

Sources: Christopher Borick, Barry G. Rabe, and Erick Lachapelle, "Issues in Energy and Environmental Policy, No. 14: Public Perceptions of Shale Gas Extraction and Hydraulic Fracturing in New York and Pennsylvania," *National Surveys on Energy and Environment*, 2014. Erica Brown et al., "Public Opinion on Fracking: Perspectives from Michigan and Pennsylvania," Report from the *Center for Local, State, and Urban Policy, National Surveys on Energy and Environment*, 2013. Christopher Borick and Barry G. Rabe, "Fracking for Natural Gas: Public Opinion on State Policy Options," Report from the *Center for Local, State, and Urban Policy*, November 2011.

Table 3. National Awareness of Fracking, 2013–2016

	Very or Somewhat Familiar	Somewhat or Completely Unfamiliar	Unsure
September/October 2013	45.1%	50.6%	4.3%
May 2015	70.7%	26.4%	2.9%
February 2016	61.3%	35.0%	3.8%

Sources: Robert Morris University Polling Institute, "National Poll Report," November 2013, May 2015, and February 2016.

that in recent years something has changed. From 2013 to 2016 Robert Morris University conducted several national polls to get opinions on hydraulic fracturing. The results from these polls document raised public awareness of fracking over that time period (see Table 3).

The RMU polls found that the trend in Pennsylvania was similar to those around the country. In May 2014, the RMU poll found that 62.0% of Pennsylvanians said they were very and somewhat familiar with fracking, while in May 2015, awareness (very and somewhat familiar) increased by 11.7% to 73.7%. This is a substantial jump in awareness over the course of a single year.

Evidence for raised awareness this decade has also been found in the United Kingdom. An October 2014 poll by the U.K. government found that 15% of respondents “know a lot about” fracking, up from 6% in 2011, and 76% have heard of it, up from 42% in 2011 (U.K. Department of Energy and Climate Change 2014).

Reasons for Increased Public Awareness of Fracking

This increased awareness of fracking should not be surprising, given the expansion of fracking nationwide and in Pennsylvania, the political discussion

that expansion engendered, and the impact of that expansion on gas prices, which has high salience for many people.

With the rapid increase in well drilling and the gigantic increase of natural gas supply to the market came a substantial drop in natural gas prices. This not only led to a lowered cost of living for many Pennsylvania residents but also strengthened the discussion about national energy independence and contributed to the replacement of coal-fired electricity production with a cleaner burning natural gas alternative to electricity production. Energy independence was a big ticket topic in the 2012 presidential debates and was therefore inherently a driver for increased awareness all over the nation. Environmental concerns related to fracking have been a part of the conversation for quite some time, but the widespread replacement of coal for natural gas in electricity production is a recent development. Many coal-fired power plants that have shut down in recent years have been replaced with natural gas power plants. Greenhouse gas emissions from these plants are almost half that of coal-fired plants, and the cost of electricity from natural gas is less than coal in many instances (U.S. Energy Information Administration 2016a). The combination of many different elements has led to an increased understanding and awareness of the numerous topics surrounding the fracking industry. The results from a series of polls at the RMU Polling Institute have confirmed the rise in understanding within the general public.

Political Discussions of Fracking in Pennsylvania

Public awareness of the risks of fracking started to become more mainstream after 2010 with the release of the documentary *Gasland*, and its nomination for an Academy Award (Vasi et al. 2015). In January 2013, *Promised Land* was released. The film is critical of the gas industry and starred Matt Damon as a landsman in a small Pennsylvania town. Political discussions in Pennsylvania concerning fracking centered on the governor's race in 2014. A number of other issues and news stories about fracking came out during this election cycle as well, including the following:

- June 2013: The Pennsylvania Democratic Party State Committee calls for a moratorium on fracking.
- February 2014: A pair of gas wells in Greene County were ignited by an explosion, killing one person.
- March 2014: A segment airs on the *Daily Show* critical of fracking in Pennsylvania.
- May 2014: Governor Corbett signs an executive order to allow drilling in state park and forest land.

- June 2014: Former state health employees expose how the department failed to respond to complaints about fracking.
- July 2014: Former state health secretary Dr. Eli Avila said he believed Pennsylvania has failed to address public concerns related to natural gas development.
- July 2014: The *Pittsburgh Post-Gazette* reported Pennsylvania environmental regulators documented 209 cases where oil and gas operations negatively impacted water supplies since late 2007.
- September 2014: The shale gas industry begins a public opinion push, which includes election advertisements, a Super Bowl commercial, and a campaign against a shale tax.
- November 2014: Maryland Governor Martin O'Malley proposes strict regulations on fracking.
- December 2014: Governor Andrew M. Cuomo's administration announced that it would ban hydraulic fracturing in New York State.

The issue was central to the governor's race. This election was largely a referendum on the incumbent, and turned out to have a historic result. Since 1950 the two political parties in Pennsylvania have alternated the governor's office every eight years, which had been referred to as "the cycle." The last time an incumbent governor lost was in 1854 (governors were limited to one term from 1874 to 1968), and Pennsylvanians had voted against the party of a sitting president in 18 out of the last 19 contests. The 2014 contest broke this historical precedent. However, everyone knew in advance what was going to happen—polls showed incumbent governor Tom Corbett was the most unpopular governor in the United States ("Corbett Down Double Digits to Unknown Democrats" 2013). *US News and World Report* labeled him "America's Most Vulnerable Governor," an RMU poll found favorable impressions of the governor to be 29.4% in February 2014, and 30.8% that May ("America's Most Vulnerable Governor" 2014). As a result interest in the election was low; for example, an RMU political science professor was scheduled to appear on a panel discussion sponsored by the Press Club of Western Pennsylvania, which got cancelled due to lack of interest.

The interesting race was the Democratic primary, in which a bevy of talented Democratic politicians who agreed on almost all the issues vied for attention and the all-important campaign donations. Some candidates (John Hanger, Jo Ellen Litz, Max Myers, Ed Pawlowski, Jack Wagner) failed on the latter and dropped out, while those who remained (Rob McCord, Katie McGinty, Allyson Schwartz, Thomas Wolf) tried a little too hard to do so, at least in the case of State Treasurer Rob McCord, who was caught on tape threatening to use his office to hurt people who refused to contribute to his gubernatorial campaign;

McCord pled guilty to corruption charges in early 2015. He, McGinty, and the insiders' favorite, Congresswoman Allyson Schwartz, all failed to keep up with a political newcomer, York businessman Tom Wolf, who lent his campaign just shy of \$10 million and used it to buy air time for slick television ads early in the political cycle, in February 2014, when the stark "deep freeze" weather conditions had everyone in the state inside watching television. The ads had their intended effect—an RMU poll fielded in the middle of February showed Wolf with 51.4% support among Democrats, a lead that never wavered. Wolf won the four-way race in May with 57.8% of the vote.

All the Democratic candidates supported an extraction tax on natural gas. Wolf favored a 5% extraction tax, which during the general election he said would raise \$1 billion of revenue a year for the Commonwealth. In his television commercials, Wolf linked the extraction tax to education funding, the top issue for voters in the election. One ad had Wolf in a classroom with children, proclaiming that the solution to the problem of school funding lies "under our feet," with tax revenue from natural gas.

The incumbent governor at that time, Tom Corbett was largely unpopular because of his stance on education funding. The respondents who had a negative impression of Governor Corbett in the RMU poll (56.5% in February 2014 and 60.6% in May 2014) were asked in an open-ended question why they had the impression they did. The responses were coded, and the results show the dominance of the major issue was in education (see Table 4).

Fracking came up second in both polls, however, showing its importance in the negative perceptions of the governor. Corbett oversaw a huge boom in natural gas production in Pennsylvania in his tenure as governor, as well as the creation of new taxes on the industry. He signed Act 13 in February 2012, which created an impact fee, an annual fee for drilling at a well site. A fraction of this tax money went to state agencies, the majority of it to counties and cities impacted by the wells. The impact fee generated hundreds of millions of dollars in new tax revenue for the Commonwealth. However, two other provisions of Act 13—one that allowed state zoning regulations to trump local regulations, and one that imposed a medical gag order on doctors, preventing them from discussing health risks of fracking—in addition to other actions of Corbett, such as his appointment of his Chief of Staff to head the Department of Environmental Protection, and receiving large amounts of contributions from the gas companies, combined with his refusal to consider a severance tax, gave the perception that the governor was too close to the gas industry and letting them off easy. This was the tenor of the comments about fracking in the open-ended question. One representative comment was that Corbett "cut education funding to the bone while selling the rest of the state to his oil and gas buddies." By contrast, the survey indicated that Corbett did a poor

Table 4. Reasons for Unfavorable Impression of Gov. Tom Corbett, 2014		
	February 2014	May 2014
Education	24%	29%
Fracking	7%	13%
Jerry Sandusky Scandal	6%	4%
Taxes	5%	8%
Budget	4%	4%
Economy and Jobs	7%	3%
Personal Attributes	6%	11%
Medicaid Expansion	5%	5%
<i>Sources: Robert Morris University Polling Institute, "National Poll Report," February 2014 and May 2014.</i>		

job selling his support for the industry as a positive feature of his tenure, since of the 29.4% who had a favorable impression of Corbett, *not a single person* mentioned the governor’s support of the oil and gas industry.

In the November election, Wolf beat Corbett 54%-45%. At his inauguration in January, eight anti-fracking protesters disrupted the ceremony. The newly sworn-in governor proceeded to impose a moratorium on leasing state park and forestland to Marcellus Shale drillers.

In a post-election retrospective survey in December 2014, an RMU poll found that voters found it highly likely that an extraction tax would be imposed, with those who voted Republican finding it even more likely than those voting Democrat or splitting their ticket (see Table 5).

Gas Prices

Another factor contributing to the awareness of fracking is the retail price of natural gas on the market. Gas prices in Pennsylvania and nationwide rose sharply in 2007. From September 2004 to June 2008, U.S. residential NG prices rose 29%, while Pennsylvania prices rose by 32% (U.S. Energy Information Administration 2016c). This caused economic hardship for residential consumers, exacerbated by the financial crisis. Weak economic conditions

Table 5. Post-election Views of the Probability of an Extraction Tax, 2014				
	Democrat (32.7%)	Republican (32.9%)	Even Split (10.7%)	Didn't Vote (22.5%)
A state extraction tax will be imposed on fracking is likely	76.5%	88%	77.8%	48.2%
<i>Source: Robert Morris University Polling Institute, "National Poll Report," December 2014.</i>				

following the financial crisis led to lowered demand, which, coupled with increased fracking production, led to a 28% decline in Pennsylvania prices by 2013. After such a dramatic change in prices over a relatively short period of time on a key element of household economics, people began to take interest. Therefore, it is not surprising that the awareness of fracking grew over the same period of time that fracking contributed to significant reductions in natural gas costs. The importance of this change in gas prices leading to increased awareness of fracking would be consistent with the Muhlenberg Institute Poll of Pennsylvania (Table 2), which showed a lower level of awareness in the Commonwealth as late as April/May 2014.

Opinions of Fracking

The RMU Polling Institute conducted public opinion surveys from 2014 to 2016 for the most part on a quarterly basis. The Center for Research and Public Policy (CRPP) was contracted to run the polls. Polls were conducted online, and included national samples and Pennsylvania samples.¹ Each quarterly poll had four topical areas that were polled within the same survey. Respondents did not know the questions in advance of taking the poll, only the broad areas of investigation, and were incentivized by the panel vendor with a \$1 credit on Amazon.com for taking the poll. Every survey was in the field no longer than a week. Each national poll included around 1,000 respondents; each Pennsylvania poll included around 500 Pennsylvania residents.

There has been evidence of a nationwide decline in support for fracking. The Pew Research Center, found a drop in support for the “increased use of fracking.” In March 2013, 48% of people favored the increased use of fracking while 38% opposed it. That result reversed itself by September of that year, with 49% of people opposing the increased use of fracking and 44% supporting it, a result that held steady for two polls conducted by Pew in 2014—opposition to expanding fracking 51–39 in August and 47–41 in November (Pew Research Center 2015). Gallup also conducted two nationwide surveys, one in March 2015, which showed 40% favored and 40% opposed fracking “as a means of increasing the production of natural gas and oil in the US,” while one year later, in 2016, the numbers were 36% favoring fracking and 51% opposing it (Gallup 2016).

The three nationwide polls conducted by the RMU Polling Institute on fracking, in October/November 2013, May 2015, and February 2016, showed opposition to fracking creeping upward, with support increasing from 2013 to 2015, and then going down in 2016. Results for the statewide breakout of the 2015 poll are included in the right column of Table 6, and the phrasing of the question is provided in the Appendix.

These polls also asked respondents to indicate their agreement with statements about fracking. Interestingly, the results show an increase in favorability from 2013 to 2015 and then a decrease in 2016, where the results were almost the same as in 2013 (see Table 7).

The RMU poll also asked respondents if they would support fracking in their hometown. Notably, nationally from 2013 to 2016, the percentage of respondents saying they are “strongly opposed” to fracking in their hometown went up from 34.7% to 46.5%. The full results are presented in Table 8.

The 2016 responses to support for fracking were approximately 7% higher than the responses to support of fracking in one’s own hometown, potentially showing a “not in my backyard mentality” for a portion of respondents.

Generally speaking, the Pennsylvania results all track the national results closely, with the exception of less support for fracking in one’s hometown in the May 2015 poll. Support for fracking was 55.8% in that poll, compared to

Table 6. Opinions on Fracking, Nationally and in Pennsylvania, 2013–2016

	October/ November 2013	May 2015	February 2016	May 2015— Pennsylvania
Strongly or somewhat support fracking	42.3%	55.8%	46.9%	57.1%
Strongly or somewhat oppose fracking	32.8%	34.5%	39.0%	35.6%
<i>Sources:</i> Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.				

Table 7. Opinions on Fracking Benefits, Nationally and in Pennsylvania, 2013–2016

	October/ November 2013 Strongly and Somewhat Agree	May 2015 Strongly and Somewhat Agree	February 2016 Strongly and Somewhat Agree	May 2015— Pennsylvania Strongly and Somewhat Agree
The new drilling technologies that allow fracking will help move the United States to energy independence	57.7%	68.9%	59.8%	69.9%
Fracking has the potential to help the U.S. economy	63.3%	73.3%	63.9%	74.3%
<i>Sources:</i> Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.				

Table 8. Opinions on Fracking in Hometown, Nationally and in Pennsylvania, 2013–2016

	October/ November 2013	May 2015	February 2016	Pennsylvania— May 2015
Strongly or somewhat support fracking in hometown	40%	59.2%	40.2%	48.2%
Strongly or somewhat oppose fracking in hometown	34.7%	41.7%	46.5%	43.3%

Sources: Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.

Table 9. Support for Fracking by Familiarity, Nationally and in Pennsylvania, 2013–2016

	October/November 2013		May 2015		February 2016		May 2015— Pennsylvania	
	All	Very or Somewhat Familiar (44.5%)	All	Very or Somewhat Familiar (70.7%)	All	Very or Somewhat Familiar (61.3%)	All	Very or Somewhat Familiar (73.7%)
Strongly or somewhat support fracking	42.3%	54.1%	55.8%	60.2%	46.9%	51.7%	57.1%	60.3%
Strongly or somewhat oppose fracking	32.8%	38.8%	34.5%	36.0%	39.0%	44.4%	35.6%	37.5%

Sources: Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.

the previous and subsequent results of 42.3% and 46.9%. Similarly, higher percentages were recorded in the 2015 poll for the questions about fracking helping energy independence and the U.S. economy overall, and supporting fracking in one’s own hometown. The natural gas prices had recently dropped over the years leading up to the 2015 poll, and that could have influenced the positive opinion shift. It is the change in fuel prices, not the price itself, that is associated with changes in public opinion.²

The Pew Research Center found in 2012 that those who indicated that they have heard about fracking supported it to a greater degree: 52% of them favored fracking, while 35% were opposed (Pew Research Center 2012). Likewise, our poll showed increased support for fracking among those indicating they were familiar with it (see Table 9).

Opinions form along party lines, with Republicans (R) heavily in favor of fracking, and Democrats (D) and Independents (I) split (see Table 10).

Table 10. Support for Fracking by Party ID, Nationally and in Pennsylvania, 2013–2016

	October/November 2013						May 2015			February 2016			May 2015—Pennsylvania		
	R	D	I	R	D	I	R	D	I	R	D	I	R	D	I
	(25.3%)	(30.6%)	(38.4%)	(25.4%)	(31.1%)	(36.4%)	(28.8%)	(29.9%)	(33.0%)	(31.4%)	(46.1%)	(12.7%)			
Strongly or somewhat support fracking	63.9%	35.6%	37.3%	76.1%	48.4%	48.8%	63.1%	47.2%	43.0%	72.3%	51.2%	40.3%			
Strongly or somewhat oppose fracking	16.3%	41.2%	37.4%	18.4%	43.0%	41.6%	25.2%	47.5%	45.2%	24.7%	41.8%	46.2%			

Sources: Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.

Opinions on fracking are also split along gender lines, with men favoring fracking to a greater degree (see Table 11).

The gender difference is more pronounced in 2013 when familiarity with fracking was less prevalent. Women are less familiar with fracking, a result that was found in the United Kingdom as well.³ See Table 12.

Conclusion

In recent years hydraulic fracturing has become a hot topic for discussion and debate. The United States has seen a widespread transition in energy consumption to the cleaner burning, and in many instances cheaper, natural gas. With the increase in awareness about fracking has come an increase in familiarity of the fracking process. Our polling found as high as 70.7% that are “very or somewhat familiar” with fracking. There are numerous contributors to this increased awareness, including the increased publicity of environmental issues and the corresponding debates between industry and environmental groups, debates that boiled over into the political arena, especially in Pennsylvania,

Table 11. Support for Fracking by Gender, Nationally and in Pennsylvania, 2013–2016

	October/November 2013		May 2015		February 2016		May 2015— Pennsylvania	
	Men (49.9%)	Women (49.9%)	Men (51.4%)	Women (48.3%)	Men (53.3%)	Women (46.7%)	Men (52.2%)	Women (47.8%)
Strongly or somewhat support fracking	53.5%	31.4%	62.8%	48.5%	53.6%	39.2%	58.7%	55.3%
Strongly or somewhat oppose fracking	30.6%	34.8%	29.7%	39.7%	37.6%	40.6%	35.1%	40.0%

Sources: Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.

Table 12. Familiarity with Fracking by Gender, Nationally and in Pennsylvania, 2013–2016

	October/November 2013	May 2015	February 2016	May 2015— Pennsylvania
Percent of men very or somewhat familiar	59.1%	75.5%	72.8%	79.3%
Percent of women very or somewhat familiar	31.0%	65.5%	48.1%	67.6%

Sources: Robert Morris University Polling Institute, “National Poll Report,” November 2013, May 2015, and February 2016.

and onto the big screen, with *Gasland* and *Promised Land*. The national discussion about U.S. energy independence relied heavily on increased natural gas production and played a key role in the publicizing of natural gas as well. Finally, the public saw firsthand the economic advantages to fracking when a flood of natural gas hit the market and prices significantly dropped as a consequence. As our polling shows, public familiarity and awareness grew.

Our polling shows that opinions on fracking in Pennsylvania do not deviate from opinions nationally. It also provides some insights on how national respondents view fracking. Opinions are divided along party and gender lines, with Republicans and men favoring fracking to a greater degree than Democrats and women. The overall opposition to fracking has nudged upwards over this period of increasing awareness, as those who “Strongly or Somewhat Oppose Fracking” went from 32.8% in 2013, to 34.5% in 2015, and to 39.0% in 2016. A lower retail gas price became normal by 2016, and there were fewer positive responses from 2015 on whether fracking is helping U.S. energy independence (9.1% less), and whether it will help the U.S. economy (9.4%).

APPENDIX: TEXT OF POLL QUESTION ON FRACKING AWARENESS AND FAVORABILITY

How familiar would you say you are with Hydraulic Fracturing or more commonly known as “Fracing” (pronounced “Fracking”)—a process to bring more natural gas to the earth surface for consumer use?

- Very familiar
- Somewhat familiar
- Somewhat unfamiliar
- Not at all familiar
- Unsure/Don’t know

Both energy groups and environmental groups would likely agree on a definition of hydraulic fracturing or “fracing” as pressuring fluids underground through pipes to force open small cracks or fractures, typically less than 1 millimeter in size, in the rock. The sand in the fluids is used to keep the cracks open. Chemicals in the fluids help maintain the thickness of the released natural gas. The goal is to force the gas out of the shale rock and up the pipe for consumer use.

Energy groups suggest hydraulic fracturing or “fracing” will help in many ways, such as by reducing dependence on foreign oils and by lowering energy costs at home by providing another, sometimes less expensive, natural gas resource. **Environmental groups** suggest that “fracing” has the potential for contaminating our water supplies and disrupting the environment.

Based on all that you know or have just learned, would you say you strongly support, somewhat support, somewhat oppose or strongly oppose “fracing”?

- Strongly support
- Somewhat support
- Somewhat oppose
- Strongly oppose
- Don't know/Unsure

NOTES

1. While telephone polling remains the standard method for public opinion research, we are currently in a period in which Internet polling will eventually overtake telephone surveys, just as in the 1970s telephone polling overtook mail and face-to-face surveys. Polling is cheaper and faster online, and Internet polling has come a long way since it began in the 1990s: Internet penetration in the United States is now close to 90%, and panel vendors have recruited millions of participants to take polls online, allowing surveys to be sent to a random group, addressing the problem of representativeness that originally existed for opt-in straw polls. Over the past 15 years, online surveys have been performed much more often, and in higher caliber research. See Simmons and Bobo 2015.

2. For an example of presidential approval, see Sides 2012.

3. “Interestingly in all of our surveys men are much more likely to identify shale gas than women with the level of recognition in our March 2012 survey being 50.3% for men and 26.4% for women. In January 2014 the figures were 74% and 57.7% respectively” (O’Hara et al. 2014).

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