

**Perceptions of Natural Gas Development and
High-Volume Hydraulic Fracturing: A
Survey of Residents of Hamilton and
Lebanon, New York**

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in cooperation with

Madison County Citizens for Safe Energy

The Survey

A survey of residents was conducted in two towns located in southern Madison County, New York State during the spring of 2012 to assess self-perceived knowledge, and opinions, regarding the use of high-volume hydraulic fracturing (also referred to as “hydrofracking”) in natural gas development. The study was a collaborative effort by Madison County Citizens for Safe Energy and the Upstate Institute at Colgate University. The results of this study will be used as a baseline to understand residents’ knowledge and concerns so that Citizens for Safe Energy, and others, can tailor future programming to focus on salient issues regarding natural gas development and the use of high-volume hydraulic fracturing. Additionally, the results will be available to the town governments to use at their discretion.

In June 2012, 737 surveys were sent out to randomly selected households from a list of 2,446 registered voters in the Town of Hamilton and 844 registered voters in the Town of Lebanon. The questionnaire asked for information on their current knowledge and attitudes towards high-volume hydraulic fracturing. The post office returned 35 of those surveys as “undeliverable.” Out of the remaining 702 surveys, 126 surveys were returned with usable data (approximately 18% response rate).

The results were analyzed using four different categories: all respondents (n=126), multi-acre land owners (own more than 5 acres) who have not signed gas leases (n=27), village land owners (n=21), and residents that have signed a gas lease or are members of a landowners’ coalition (n=14).

Personal Characteristics of Respondents

Table 1: Distribution of gender, age and education in the sample (n=126)

Personal Characteristics	
Gender	
Male	43%
Female	57%
Age	
Under 40	12%
40-64 years old	43%
65 and over	45%
How much education did you receive?	
Attended/Completed High School	13%
Attended College	14%
Completed College Degree	26%
Attended/Completed Graduate School	47%

Respondents were asked to provide information on their personal characteristics including gender, age, and level of education. The majority of respondents were older residents (40+), residents that attended and/or completed graduate school, and female residents (Table 1).

Land Ownership Status

Residents were also asked their land-ownership status. Answer categories were: “I do not own land,” “I own land in a village,” “I own fewer than 5 acres of land,” and “I own more than 5 acres of land.” The majority of respondents were small and multi-acre landowners (Figure 1).

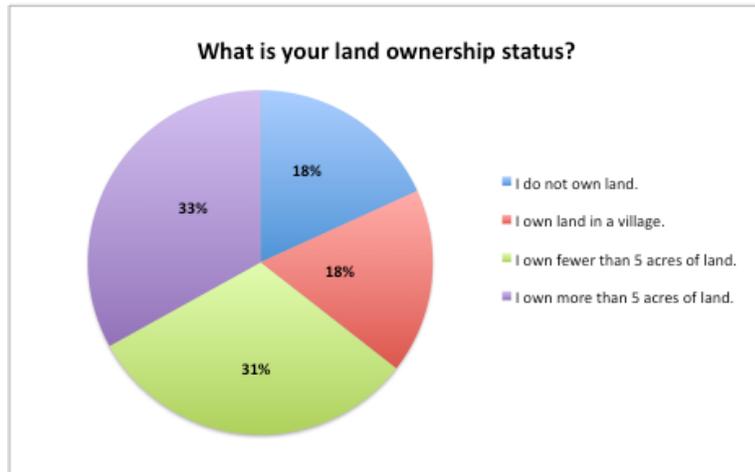


Figure 1: Land ownership status of respondents

Community Involvement

Residents were asked to respond to a series of statements to gauge their involvement in the community (Figure 2).

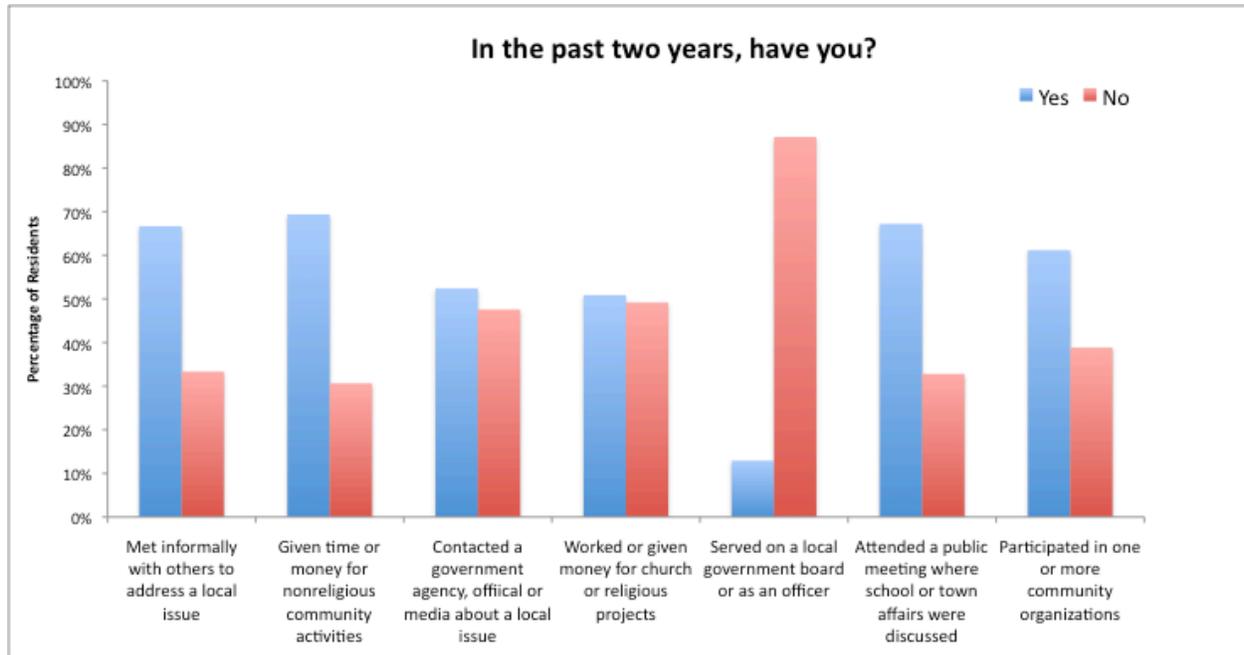


Figure 2: Respondents’ community involvement in the last two years.

- 67% of all respondents have met informally with others to address a local issue.
- 69% have given time or money for non-religious community activities.
- 52% have contacted a government agency, official or media about a local issue.
- 51% have worked or given money for church or religious projects.
- 13% have served on a local government board or as an officer.
- 67% have attended a public meeting where school or town affairs were discussed.
- 61% have participated in one or more community organizations.

Perceived Knowledge

The survey asked respondents to rate how well informed (or knowledgeable) they were about each of the various topics related to high-volume hydraulic fracturing:

- a. Economic impacts
- b. Environmental impacts
- c. Possible Effects on Drinking Water
- d. Gas Leases
- e. Jobs and Job Training
- f. Impact on Local Government
- g. Compulsory Integration

Response choices were “very,” “somewhat,” “not very,” and “not at all.” For this analysis, the categories were reduced to: “very,” “somewhat,” and “not very/not at all.”

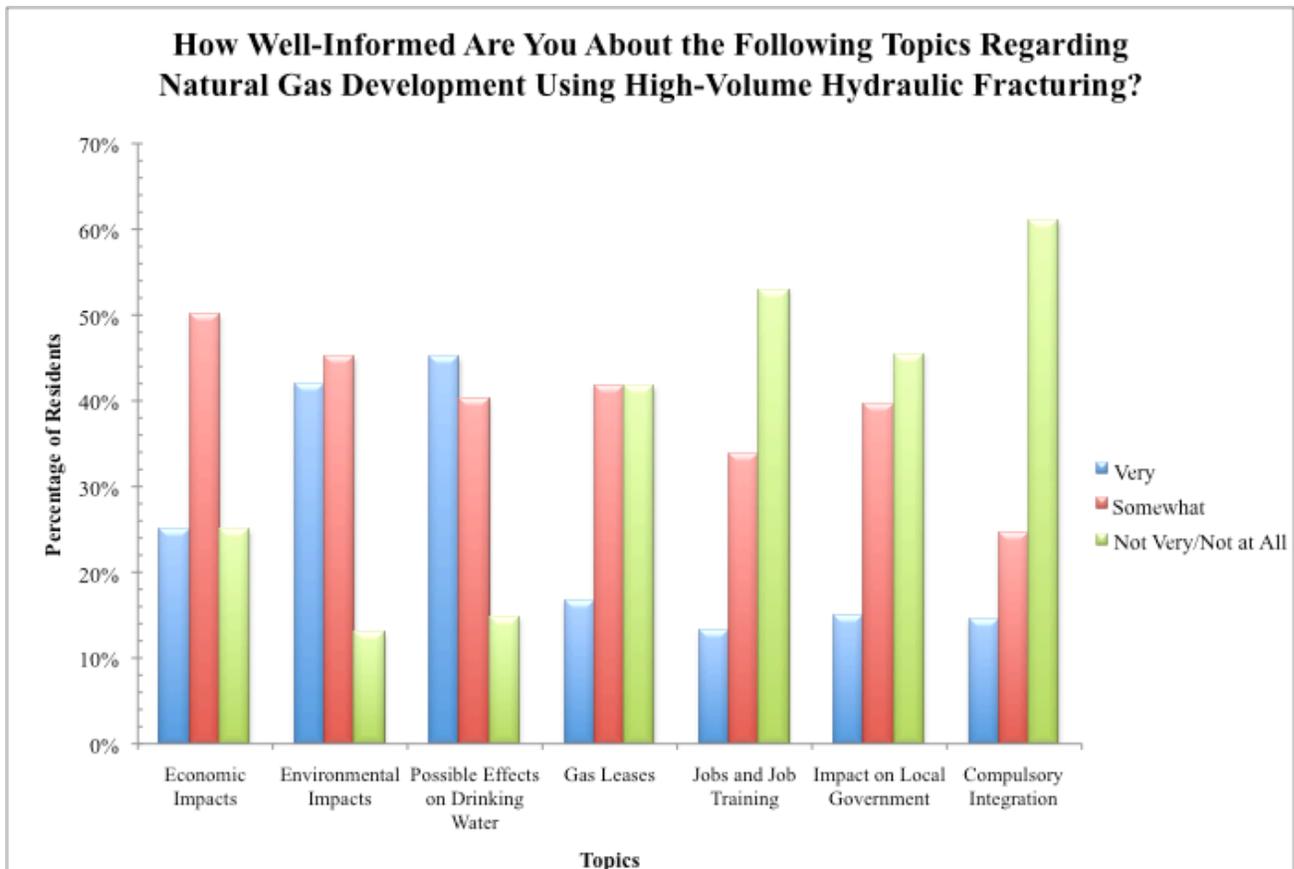


Figure 3. Reported knowledge of all respondents on topics related to natural gas development using high-volume hydraulic fracturing.

- **Overall:** Respondents perceive themselves to be more informed on economic impacts, environmental impacts and possible effects on drinking water and less informed on gas leases, jobs and job training, impact on local government and compulsory integration (Figure 3).
- **Drinking Water:** Respondents reported they are most knowledgeable about the possible effects on drinking water with forty-five percent of them stating they are “very” informed.
- **Environmental vs. Economic impacts:** Respondents were more likely to report they are “very” informed about environmental impacts (42%) than economic impacts (25%). Those respondents who have signed gas leases or are members of a landowners’ coalition were more likely to report they are “very” informed about the environmental impacts (57%) than multi-acre landowners who have not signed gas leases (48%) and village landowners (38%).
- **Compulsory Integration & Jobs/Job Training:** Respondents reported they are “not very/not at all” informed about compulsory integration (61%) and jobs and job training (53%).
- **Gas Leases:** Respondents who have signed gas leases or are members of a landowner’s coalition were more likely to report they are “very” informed (46%) about gas leases than village landowners (15%) and multi-acre landowners who have not signed gas leases (35%). Village residents responding were more likely to report they are “not very/not at all” informed about gas leases (50%) than multi-acre landowners who have not signed gas leases (31%), and those who have signed gas leases or are members of a landowners’ coalition (23%).
- **Neutral Respondents:** Respondents that were “neutral” in support/opposition of natural gas development using high-volume hydraulic fracturing were more likely to be “not very/not at all” informed about all the topics, especially gas leases (84%) and compulsory integration (92%) (Figure 4), than those who stated an opinion (i. e., either support or oppose high-volume hydraulic fracturing).

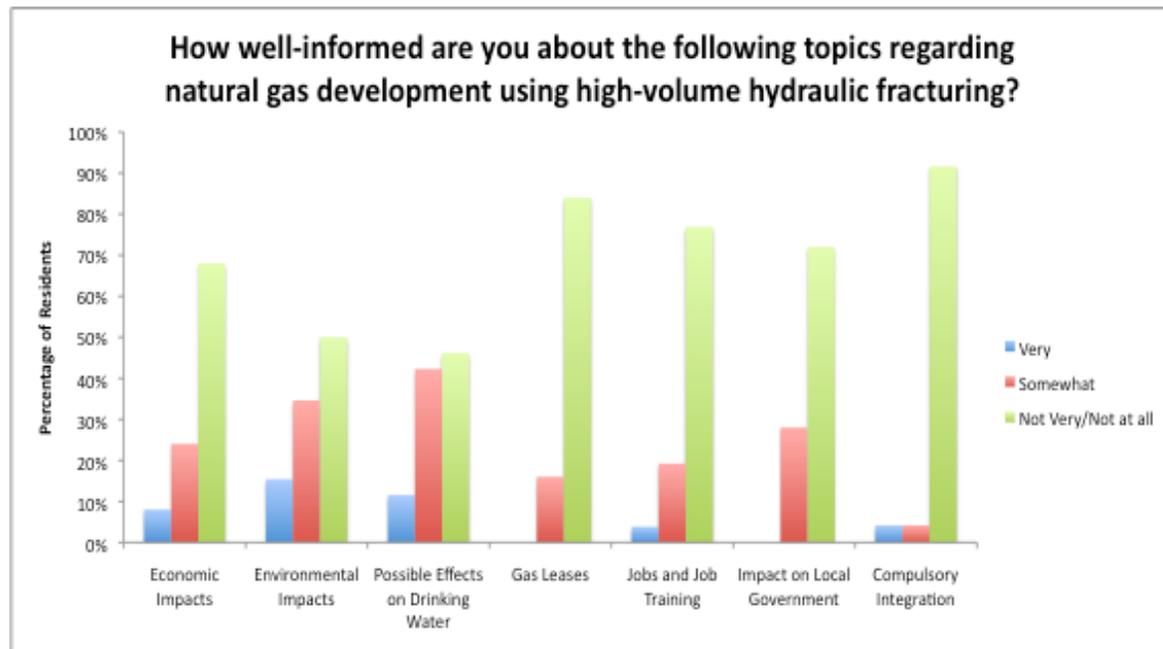


Figure 4: Reported knowledge of “neutral” respondents on topics related to natural gas development using high-volume hydraulic fracturing.

Trust in Groups and Organizations

Respondents were asked to rate their level of trust concerning high-volume hydraulic fracturing in the following various groups and organizations:

- a. Local community organizations
- b. State Department of Environmental Conservation
- c. Local environmental groups
- d. Natural gas industry
- e. Cooperative extension
- f. Scientists and researchers

Answer categories were “a lot,” “some,” “a little” and “not at all.” The most common response across all the groups and organizations, except for the natural gas industry, was “some” trust (Figure 5).

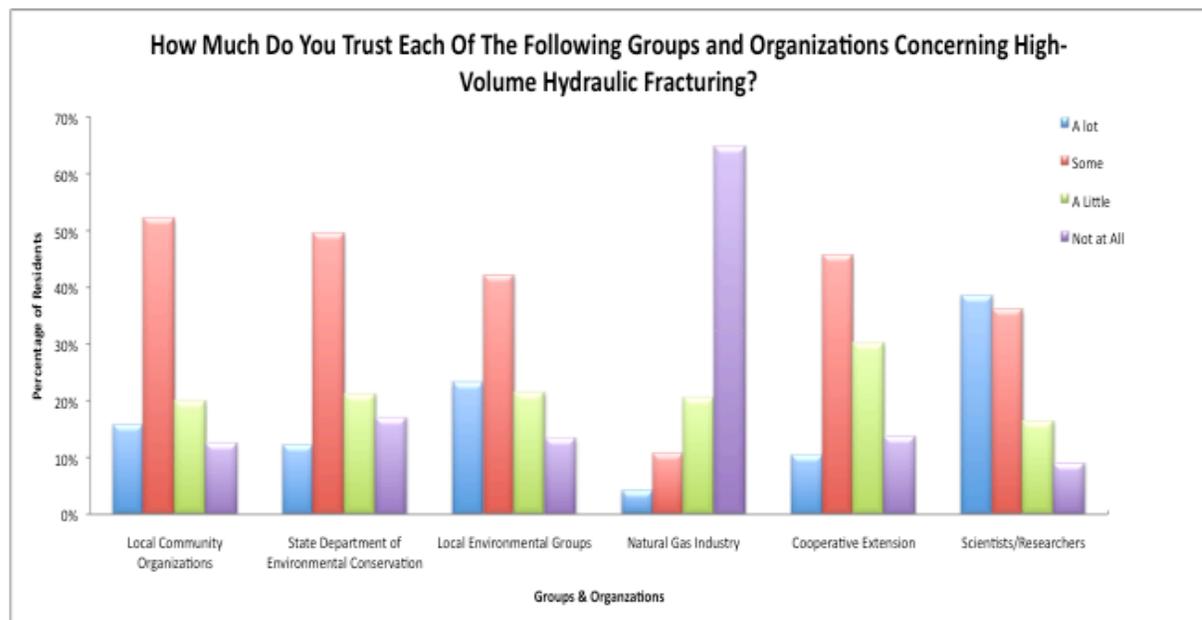


Figure 5. All respondents' levels of trust regarding high-volume hydraulic fracturing in groups and organizations

- Scientists and researchers** are most trustworthy with thirty-nine percent of all respondents rating their trust level in them as “a lot.” Village landowners are more likely to trust scientists and researchers “a lot” (55%) than residents who have signed gas leases or are members in a landowners’ coalition (36%) and multi-acre landowners who have not signed gas leases (19%). Forty-six percent of neutral respondents (i.e., are not in support/opposition of the use of high-volume hydraulic fracturing) reported they trusted scientists and researchers “a lot” (Figure 5).
- Local environmental groups** are the next most trusted group with twenty-three percent of all respondents rating their trust level in them as “a lot.” Village landowners (33%) are more likely to trust local environmental groups than residents who signed gas leases or are members of a landowners’ coalition (14%) and multi-acre landowners who have not signed gas leases (16%). The majority (60%) of neutral respondents (e.g. are not in support/opposition of the use of high-volume hydraulic fracturing) reported they had “some” trust in local environmental organizations.
- The natural gas industry** is the least trusted group/organization with sixty-five percent of all respondents rating their trust level in them as “not at all.” Village landowners (62%) and multi-acre landowners who have not signed a gas lease (73%) are more likely

to “not at all” trust the natural gas industry than residents who have signed a gas lease or are members of a landowners’ coalition (21%).

- **NYSDEC:** Twelve percent of all respondents rated their trust in State Department of Environmental Conservation as “a lot” but seventeen percent rated their trust in the DEC as “not at all.” Village landowners (48%) are more likely report they had “a lot” of trust in the DEC than multi-acre landowners who have not signed gas leases (15%) and residents that have signed a gas lease or are members of a landowners’ coalition (14%). Multi-acre landowners who have not signed a gas lease (19%) are more likely to rate their trust in the DEC as “not at all” than village landowners (5%) and residents who have signed gas leases/member of landowners’ coalition (7%).
- **Cooperative Extension:** Ten percent of respondents rated their trust in cooperative extension as “a lot” and fourteen as “not at all.” Some of those responding (n=8) do not know what cooperative extension is so they did not answer the question.

Expected Outcomes on the Local Community

The survey asked residents about the effects they expected the implementation of high-volume hydraulic fracturing in natural gas development would have on the following:

- a. Overall quality of life
- b. Property Values
- c. Neighborliness/Sense of community
- d. Quality of drinking water
- e. Quality of natural environment
- f. Roads and streets
- g. Recreational opportunities
- h. Quality of health care
- i. Quality of public schools
- j. Overall cost of living
- k. Availability of jobs

Answer categories were “will improve,” “will stay the same,” “will get worse,” and “not sure.”

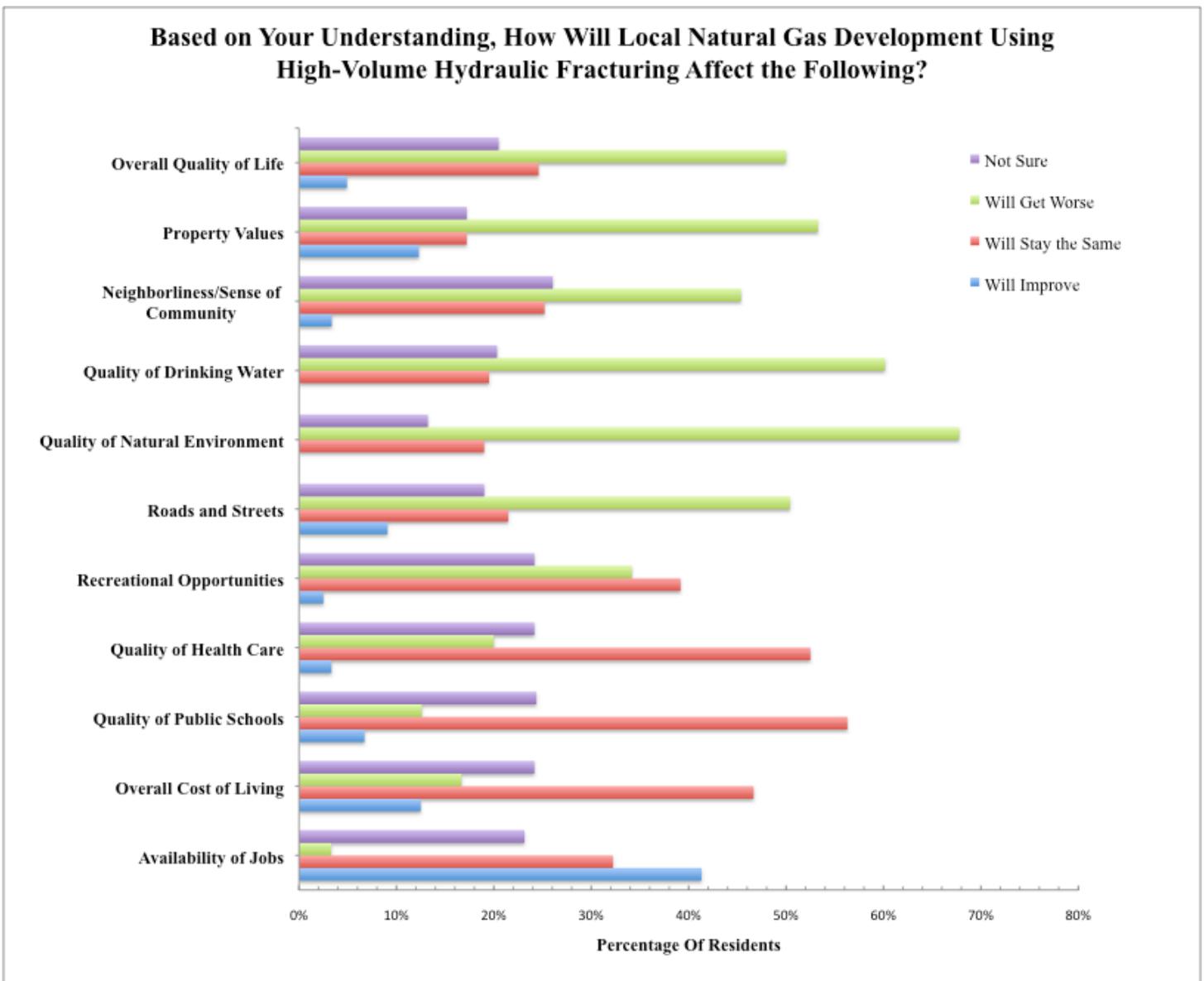


Figure 6: Expected outcomes of high-volume hydraulic fracturing on the local community (all respondents).

- Quality of Life:** Half (50%) of the respondents reported they believe the overall quality of life will get worse, while a quarter (25%) believe it will stay the same and 5% think it will get better. One in five (20%) reported they are “not sure” how their quality of life would change as a result of the use of high-volume hydraulic fracturing (Figure 7). Those responding who have signed a gas lease or are members of a landowners’ coalition were less likely to report they believe their overall quality of life will get worse (14%) compared to multi-acre landowners who have not signed gas leases (62%) and village landowners (57%) (Figure 6).

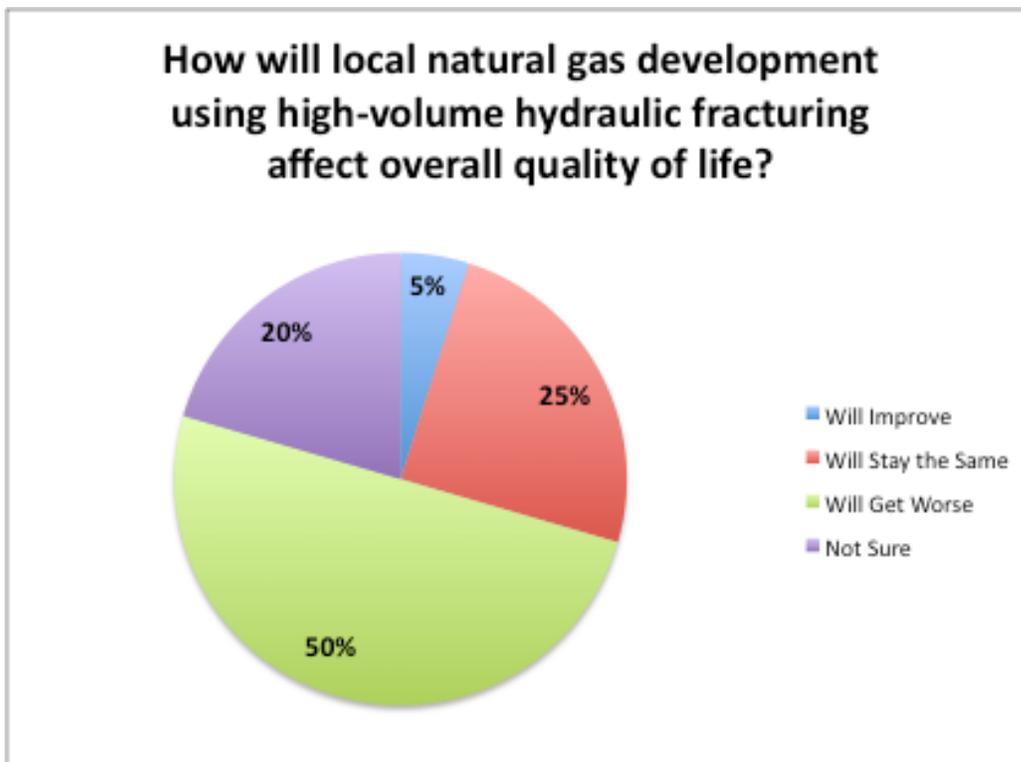


Figure 7: Expected outcomes of hydraulic fracturing on overall quality of life (all respondents).

- Property Values:** The majority of all respondents (53%) think that property values will decrease while twelve percent think that they will improve and seventeen percent think that they will stay the same. Residents who have signed a gas lease or are members of a landowners' coalition were more likely to report they believe their property values will improve than village landowners (46% and 0%, respectively).
- Neighborliness/Sense of Community:** Forty-five percent of all respondents think that neighborliness and sense of community will get worse, twenty-five percent think it will stay the same, and three percent think it will improve. Fifty-eight percent of multi-acre landowners who have not signed a gas lease and forty-three percent of village landowners think that it will get worse while seventeen percent of residents who have signed a gas lease or are members of a landowners' coalition feel the same.
- Drinking Water:** The majority of all respondents (60%) think that the quality of drinking water will get worse while twenty percent think it will stay the same. Residents who have signed a gas lease or are members of a landowners' coalition were more likely to report they believe the quality of drinking water would stay the same (57%) compared

to village landowners (14%) and multi-acre landowners who have not signed gas leases (4%). No one reported that they think that the quality of drinking water will get better.

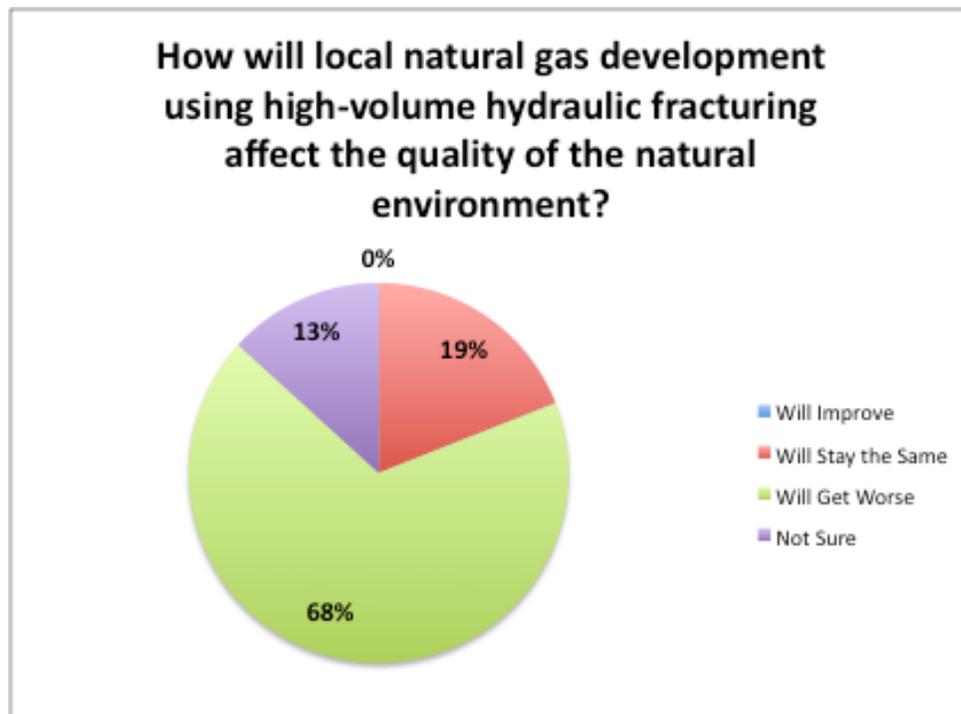


Figure 8: Expected outcomes of high-volume hydraulic fracturing on overall quality of the natural environment (all respondents).

- Natural Environment:** The majority of all respondents (68%) also reported they think that the quality of the natural environment will get worse, while nineteen percent think it will stay the same. Respondents who have signed a gas lease or are members of a landowners' coalition were more likely to report they believe the quality of the natural environment would stay the same (71%) compared to village landowners (14%) and multi-acre landowners who have not signed gas leases (4%). No one reported that they believe that the quality of the natural environment will improve (Figure 8).
- Roads/Streets:** Thirty-four percent of all respondents think that roads and streets will get worse, thirty-nine percent think that it will stay the same, and three percent think it will improve. Some respondents commented that they think the roads and streets will get worse at first, but will improve as time passes.
- Recreational Opportunities:** Fifty-three percent of all respondents think that the recreational opportunities will stay the same, twenty percent think they will get worse and

three percent think they will improve. None of the village landowners think that recreational opportunities will improve.

- **Health Care:** The majority of all respondents (53%) think that quality of health care will stay the same, twenty percent think it will get worse and only three percent think it will improve.
- **Public Schools:** Of all respondents, thirteen percent think the quality of the public schools will get worse, seven percent think it will improve and fifty-six percent think it will stay the same. Village landowners were more likely to think it will get worse (50%) compared to multi-acre landowners who have not signed a gas lease (20%) and residents who have signed a gas lease or are members of a landowners' coalition (15%).
- **Cost of Living:** Forty-seven percent of all respondents think that overall cost of living will stay the same, seven percent think it will get worse, and thirteen percent think it will improve. Multi-acre landowners who have not signed a gas lease were more likely to report that they believe overall cost of living will get worse (23%) compared to village landowners (5%) and those who have signed a gas lease or are members of a landowners' coalition (0%).
- **Jobs:** Forty-one percent of all respondents think the availability of jobs will improve while thirty-two percent that think they will stay the same. Only three percent think that the availability of jobs will get worse. Those responding who have signed a gas lease or are members of a landowners' coalition (62%) were more likely to report that they think the availability of jobs will improve than village landowners (43%) and multi-acre landowners who have not signed a gas lease (22%).

Perceived Risks and Benefits

In order to grasp how residents feel about the development of the gas industry, respondents were asked whether they were not sure, agreed, were neutral, or disagreed with a series of statements concerning potential risks and benefits (Figure 9). The survey also asked general questions to assess community residents' attitudes and perceptions regarding the development of the natural gas industry using high-volume hydraulic fracturing.

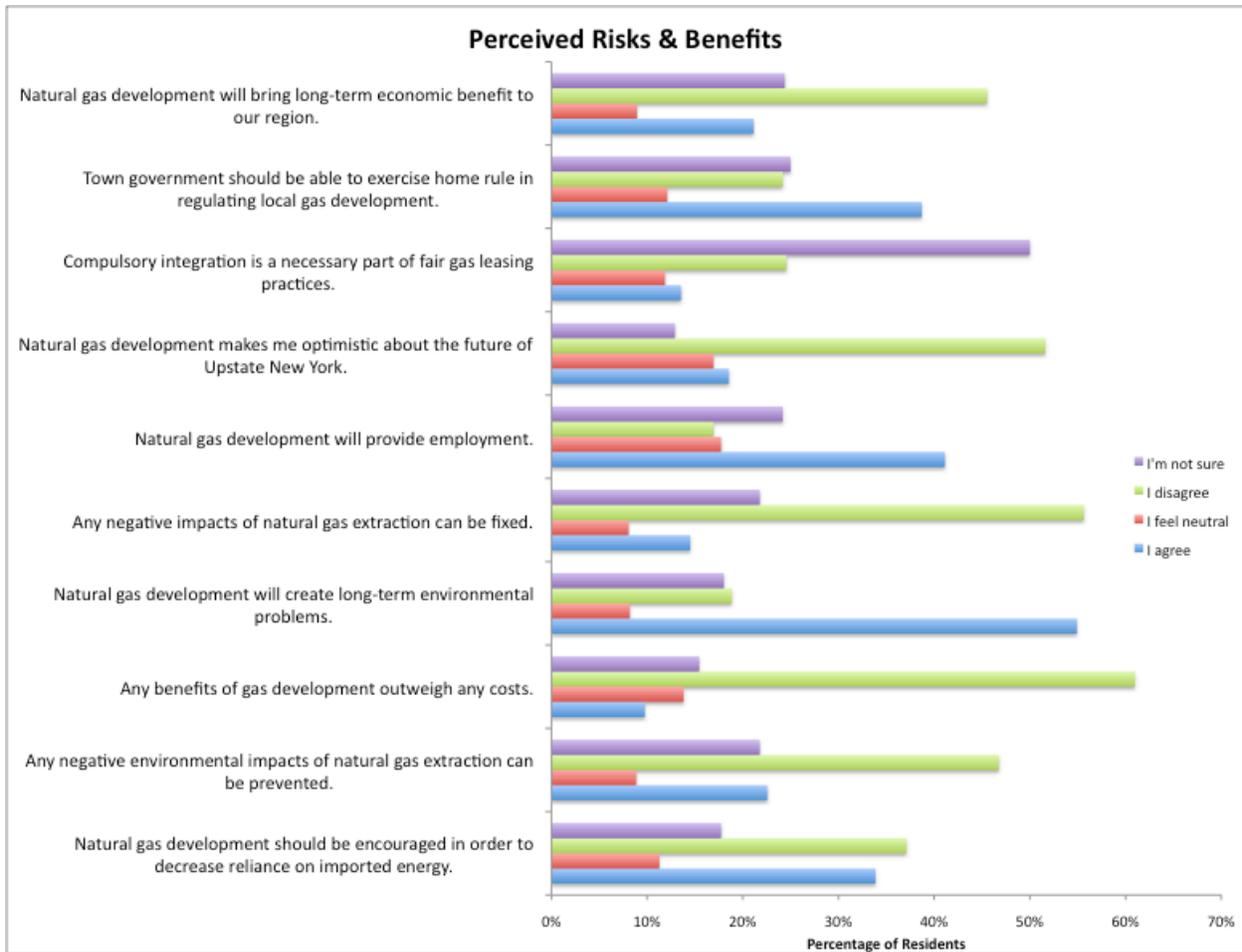


Figure 9: Perceptions of all respondents on the risks and benefits of hydraulic fracturing and the development of the gas company.

- Economic Benefit:** More respondents disagree than agree with the statement: “Natural gas development will bring long-term economic benefit to our region” (46% vs. 21%). Respondents who have signed a gas lease or are members of a landowners’ coalition (79%) are more likely to feel that natural gas development will bring long-term economic benefit to the region than village landowners (10%) and multi-acre landowners who have not signed a gas lease (8%).
- Home Rule:** Thirty-nine percent of all respondents agree (vs. 24% who disagree) that town government should be able to exercise home rule in regulating local gas development.

- **Compulsory Integration:** Fourteen percent of all respondents agree (vs. 25% who disagree) that compulsory integration is a necessary part of fair gas leasing practices. Multi-acre landowners who have not signed a gas lease (38%) and village landowners (29%) are more likely to disagree than those respondents who have signed a gas lease or are members of a landowners' coalition (7%). The majority of respondents (53%) noted that they do not know what compulsory integration is.
- **Optimism:** The majority of all respondents (52%) do not feel that natural gas development makes them optimistic about the future of upstate New York. Those respondents who have signed gas leases or are members of a landowners' coalition (71%) are more likely to feel that natural gas development makes them optimistic about the region's future than multi-acre landowners who have not signed a gas lease (12%) and village landowners (10%).
- **Employment:** Forty-one percent of all respondents agree (vs. 17% that disagree) with the statement: "Natural gas development will provide employment." Village landowners (48%) and those who have signed gas leases or are members of a landowners' coalition (64%) are more likely to feel that natural gas development will provide employment than multi-acre landowners who have not signed a gas lease (27%).
- **Reversible Impacts:** The majority of all respondents (56%) disagree with the statement: "Any negative impacts of natural gas extraction can be fixed." Those who have signed gas leases or are members of a landowners' coalitions (57%) are more likely to feel that any negative impacts of natural gas extraction can be fixed than village landowners (14%) and multi-acre landowners who have not signed a gas lease (4%).
- **Environmental Problems:** The majority of all respondents (55%) agree that natural gas development will create long-term environmental problems (Figure 10). Village landowners (62%) and multi-acre landowners who have not signed a gas lease (52%) are more likely to feel that natural gas development will create long-term environmental problems than respondents who have signed gas lease or are members of a landowners' coalition (8%).

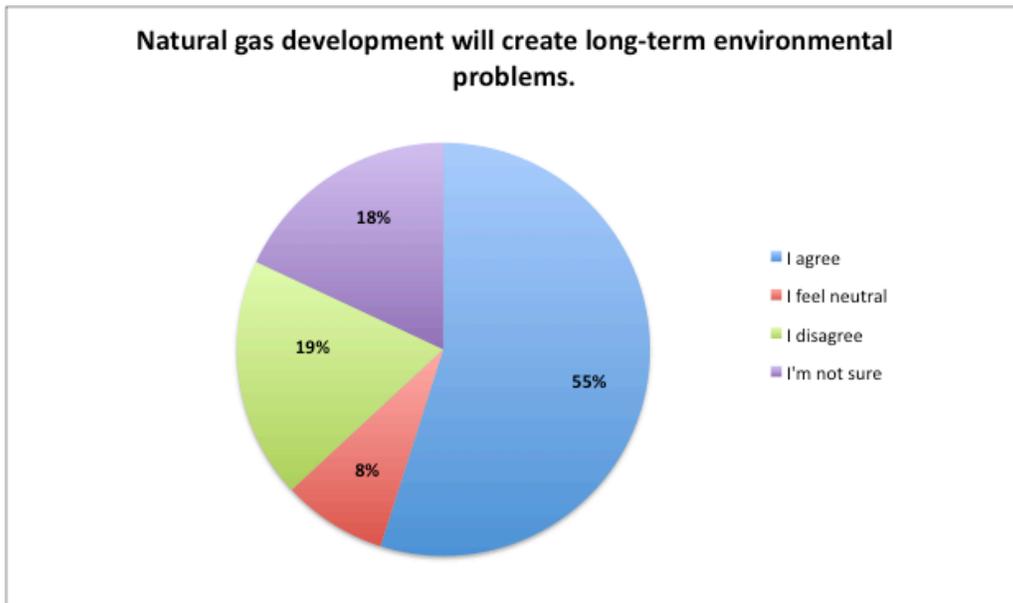


Figure 10: Residents’ responses to the statement: “Natural gas development will create long-term environmental problems.

- Benefits vs. Costs:** Sixty-one percent of respondents disagree with the statement: “Any benefits of gas development outweigh any costs” (Figure 11). Multi-acre landowners who have not signed a gas lease (73%) and village landowners (52%) are more likely to feel that any benefits of gas development do not outweigh any costs than residents who have signed a gas lease or are members of a landowners’ coalition.

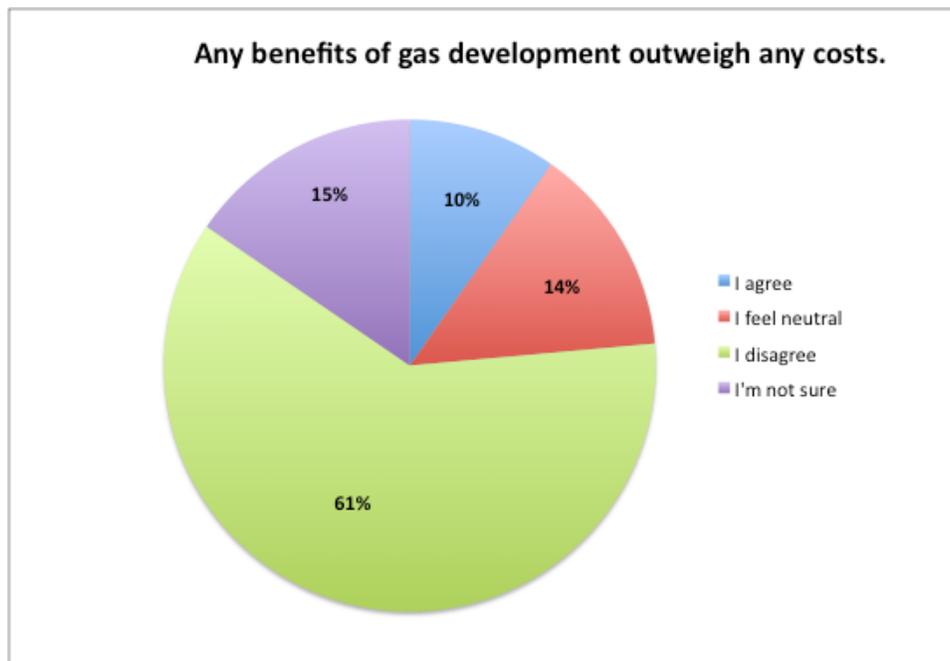


Figure 11: Residents' responses to the statement: "Any benefits of gas development outweigh any costs."

- Preventable Impacts:** Forty-seven percent of all respondents do not believe that any negative environmental impacts of natural gas extraction can be prevented. Respondents who have signed gas leases or are members of a landowners' coalition (57%) are more likely to agree that any negative environmental impacts of natural gas extraction can be prevented than village landowners (14%) and multi-acre landowners who have not signed a gas lease (26%).
- Natural Gas Development:** Thirty-four percent of all respondents think that natural gas development should be encouraged in order to decrease reliance on imported energy while thirty-seven percent disagree. Respondents who have signed a gas lease or are members of a landowners' coalition (86%) are more likely to believe that natural gas development should be encouraged to decrease reliance on imported energy than village landowners (19%) and multi-acre landowners who have not signed gas leases (33%).

Overall Opposition and Support

Residents were asked: "Based on your understanding of the benefits and risks, what is your opinion about natural gas extraction using high-volume hydraulic fracturing in the upstate New York region?" Answer categories were: "strongly support," "support," "neutral," "opposed," and "strongly opposed." For this analysis, the categories were condensed to: "strongly support/support," "neutral" and "opposed/strongly opposed."

The majority of respondents (61%) are opposed to natural gas extraction using high-volume hydraulic fracturing in the upstate New York region. Eighteen percent of those responding supported the use of high-volume hydraulic fracturing and twenty-one percent were neutral (Figure 12).

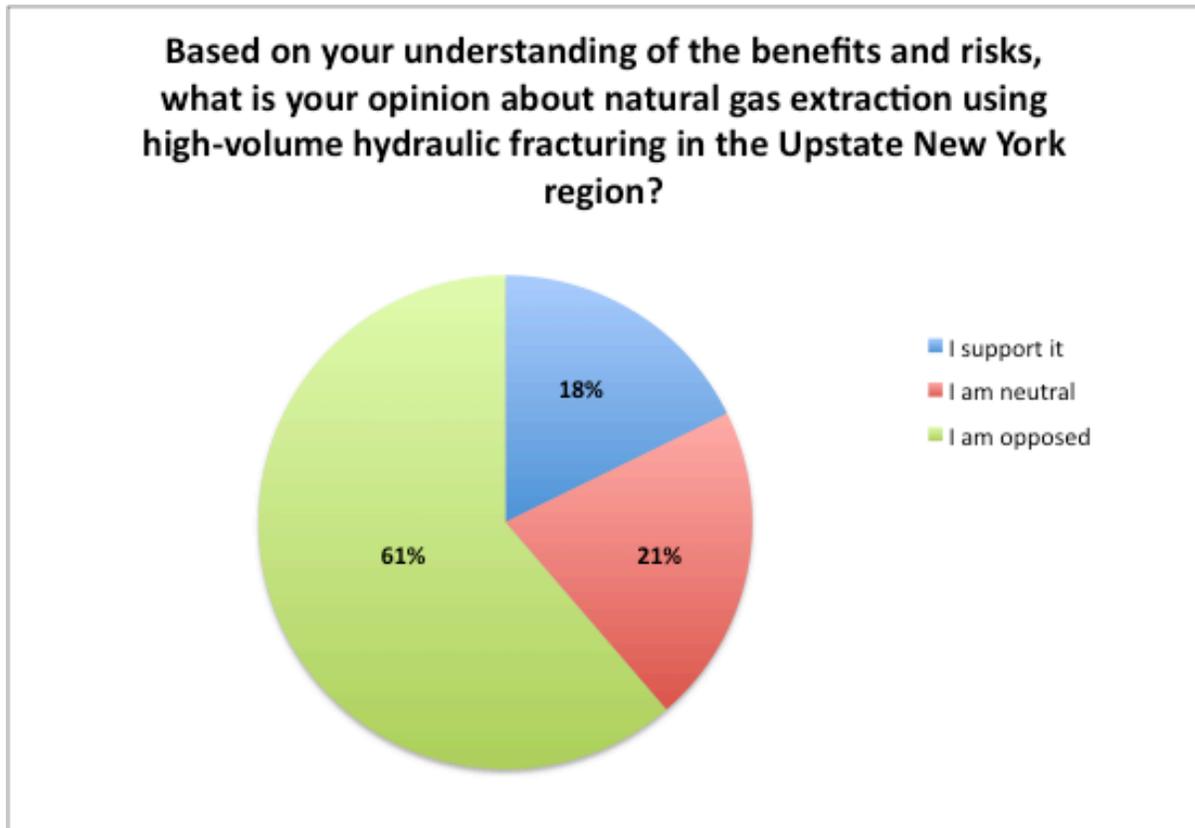


Figure 12: Overall position of all respondents on the use of high-volume hydraulic fracturing in the Upstate New York region

- **Support:** Residents who have signed a gas lease or are members of a landowners' coalition are more likely to support the use of high-volume hydraulic fracturing (64%) than village owners (10%) and multi-acre landowners who have not signed a gas lease (11%).
- **Opposition:** Village landowners (76%) and multi-acre landowners who have not signed a gas lease (63%) are more likely to oppose the use of high-volume hydraulic fracturing in natural gas extraction than residents who have signed a gas lease or are members of a landowners' coalition (14%).

Summary and Conclusion

This study explored the opinions and perceptions of residents of the Townships of Lebanon and Hamilton regarding the development of the natural gas industry, and more specifically, the use of high-volume hydraulic fracturing in the extraction of natural gas. The survey was developed during the spring of 2012, and mailed to randomly selected residents in May, 2012. The response rate was 18% (126 responses from 702 surveys mailed). The majority of respondents believe high-volume hydraulic fracturing will negatively affect property values, the natural environment, the quality of drinking water and most importantly, the overall quality of life. Of all respondents, residents who have signed gas leases, or are members of a landowners' coalition are less inclined to believe that high-volume hydraulic fracturing will detrimentally affect the natural environment, community infrastructure and overall quality of life. Furthermore, the majority of residents professed they are not optimistic about the future of upstate New York under natural gas development. While acknowledging the prospect of employment opportunities, they expressed skepticism towards the long-term economic benefit and the natural gas industry.

Since most respondents predict that the use of high-volume hydraulic fracturing in natural gas development will negatively affect their surroundings and community, it is not a surprise that the majority of respondents are opposed to using high-volume hydraulic fracturing in the upstate New York region. Respondents who have signed a gas lease or are members of a landowners' coalition are more likely to support the use of high-volume hydraulic fracturing than others. Approximately a fifth of respondents reported they were "neutral" and did not support nor oppose the use of high-volume hydraulic fracturing. The majority of respondents that did not state an opinion in opposition to or in support of high-volume hydraulic fracturing reported they were not very or not at all informed of the potential impacts of natural gas drilling and consequently had not formed opinions about the potential risks and benefits. Higher self-perceived knowledge levels correlate with the willingness of respondents to take a strong stance for or against the use of high-volume hydraulic fracturing to extract natural gas. In addition, a significant number of respondents expressed lack of information and/or knowledge of certain aspects of the high-volume hydraulic fracturing issue such as compulsory integration and cooperative extension. Such knowledge on salient topics can influence residents' opinions.

For residents to develop a well-formed opinion regarding this issue, it is imperative that they have access to objective information from trusted sources that will educate them about the various aspects of high-volume hydraulic fracturing, while addressing misconceptions.

Information about the social, environmental, and economic impacts of high-volume hydraulic fracturing must be spread throughout the community. Community response efforts should focus on informing the public and encouraging citizen participation in a balanced and respectful dialogue on the high-volume hydraulic fracturing issue.