

Prepared by:

Innovative Research Group, Inc.

Toronto • Vancouver

www.innovativeresearch.ca



2012 Public Opinion Research ▶▶

National Nuclear Attitude Survey



CANADIAN NUCLEAR ASSOCIATION

130 Albert Street, Suite 1610

Ottawa, Ontario

K1P 5G4



Research Objective

Innovative Research Groups (INNOVATIVE) was commissioned by the Canadian Nuclear Association (CNA) to conduct the **2012 National Nuclear Attitudes Survey**.

The survey is a national telephone tracking study, designed to determine whether the CNA's communications efforts over the past year have successfully shifted Canadian attitudes and beliefs in a direction that supports the nuclear power industry.

Specific research objectives included:

1. Track how Canadian core attitudes towards the nuclear industry have moved since 2011.
2. Expand our understanding of “nuclear brand” in Canada.
3. Establish the best arguments to encourage government to act now in investing in nuclear energy.
4. Understand the awareness levels of Fukushima a year after this tragedy.

Overview

How have Canadian core attitudes towards the nuclear industry changed since 2011?

- Compared to May 2011, Canadian public opinion on nuclear power has remained largely unchanged.
- Aside from coal, nuclear power generation is still the least supported form of generation in Canada (37% support). Ontario is the only jurisdiction where a majority (54%) support nuclear power generation. Furthermore, a majority from all three main provincial political parties in Ontario support nuclear power generation (PC 65% support, NDP 57% support, and Liberal 55% support).

What is *nuclear's* brand in Canada?

- A majority of Canadians (63%) see nuclear power generation as “expensive”; more so than any other form of power generation. Furthermore, a majority believe the word “dangerous” describes nuclear energy either *extremely* or *very* well. These impressions of nuclear’s brand are both key obstacles to new build.
- However, the average Ontarian believes nuclear is both safe and will provide economic benefits. Furthermore, Ontarians are more likely to support nuclear refurbishment and new build if they believe nuclear power is “reliable” and “carbon-free”.

What are the best arguments to encourage government to act now in investing in nuclear energy?

- Economic arguments – particularly those around job creation and the economic benefits on the broader industrial sector – appear to resonate well with Canadians.
- In Ontario, a majority agree with statements about the economic benefits refurbishment and new build will have in the province.
- In terms of the pace of refurbishment, three times more Ontarians think government is moving too slowly rather than quickly (41% vs. 13%). Fewer Ontarians believe the government is moving too slowly on new build (33% too slowly vs. 24% too quickly).

What is the impact of Fukushima a year after this tragedy?

- Fukushima is still a top-of-mind issue, with 70% of Canadians saying they followed anniversary news events closely.
- 6-in-10 (62%) Canadians believe the situation with Fukushima is a systemic problem of nuclear power, up 6 percentage points since 2011. Furthermore, nearly half (47%) believe it is likely that something like Fukushima could happen in Canada.

Change in Support for Nuclear

In terms of support for nuclear power, it's still a tale of two solitudes: *Ontario versus the rest of Canada*. A majority of Ontarians support nuclear power, while a majority of people living across the rest of the country oppose it.

We measure "support" for nuclear in 3 ways:

1. *General support for nuclear power*
2. *Support for refurbishment*
3. *Support for new build*

Overall Change in Support:

- The significant decline in support for nuclear in **Alberta** and **Quebec**.
- Support in **BC** and **Ontario** relatively unchanged.
- An increase in support for nuclear in **Prairies** and **Atlantic**.
- **Men** relatively constant; support down among **women**.

Support for Refurbishment

Segments	Δ	2011	2012
National	↓	53%	47%
BC	↓	50%	48%
Alberta	↓	58%	45%
Prairies	↑	51%	54%
Ontario	↓	68%	63%
Quebec	↓	31%	22%
Atlantic	↑	43%	48%
Men	↓	57%	54%
Women	↓	49%	41%

General Support for Nuclear Power

Segments	Δ	2011	2012
National	↓	38%	37%
BC	↔	33%	33%
Alberta	↓	46%	38%
Prairies	↑	37%	44%
Ontario	↑	53%	54%
Quebec	↓	17%	12%
Atlantic	↑	31%	40%
Men	↑	45%	47%
Women	↓	32%	29%

Support for New Build

Segments	Δ	2011	2012
National	↓	35%	33%
BC	↑	32%	34%
Alberta	↓	48%	28%
Prairies	↑	32%	39%
Ontario	↓	50%	48%
Quebec	↓	13%	11%
Atlantic	↑	28%	30%
Men	↔	42%	42%
Women	↓	30%	25%

What's new in 2012?

In addition to tracking questions from last year's study, a number of new questions were asked in the 2012 survey.

Do Canadians believe nuclear energy is affordable? How does it compare to other forms of generation?

- Only 4-in-10 Canadians (41%) see nuclear power as affordable. Conversely, 36% disagree that nuclear is affordable, up 6 percentage points since 2001.
- In fact, most Canadians (63%) see nuclear power as an expensive form of electricity generation when considering overall lifetime cost from building, operating and decommissioning; more so than any other form of generation.
- In Ontario, nuclear power is statistically tied with wind and hydroelectric as the most expensive form of generation (58% say *very* or *somewhat expensive*).

Do Canadians believe the lifecycle emissions of nuclear are better or worse than natural gas?

- A majority of Canadians (51%) believe the environmental impact of nuclear is worse than natural gas. The question this raises is once coal-fired generation is eventually removed from Ontario's supply mix, will nuclear power be considered the "new evil"?

How do Canadians view nuclear technology?

- A majority of Canadians believe nuclear has been and will be an evolving technology. Only a small minority believe nuclear is a "technological dinosaur".
- Over a third (36%) of Canadians believe nuclear technology *has made important advancements* since 1962; while the same number of people (35%) believe it *will make important advancements* in the coming 50 years.

How much do Canadians actually know about radiation?

- 1-in-5 Canadians claim to be very familiar with radiation and believe they can explain it in detail to others. However, only 8% could correctly answer both questions in our true-or-false test.
- A majority of those most familiar with radiation support nuclear power generation. Also, those who scored perfectly on the knowledge test are more likely to support nuclear power generation than oppose it.

Do Ontarians believe nuclear reactor refurbishments and new builds will create jobs?

- A majority of Ontarians (78%) believe refurbishment and new build will create jobs.
- Furthermore, 61% of Ontarians believe refurbishment and new build should happen now, at a time when the province could really use the jobs.

Methodology

- INNOVATIVE conducted a national proportionate telephone survey of 1,000 Canadians with oversamples to bring Ontario to n=500 and Saskatchewan to n=200.
- In total, **1,304** randomly-selected Canadian residents, 18 years or older, were surveyed between May 2nd and May 12th, 2012.
- Only one respondent per household was eligible to complete the survey.
- The sample has been weighted by age, gender and region using the latest available Statistics Canada Census data to reflect the actual demographic composition of the population.
- After weighting a sample of this size, the aggregated results are considered accurate to within **+/-3.0%**, 19 times out of 20.
- The margin of error will be larger within each sub-grouping of the sample.

The tracking data is from the *2011 Canadian Nuclear Attitudes Survey*. INNOVATIVE conducted this telephone survey among 1,012 randomly-selected Canadian residents, 18 years or older, between April 14th and April 21st 2011. The margin of error is +/-3.1%, 19 times out of 20.

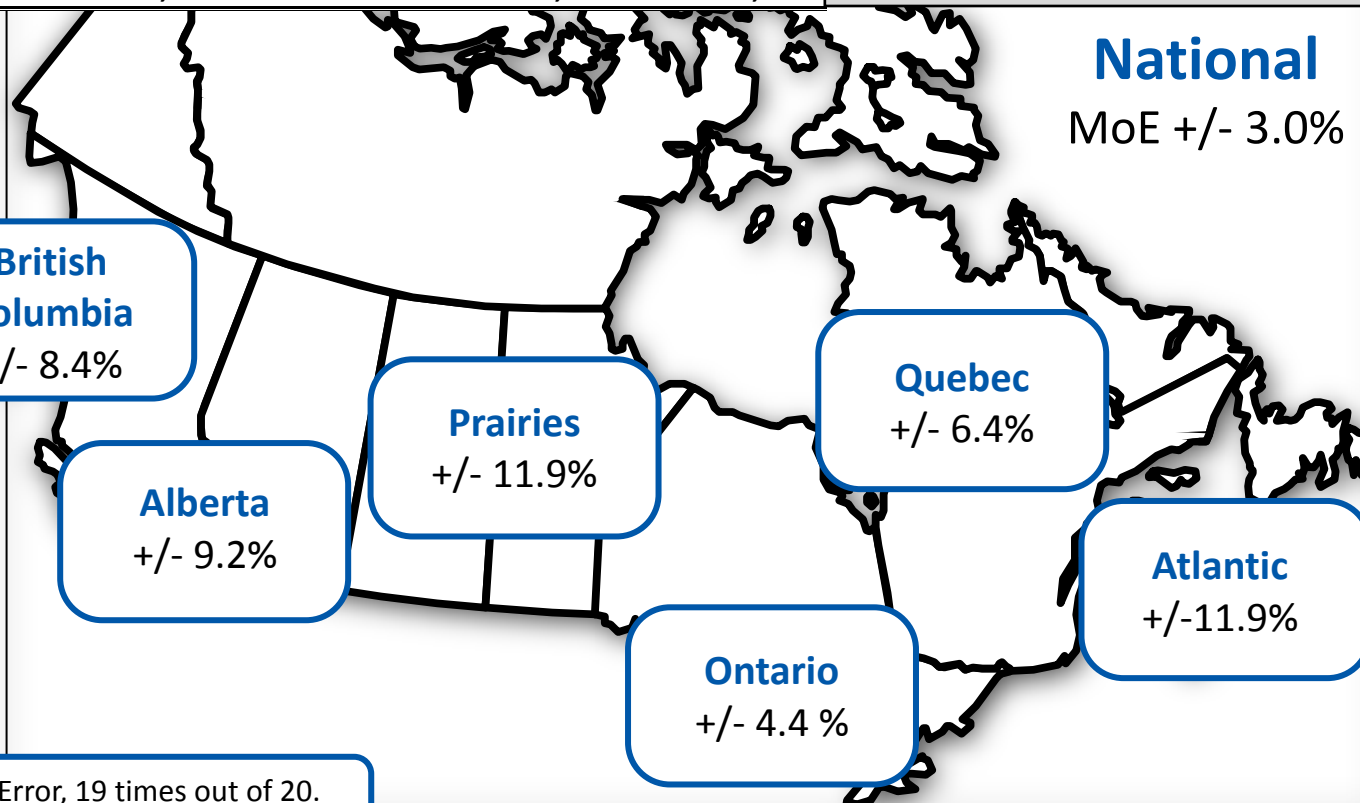
Note: *Graphs and tables may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.*

2012 Regional Segmentation

Region	Quota	Oversample	Target Sample	Actual Sample Size
Atlantic	68	-	68	70
Quebec	231	-	231	238
Ontario*	388	112	500	507
Prairies*	68	169	237	240
Alberta	111	-	111	113
British Columbia	134	-	134	136
National	1,000	281	1,281	1,304

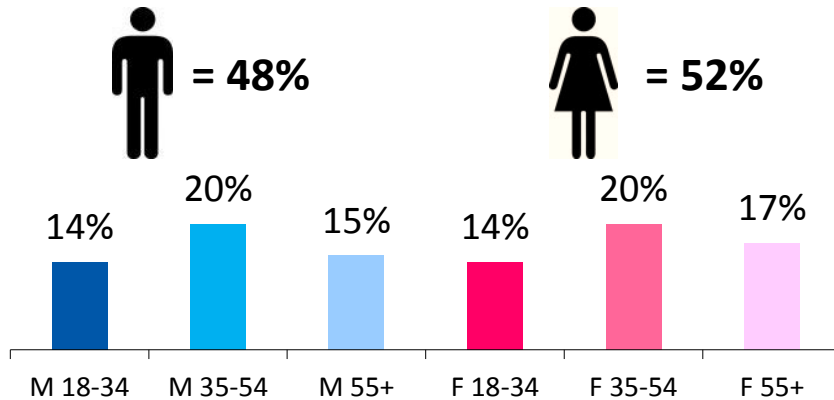
* An oversample of **119 interviews** were applied to **Ontario** for a total sample of n=507. With a provincial sample of this size, the margin of error is considered accurate to within $\pm 4.4\%$, 19 times out of 20.

In addition, an oversample of **170 interviews** were applied to **Saskatchewan** for a total sample of n=201. With a provincial sample of this size, the margin of error is considered accurate to within $\pm 6.9\%$, 19 times out of 20.

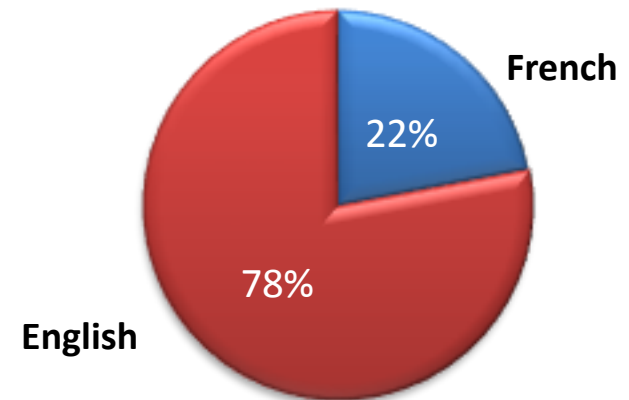


Demographics: Respondent Profile

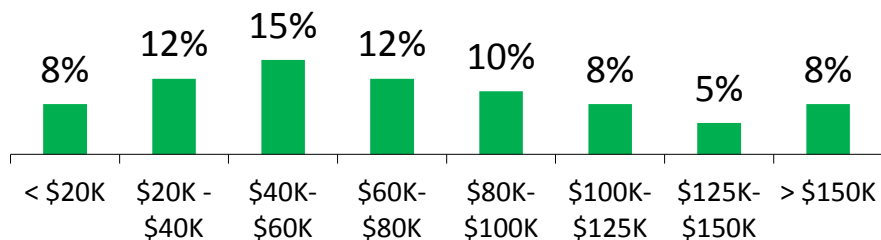
Age - Gender



Language

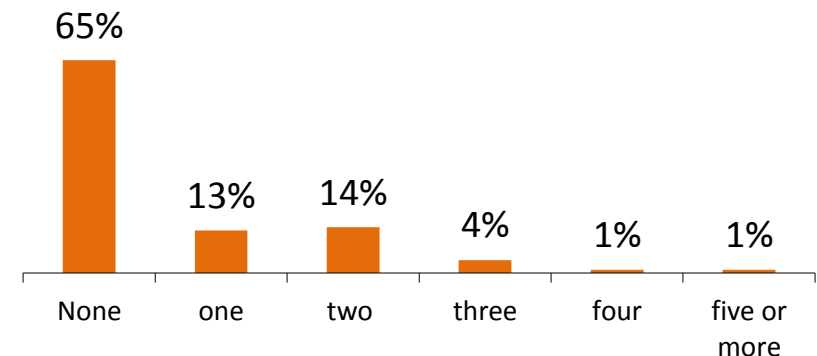


Household Income



Note: Refused (22%) not shown

Number of children



Q: How many children do you have under the age of 18 living in your household?

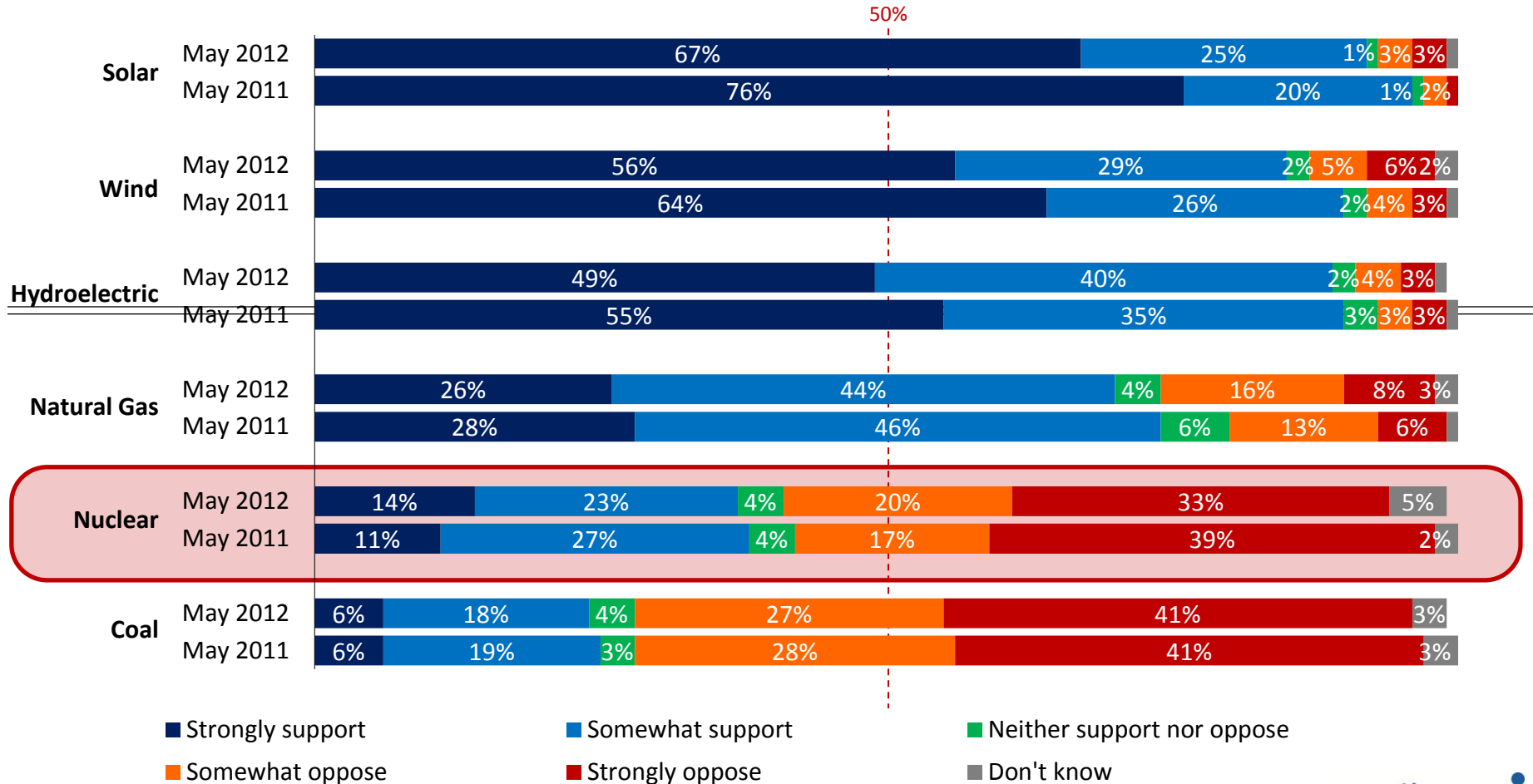
Support for Nuclear Power

Energy Supply Mix: total support for all forms of generation down slightly since 2011



I am now going to read you a list of several ways to produce electricity. Please tell me whether you strongly support, somewhat support, somewhat oppose, or strongly oppose each way of producing electricity.

[asked of all respondents]



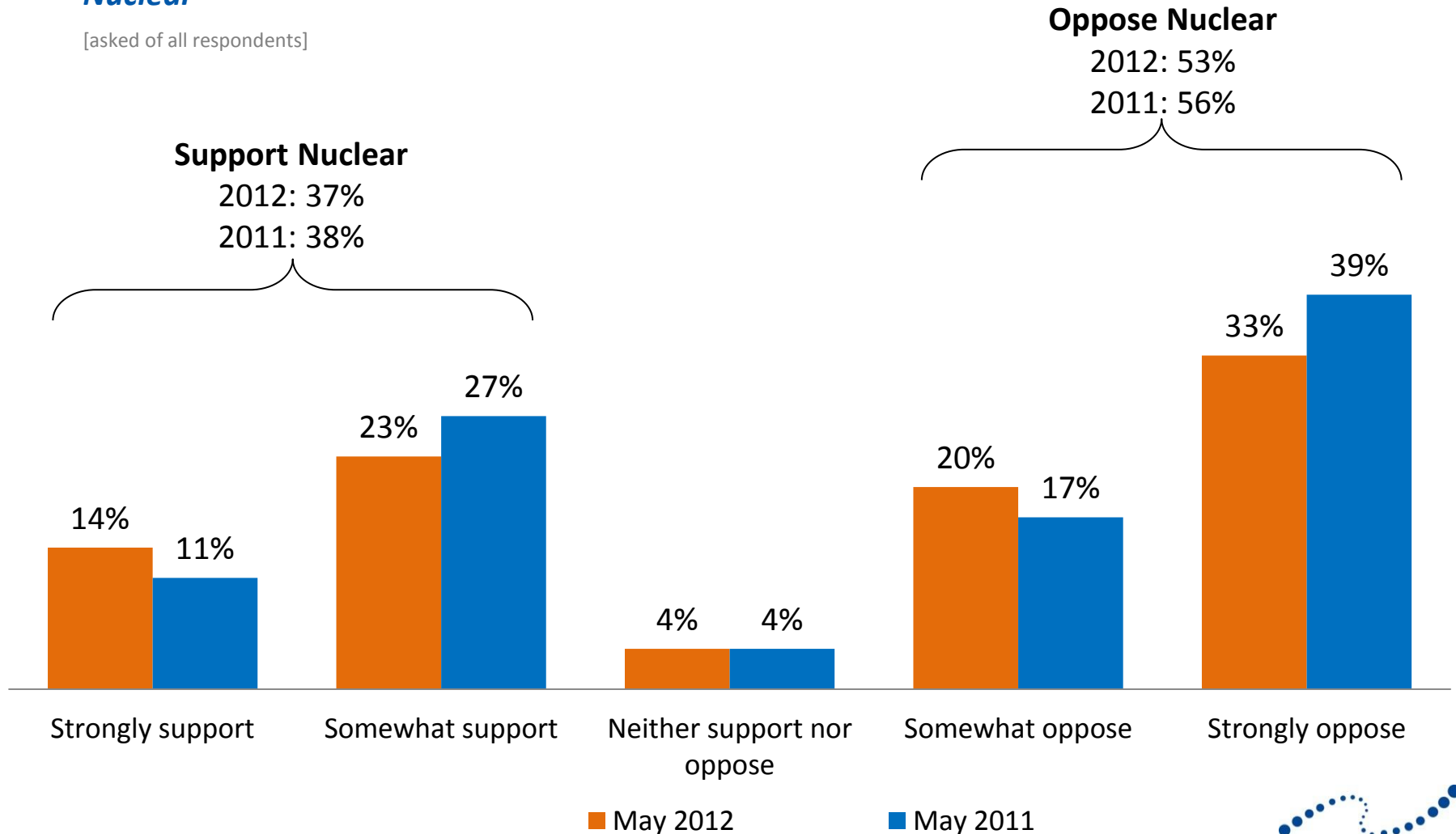
Support for Nuclear: change in intensity; those who strongly oppose nuclear down, strongly support up



I am now going to read you a list of several ways to produce electricity. Please tell me whether you support or oppose each way of producing electricity.

Nuclear

[asked of all respondents]



Support for Nuclear: majority of Ontarians support nuclear; greater support from men than women



Support or Oppose: **Nuclear**

Age-Gender Segmentation

Nuclear Audience Clusters

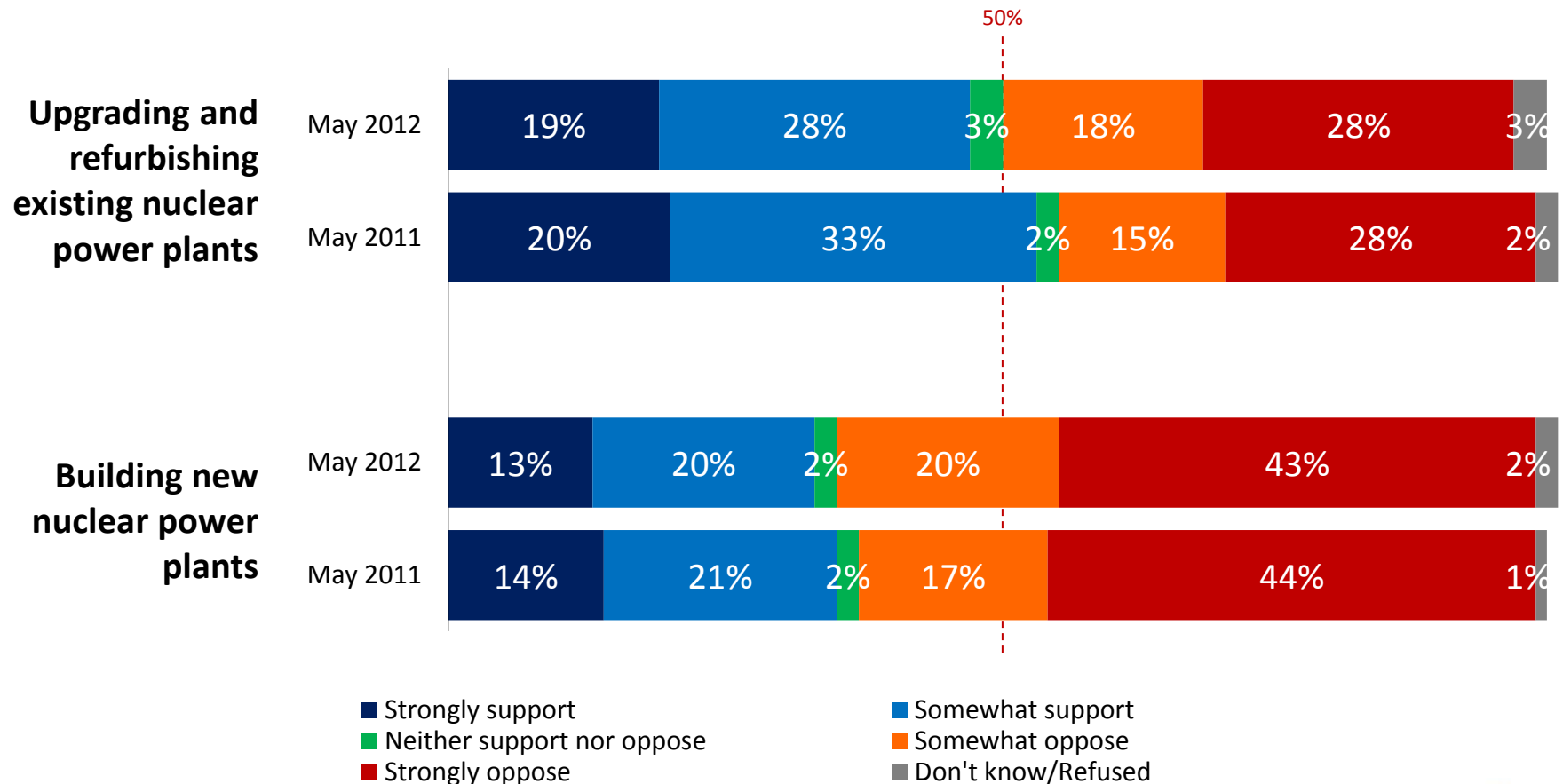
	National	M 18-34	M 35-54	M 55+	F 18-34	F 35-54	F 55+	Pro	Anti	H&S	Econ
Strongly Support	14%	22%	20%	21%	9%	10%	6%	42%	2%	10%	11%
Somewhat Support	23%	25%	25%	30%	17%	22%	22%	38%	9%	26%	24%
Neutral	4%	6%	3%	3%	5%	3%	3%	1%	1%	6%	3%
Somewhat Oppose	20%	21%	15%	13%	31%	20%	19%	10%	25%	21%	17%
Strongly Oppose	33%	27%	35%	31%	28%	37%	39%	4%	60%	29%	37%
Total Support	38%	46%	46%	51%	26%	32%	28%	80%	10%	36%	35%
Total Opposed	53%	48%	50%	44%	59%	58%	58%	14%	86%	50%	55%
Net Support	-15%	-1%	-5%	7%	-33%	-26%	-30%	66%	-75%	-14%	-20%

	National	BC	Alberta	Prairies	Ontario	Quebec	Atlantic	Sask.
Strongly Support	14%	20%	9%	17%	20%	3%	16%	18%
Somewhat Support	23%	13%	30%	27%	34%	9%	24%	27%
Neutral	4%	5%	8%	5%	3%	3%		4%
Somewhat Oppose	20%	25%	14%	16%	19%	22%	21%	16%
Strongly Oppose	33%	29%	32%	31%	19%	61%	32%	30%
Total Support	38%	33%	38%	44%	54%	12%	40%	45%
Total Opposed	53%	54%	45%	47%	37%	83%	53%	46%
Net Support	-15%	-20%	-7%	-3%	+17%	-71%	-13%	-1%

Power Generation: More Canadians would rather upgrade existing nuclear plants rather than build new ones

Q Many large power-generating plants in Canada with various fuel sources will have to be replaced over the next 10 to 15 years because they are aging. In Ontario, 80% of the plants will have to be replaced. In order to help meet Canada's future electricity demand, would you strongly support, somewhat support, somewhat oppose or strongly oppose ...

[asked of all respondents]

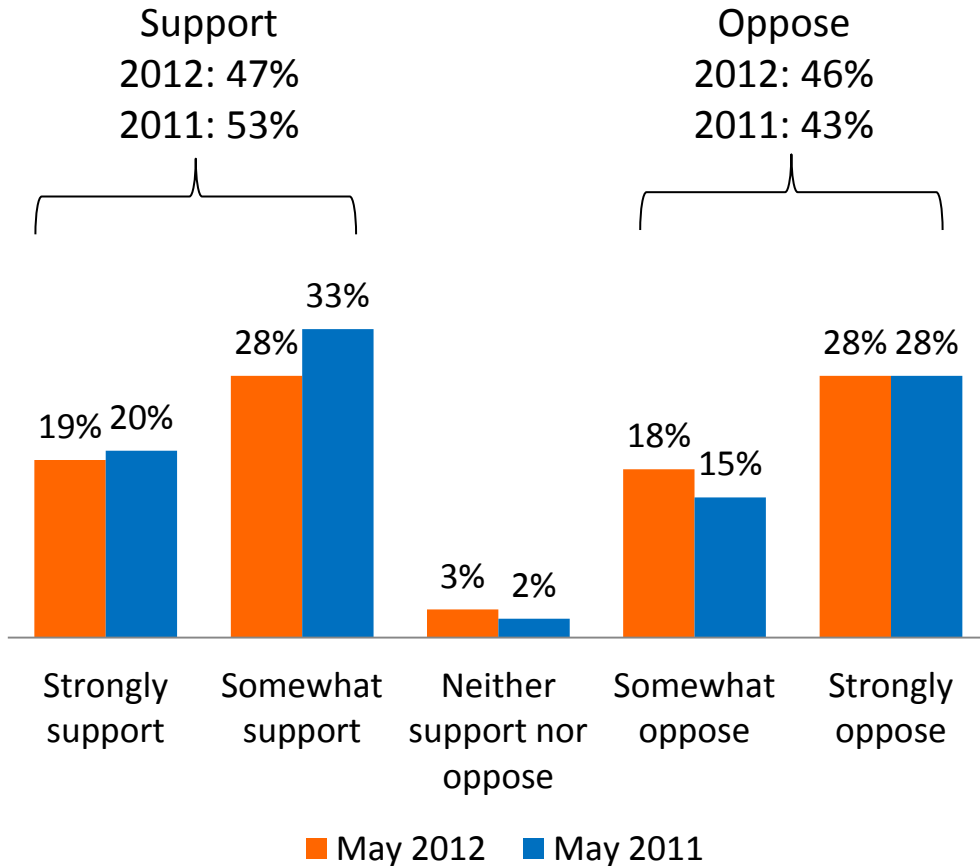


Refurbishment: Support and opposition for upgrading plants split; Ontario and men most supportive



In order to help meet Canada's future electricity demand, would you strongly support, somewhat support, somewhat oppose or strongly oppose... **Upgrading and refurbishing existing nuclear power plants**

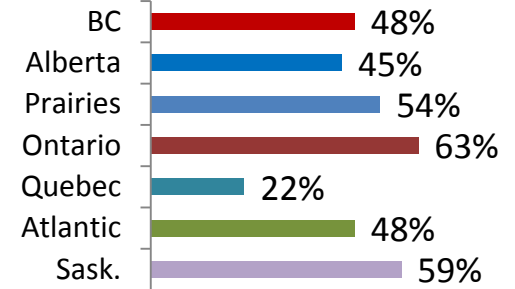
[asked of all respondents]



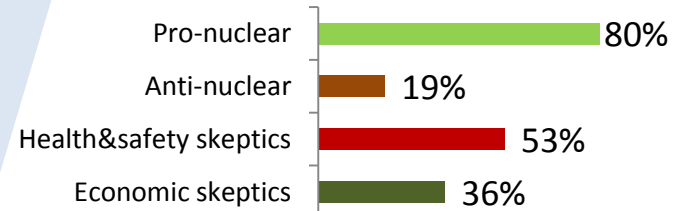
2012 Sample Breakdown ▶▶

Those who say "support"

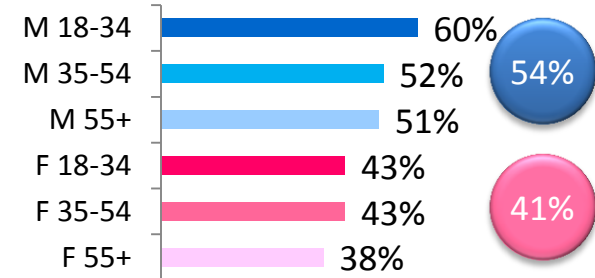
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown



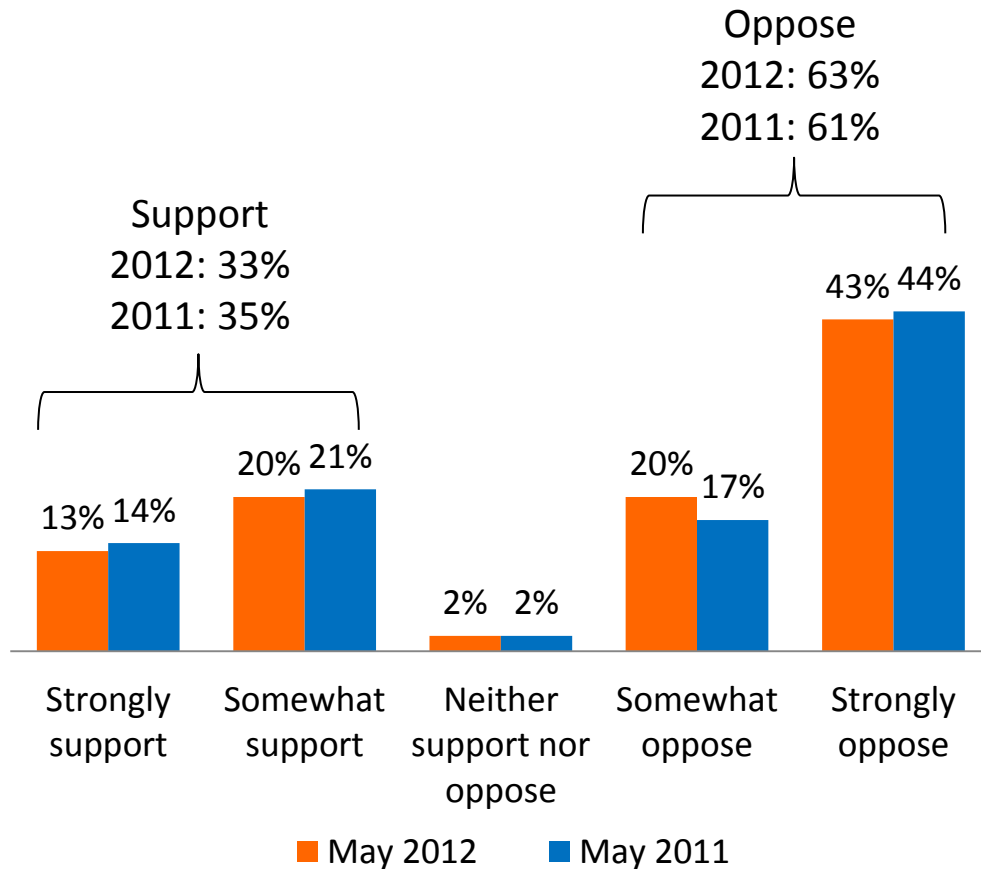
Note: 'Don't know' not shown

New Build: Twice as many oppose rather than support building new plants, especially women and Quebec



In order to help meet Canada's future electricity demand, would you strongly support, somewhat support, somewhat oppose or strongly oppose... **Building new nuclear power plants**

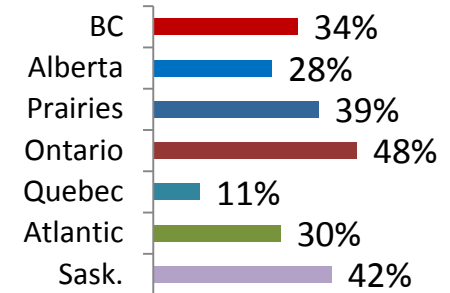
[asked of all respondents]



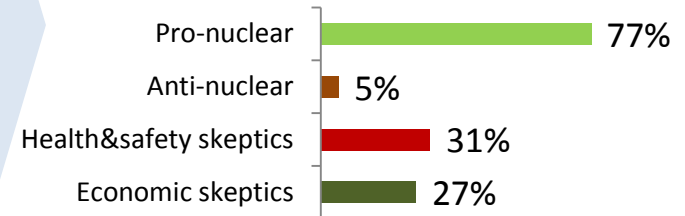
2012 Sample Breakdown ▶▶

Those who say "support"

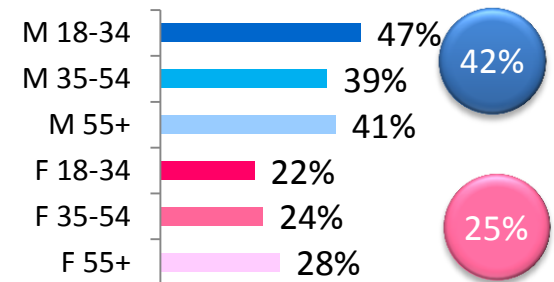
Regional Segmentation



Nuclear Audience Clusters



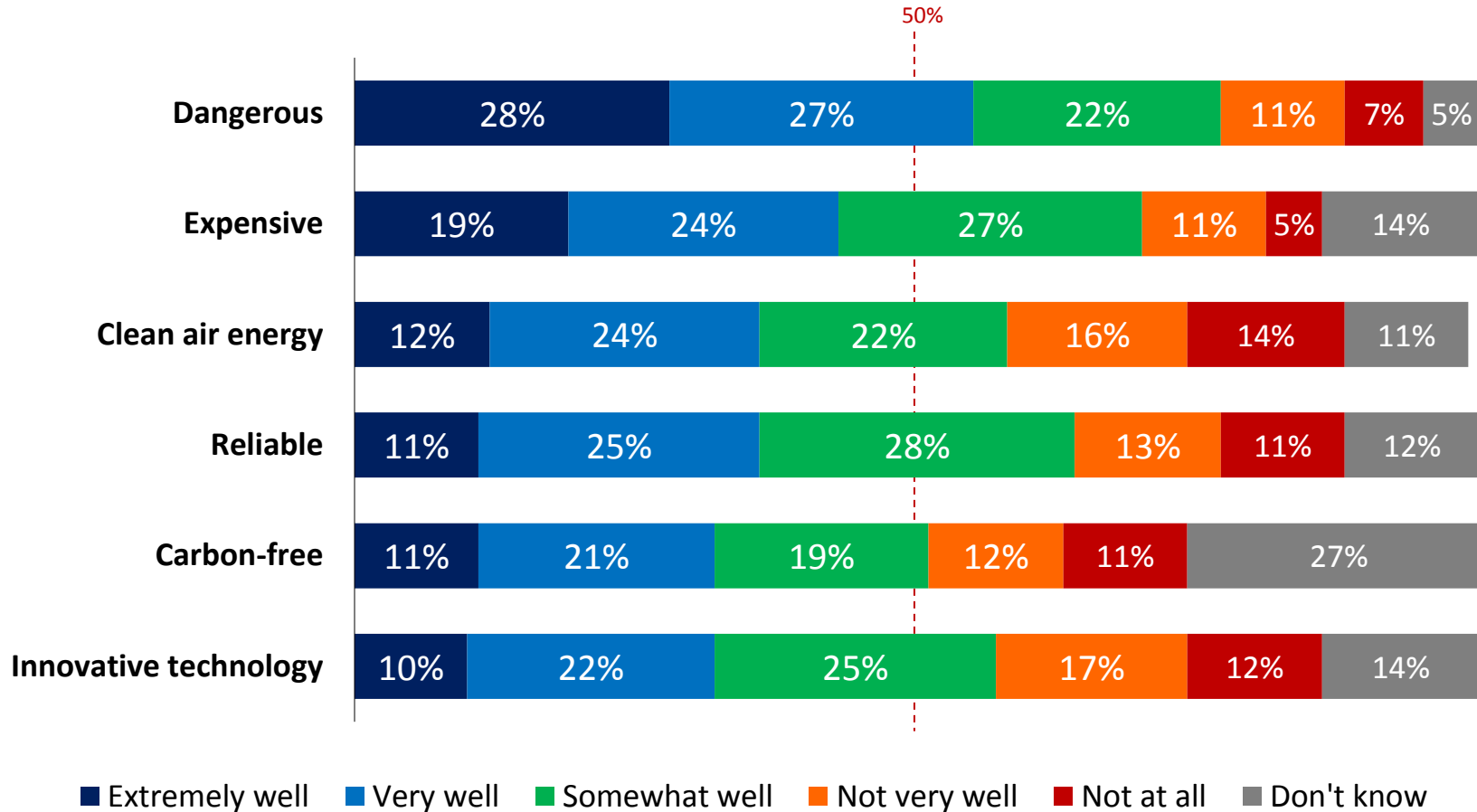
Age-Gender Breakdown



Benchmarked Attitudes & Beliefs

Brand Attributes: Majority (55%) think the word “dangerous” describes nuclear *extremely or very well*

Q For each of the following phrases or words, please tell me how well you think it describes nuclear energy. How about ...? [asked of all respondents]

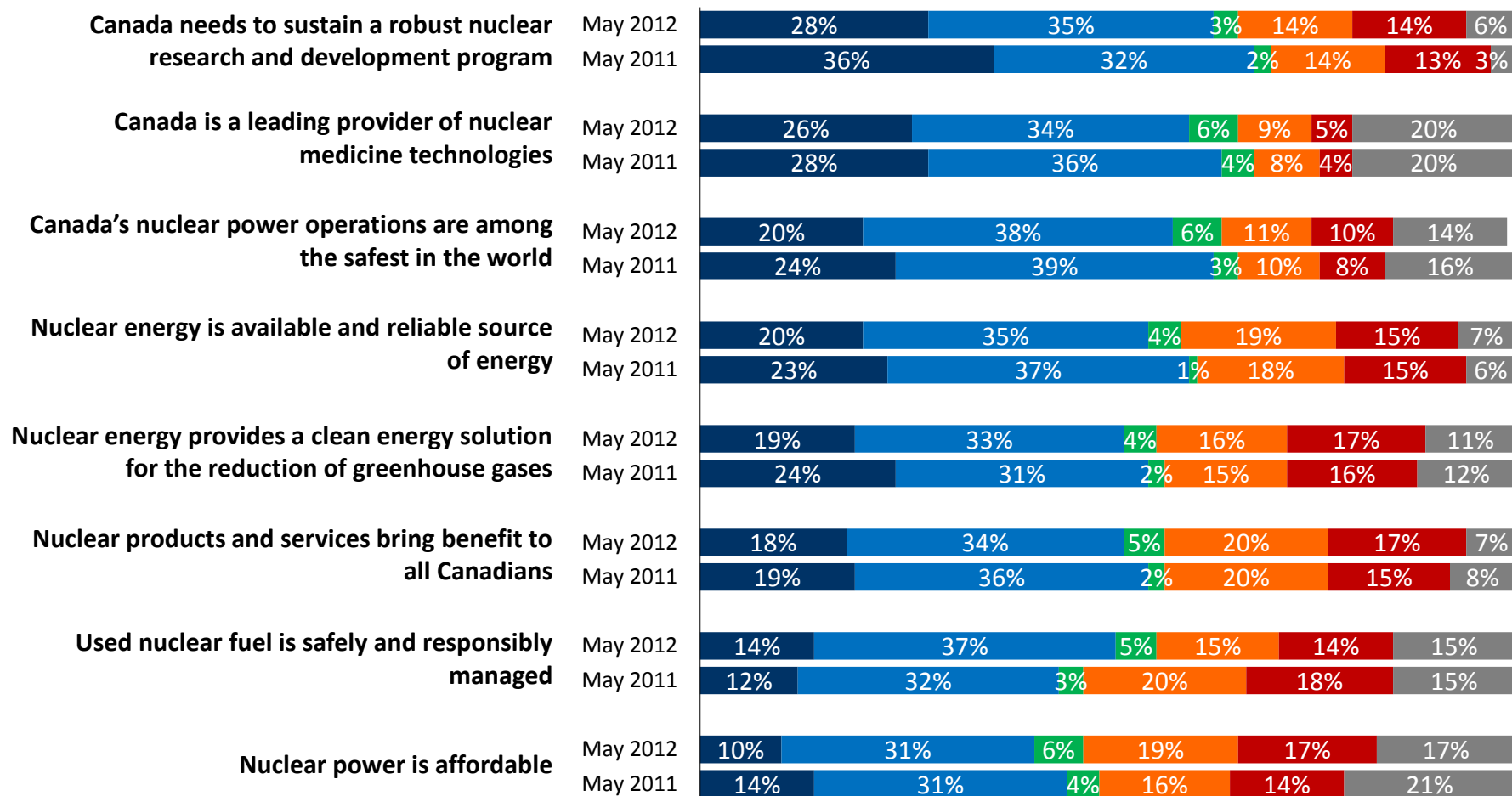


Comfort level: Agreement on most positive statements about nuclear power has decreased compared to last year



Now I am going to read some statements about nuclear energy. Please tell me if you strongly agree, somewhat agree, somewhat disagree or strongly disagree with the following statements:

[asked of all respondents]



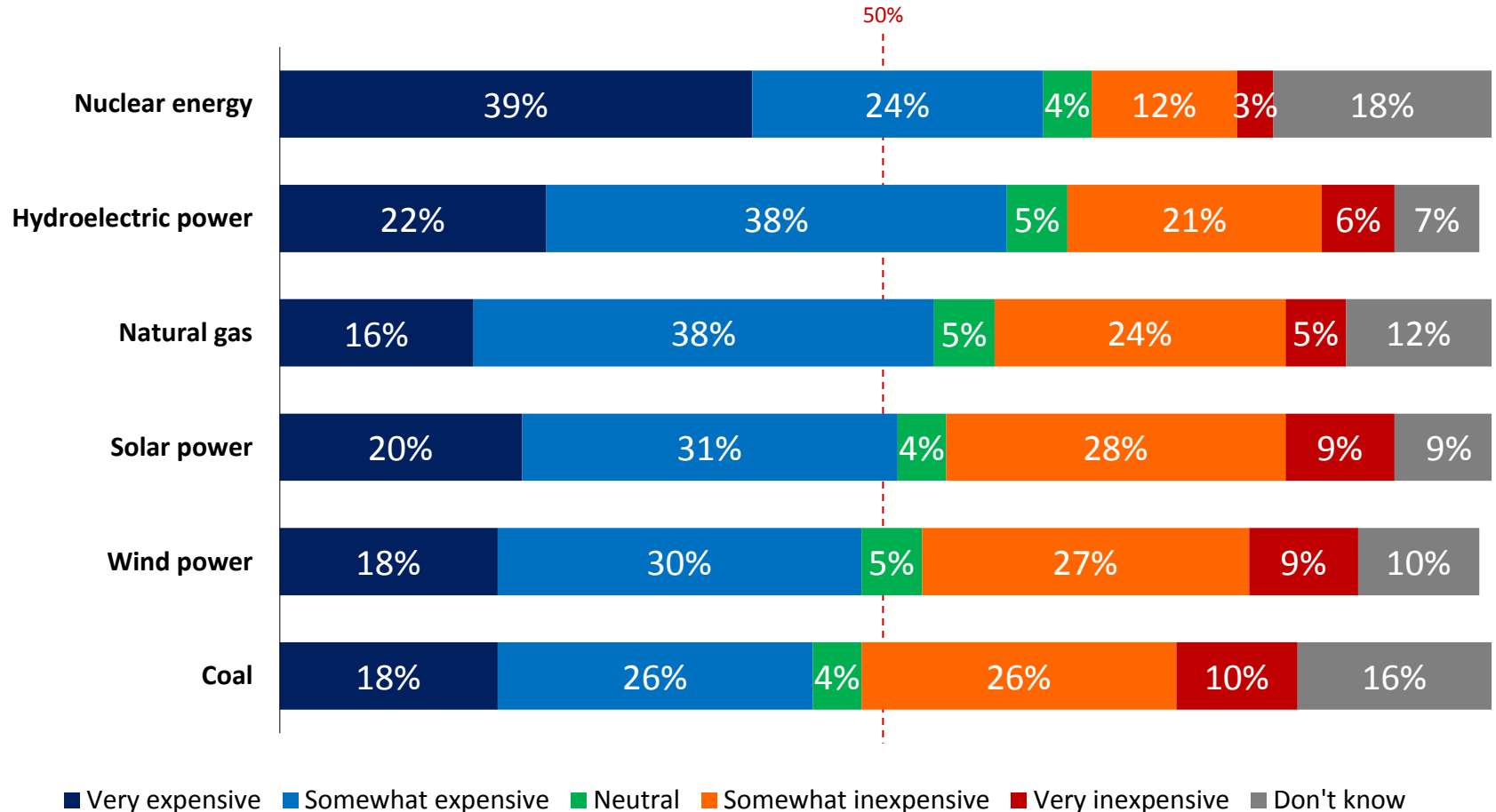
■ Strongly agree
 ■ Somewhat agree
 ■ Neither agree nor disagree
 ■ Somewhat disagree
 ■ Strongly disagree
 ■ Don't know

Note: Detailed segmentation starting on page 83.

New Attitudes and Beliefs

Energy Cost: Nuclear energy is perceived as the most expensive form of power generation

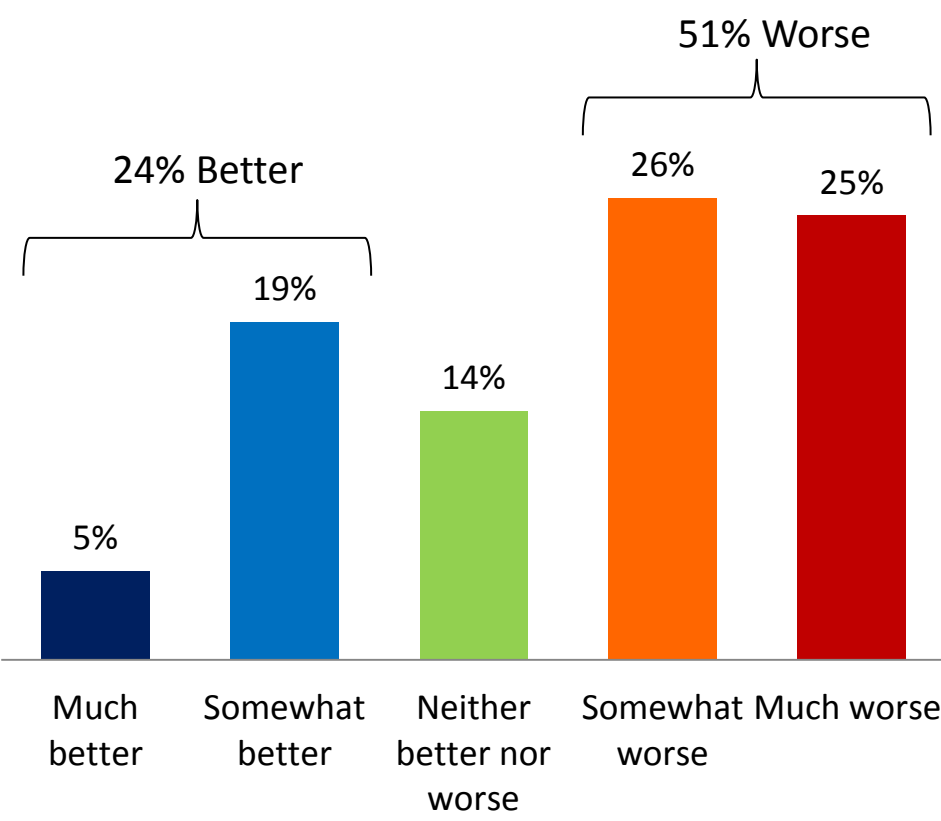
Q Different forms of power generation have different costs associated with creating electricity. Thinking about the overall cost from building, a lifetime of generating and finally decommissioning, how affordable do you think the following forms of electricity generation are? [asked of all respondents]



Nuclear vs. Natural Gas: majority of Canadians believe the environmental impact of nuclear is worse than natural gas

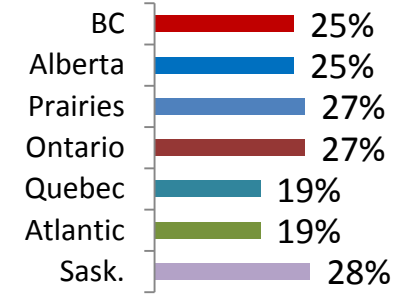


Do you believe the overall environmental impact from nuclear power generation – that is, the emissions created from building a nuclear power plant, generating electricity, decommissioning the plant and disposing of waste by-products – is better or worse for the environment than natural gas power generation? [asked of all respondents]

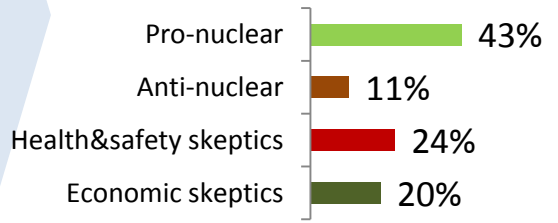


Sample Breakdown ▶▶ *Those who say "better"*

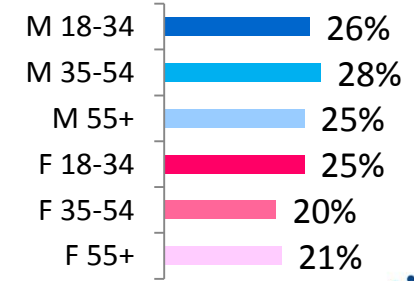
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown



27%

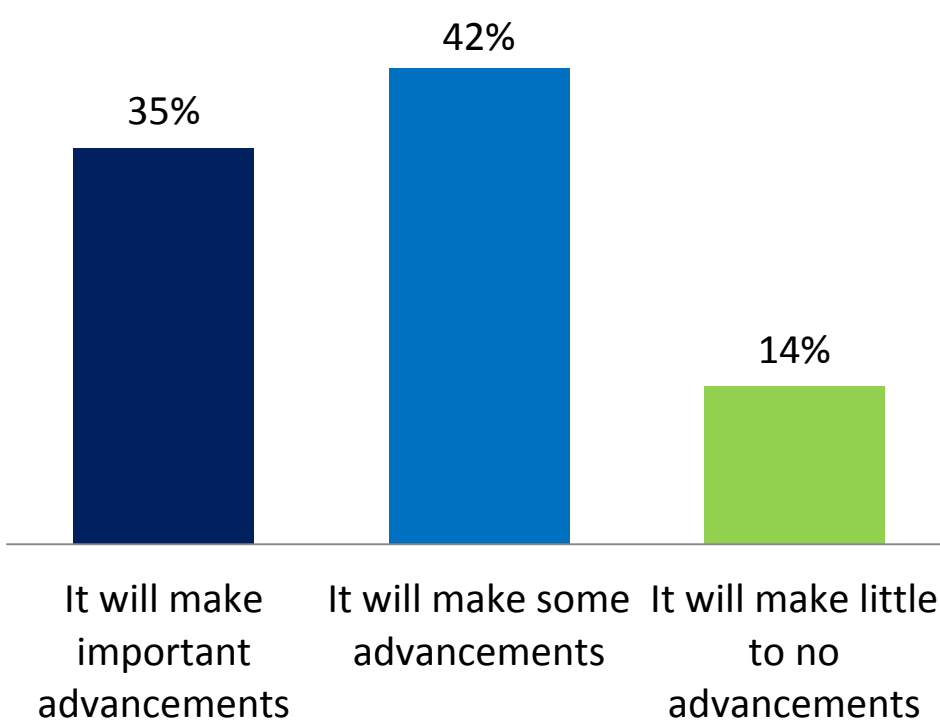
22%



Note: 'Don't know/Refused' (11%) not shown

Anticipated Advancements: majority believe nuclear will continue to make technological advancements

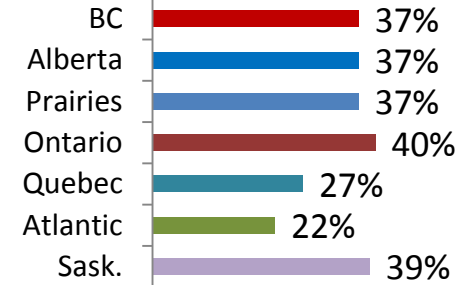
Q How do you think nuclear technology will change in the coming 50 years? Would you say... [asked of all respondents]



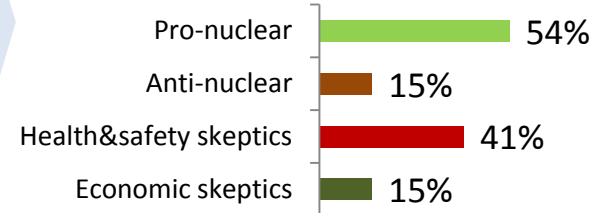
Sample Breakdown ▶▶

Those who say "it will make important advancements"

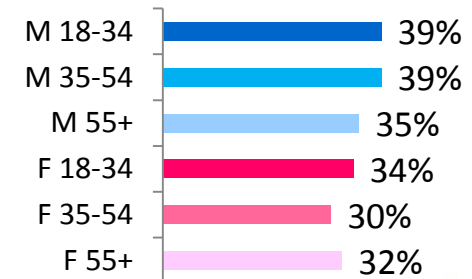
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown



38%

32%

Note: 'Don't know' (9%) not shown

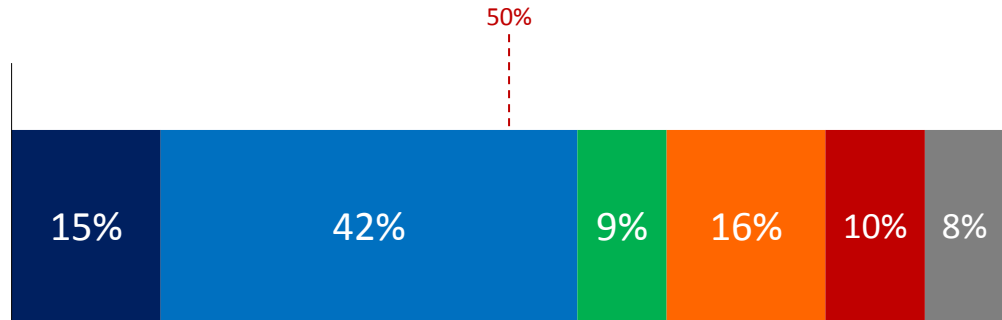
Message Test: Both economic spin-off messages resonate well with Canadians in terms of potentially building support

Q

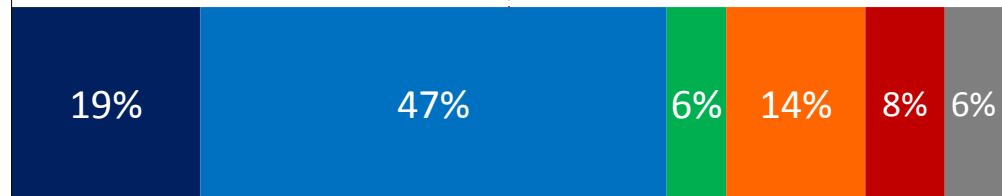
I'm going to read you some statements that some people have made about nuclear science and technology. Please tell me whether they leave you more or less likely to support Canada's nuclear industry?

[asked of all respondents]

Using nuclear science and technology to test and design materials used in other industries – such as automotive, aerospace and telecommunications – gives Canadian businesses a competitive edge in international markets.



Funding for nuclear science and technology benefit Canada's entire scientific community – including advanced research in medicine, manufacturing, and aerospace.

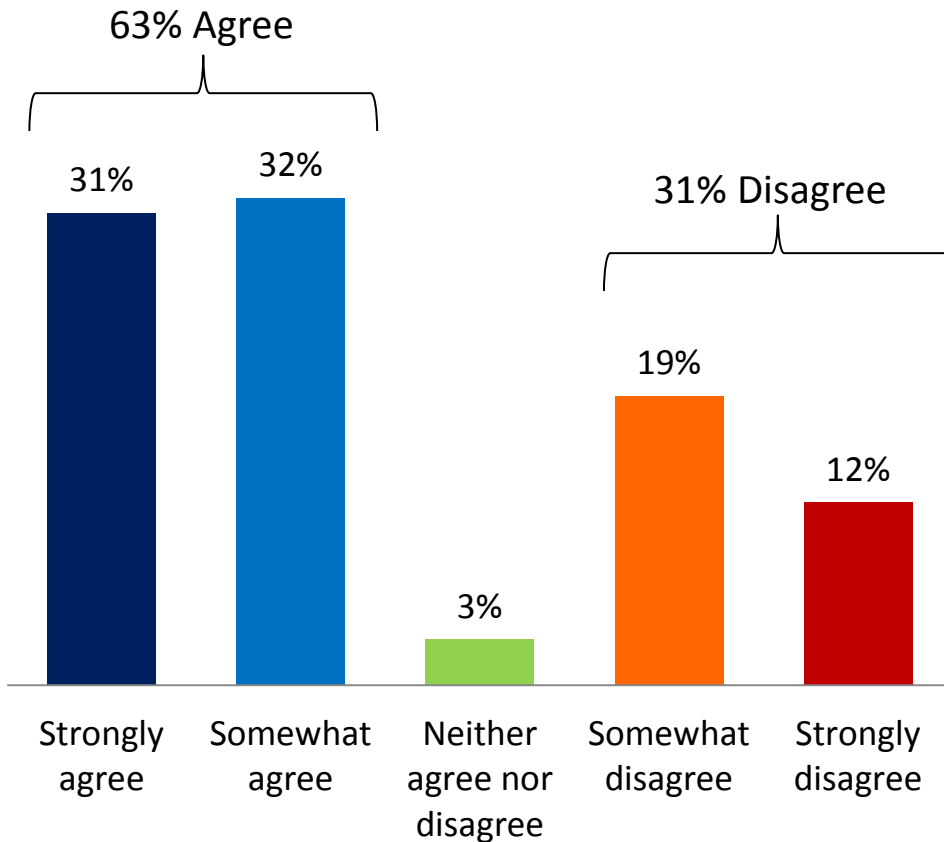


- Much more likely
- Somewhat more likely
- Neutral/Neither more nor less
- Somewhat less likely
- Much less likely
- Don't know/Refused

Distrust in Big Businesses: 63% distrust *big nuclear energy business*; especially in Quebec, BC, and among women



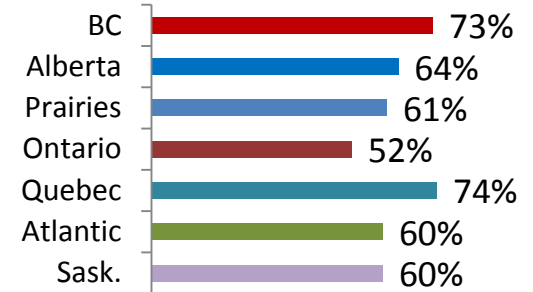
Do you agree or disagree with the following statement?
I have concerns with nuclear energy because I don't trust the big companies that operate most of the reactors. [asked of all respondents]



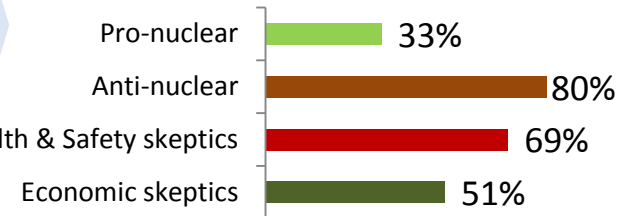
Sample Breakdown ▶▶

Those who say "agree"

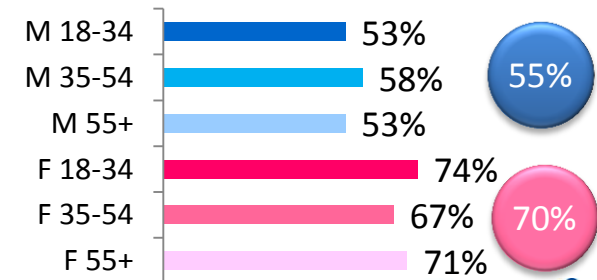
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown



Note: 'Don't know' (4%) not shown

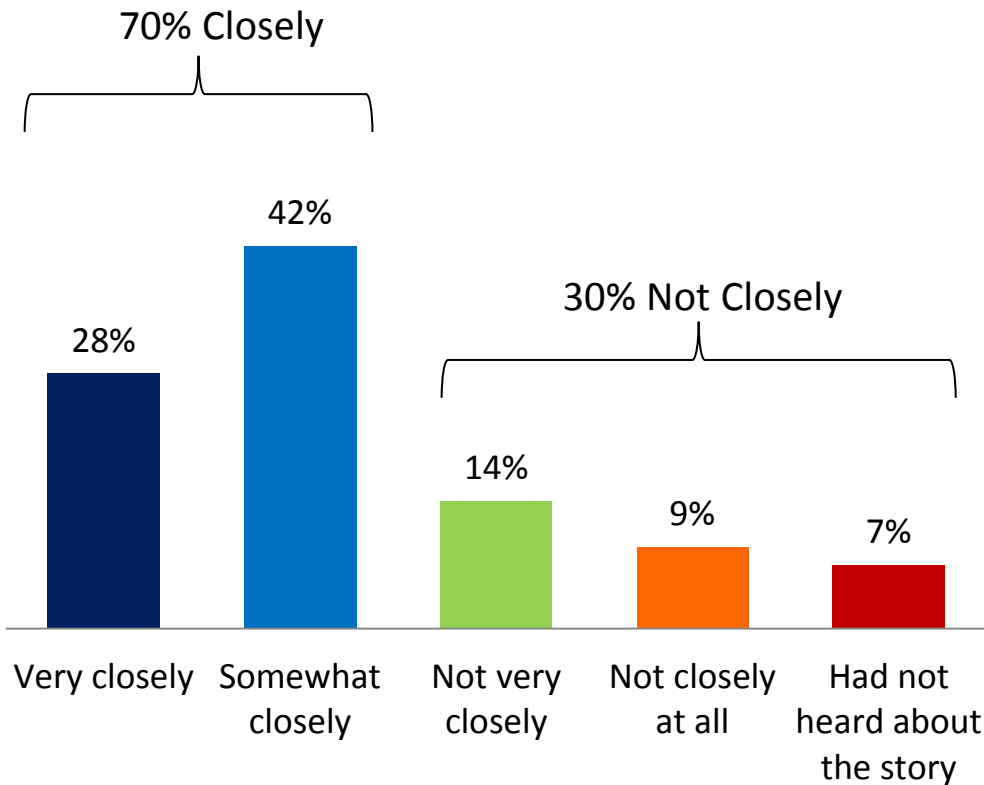
Fukushima

News Awareness: Over two-thirds followed the news stories²⁶ closely, especially older folk



Just over a year ago an earthquake and tsunami damaged the nuclear reactors in the Japanese city of Fukushima. A number of stories were recently in the news to mark the one year anniversary of this event. How closely did you follow this news story? If you have not heard about the story before this survey, just say so.

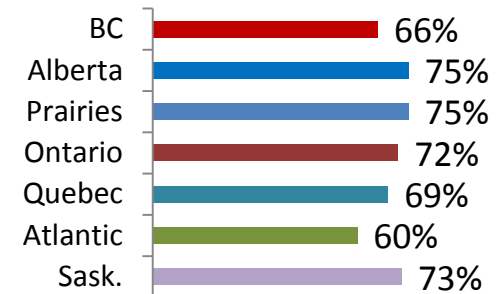
[asked of all respondents]



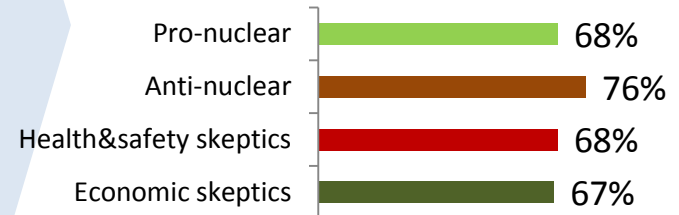
Sample Breakdown ▶▶

Those who say "Closely"

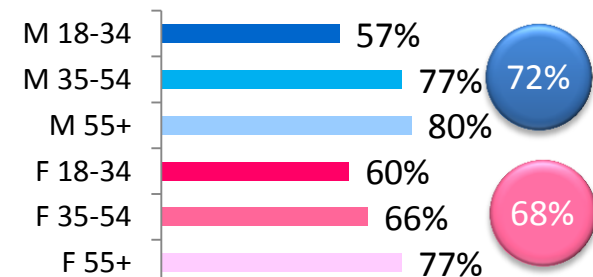
Regional Segmentation



Nuclear Audience Clusters

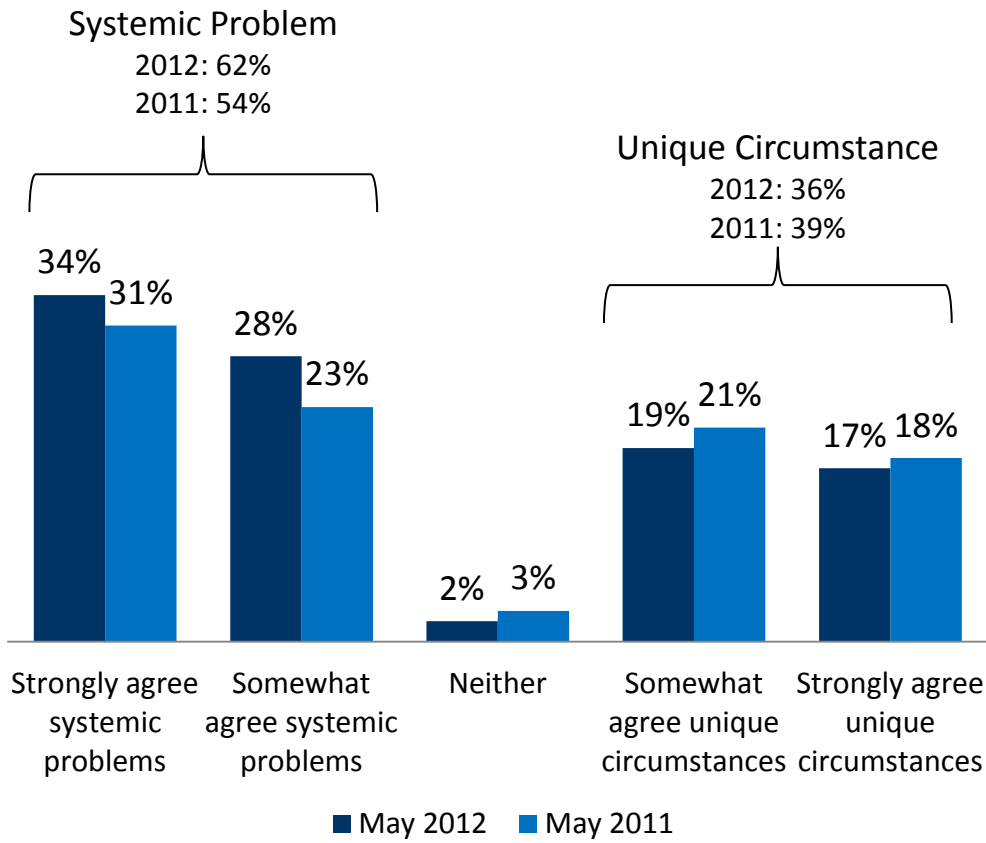


Age-Gender Breakdown



Systemic Problem: Two thirds of Canadians believe the Fukushima nuclear incident was a systemic problem

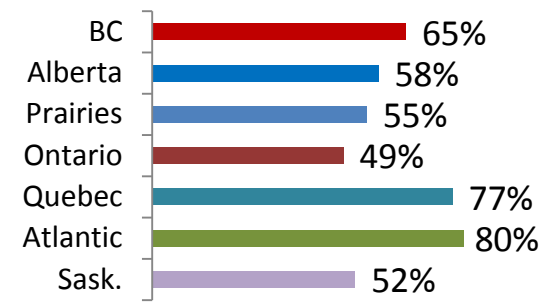
Q Which statement comes closer to your own view? The situation at Fukushima shows systemic problems with nuclear power OR The situation at Fukushima was a unique set of circumstances that are unlikely to be repeated anywhere else? And do you strongly agree with that point of view or just somewhat agree with that point of view? [asked only of those who have at least heard about the Fukushima nuclear news story]



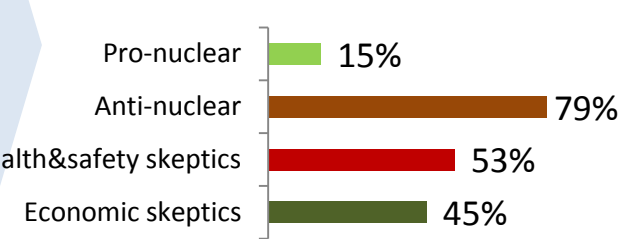
2012 Sample Breakdown ▶▶

Those who say "Systemic Problem"

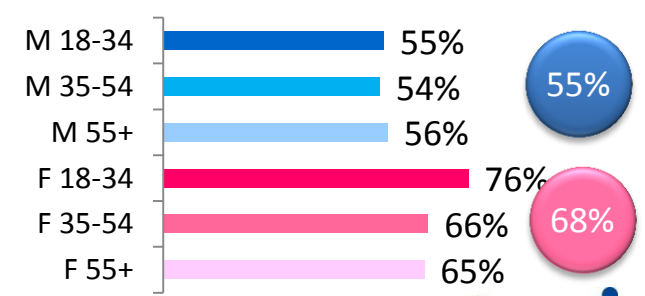
Regional Segmentation



Nuclear Audience Clusters



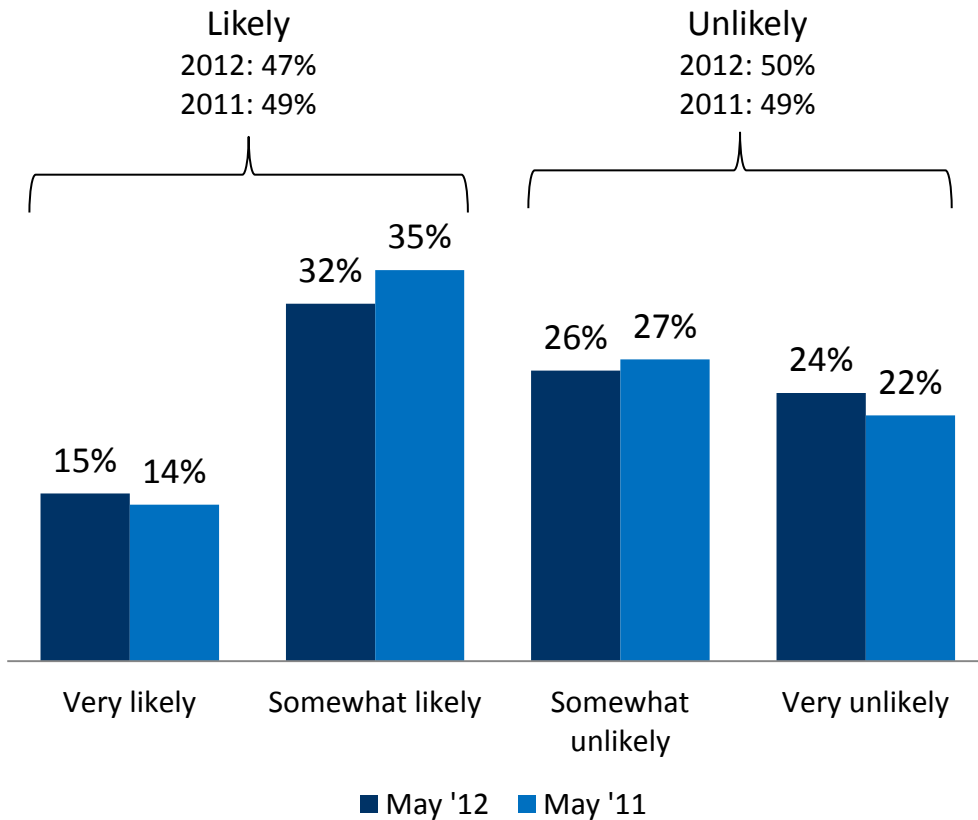
Age-Gender Breakdown



Note: 'Don't know' not shown

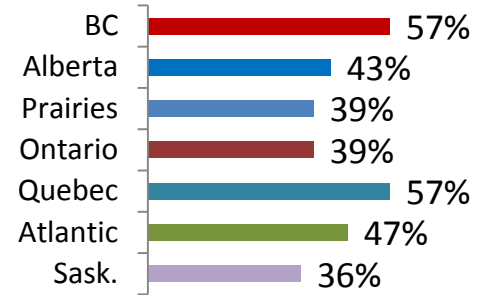
Can It Happen To Us: 1-in-2 Canadians think that a Fukushima-like nuclear disaster can happen in Canada

Q As you may know, some provinces generate much of their power with nuclear reactors. How likely do you think it is that something like Fukushima could happen in Canada? [asked of all respondents]

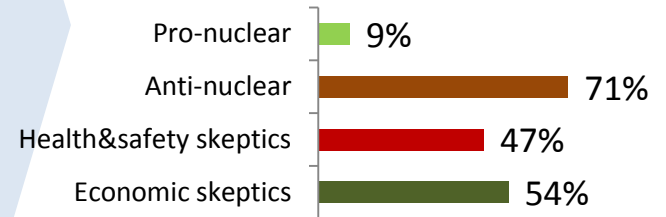


2012 Sample Breakdown ▶▶ *Those who say "Likely"*

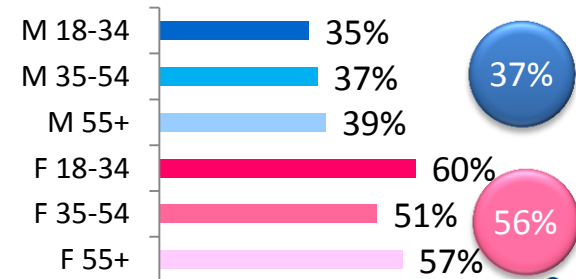
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown

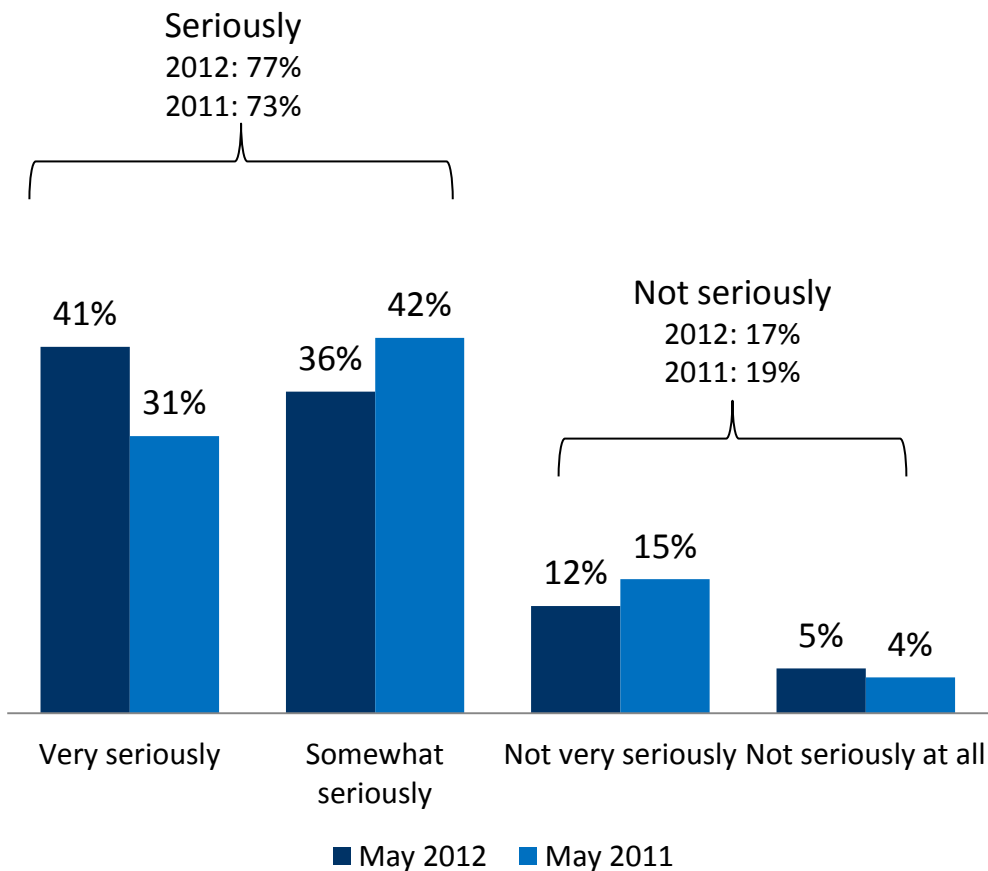


Note: 'Don't know' not shown

Corporate Responsibility: more Canadians believe nuclear safety is taken very seriously by industry this year, than last



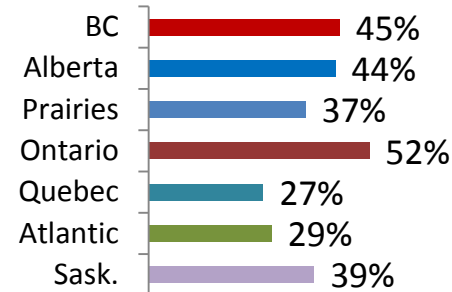
From what you have read, seen or heard, how seriously do you think the **companies that operate Canadian nuclear power plants** are taking the issue of the safety of nuclear power generation in Canada? [asked of all respondents]



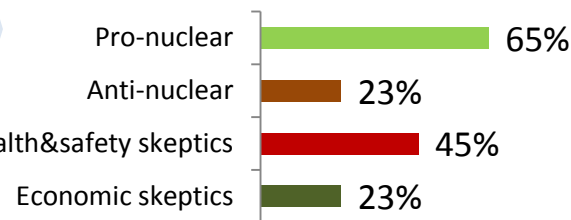
2012 Sample Breakdown ▶▶

Those who say "Very Seriously"

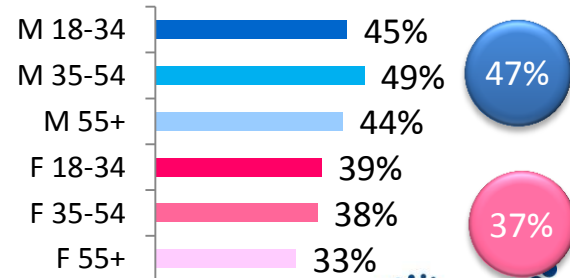
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown

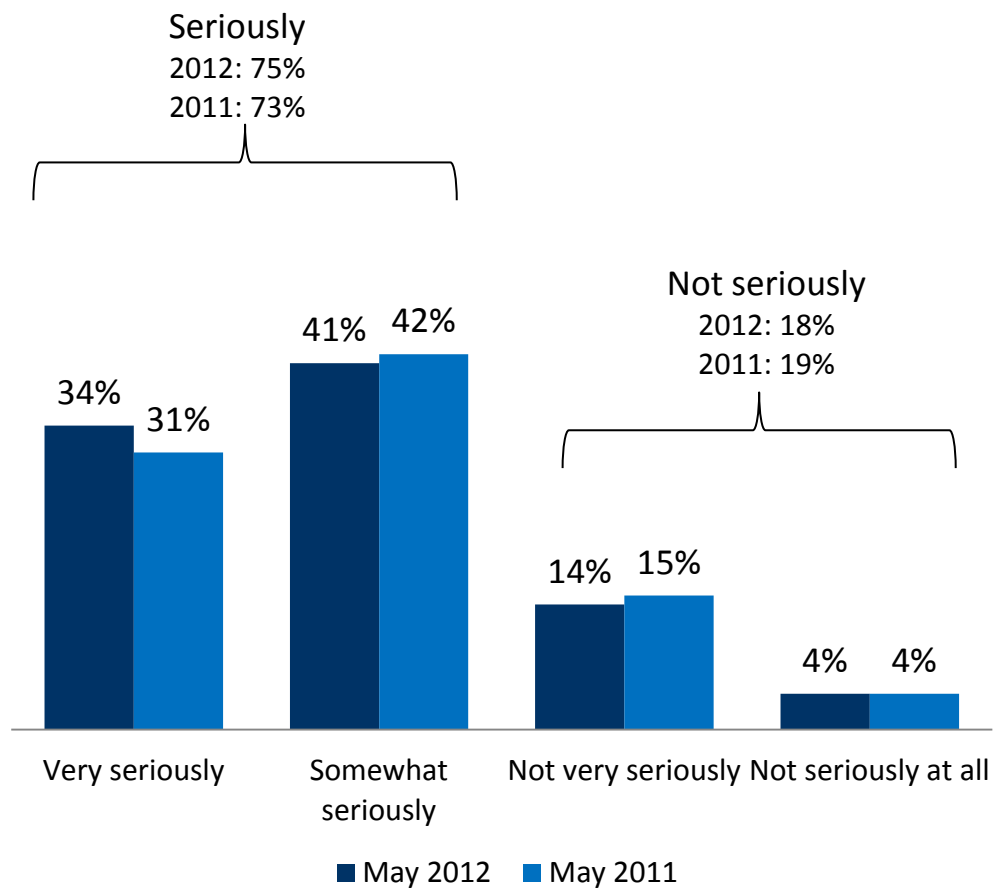


Note: 'Don't know' not shown

Government Responsibility: more Canadians think nuclear safety is taken very seriously by gov't this year, than last

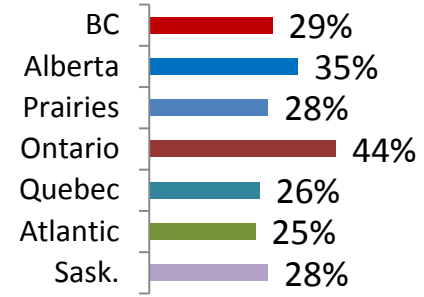


And from what you have read, seen or heard, how seriously do you think the **government agencies that regulate Canadian nuclear power plants** are taking the issue of the safety of nuclear power generation in Canada? [asked of all respondents]

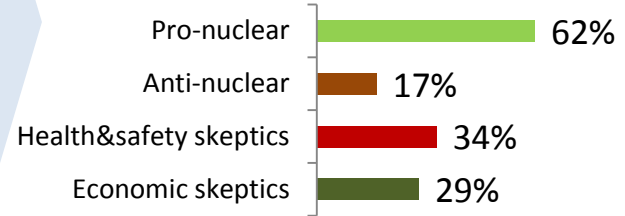


2012 Sample Breakdown ▶▶ *Those who say "Very Seriously"*

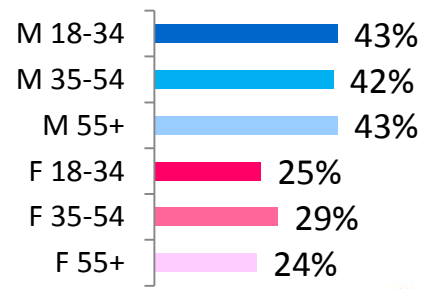
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown



43%

26%



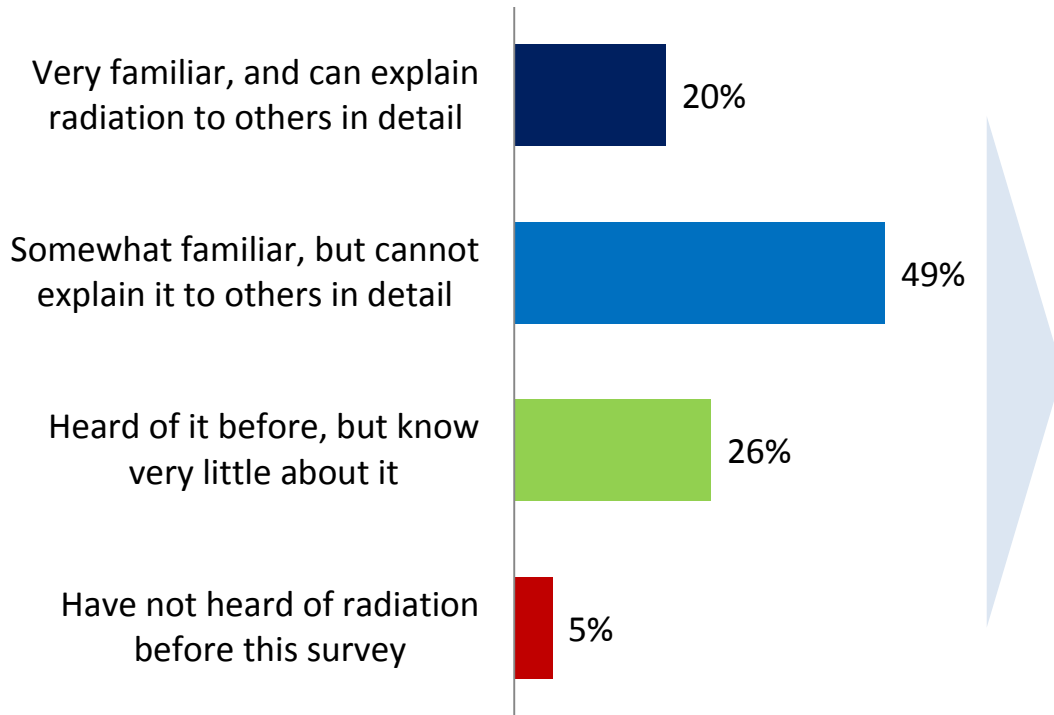
Note: 'Don't know' not shown

Radiation Knowledge

Reported Knowledge: Women and Quebec least familiar with radiation and consistently showed less support for nuclear energy



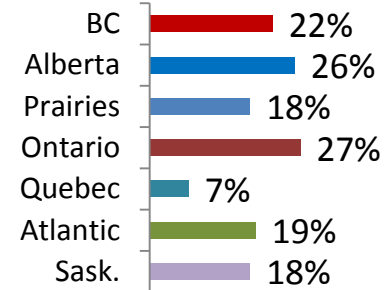
How familiar are you with the concept of radiation? Would you say ... [asked of all respondents]



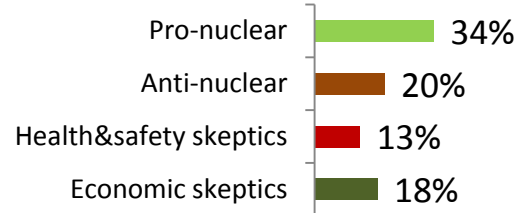
Sample Breakdown ▶▶

Those who say "very familiar"

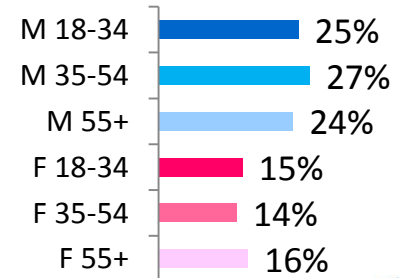
Regional Segmentation



Nuclear Audience Clusters



Age-Gender Breakdown



25%

15%



Note: 'Don't know' (<1%) not shown

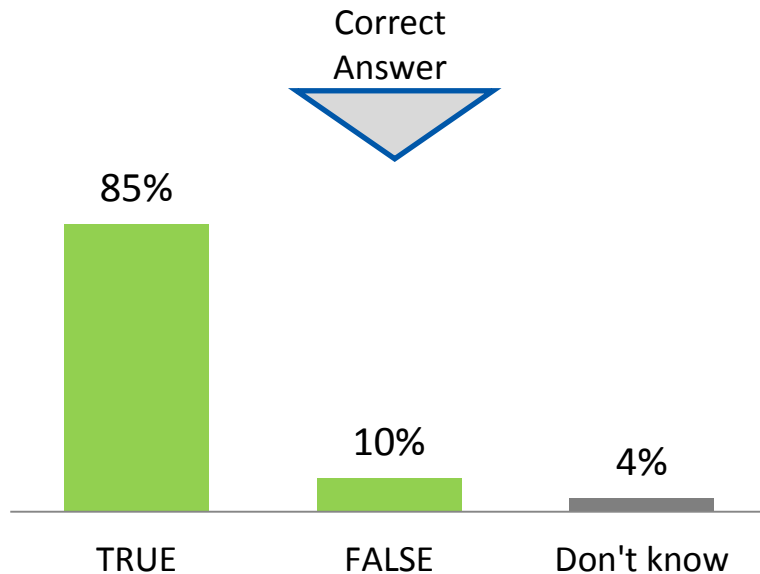
Measured Knowledge: Most Canadians know radiation is not just man-made, but don't know that not all radiation is harmful

Q

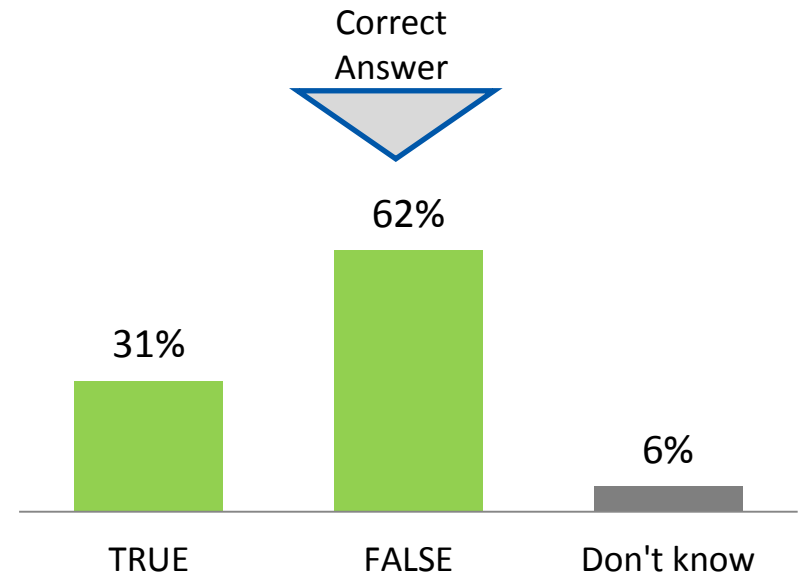
Based on what you know about radiation, please tell me if you think the statements are true or false.

[asked only of those who have at least heard of the concept of radiation before this survey]

All types of radiation can be harmful to one's health when exposed to someone in large amounts



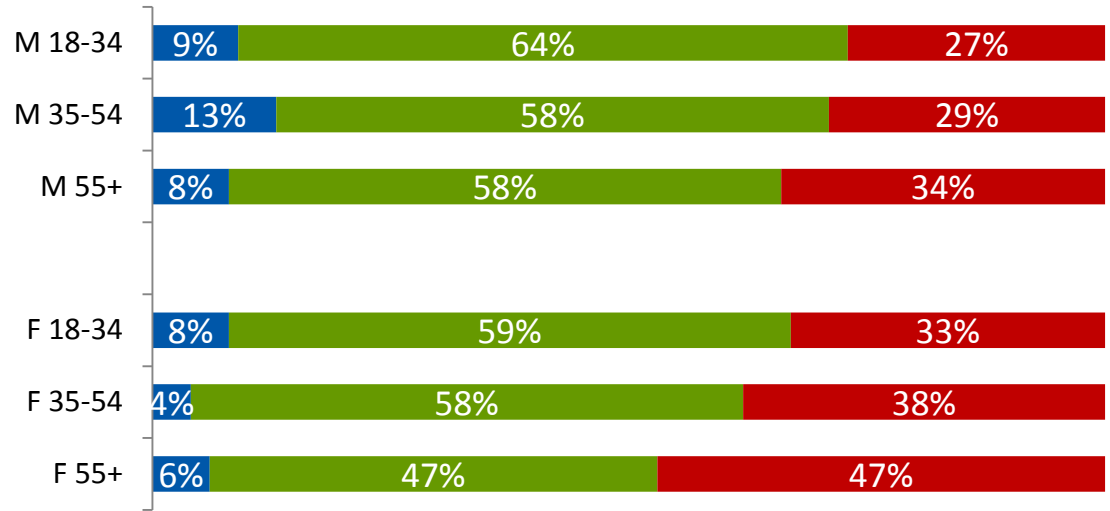
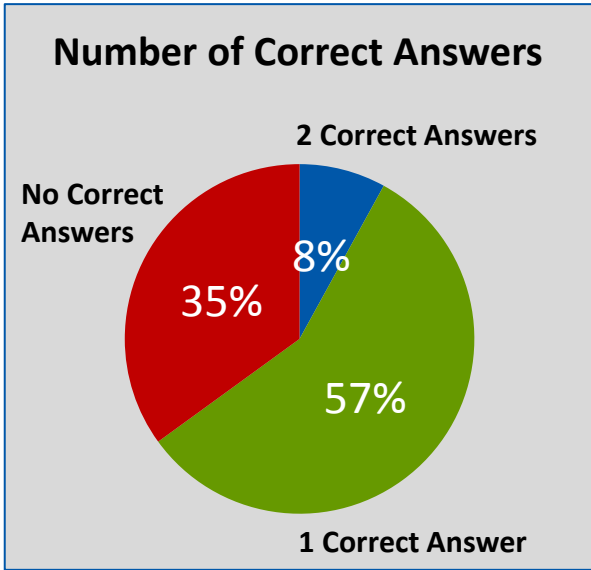
Radiation is a man-made substance that only comes from sources such as nuclear power facilities and X-ray machines



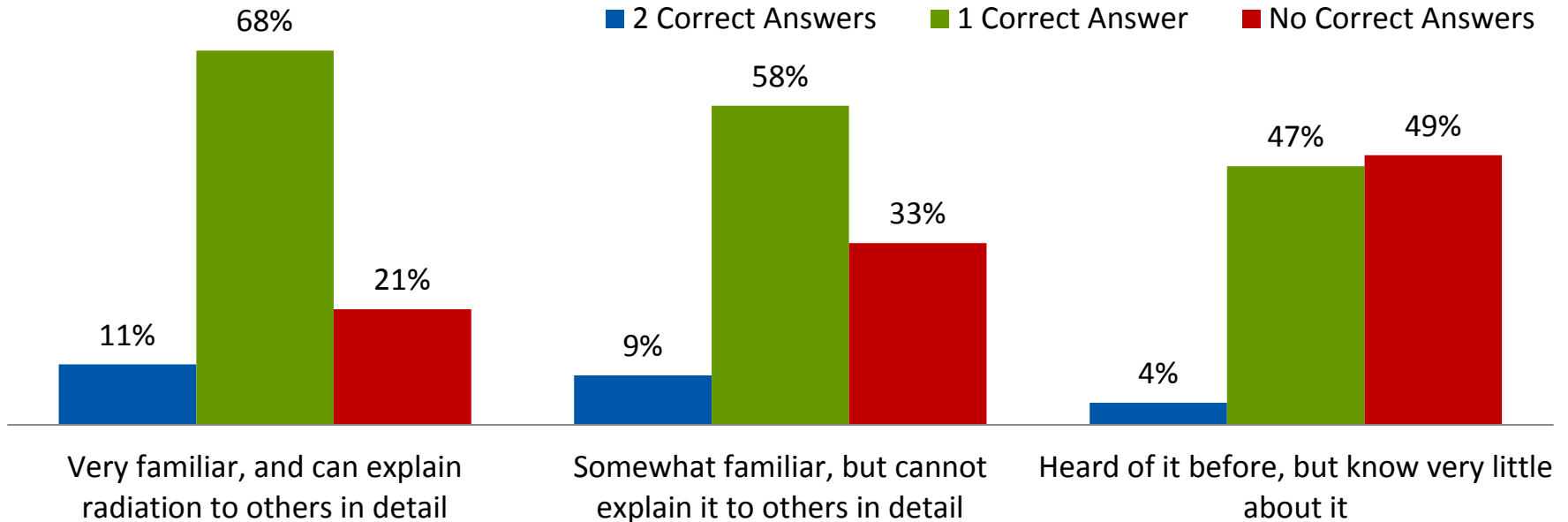
Fact Check:

Radiation comes from many places in our lives, not just nuclear power plants. There are two types of radiation: non-ionizing (such as from radio waves and heat lamps) and ionizing (such as from tanning beds and medical x-rays). Only ionizing radiation, which has the ability to knock electrons out of human molecules, can cause harm to humans in large amounts.

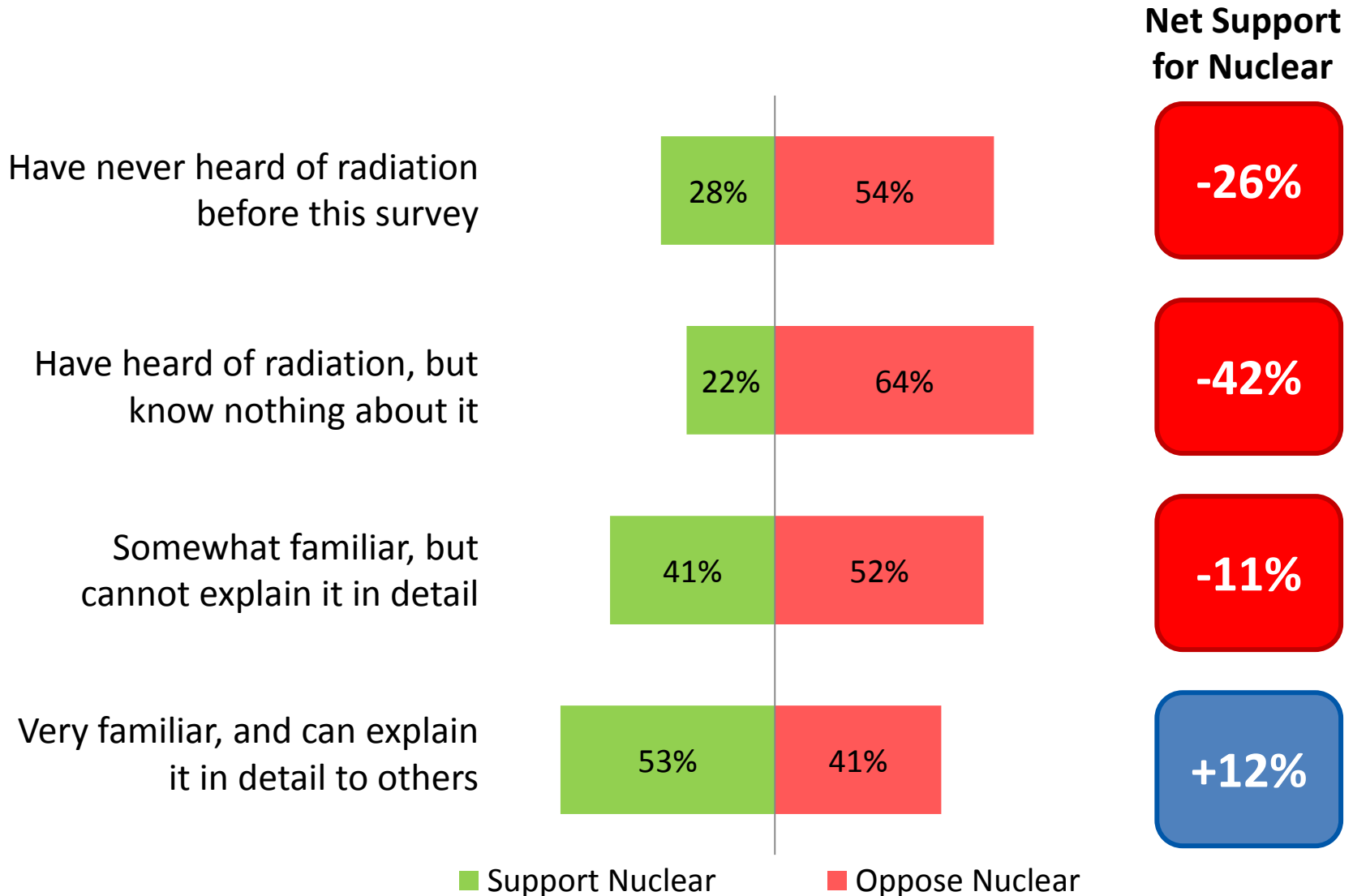
Reported vs. Measured Knowledge: many Canadians appear to think they know more about radiation than they actually do



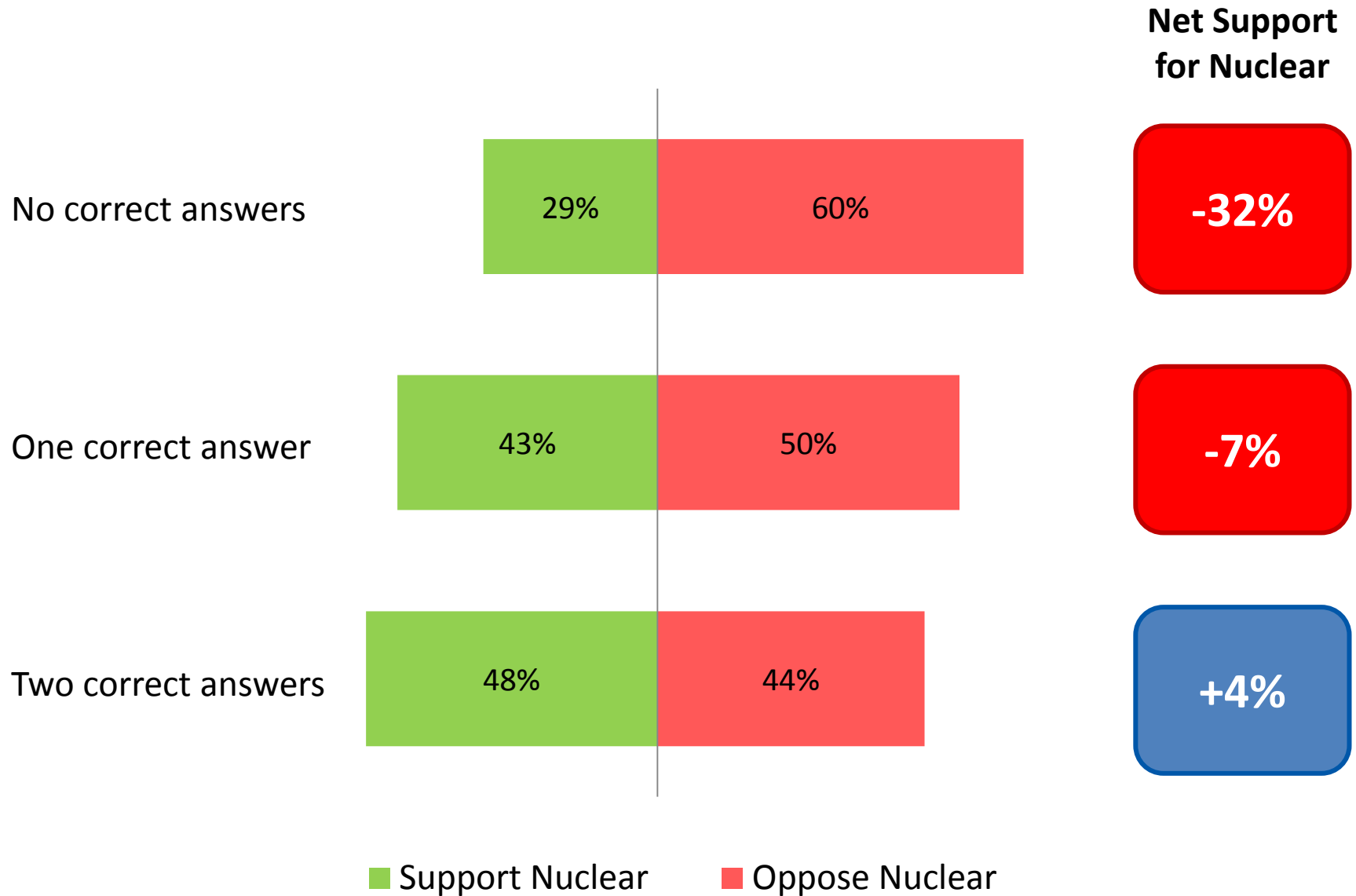
■ 2 Correct Answers ■ 1 Correct Answer ■ No Correct Answers



Impact of Reported Knowledge on Support: To know radiation is to support nuclear power; Canadians fear what they don't understand



Impact of Measured Knowledge on Support: those who score higher on radiation test are generally more likely to support nuclear





Research-based strategic advice.

Public Affairs • Corporate Communications • Fundraising

All intellectual property rights, including without limitation all copyright and know-how in the research techniques, research specifications or any information or material provided in this document, shall remain the property of, and are confidential to Innovative Research Group Inc. As such, any information contained herein may not be reproduced or translated, stored in a retrieval system, or transmitted in any form, or by any means, electronic, mechanical, photocopying or otherwise to third parties without the prior written permission of Innovative Research Group Inc.

For more information, please contact:

Jason Lockhart
Senior Consultant
Innovative Research Group Inc.
56 The Esplanade, Suite 310
Toronto ON | M5E 1A7

(t) 416-642-7177
(f) 416-640-5988
(e) jlockhart@innovativeresearch.ca
www.innovativeresearch.ca