

Oklahoma Earthquake Survey

Summary of Results

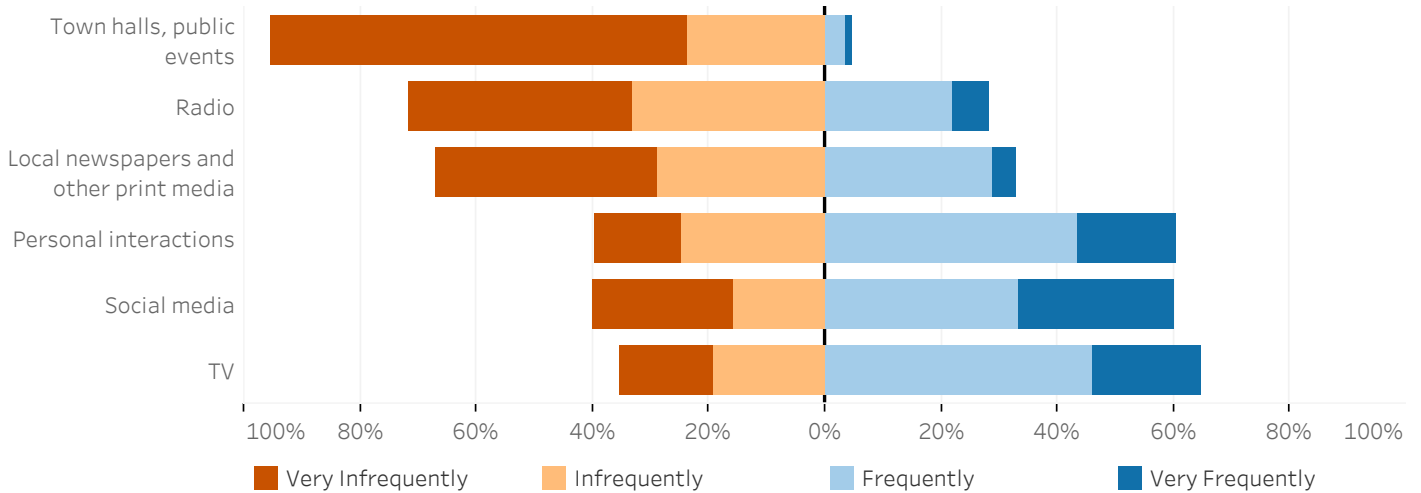
This spring our team at the University of Colorado conducted a household survey of randomly selected households in regions of Oklahoma that have experienced an increase in earthquakes in recent years. This report contains a summary of the results of that survey.

The summary reflects the responses of nearly 220 individuals. The average age of the respondents was 55 years old. Approximately 45% of respondents were female, and 55% were male.

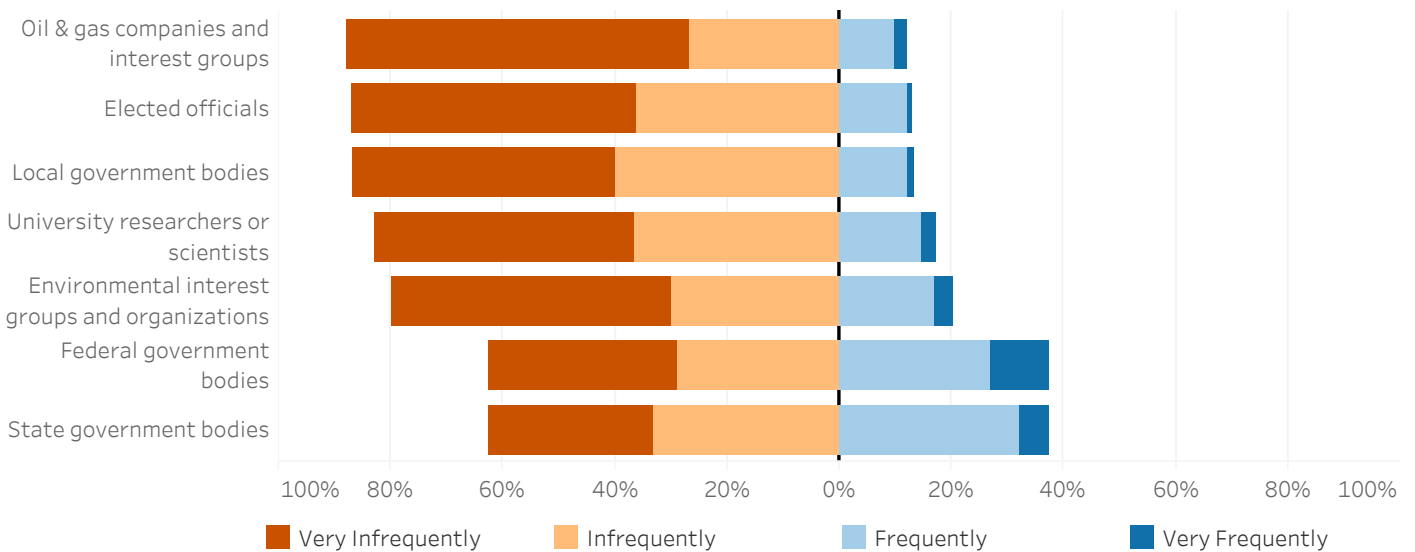
Responses to open-ended questions are not included in this summary. For questions that had a response option such as "I don't know," those responses are not included in this summary. Unless otherwise noted, all questions shown in this summary have at least **180** valid responses.

Percentages given are rounded to the nearest whole percent, so some displayed percentages may add up to be just more than or just less than 100%.

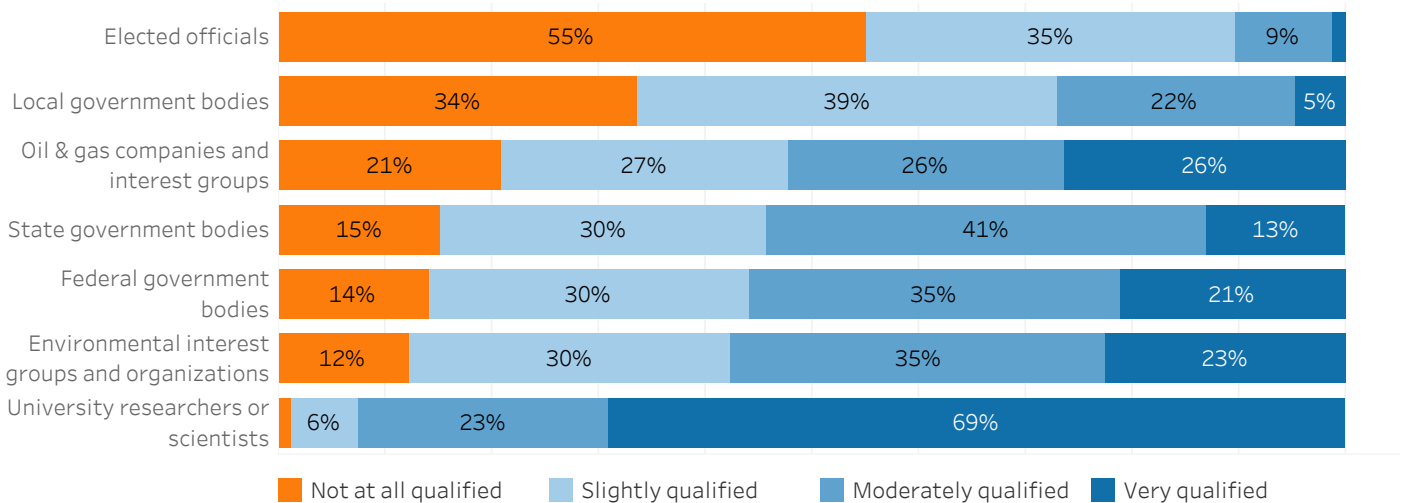
How frequently do you get information about earthquakes through the following media?



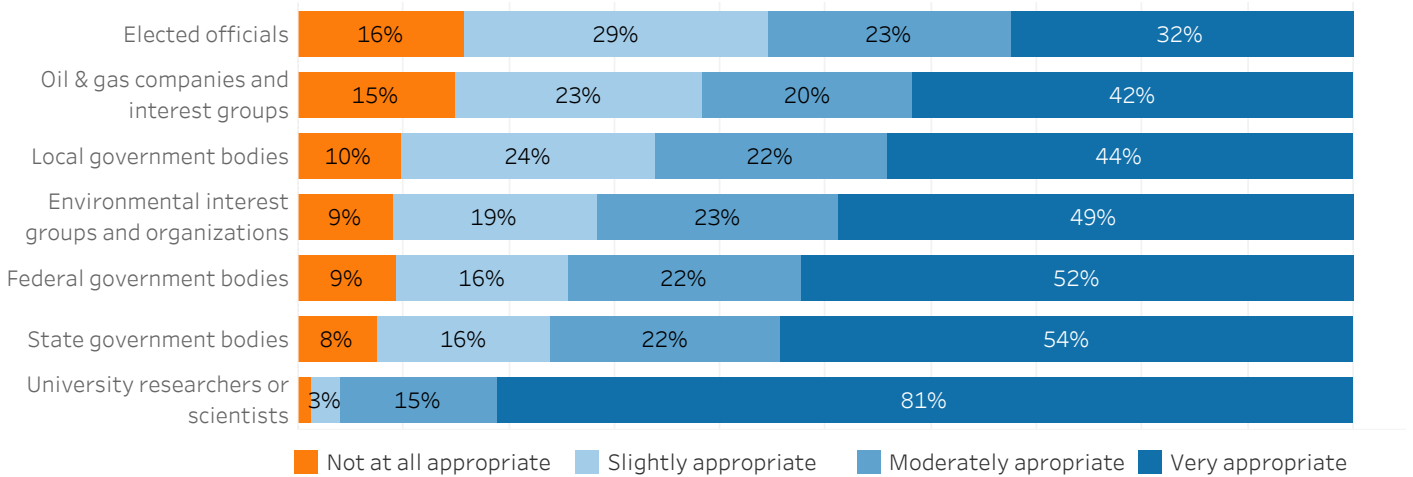
How frequently do you get information on earthquakes from each of the following groups?



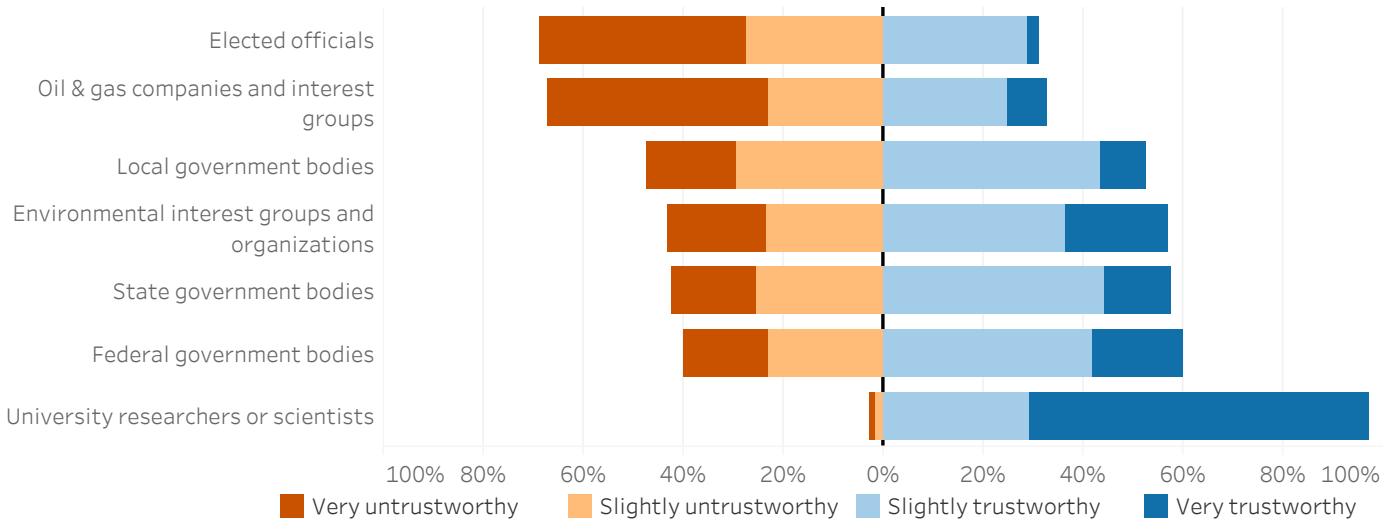
Based on their expertise, to what degree are the following types of sources qualified to share information on earthquakes?



To what degree is it appropriate, desirable, or proper for the following groups to share information on earthquakes?

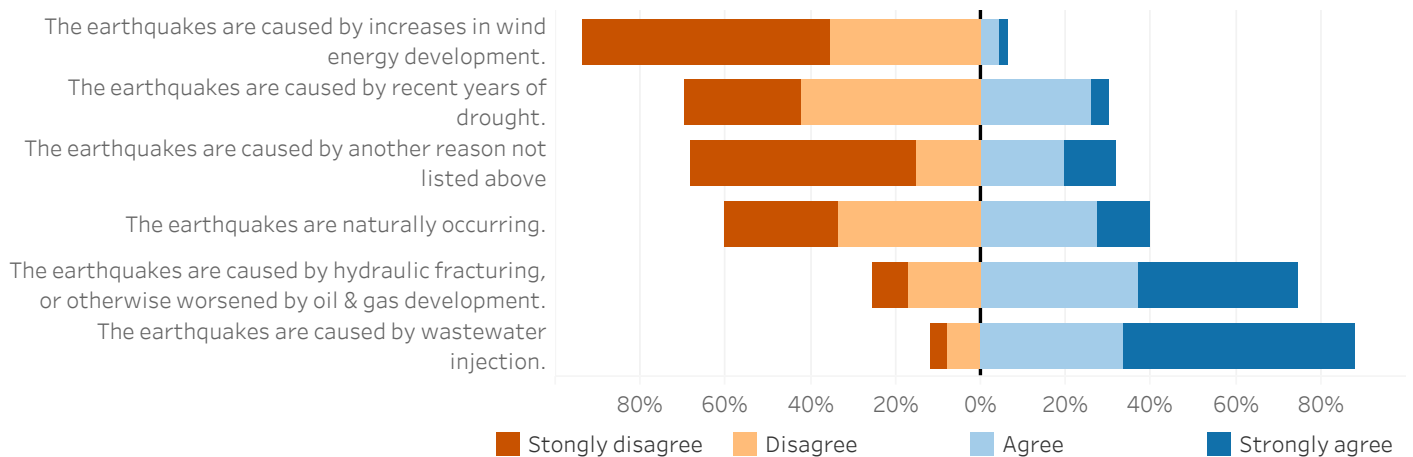


How trustworthy or untrustworthy are each of the following in regard to the ongoing discussions surrounding the cause of the earthquakes?

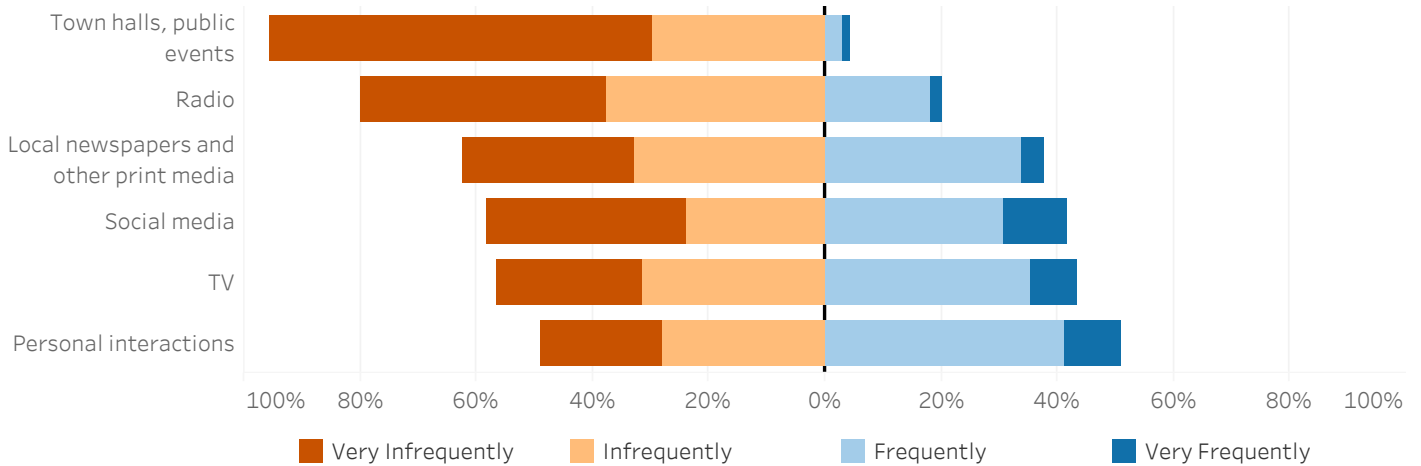


There has been a significant increase in the number of earthquakes in Oklahoma over the past 6 years, and there are many different views as to what is causing them. For the following question, please respond based on your personal views on the possible causes of the earthquakes.

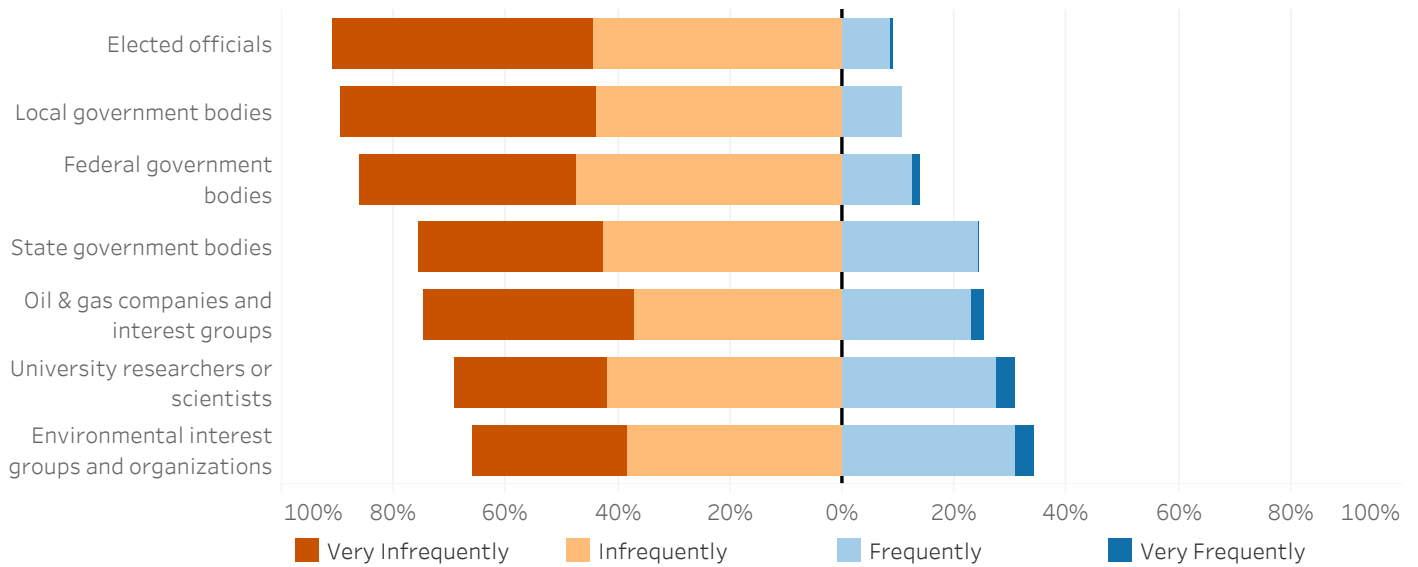
To what extent do you disagree or agree that:



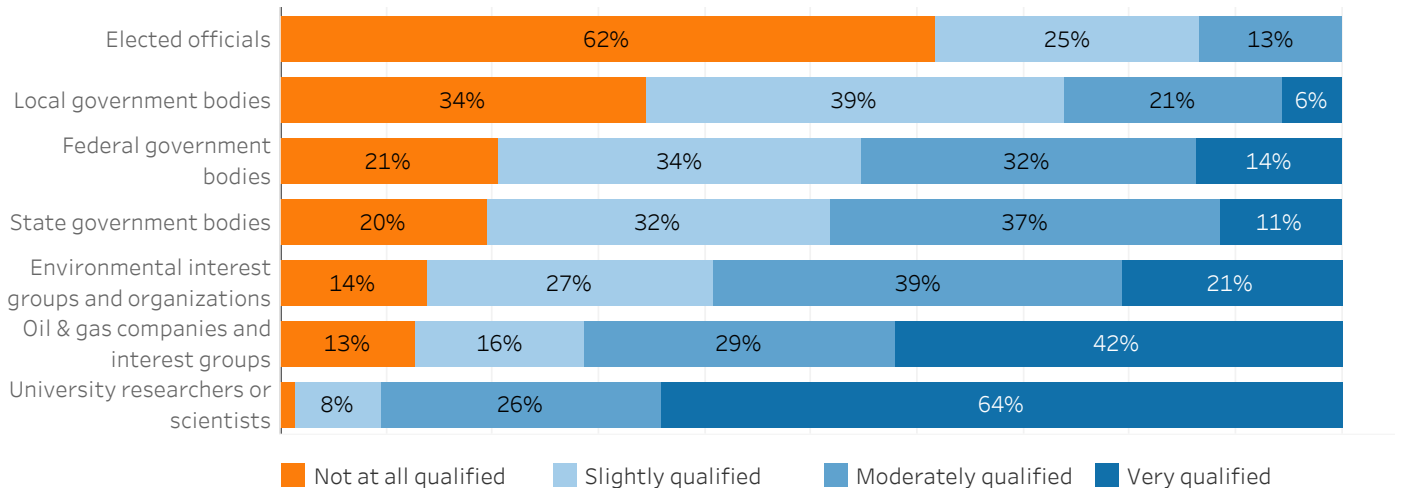
How frequently do you get information about oil & gas development through the following media?



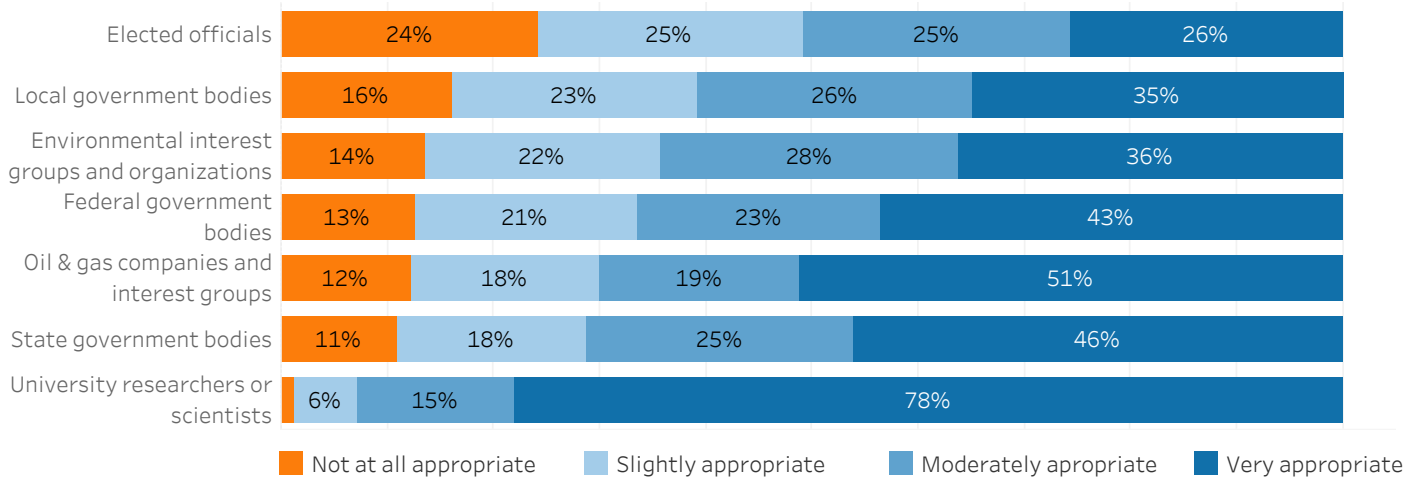
How frequently do you get information on hydraulic fracturing and oil & gas development activities from each of the following groups?



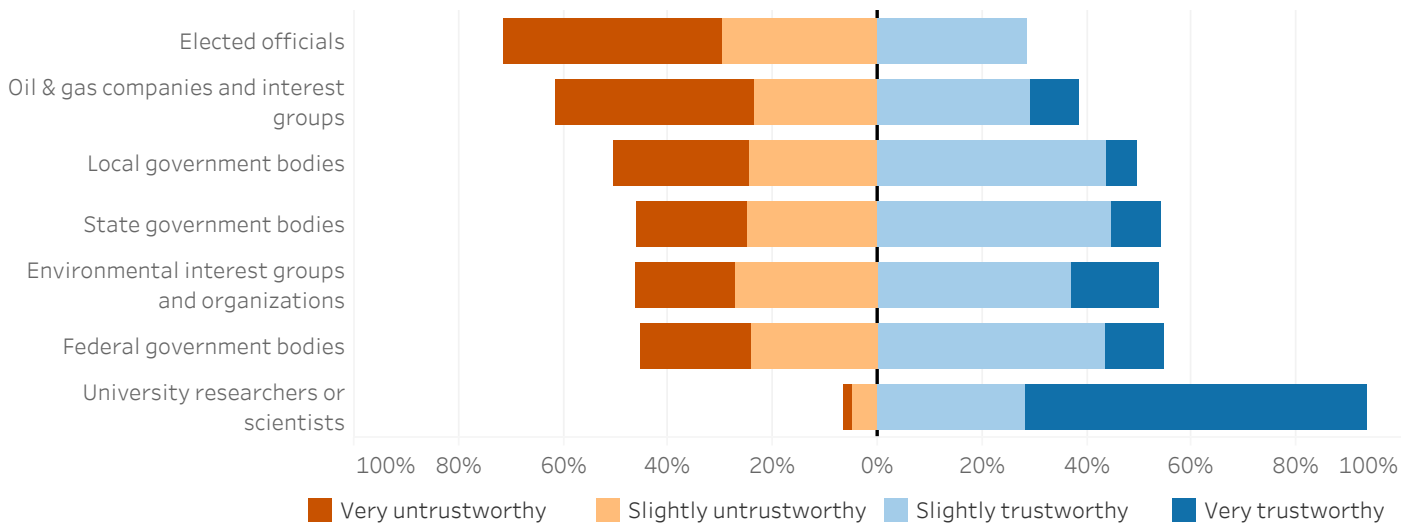
Based on their expertise, to what degree are the sources qualified to share information on hydraulic fracturing and oil & gas related issues?



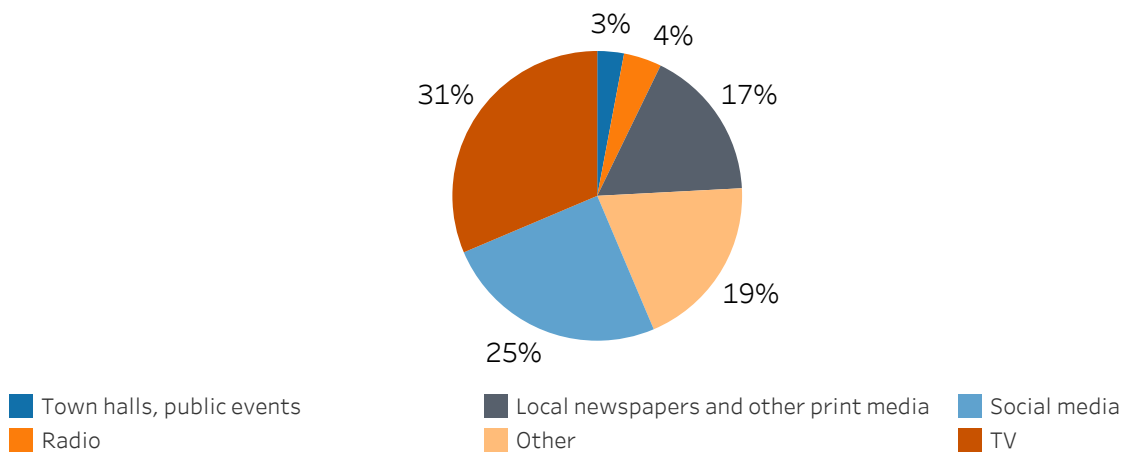
To what degree is it appropriate, desirable, or proper for the following groups to share information on hydraulic fracturing and oil & gas related issues?



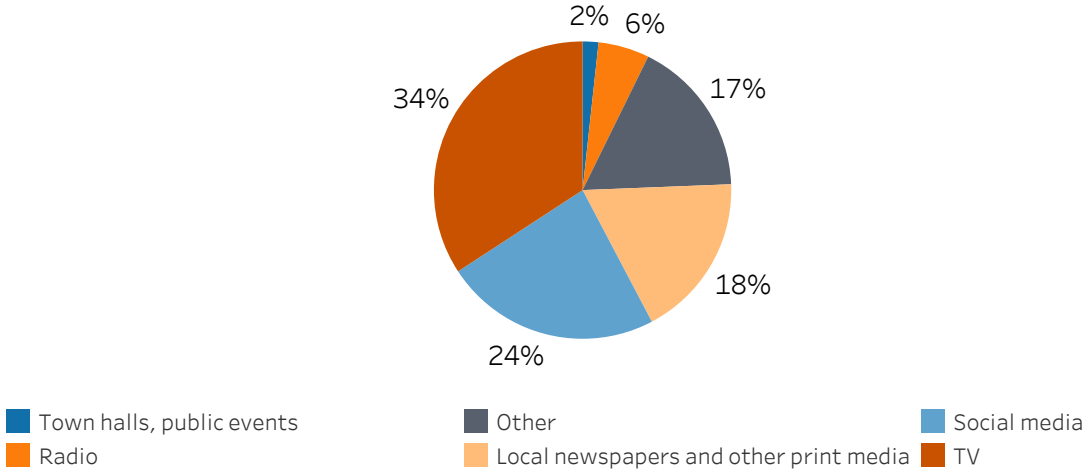
How trustworthy or untrustworthy are each of the following in regard to the ongoing discussions surrounding hydraulic fracturing and oil & gas development?



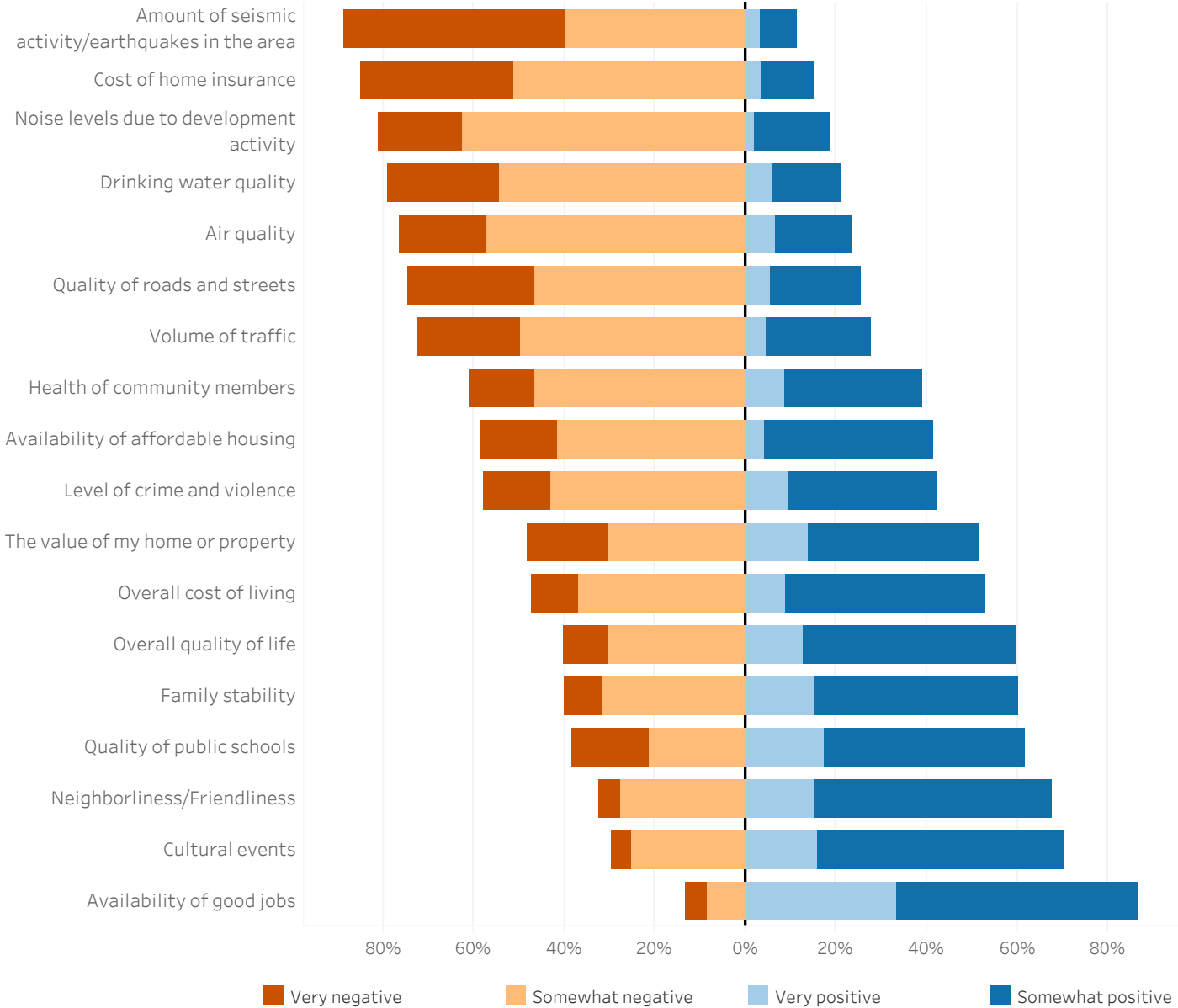
Based on our research, we hope to improve how information reaches community members like you. If you could tell information providers the best way to get information on earthquakes to you, what would that be?



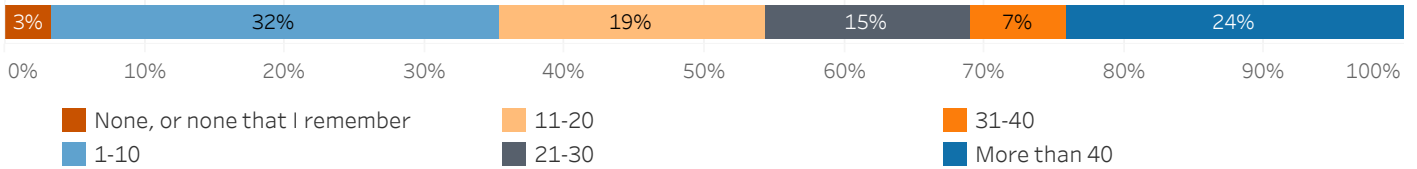
If you could tell information providers the best way to get information to you in general, what would that be?



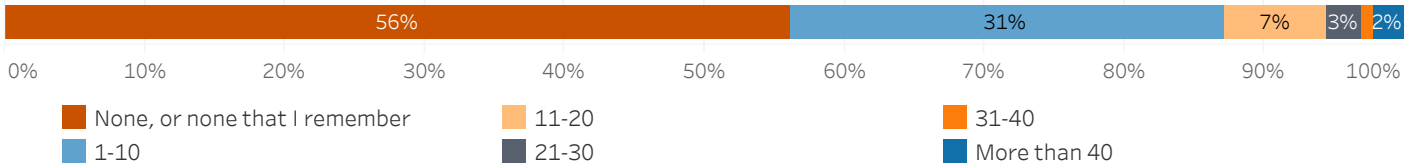
Please rate how oil & gas development and hydraulic fracturing positively or negatively affects your community in terms of each of the following:



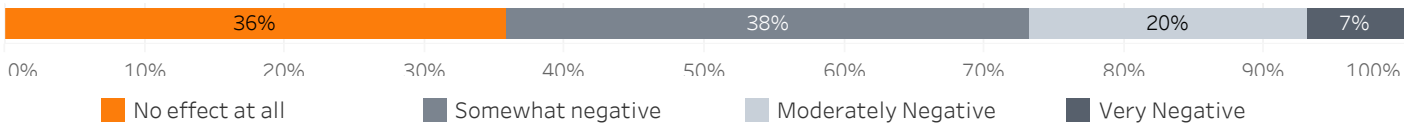
As best you remember, how many earthquakes have you felt in Oklahoma since 2011?



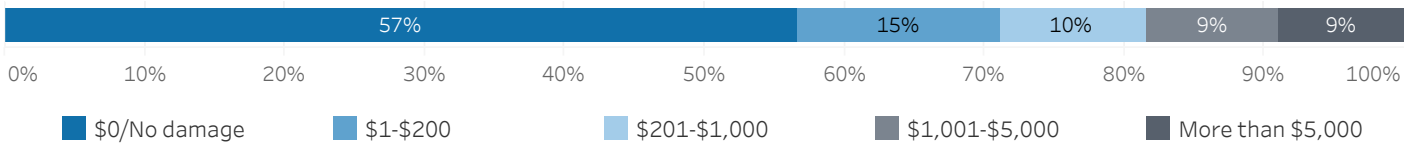
As best you remember, before the recent increase in earthquakes that began around 2011, how many earthquakes had you felt in your life?



Generally speaking, how would you describe the overall effects of the earthquakes on your life?



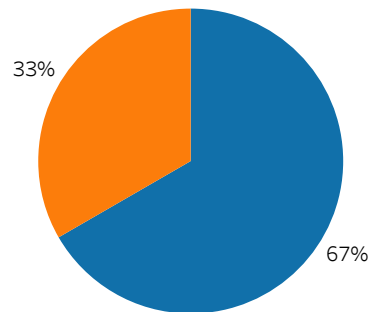
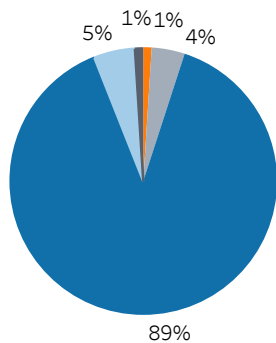
What has been the cost of the damage, in dollars, to your personal property as a result of the earthquakes in the region?



The following question was only asked of individuals who reported monetary damage in the previous question:
Have you been compensated for any damage you've experienced as a result of the earthquakes?

Did you experience damage that accumulated over multiple earthquakes?

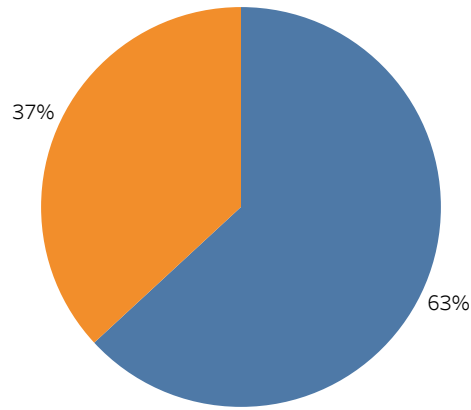
*100 individuals responded to this question



- No, currently involved in litigation regarding earthquake damage
- No, currently seeking compensation (not through litigation)
- No, did not seek compensation
- No, was denied compensation under an insurance policy
- Yes, through an insurance policy

- No, or not that I'm aware of
- Yes

Do you have earthquake insurance?



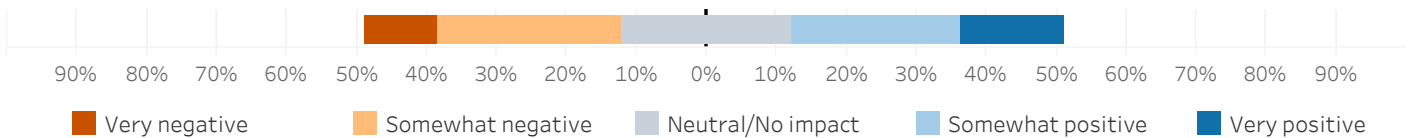
- No
- Yes

How much oil and gas production, if any, is taking place in your community?



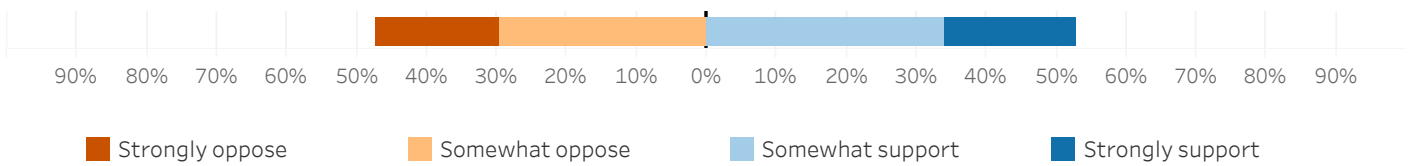
- None
- Very little
- Some
- A great deal

Overall, do you think hydraulic fracturing has a more positive or negative impact on your community?



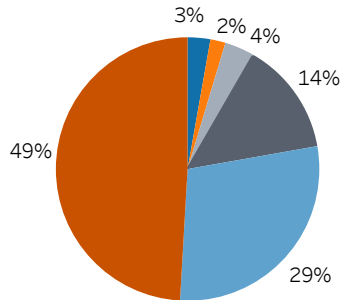
- Very negative
- Somewhat negative
- Neutral/No impact
- Somewhat positive
- Very positive

Rate your support for or opposition to hydraulic fracturing.



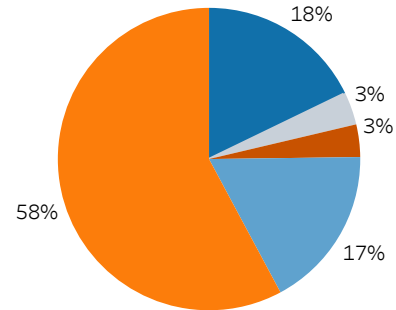
- Strongly oppose
- Somewhat oppose
- Somewhat support
- Strongly support

In your opinion, who most ought to investigate the earthquakes and, if applicable, regulate activities that you believe are causing the earthquakes?



- I don't know
- Local governments (e.g. county or city government)
- No one/no human activities are causing the earthquakes
- Someone else
- The federal government (e.g. the EPA)
- The state government

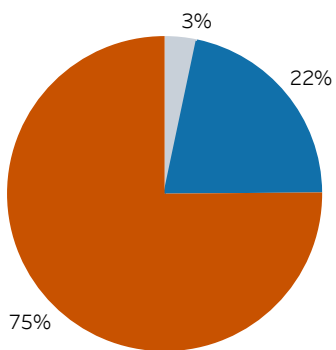
In regard to the previous question: What do you think of current regulation efforts?



- No opinion
- Should be doing less - allow responsible industries to act.
- Should be doing less - the earthquakes are not caused by humans.
- The regulation efforts are about what they ought to be.
- The regulation efforts should be doing more or should be stronger.

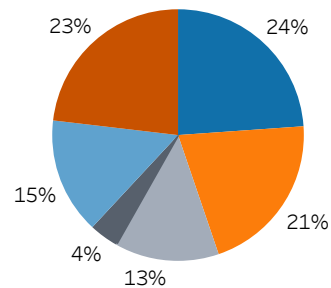
Do you believe the number of earthquakes can be reduced or stopped altogether?

*134 individuals responded to this question



- Yes
- No
- I don't know

Respondents that answered "Yes" were asked: In your view, what would be the most effective method of stopping the earthquakes?



- Recycle water instead of injecting it
- Reduce injection rates
- Some answer not listed above
- Spread out injection wells
- Stop all hydraulic fracturing
- Stop all wastewater injection

Colorado Earthquake Survey

Summary of Results

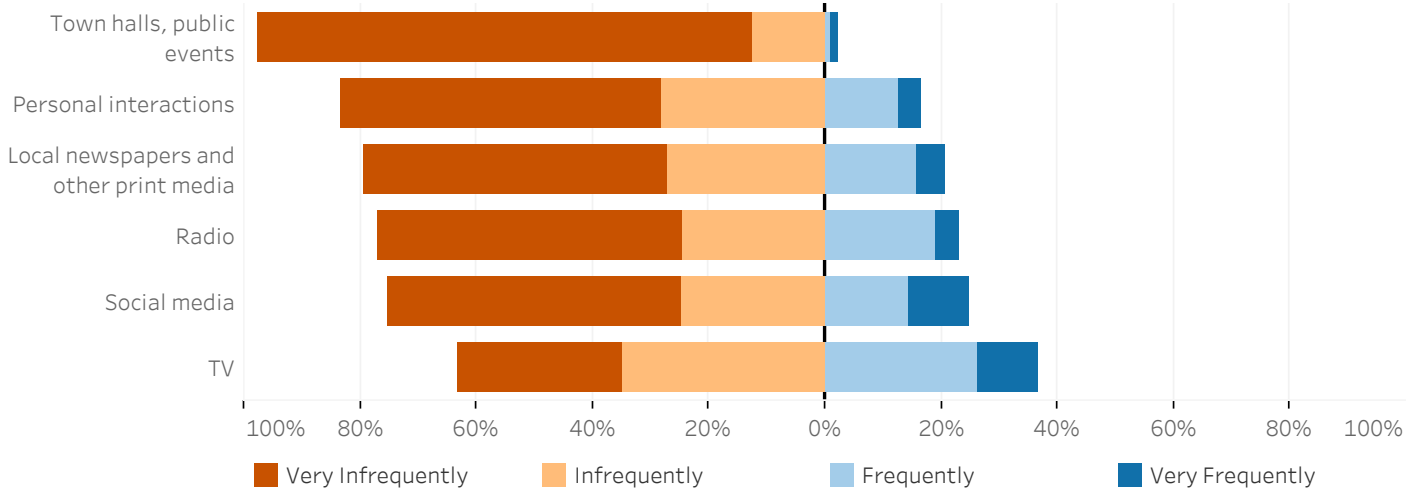
This spring our team at the University of Colorado conducted a household survey of randomly selected households in regions of Colorado that have experienced an increase in earthquakes in recent years. This report contains a summary of the results of that survey.

The summary reflects the responses of nearly **200** individuals. The average age of the respondents was 55 years old. Approximately 57% of respondents were female, and 43% were male.

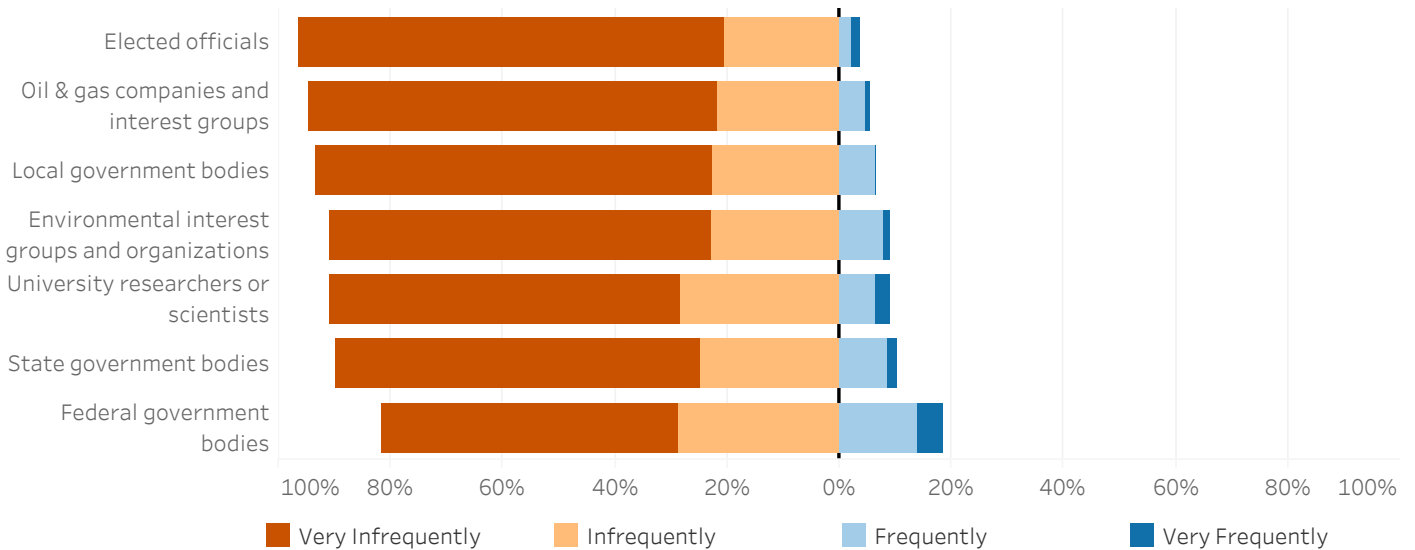
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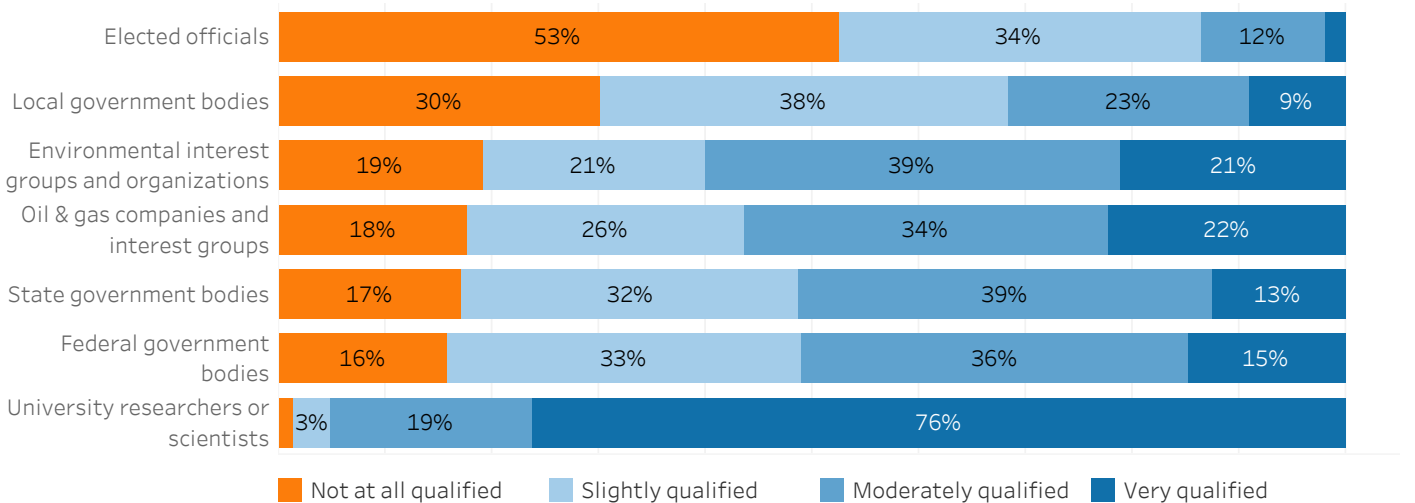
How frequently do you get information about earthquakes through the following media?



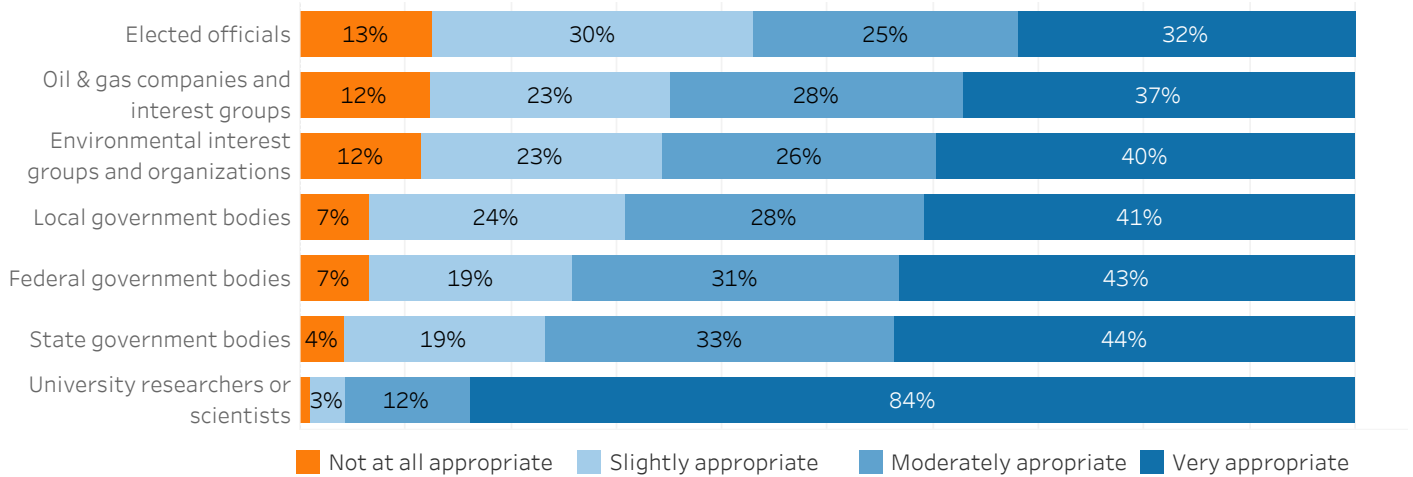
How frequently do you get information on earthquakes from each of the following groups?



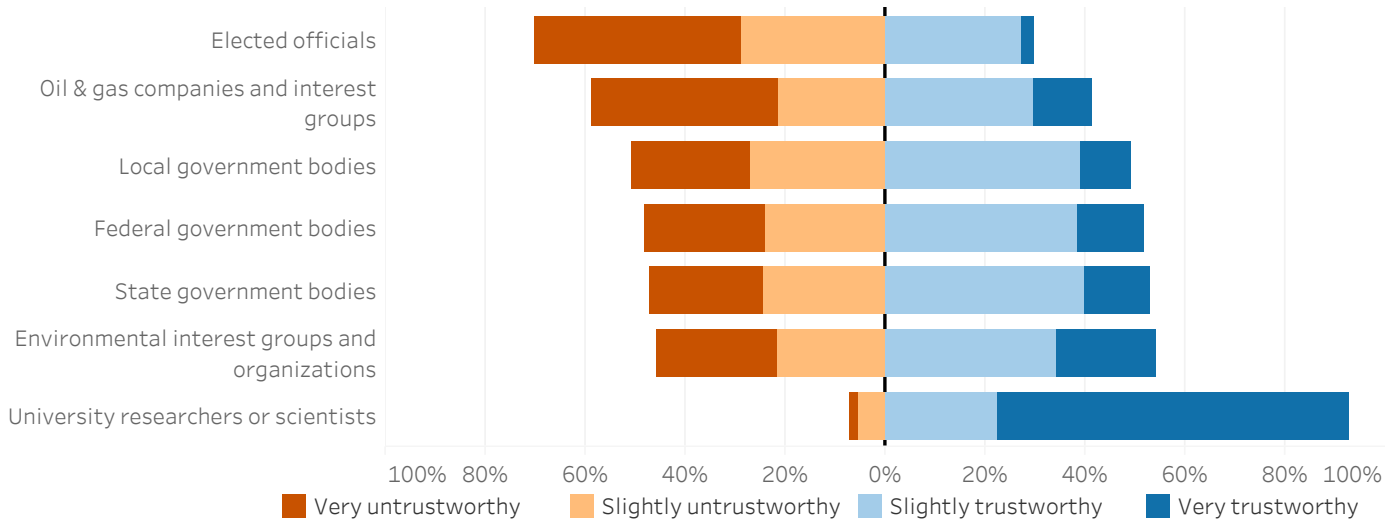
Based on their expertise, to what degree are the following types of sources qualified to share information on earthquakes?



To what degree is it appropriate, desirable, or proper for the following groups to share information on earthquakes?

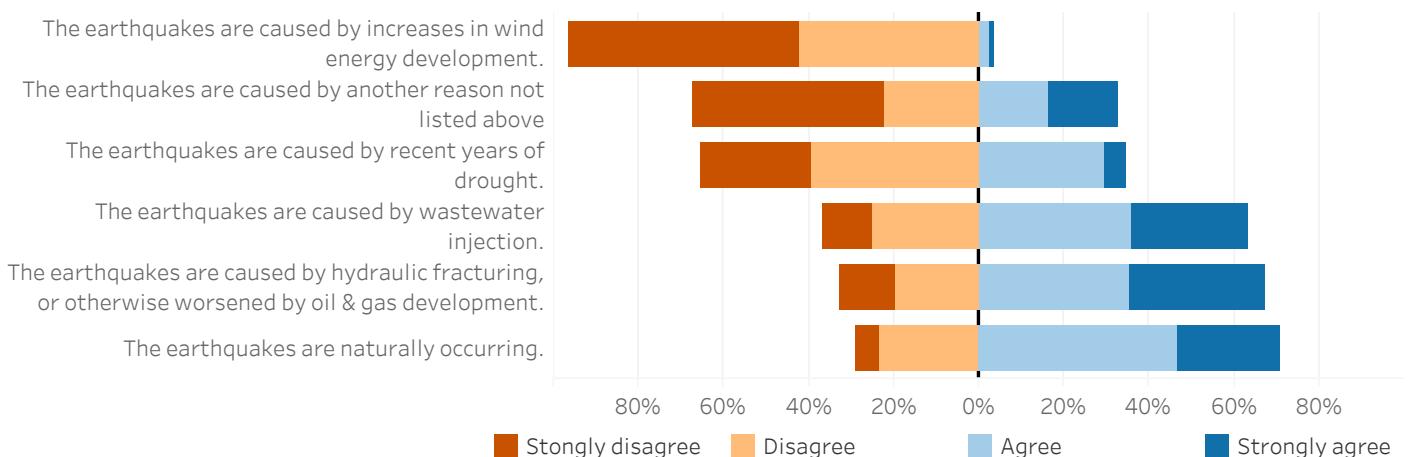


How trustworthy or untrustworthy are each of the following in regard to the ongoing discussions surrounding the cause of the earthquakes?

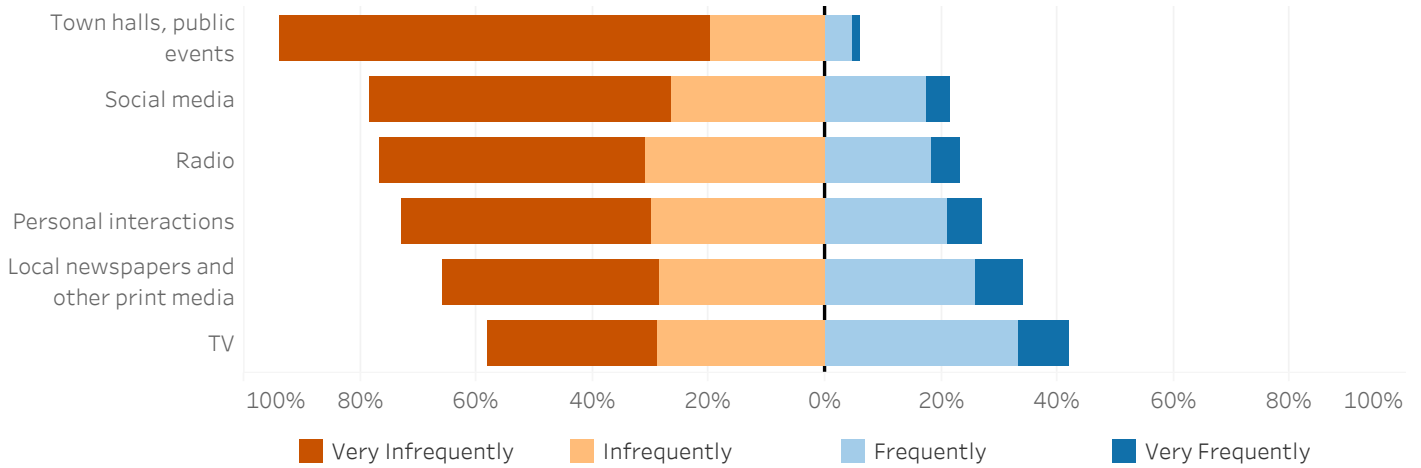


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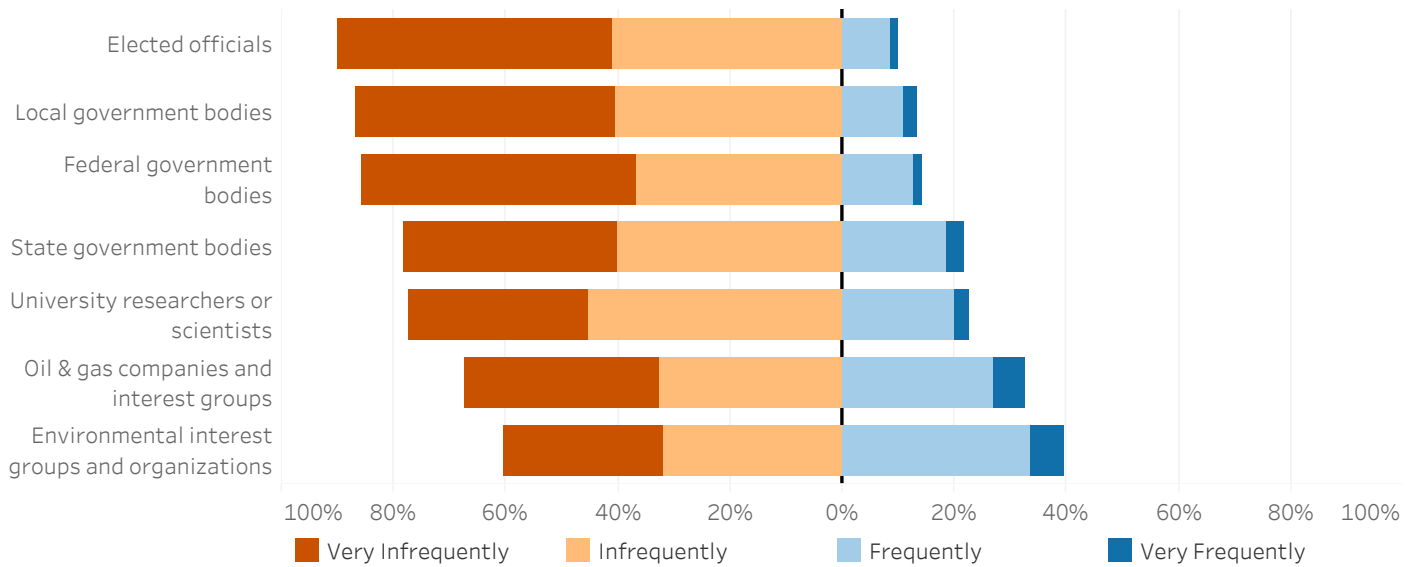
To what extent do you disagree or agree that:



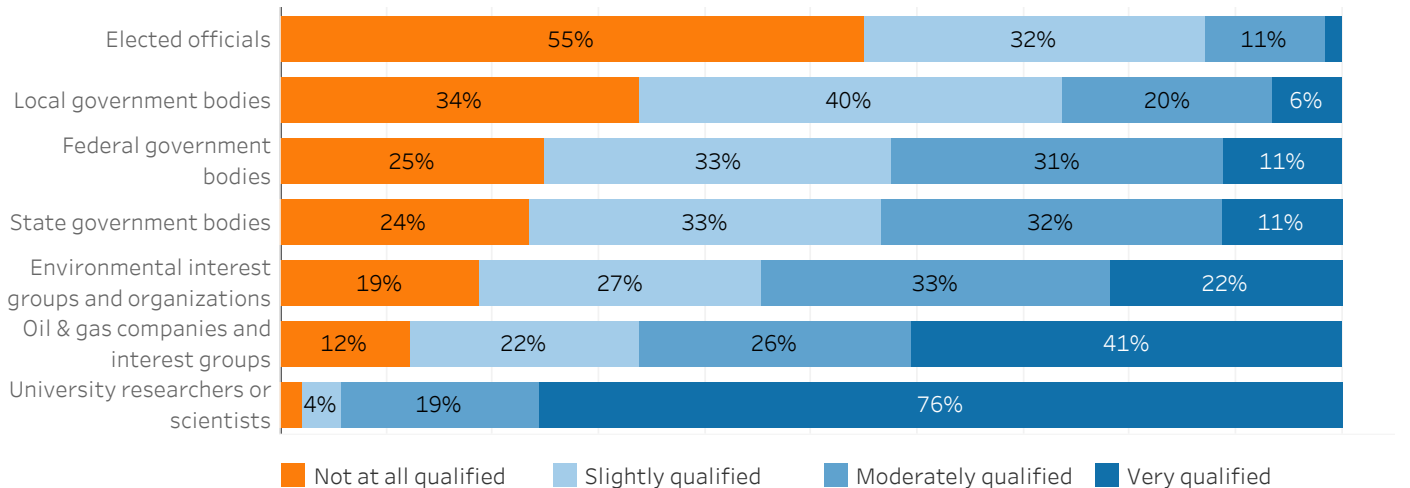
How frequently do you get information about oil & gas development through the following media?



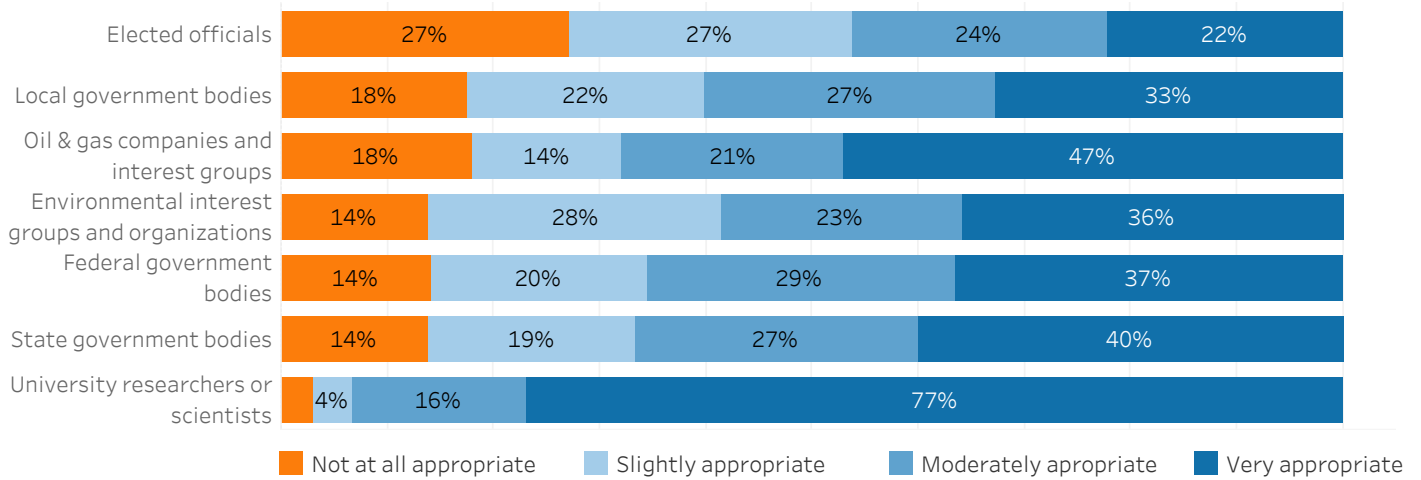
How frequently do you get information on hydraulic fracturing and oil & gas development activities from each of the following groups?



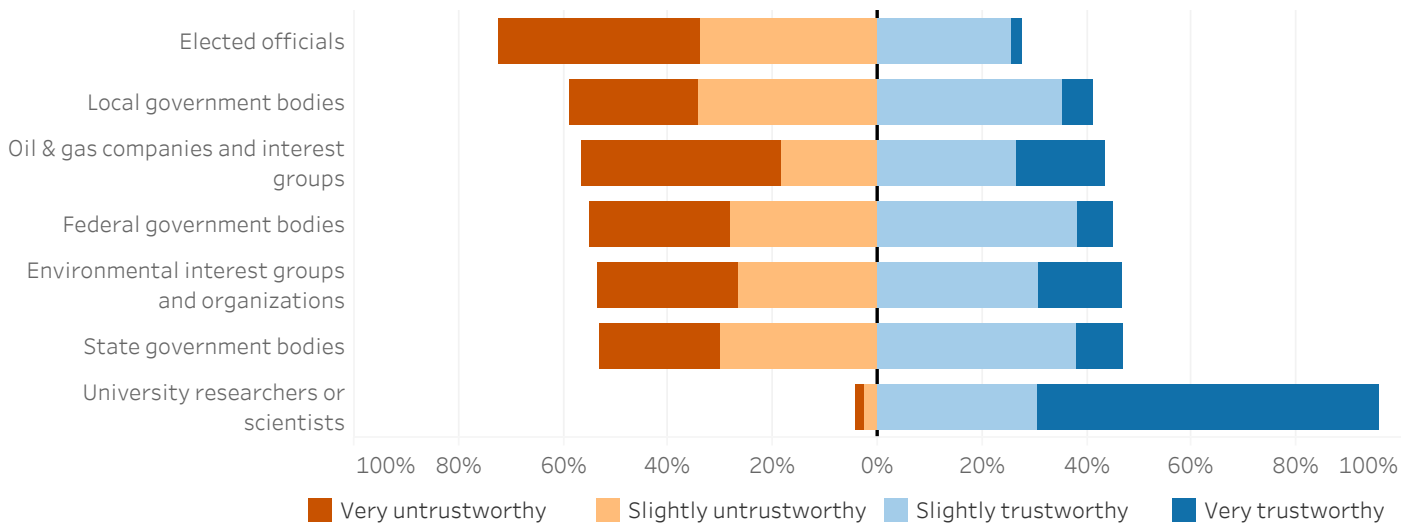
Based on their expertise, to what degree are the sources qualified to share information on hydraulic fracturing and oil & gas related issues?



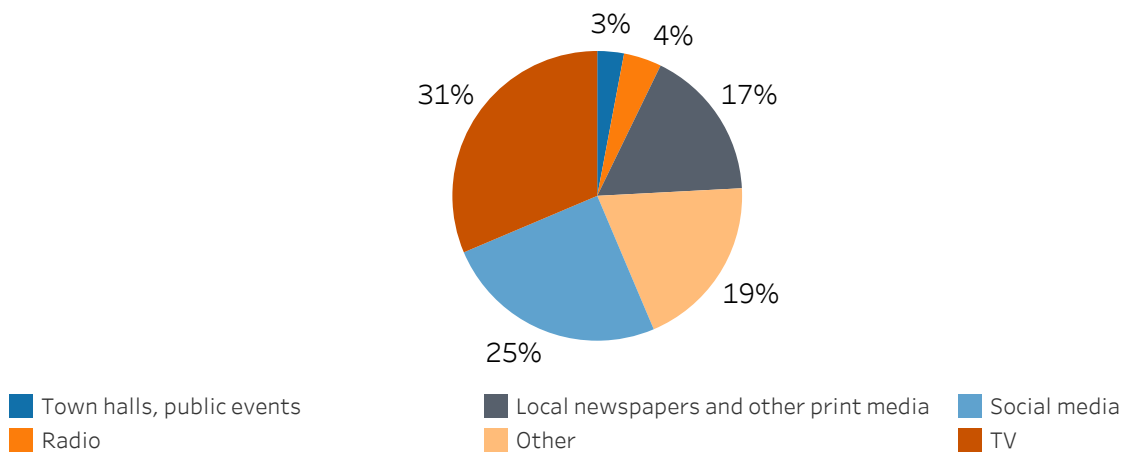
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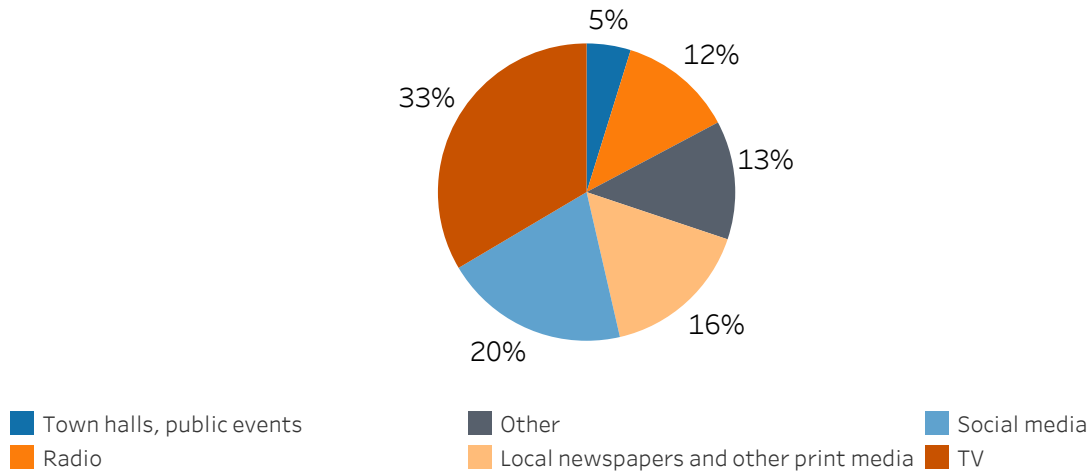
How trustworthy or untrustworthy are each of the following in regard to the ongoing discussions surrounding hydraulic fracturing and oil & gas development?



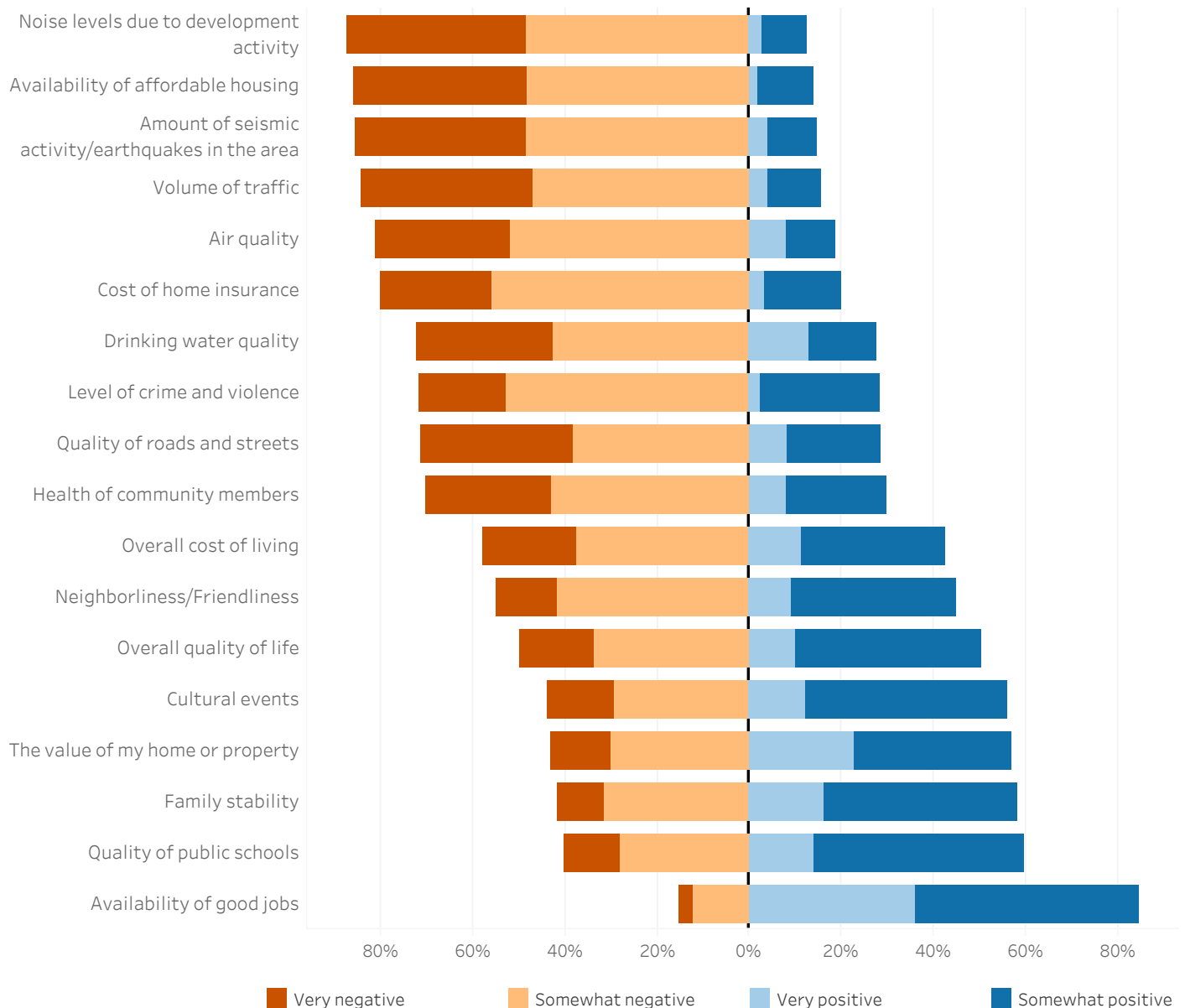
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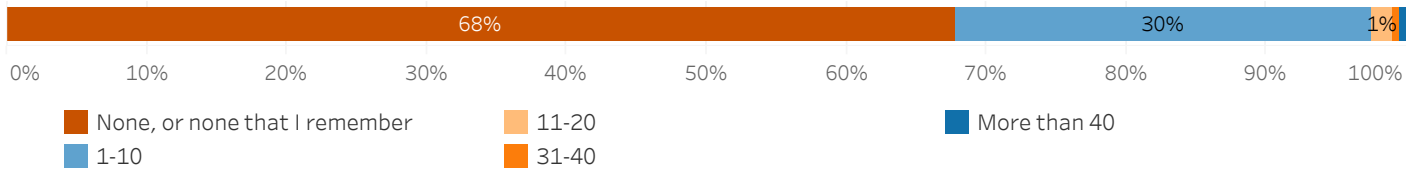
If you could tell information providers the best way to get information to you in general, what would that be?



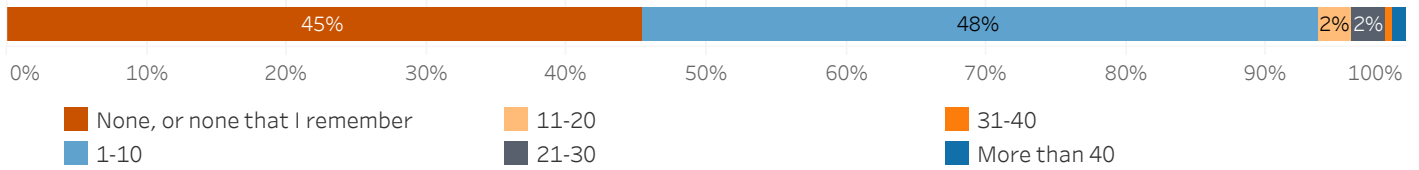
Please rate how oil & gas development and hydraulic fracturing positively or negatively affects your community in terms of each of the following:



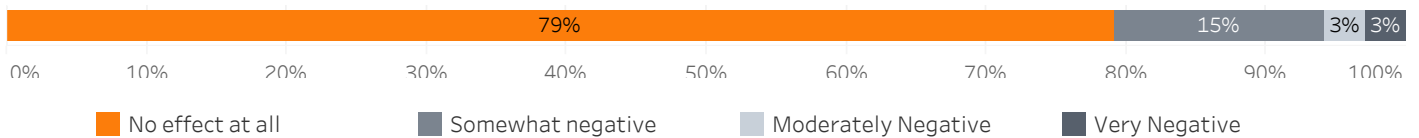
As best you remember, how many earthquakes have you felt in Oklahoma since 2011?



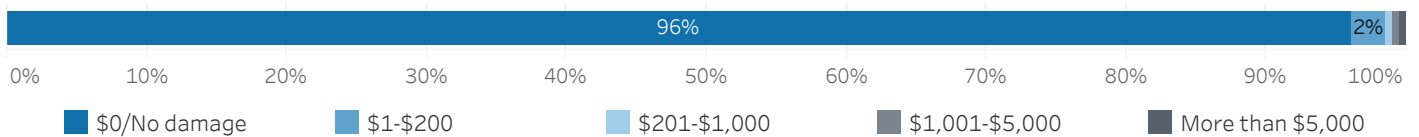
As best you remember, before the recent increase in earthquakes that began around 2011, how many earthquakes had you felt in your life?



Generally speaking, how would you describe the overall effects of the earthquakes on your life?



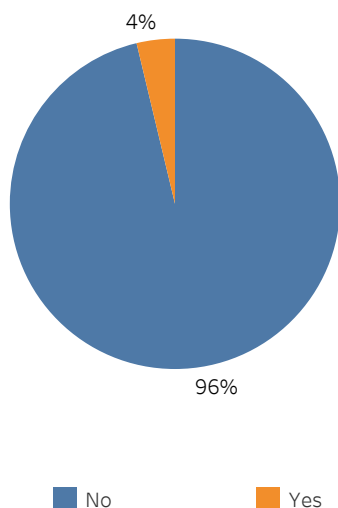
What has been the cost of the damage, in dollars, to your personal property as a result of the earthquakes in the region?



No individual who reported experiencing damage sought out compensation for said damage.
One individual reported experiencing damage that accumulated over multiple earthquakes.

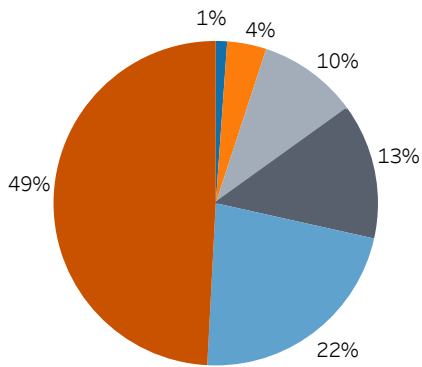
Do you have earthquake insurance?

*163 individuals responded to this question.

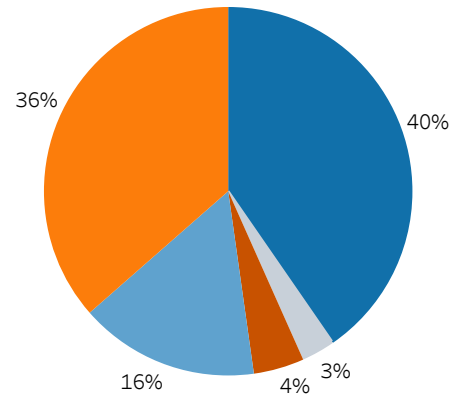


In your opinion, who most ought to investigate the earthquakes and, if applicable, regulate activities that you believe are causing the earthquakes?

*179 individuals responded to this question

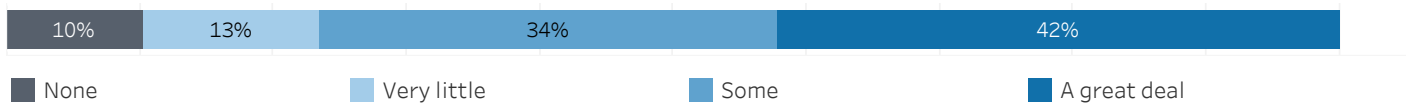


In regard to the previous question: What do you think of current regulation efforts?

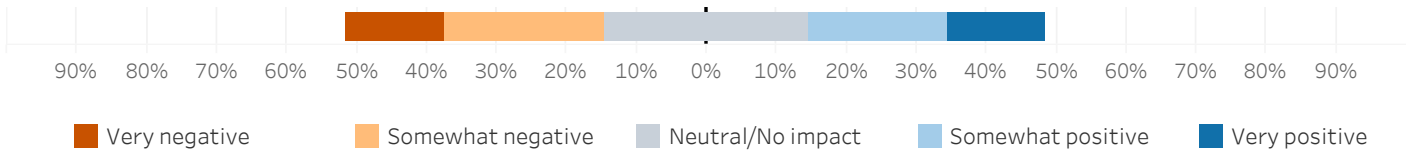


- I don't know
- No opinion
- Local governments (e.g. county or city government)
- Should be doing less - allow responsible industries to act.
- No one/no human activities are causing the earthquakes
- Should be doing less - the earthquakes are not caused by humans.
- Someone else
- The regulation efforts are about what they ought to be.
- The federal government (e.g. the EPA)
- The regulation efforts should be doing more or should be stronger.
- The state government

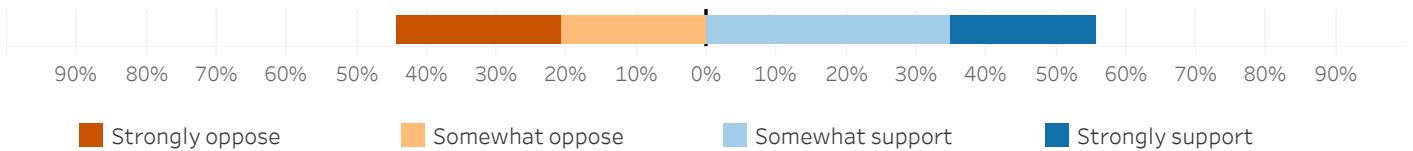
How much oil and gas production, if any, is taking place in your community?



Overall, do you think hydraulic fracturing has a more positive or negative impact on your community?

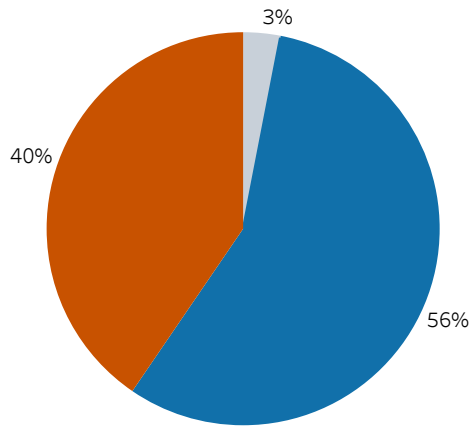


Rate your support for or opposition to hydraulic fracturing.



Do you believe the number of earthquakes can be reduced or stopped altogether?

*131 individuals responded to this question



Yes

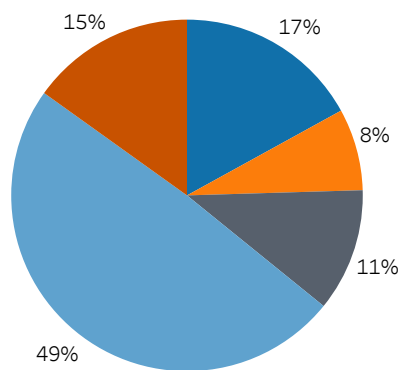
No

I don't know

Respondents that answered "Yes" were asked:

In your view, what would be the most effective method of stopping the earthquakes?

*53 individuals responded to this question



Recycle water instead of injecting it

Spread out injection wells

Stop all wastewater injection

Reduce injection rates

Stop all hydraulic fracturing