

APPENDIX O

Public Opinion Survey

Public Opinion Survey

MQO Research
Final Report
August 2015

HYDRAULIC FRACTURING IN WESTERN NEWFOUNDLAND

Methodology

This report outlines the findings from the Hydraulic Fracturing in Western Newfoundland Survey conducted on behalf of Memorial University. The survey was conducted as a random telephone survey with residents throughout Newfoundland and Labrador who were over the age of 18. A total of 840 respondents completed the survey. A total of 200 surveys were completed in Western Newfoundland to allow enough sample to examine that area separately. The margin of error on the total sample is ± 3.5 percentage points at the 95% confidence in cases of maximum variability ($p=.5$).

Data collection was conducted between June 16th and July 4th, 2015. A copy of the questionnaire used in this study is included as Appendix A and a complete set of tables by region is included as Appendix B.

Profile of Respondents

The demographic profile of respondents is shown in the following table. The sample was almost equally divided between males and females. Twenty-three percent were 34 years of age or under, 38% were from 35-54 and 40% were 55 years of age or older. The majority report their annual household income to be more than \$50,000. The majority have graduated from college or university and are currently employed by a company/organization.

DEMOGRAPHICS	PERCENTAGE
Gender	
Male	48%
Female	52%
Age	
18-24	7%
25-34	16%
35-44	14%
45-54	24%
55-64	19%
65 years of age or older	21%
Annual Household Income	
Less than \$25,000	7%
\$25,000-\$49,999	18%
\$50,000-\$74,999	18%
\$75,000-\$99,999	14%
\$100,000 or more	32%
Don't know / Refused	10%
Highest Level of Education	
Less than high school	7%
Graduated high school	14%
Some trade/technical college	7%
Graduated trade/technical college	29%
Some university	11%
Graduated university	32%
Current Employment Status	
Employed by company/organization	51%
Self-employed	6%
Not employed outside the house & looking for work	5%
Not employed outside the house & not looking for work	5%
Retired	29%
A student	4%

Knowledge of Oil and Natural Gas Exploration

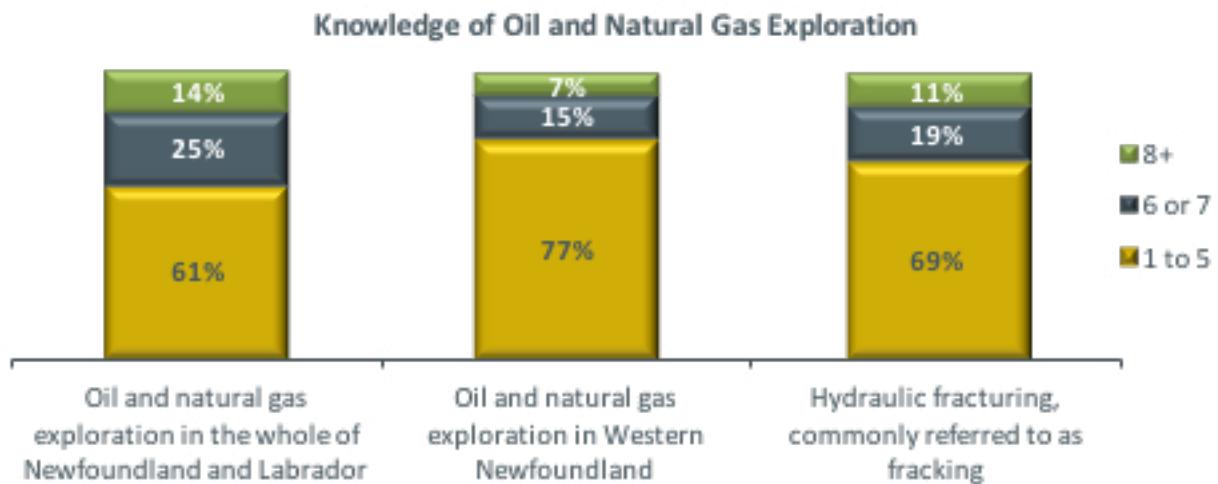
Respondents were asked to assess their own level of knowledge of:

- Oil and natural gas exploration in the whole of Newfoundland and Labrador.
- Oil and natural gas exploration in Western Newfoundland.
- Hydraulic fracturing, commonly referred to as fracking.

They were asked to assess their knowledge using a 10-point scale where 10 meant very knowledgeable and 1 meant not knowledgeable at all. By their own assessment, knowledge of oil and natural gas exploration and hydraulic fracturing is quite low among residents. Very few indicate a high level of knowledge of oil and natural gas exploration (that is, provided a rating of 8 or higher on a 10-point scale). On all three statements, approximately one in 10 respondents indicated having a high level of knowledge (ranging from a low of 7% for the statement about Western Newfoundland to a high of 14% for the statement about the whole of Newfoundland and Labrador).

Even when looking at those who provided a rating of six or higher, the level of knowledge for these three statements is still low: *oil and natural gas exploration in the whole of Newfoundland and Labrador* (39%), *hydraulic fracturing, commonly referred to as fracking* (30%), and *oil and natural gas exploration in Western Newfoundland* (22%).

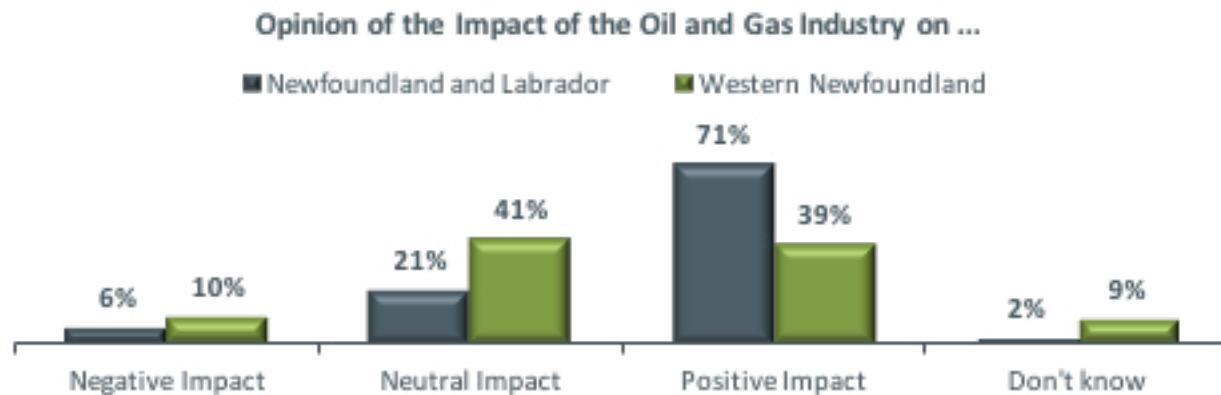
Overall, when asked to rate their knowledge of these three statements, the majority provided a rating of 5 or less, meaning they have limited knowledge about oil and natural gas exploration: *oil and natural gas exploration in Western Newfoundland* (77%), *hydraulic fracturing, commonly referred to as fracking* (69%), and *oil and natural gas exploration in the whole of Newfoundland and Labrador* (61%).



Opinions of the Impact of the Oil and Gas Industry

Respondents were next asked their opinion of the impact of the oil and gas industry on Newfoundland and Labrador and secondly on Western Newfoundland. A strong majority (71%) believe the oil and gas industry will have a *positive impact* on Newfoundland and Labrador, while very few (6%) believe this industry will have a *negative impact*. Respondents in the Western region were slightly more likely than respondents in other regions to think the impact of this industry will be negative for Newfoundland and Labrador; however, the percentage who feel this way is still relatively low in this region (14%). Across demographic sub-groups, differences did emerge among those who believe this industry will have a positive impact. Younger adults (18–34), those currently not employed and those who earn less than \$50K were significantly less likely to think the impact would be positive.

Opinions regarding the impact of the oil and gas industry on Western Newfoundland were quite different compared to the impacts for Newfoundland and Labrador as a whole. A significantly lower number of respondents believe this industry will have a *positive impact* on Western Newfoundland (39% vs. 71% for the whole province), with more respondents leaning towards a *neutral impact* for Western Newfoundland (41% compared to 21% for the whole province). Interestingly, respondents are more likely to indicate that they did not know what the impact would be for Western Newfoundland (9% vs. 2% for the whole province), perhaps reflecting the lower level of knowledge noted earlier. Respondents in the Western region (20%) were significantly more likely than respondents in St. John's CMA (9%) and other parts of Newfoundland (9%) to think there will be a negative impact from the oil and gas industry in Western Newfoundland.



Those who believe the impact will be positive for Newfoundland and Labrador mention various economic reasons for this impact, which included: employment / job creation (65%), various aspects of economic growth (43%), revenues to government (25%) and higher wages / people having more money (21%). Those who believe there will be a negative impact generally mentioned three main reasons: environmental harm (45%), the perception that with oil prices currently low, there is no benefit at this time (23%), and the feeling that prices for consumers will be higher (22%).

Among those who believe there will be a positive impact for Western Newfoundland, most cite employment (66%) and economic growth (27%) as reasons to support their position. Those who believe there will be a negative impact mention two reasons to support their position: environmental harm (42%) and concerns about fracking (25%). Interestingly, when speaking in relation to the whole province, only 5% indicated concerns about fracking, whereas 25% noted fracking as a concern in the context of Western Newfoundland.

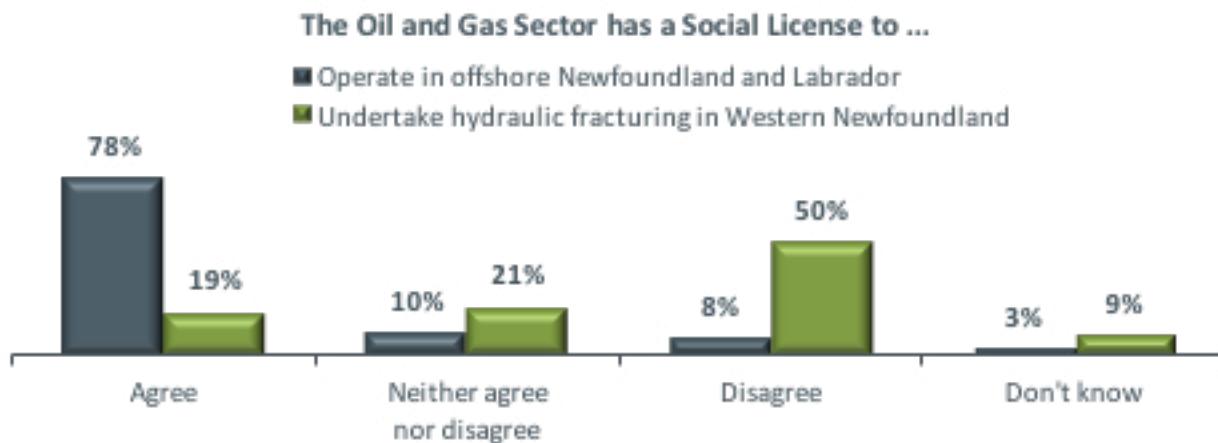
In summary, there tends to be less conviction that the industry will have a positive impact in Western Newfoundland compared to the province as a whole. Furthermore, concerns around hydraulic fracturing begin to surface.

REASONS FOR IMPACT: TOP MENTIONS		
	Newfoundland & Labrador (n=591)	Western Newfoundland (n=332)
Positive Impact		
Employment / Job creation	65%	66%
Economic Growth / Business development	43%	27%
Government revenue / Less taxes	25%	12%
Wage / Salary increase / Things are more affordable	21%	13%
Negative Impact	(n=58)	(n=89)
Environmental harm	45%	42%
Oil prices are poor / There is no benefit at this time / It should be kept within the province	23%	20%
Cost to consumers / Things are more expensive	22%	3%
Concerns about fracking	5%	25%
There is public outcry against the oil and gas industry operating here / It could have a negative impact	8%	15%

Social License

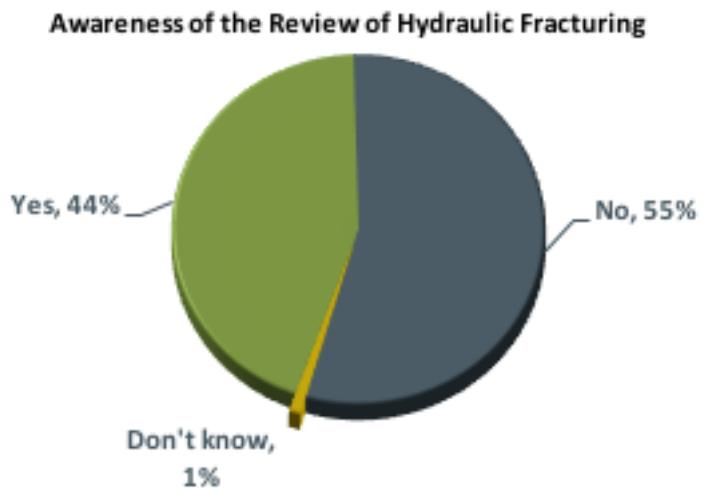
A social license was described as the strong majority of the population being in favour. The vast majority (78%) are in agreement that the oil and gas sector has a social license to operate in offshore Newfoundland and Labrador, with only 8% disagreeing. However, disagreement was significantly higher among those in the Western region (18%) compared to those in St. John's CMA (6%) and other parts of Newfoundland (6%). Across demographic sub-groups, differences did emerge among those who agree that the sector has a social license to operate in Newfoundland and Labrador. Females and those who earn less than \$50K were significantly less likely to agree with this statement.

In contrast, only 19% agree that the oil and gas sector has a social license to undertake hydraulic fracturing in Western Newfoundland, while half disagree. The level of disagreement was also significantly higher among respondents in the Western region (56%) compared to those in St. John's CMA (46%). Across other demographic sub-groups, differences did emerge among those who disagree that the sector has a social license to operate in Western Newfoundland, with males and those currently employed and retired significantly more likely to disagree with this statement.



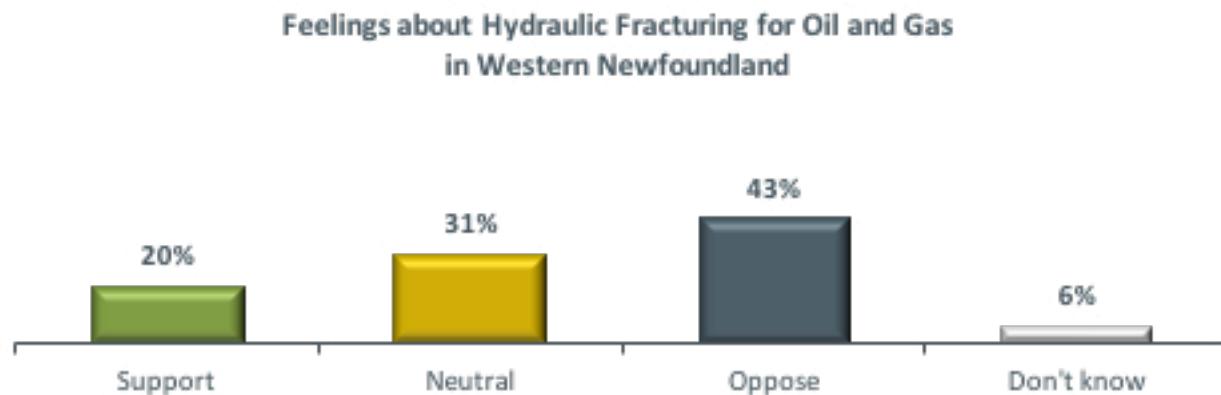
Awareness of the Panel and the Review of Hydraulic Fracturing

Respondents were told that an independent review was taking place concerning hydraulic fracturing in Western Newfoundland and then asked if they were aware of this before the interview call. Awareness of the panel and review of hydraulic fracturing is almost evenly split, with 44% reporting they are aware and 55% indicating they are not aware of the review. Only 1% said they did not know. Respondents in the Western part of the province are similar with half saying they were aware and the other half indicating they were not.



Support and Opposition for Fracturing in Western Newfoundland

Opposition to fracturing in Western Newfoundland is twice as high as support for it, with 43% opposing it and only 20% in support. A minority (31%) also report being neutral in their opinion for fracturing in Western Newfoundland. Opposition from respondents in the Western region (52%) was significantly higher than respondents in St. John's CMA (39%) and other parts of Newfoundland (43%); with those opposed reducing the neutral category in the Western region. The level of support across the province is consistent. Similarly, opposition from the older demographic (55+) was significantly higher than the younger demographic (50% vs. 34% respectively). Again those opposed are reducing the neutral category, as the level of support across age groups is consistent.



Reasons for supporting hydraulic fracturing in Western Newfoundland are consistent with responses given earlier for the impact of the industry, which include: creates jobs / employment (42%), boosts the economy (35%), the belief that it is safe (20%) and a sense that it is better to have more resources (13%).

The top two reasons for opposing hydraulic fracturing in Western Newfoundland were: general environmental concerns (55%) and comments about water quality (53%). Other, less common reasons included: unknown risks (18%), lack of a social license (15%), social contamination and possible earthquakes (12%), and health effects (10%). Very few believe the panel is biased (2%) or that the process is predetermined (2%).

Reasons given for why they are neutral include: a lack of knowledge on the topic (48%) and their need for additional information on the risks (34%) and the benefits (22%).

REASONS WHY THEY SUPPORT, NEUTRAL OR OPPOSE HYDRAULIC FRACTURING IN WESTERN NEWFOUNDLAND: TOP MENTIONS	
Support	
Creates jobs / Employment	42%
Boost economy / Help business	35%
I believe it is safe / It's fine in other areas	20%
It is better to have more resources	13%
It will be well regulated	8%
Oppose	
Greenhouse gases / More macro pollution and environment comments	55%
Local water quality / contamination / more local and personal environment comments	53%
Unknown risks	18%
No social license / Others are against it / Negative media / Negative effects in other areas	15%
Social contamination / Destabilize the ground / Earthquakes	12%
Health effects	10%
Lack of information in general	9%
Negative impact on wildlife / ecosystem	7%
Process is predetermined / Can't trust government to regulate industry	2%
Panel is biased	2%
Neutral	
Lack of knowledge on the topic in general	48%
Need more information on risks	34%
Need more information on benefits	22%
It's hard to tell if the pros outweigh the cons	7%
Don't care / Not concerned	7%
Doesn't directly impact me	6%

Statements – Level of Agreement

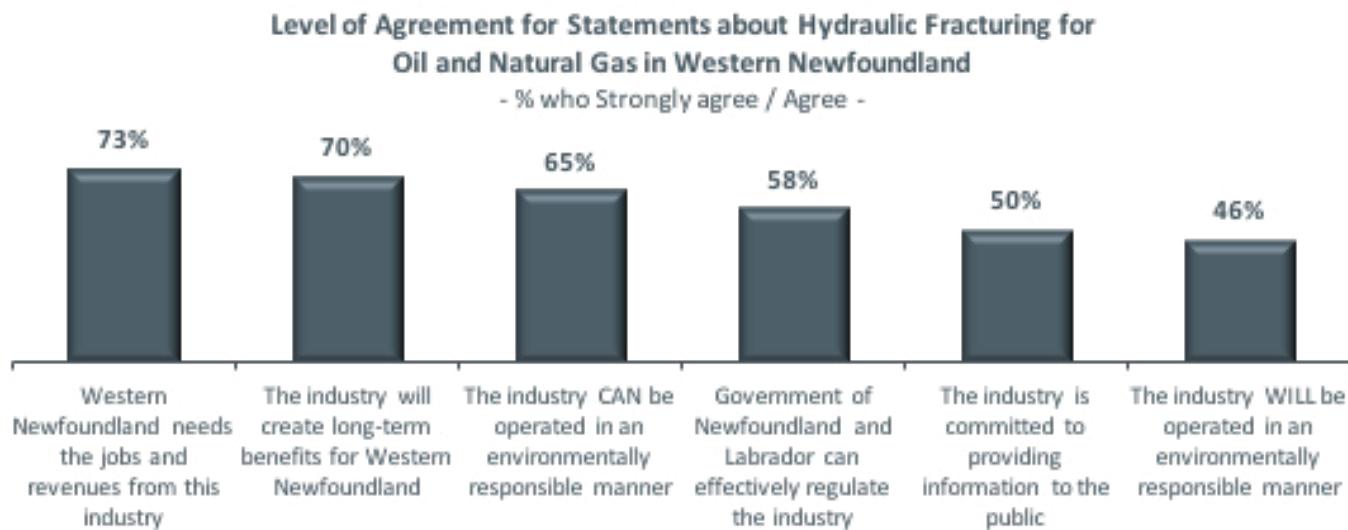
A series of statements were read to each respondent and they were asked to provide their level of agreement with each. The statements dealt with the oil and gas industry, fracking and Western Newfoundland. Overall, agreement is strong for many of these statements.

Specifically, the vast majority agree that *Western Newfoundland needs the jobs and revenues from the industry* (73%) and that *the industry will create long-term benefits for Western Newfoundland* (70%). Agreement for the latter statement was significantly higher among those between the ages of 35 to 54 and among those who have an income of more than \$100K. Very few disagreed with these two statements (14% and 16% respectively).

There is also strong agreement in believing *the industry can be operated in an environmentally responsible manner* (65% agreed, while only 18% disagreed with this statement); however, agreement decreases when trusting that *the industry will be operated in an environmentally responsible manner* (46%). Almost three in ten respondents (28%) disagreed with this latter statement. Agreement with these two statements varied across demographic sub-groups. Younger adults were significantly more likely to agree that the industry can be operated in an environmentally responsible manner. Males and those who have an income less than \$50K were significantly more likely to agree that the industry will be operated in an environmentally responsible manner.

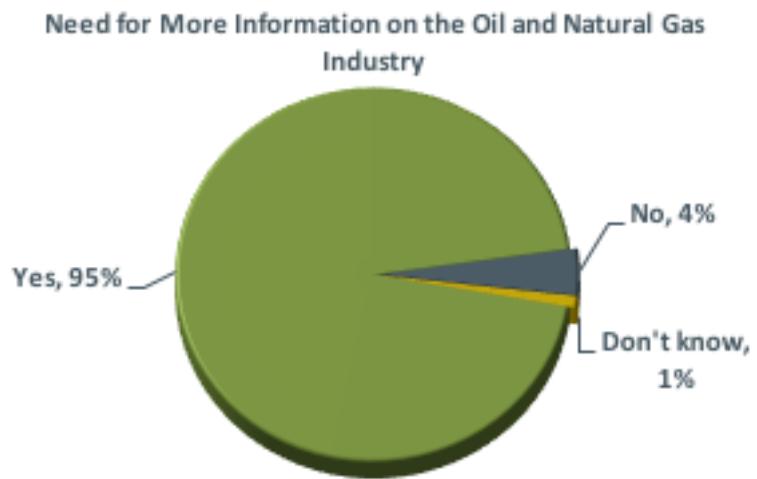
Nearly six in ten believe the *government of Newfoundland and Labrador can effectively regulate the industry* and half of the respondents believe *the industry is committed to providing information to the public*. Disagreement was among the highest for these two statements, with 25% and 30% respectively indicating they disagreed with these statements.

In summary, although there is some disagreement with these six statements, there is a strong indication that the majority believe that hydraulic fracturing can be done well.



Need for More Information

As illustrated earlier, those who are neutral (neither support nor oppose fracturing in Western Newfoundland) indicated a need for more information. However, it appears the need for more information is much more widespread than just those who are neutral. Almost all respondents (95%) believe there is a need to provide more information about the oil and natural gas industry to the people in Newfoundland and Labrador.



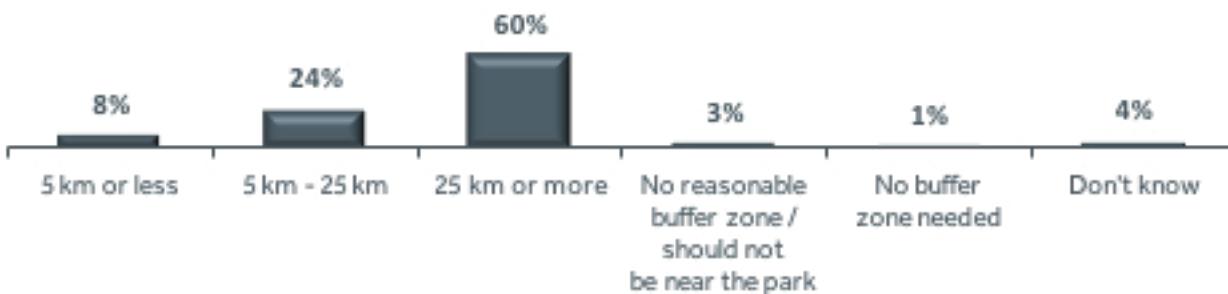
Information on environmental impact is the most common type of additional information that is needed, with 46% mentioning it. This finding is also consistent with the responses given earlier. Additional information that respondents believe would also be useful included: having general information about what is being done (18%), the process involved (17%), economic benefits (16%) and the risks (11%).

TYPE OF ADDITIONAL INFORMATION NEEDED: TOP MENTIONS	
	(n=793)
Information on environmental impact	46%
General information about what is being done / will be done / where	18%
How the oil and gas is extracted (process involved)	17%
Economic benefits	16%
Risks	11%
Benefits	9%
Safety procedures	9%
An independent study should be conducted	8%
All available information (companies should be more honest / open)	7%
More media exposure / more accessible information	6%
Information on the companies involved	6%
Experiences in other areas	5%
Information on the impact in general	5%
Don't know	10%

Gros Morne National Park

Given that some of the potential oil and natural gas resources may be close to Gros Morne National Park, respondents were asked to indicate what they believe would be a reasonable size for a buffer zone around the park. A strong message is being sent about exploring resources near the Gros Morne National Park, with most feeling the need to keep further away from the park. In fact, the majority (60%) indicated that 25 km or more is a reasonable buffer zone.

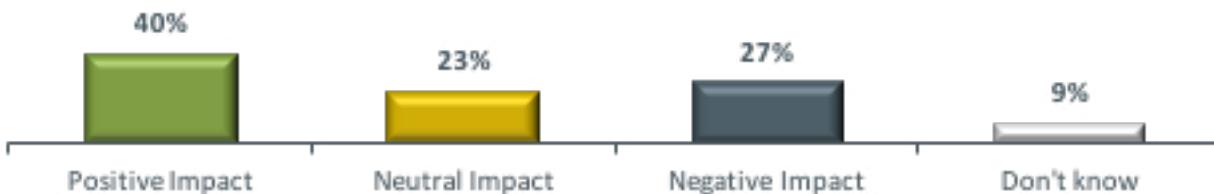
Reasonable Size for a Buffer Zone around the Gros Morne National Park



Overall Impact of Hydraulic Fracturing for Oil and Natural Gas on Western Newfoundland

Reactions toward the overall impact of hydraulic fracturing for oil and natural gas on Western Newfoundland tend to be mixed. Four in ten believe there will be a *positive impact*, while 27% said the impact will be negative and another 23% said *neutral*. Negative reactions were significantly higher in the Western region (38%) compared to those in St. John's CMA (27%) and other parts of Newfoundland (24%); however, these negative reactions come directly from the neutral category, as the level of positive reaction across the province is consistent.

Overall Impact of Hydraulic Fracturing for Oil and Natural Gas on Western Newfoundland



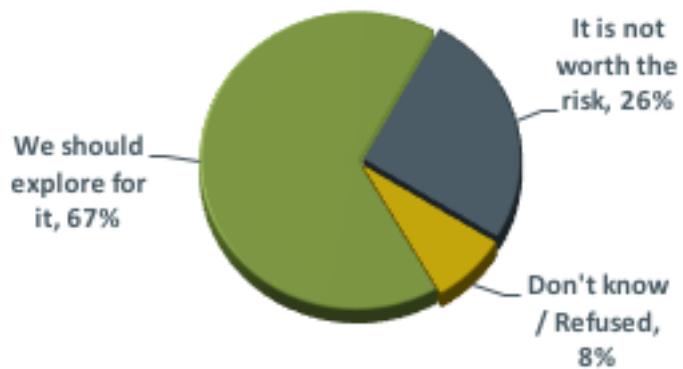
Those who believe the overall impact will be positive on Western Newfoundland mention various economic reasons for this impact. The top two reasons included: creates jobs / employment (74%) and boost economy (56%). Those who believe the overall impact will be negative mention two reasons to support their position: general environmental concerns (62%) and comments about water quality (57%). These findings are consistent with responses given earlier.

MAIN IMPACTS ANTICIPATED FOR HYDRAULIC FRACTURING IN WESTERN NEWFOUNDLAND: TOP MENTIONS	
Positive Impact	(n=324)
Creates jobs / Employment	74%
Boost economy / Help business	56%
Attract or Retain more people in the region	7%
Diversify the economy	6%
Negative Impact	(n=241)
Greenhouse gases / Macro pollution and environment comments	62%
Local water quality / contamination / more local and personal environment comments	57%
Unknown risks	15%
Concern over soil contamination / Destabilization / Earthquakes	11%
It will ruin rural lifestyle / tourism / landscape / national park	10%
Concerns for wildlife habitats / fishing	10%
Health / safety concerns	7%

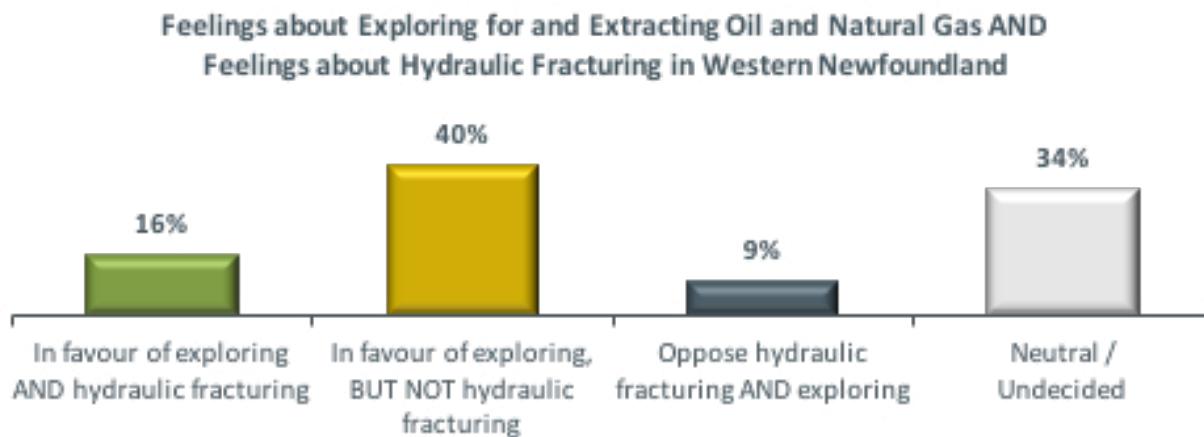
Feelings about Exploring for Oil and Natural Gas and about Hydraulic Fracturing in Western Newfoundland

Based on evidence which indicates that Western Newfoundland may possess significant quantities of oil and gas, the majority (67%) strongly feel that we *should explore for it*, which suggests that hydraulic fracturing may be the issue. Close to three in ten believe *it is not worth the risk*, while another 8% said they don't know or refused to provide an answer. It is important to note that these responses were consistent in all regions of the province. Across demographic sub-groups, males were significantly more likely than females to feel that we should explore for it (71% vs. 64%). In contrast, those who earn less than \$50K were significantly less likely to feel that we should explore for it (57% vs. 73% for those who earn \$50–99K and 72% for those earning more than \$100K).

Statement Closest to Their Opinion



Feelings about exploring for and extracting oil and natural gas as well as for hydraulic fracturing in Western Newfoundland tend to be mixed. Only 16% are in *favour of both exploring and hydraulic fracturing*, while just 9% *oppose both*. Four in ten report being *in favour of exploring for and extracting oil and natural gas but are not in favour of hydraulic fracturing* in Western Newfoundland. Over three in ten consider themselves to be *neutral or undecided*. Again, there was very little difference in these responses across regions in the province.



Views of Supporters, Neutrals and Non-Supporters

This section provides a detailed look at the views of those who support, neutral or oppose hydraulic fracturing for oil and gas in Western Newfoundland.

Profile of Supporters (20%)

- Supporters tend to be male.
- They tend to be 55 or older.
- Almost half are employed by a company/organization, while three in ten are retired.
- Supporters tend to have varied education levels - a college/university education (31%), some college/university (24%) and a high school education (26%).
- Household incomes for supporters varied, with 32% earning more than \$100K, 30% earning between \$50K and \$99K and another 29% earning less than \$50K.
- The majority of supporters indicated they have very limited knowledge (a rating of 5 or less) about oil and natural gas exploration.
- A majority believe the oil and gas industry will have a positive impact on Newfoundland and Labrador, as well as on Western Newfoundland.
- Supporters are in agreement that the oil and gas sector has a social license to operate in offshore Newfoundland and Labrador, as well as having a social license to undertake hydraulic fracturing in Western Newfoundland.
- Awareness of the panel and review of hydraulic fracturing among supporters is evenly split.
- The vast majority of supporters agree with the six statements about the oil and gas industry, fracking and Western Newfoundland.
- Supporters tend to believe there is a need to provide more information about the oil and natural gas industry to people in Newfoundland and Labrador, with information on environmental impact and general information about what is being done the most common types of information requested.
- Supporters are split on a reasonable buffer zone around the Gros Morne National Park, with some indicating 5 to 25 km and others saying more than 25 km.
- The vast majority of supporters believe the overall impact of hydraulic fracturing for oil and natural gas on Western Newfoundland will be positive.
- Opinions about exploring for oil and gas in Western Newfoundland are very clear among supporters, with almost all supporters feeling we should explore for it.
- Supporters tend to be in favour of both exploring and hydraulic fracturing.

Profile of Neutrals (31%)

- Neutrals tend to be female.
- They tend to be between the ages of 35 and 54.
- Over half are employed by a company/organization, while two in ten are retired.
- Most have a college/university education.
- Household incomes tend to be evenly distributed for neutrals, with a slight skew towards \$50K to \$99K.
- The majority of neutrals indicated they have very limited knowledge (a rating of 5 or less) about oil and natural gas exploration.
- A majority believe the oil and gas industry will have a positive impact on Newfoundland and Labrador, but in terms of Western Newfoundland, they tend to be evenly split between a neutral or positive impact.
- Neutrals agree that the oil and gas sector has a social license to operate in offshore Newfoundland and Labrador, but tend to be undecided (neither agree nor disagree) on whether they have a social license to undertake hydraulic fracturing in Western Newfoundland.
- The majority of neutrals are not aware of the panel and review of hydraulic fracturing.
- The majority of neutrals agree with the six statements about the oil and gas industry, fracking and Western Newfoundland.
- Neutrals tend to believe there is a need to provide more information about the oil and natural gas industry to people in Newfoundland and Labrador, with information on environmental impact the most common type of information requested.
- The majority feel that 25 km or more is a reasonable buffer zone around the Gros Morne National Park.
- Almost half of the neutrals believe the overall impact of hydraulic fracturing for oil and natural gas on Western Newfoundland will be positive.
- Opinions about exploring for oil and gas in Western Newfoundland are very clear among neutrals, with the majority feeling we should explore for it.
- Neutrals consider themselves to be neutral or undecided on the topic of exploring for and extracting oil and natural gas and on hydraulic fracturing in Western Newfoundland.

Profile of Non-Supporters (43%)

- Non-supporters tend to be equally distributed between males and females.
- They tend to be 55 or older.
- Almost half are employed by a company/organization, while slightly more than three in ten are retired.
- The vast majority have a college/university education.
- Over three in ten have a household income of more than \$100K.
- The majority of non-supporters indicated they have very limited knowledge (a rating of five or less) about oil and natural gas exploration.
- A majority believe the oil and gas industry will have a positive impact on Newfoundland and Labrador, but believe the oil and gas industry will have a neutral impact on Western Newfoundland.
- Non-supporters are in agreement that the oil and gas sector has a social license to operate in offshore Newfoundland and Labrador, whereas the vast majority disagree that they have a social license to undertake hydraulic fracturing in Western Newfoundland.
- Awareness of the panel and review of hydraulic fracturing among non-supporters is evenly split.
- Most non-supporters agree with the statements about the oil and gas industry, fracking and Western Newfoundland with the exception of two statements, where the majority disagree: the oil and natural gas industry will be operated in an environmentally responsible manner and the oil and natural gas industry is committed to providing information to the public.
- Non-supporters tend to believe there is a need to provide more information about the oil and natural gas industry to people in Newfoundland and Labrador, with information on environmental impact the most common type of information requested.
- The majority feel that 25 km or more is a reasonable buffer zone around the Gros Morne National Park.
- The majority of non-supporters believe the overall impact of hydraulic fracturing for oil and natural gas on Western Newfoundland will be negative.
- Opinions about exploring for oil and gas in Western Newfoundland tend to be mixed, with 44% of non-supporters saying we should explore for it and 48% saying it is not worth the risk.
- Non-supporters tend to be in favour of exploring for and extracting oil and natural gas but are not in favour of hydraulic fracturing in Western Newfoundland.

Conclusions

- Most respondents rate their knowledge of oil and natural gas exploration and hydraulic fracturing quite low on a 10-point scale:
 - > Oil and natural gas exploration in the whole of Newfoundland and Labrador (14% gave a rating of 8 or higher);
 - > Oil and natural gas exploration in Western Newfoundland (7% gave a rating of 8+); and
 - > Hydraulic fracturing, commonly referred to as fracking (11% gave a rating of 8+).
- Respondents show less conviction that the industry will have a positive impact in Western Newfoundland compared to the province as a whole.
 - > Economic reasons such as employment and economic growth are the top reasons expressed for how the sector has positively impacted both the whole province and Western Newfoundland.
 - > Negative reasons for how the sector has negatively impacted the whole province and Western Newfoundland varied:
 - For the whole province, the top three reasons for this negative impact are: environmental harm; the perception that with oil prices currently low, there is no benefit at this time; and the feeling that prices for consumers will be higher.
 - For Western Newfoundland, the top two reasons for this negative impact are: environmental harm and concerns about fracking. Interestingly, when they are asked specifically about Western Newfoundland, we begin to witness some concerns about hydraulic fracturing, which was not reflected in the findings for the province as a whole.

- There is much more agreement that the oil and gas sector has a social license to operate in offshore Newfoundland and Labrador compared to having a social license to undertake hydraulic fracturing in Western Newfoundland.
- Awareness of the panel and review of hydraulic fracturing is split almost 50/50.
- Opposition towards fracturing in Western Newfoundland is twice as high as support for fracturing. Those with a neutral viewpoint towards fracturing is 31%.
 - > Top reasons given for their viewpoint include:
 - Support – creates jobs and employment; which are consistent with the reasons given earlier;
 - Oppose – environmental concerns and local water quality; and
 - Neutral – lack of knowledge on the topic.
- Agreement is strong for many of the statements about hydraulic fracturing for oil and natural gas in Western Newfoundland. Although there is some disagreement with these six statements, there is a strong indication that the majority believe that hydraulic fracturing can be done well.
- There is a strong need to provide more information about the oil and natural gas industry to people in Newfoundland and Labrador, with information on environmental impact the most common type of information requested.
- There is a strong message that being further away from the Gros Morne National Park is more acceptable, with most indicating a buffer zone of 25 km or more being reasonable.
- The overall impact of hydraulic fracturing for oil and natural gas in Western Newfoundland produced mixed reactions, with some believing it will be positive (40%), while others think the impact will be negative (27%) and some neutral (23%).
 - > Reasons given for why the impact will be positive or negative are consistent with reasons given earlier:
 - Positive – creates jobs/employment and boost economy; and
 - Negative – environmental concerns and water quality.
- Opinions about exploring for oil and gas in Western Newfoundland are very positive, with most feeling we should explore for it, which suggests that hydraulic fracturing may be the issue.
- Feelings about exploring for and extracting oil and natural gas as well as for hydraulic fracturing in Western Newfoundland garnered mixed reactions:
 - > 40% – in favour of exploring for and extracting oil and natural gas but are not in favour of hydraulic fracturing;
 - > 34% – neutral or undecided on the topic;
 - > 16% – in favour of both exploring and hydraulic fracturing; and
 - > 9% – oppose both exploring and hydraulic fracturing.