New Brunswick's Climate Change Solutions Opportunity

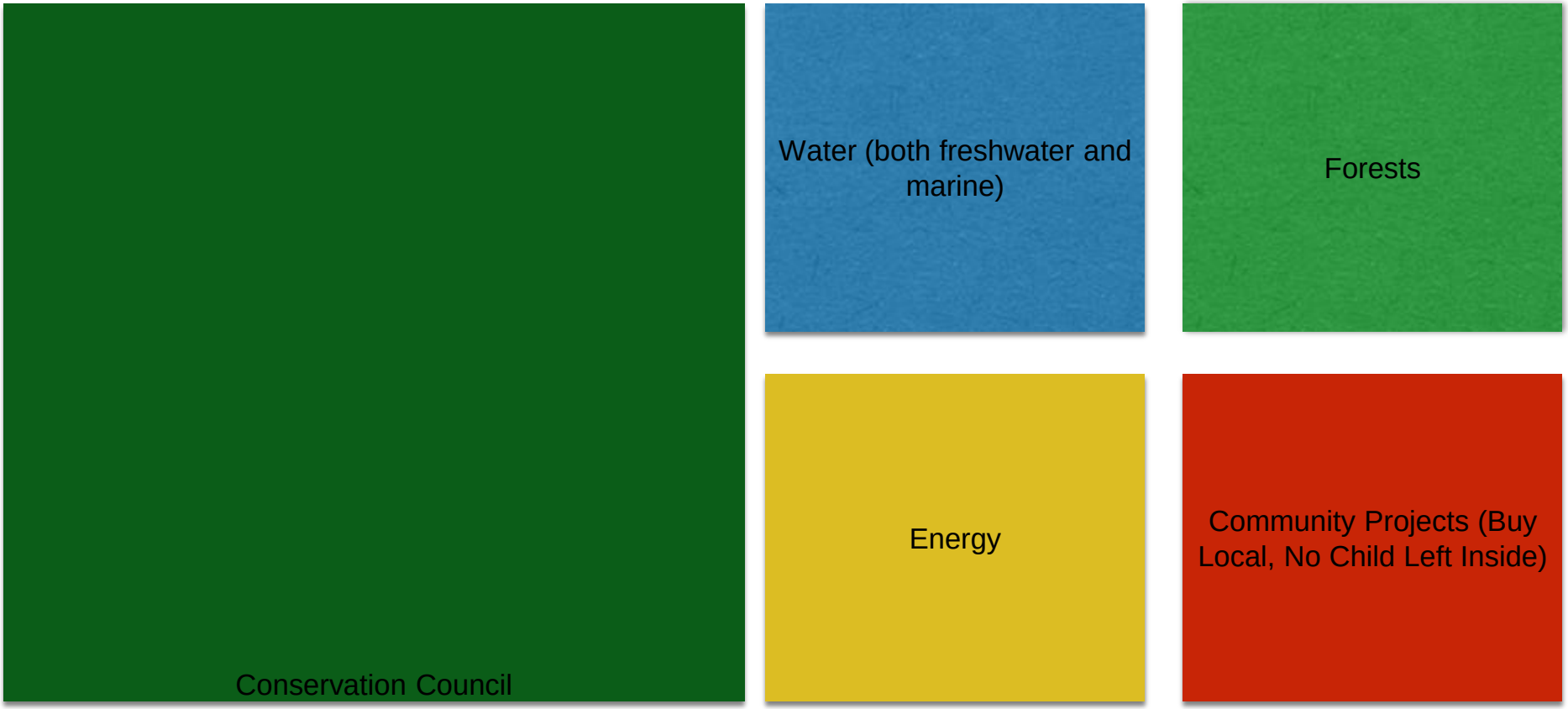
Conservation Council *of* New Brunswick
Conseil de conservation *du* Nouveau-Brunswick

www.conservationcouncil.ca

Who We Are

- Lois Corbett, Executive Director, Conservation Council
- Louise Comeau, Director Climate Change and Energy Solutions
- We each have worked on climate change internationally, federally, provincially, and municipally for more than 25 years.
- Our work covers education (formal and informal), research, and policy and program solutions.

Conservation Council Programs at a Glance



Climate Change Underlies All of Our Campaigns

Protecting Nature and its Qualities Underlies All of Our Campaigns

Helping to Build a Green Economy Underlies All of Our Campaigns

Today's presentation will...

- Summarize Key Messages
- Set the context for our proposed 3-part Climate Action Plan
- Share results of a new survey on New Brunswickers' perspectives on climate change and energy
- Review Main Messages
- Conclusion/Questions

Overview Main Messages

1. Solving Climate Change requires system-wide, comprehensive solutions. We must:
   - Transform the energy system
   - Do more to support sustainable forestry and agriculture
   - Pursue deep reductions in greenhouse gases over the next decade

2. Climate Change Investments can generate clean economy jobs

3. Electricity is a big part of the solution. We need to:
   - Aim for 100% renewable
   - Phase coal out of electricity production
   - Use more electricity in transportation and industrial processes

Survey Shows New Brunswickers Believe

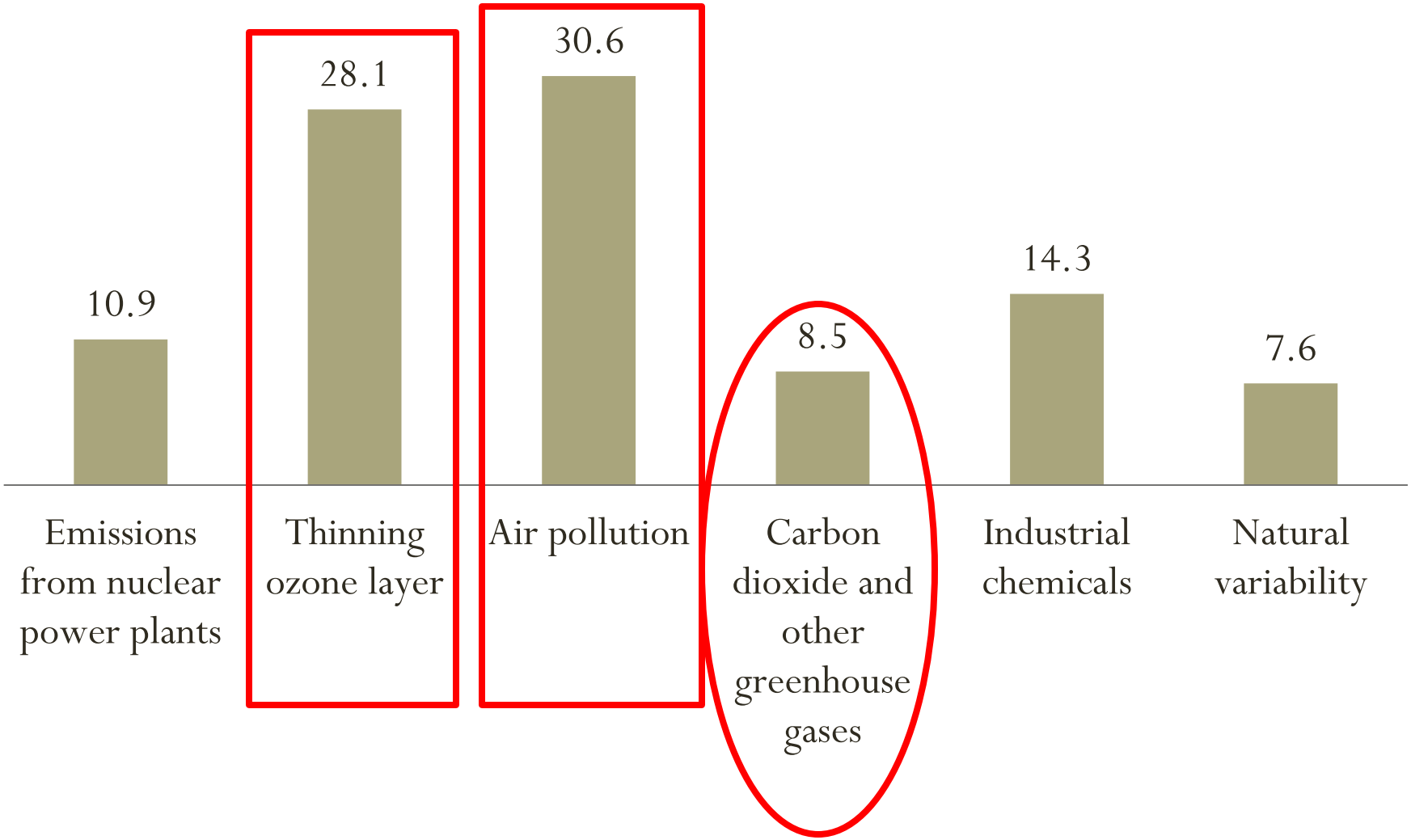
- 2015 survey* shows:
  1. Earth is getting warmer: 75% said yes; 3% less than the national average

  2. Earth is getting warmer partly or mostly because of human activities: 56% said yes; 6% less than the national average

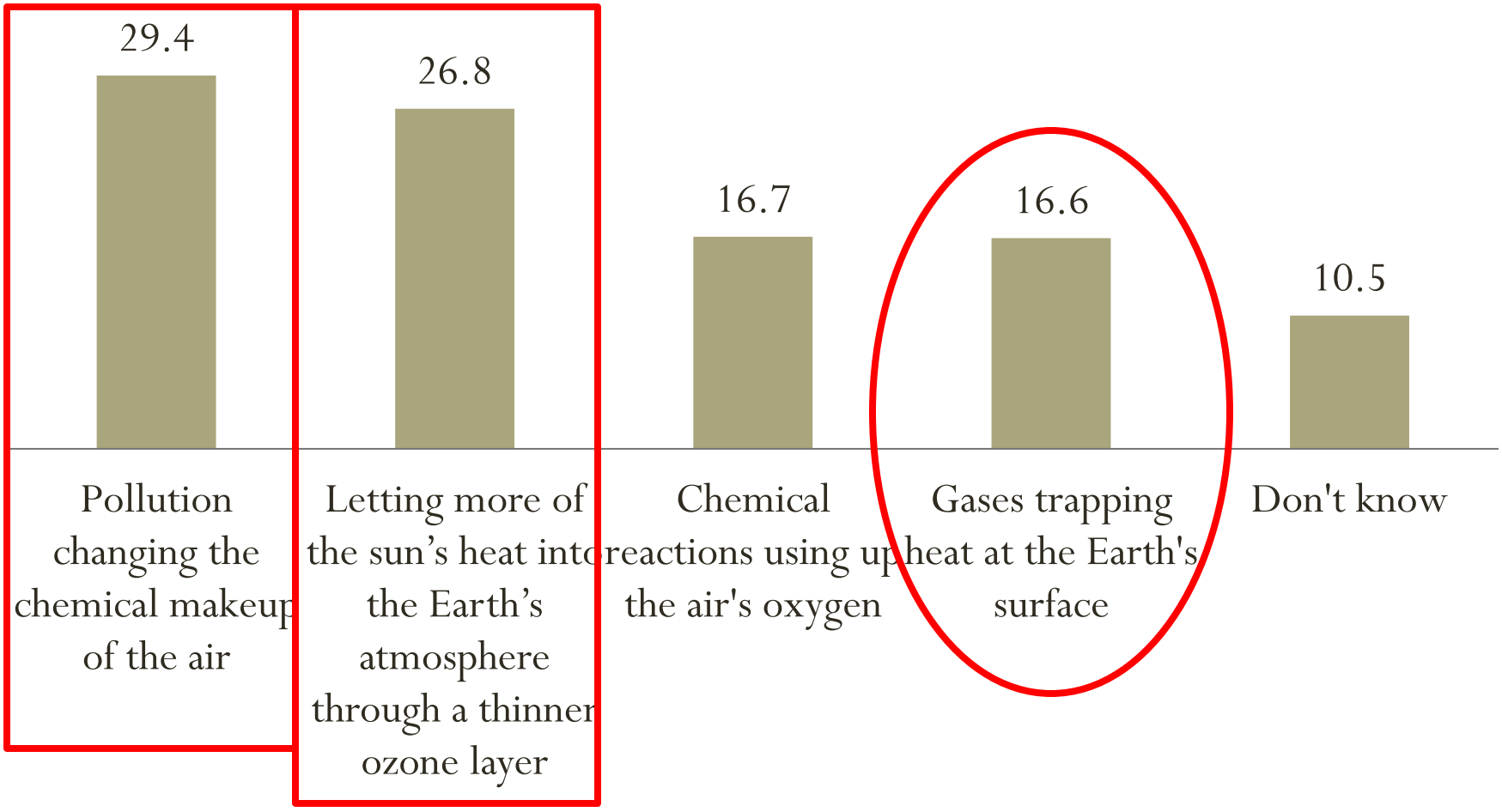
  3. Earth is getting warmer mostly because of human activities: 42%; 3% less than the national average

*Lachapelle, E., Nadeau, R., Geurtin-Armstrong, S., Martin, P., Beaumier, L., & Anjos, M. F. (2015). *Feeling the heat? The paradox of public opinion in Canada: Toward a new research agenda*. Montreal: Universite de Montreal, Institut l'energie Trottier. http://environment.yale.edu/ycom/canada/2016/map/ ; Conservation Council 1000 person random telephone survey July 2016

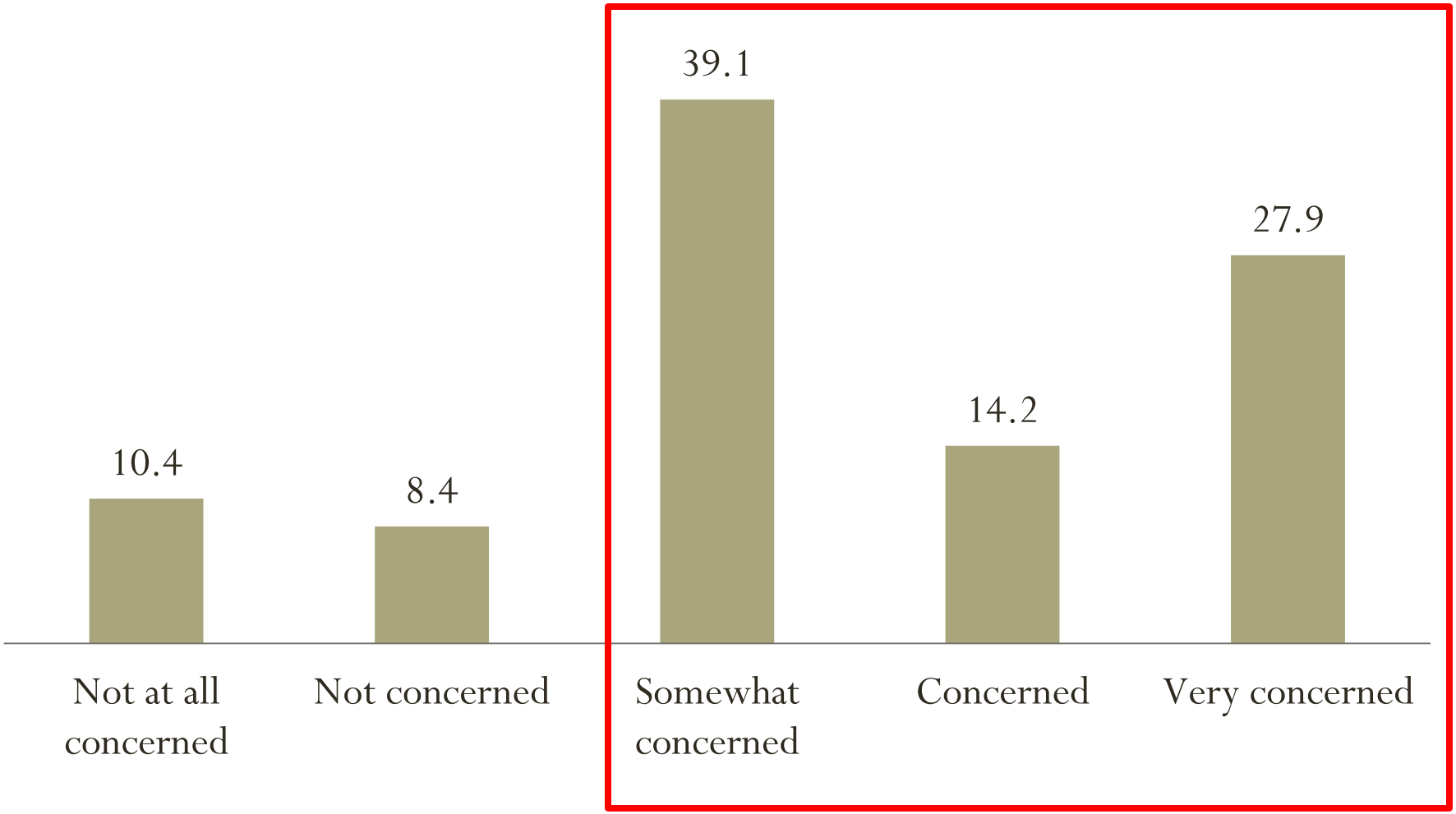
New Brunswick 2016:
Climate change is caused by...?



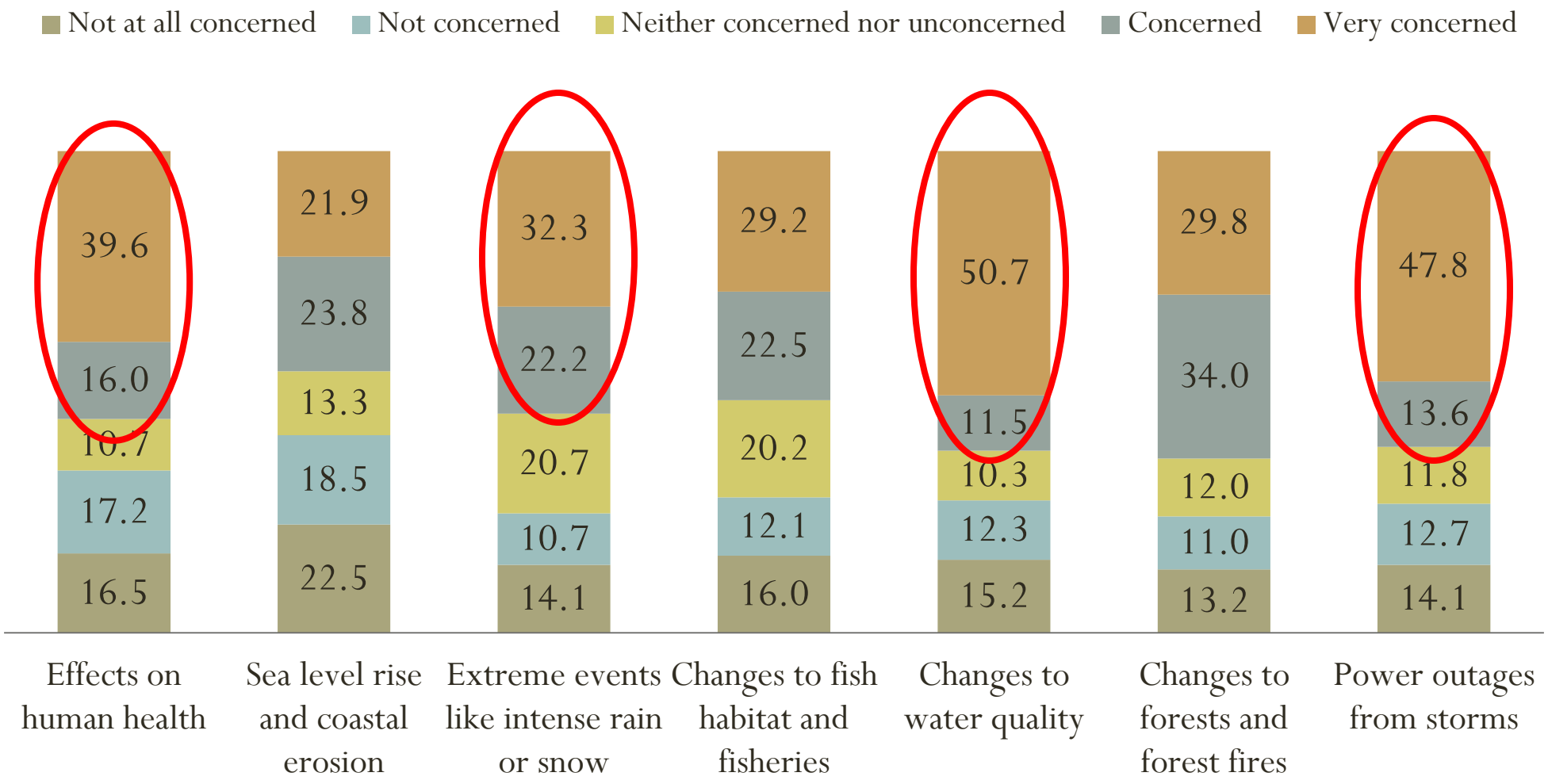
New Brunswick 2016: The main process behind climate change is...?



New Brunswick 2016: How concerned are you about climate change?



New Brunswick 2016: From what you know about the effects of climate change, would you say...



Connecting the Research Dots

- Making the link between human-caused climate change and the potential for lowering climate change risk are important to increasing support for climate change policies. *

- Climate Change science is unequivocal: to say climate change is human-caused is to speak to the facts.

*Hornsey, M. J., Harris, E. A., Bain, P. G., & Fielding, K. S. (2016). Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change, 2493*, 5. Retrieved from http://www.nature.com/articles/nclimate2943.epdf?

Climate Change is Human Caused

"Anthropogenic greenhouse gas emissions have increased since the pre-industrial era, driven **largely by economic and population growth**, and are now higher than ever. This has led to atmospheric concentrations of carbon dioxide, methane and nitrous oxide that are unprecedented in at least the last 800,000 years. Their effects, together with those of other **anthropogenic drivers,** have been detected throughout the climate system and are ***extremely likely (95 to 100%)*** **to have been the dominant cause of the observed warming since the mid-20th century" (**Intergovernmental Panel on Climate Change, Core Writing Team, Pachaur, & Meyer, 2014, p. 3**).**

System-wide, Comprehensive Solutions

- About 90% of New Brunswick's greenhouse gas emissions come from using coal, oil and gas energy in every sector of the economy: electricity, industry, buildings, agriculture and forestry.

- Other greenhouse gases cannot be ignored: methane from wastewater and landfills, nitrous oxide from fertilizers in agriculture and forestry, and carbon dioxide from land changes weakening the capacity to absorb and hold carbon.

System-wide means regional co-operation; regional targets, as well as provincial actions

- New Brunswick targets are regional. New England Governors and Eastern Premiers agreed to cut greenhouse gas emissions:
  - 35 to 45% below 1990 by 2030
  - 75% to 85% below 2001 by 2050
    - For 2030, we should aim for an average reduction of 6.5 million tonnes
    - For 2050 our annual inventory should be no higher than about 4 million tonnes, compared to 15 million tonnes today (emissions were 22Mt in 2001)

- New Brunswick' is falling behind our regional partners

Eastern U.S. is Ahead on coal phase-out

Jurisdiction	Coal-fired Electricity Generation
	Millions of Watts (MW)
New Brunswick	450 MW closing 2043
Nova Scotia	1253 MW closing 2019 to 2044
Prince Edward Island	None
Newfoundland/Labrador	None
New York	1300 MW phase out by 2020
Massachusetts	1505 MW closing May 2017
Rhode Island	None
Vermont	None
Maine	165.5 MW at paper mills
Connecticut	***400 MW Combined Cycle
Delaware	1082 MW converting to gas
New Hampshire	539 MW, some wood chips
Maryland	4333 MW, 1/3 retiring 2020

Eastern U.S. is Ahead on Renewables

Jurisdiction	Renewable Portfolio Standards
	% of Total Supply
New Brunswick	40%: 2020, large hydro, imports
Nova Scotia	40%: 2020, large hydro, imports
Prince Edward Island	30% wind, under review
Newfoundland/Labrador	None, small biogas, net metering
New York	50%: 2030, no large hydro
Massachusetts	11% 2016; up 1% /year, no large hydro
Rhode Island	38.5%: 2035, no large hydro
Vermont	55%: 2017, 75% 2032, no large hydro
Maine	10%: 2017; 8,000 MW wind 2030
Connecticut	27%: 2020, no large hydro
Delaware	25%: 2025, no large hydro
New Hampshire	24.8%: 2025, no large hydro
Maryland	20%: 2022 no large hydro

Eastern U.S. is Ahead on Energy Efficiency

Jurisdiction	Energy Efficiency
	% of Annual Sales
New Brunswick	.4 to .6% to 2018
Nova Scotia	1.3 to 1.5%, last 4 years
Prince Edward Island	.65% to 2020, under review
Newfoundland/Labrador	Programs, no target
New York	1.3% to 2030 in buildings
Massachusetts	2.94% to 2.95 2016 to 2018
Rhode Island	2.5% to 2.6% 2015 to 2017
Vermont	2.5% 2015 to 2017
Maine	2.2% 2015 to 2017
Connecticut	1.5% by 2018
Delaware	Voluntary, 2% potential
New Hampshire	Voluntary .98% potential
Maryland	2% by 2020

Climate Change Investments Create Jobs

- Since 2004, NY State's current Renewable Portfolio Standard (RPS) program has enabled developers to build nearly 1,900 MW of clean power.

- This has driven more than $2.6 billion in direct investment in New York's economy over the lifetime of these facilities and has **created more than 650 new jobs each year, with statewide benefits exceeding costs by a 5:1 ratio.**

We Have to Invest to Win

- A 2015 report from the United Nations Industrial Development Organization and the Global Green Growth Institute concludes that:

> ***…countries that sustain a 1.5 percent of GDP level of annual investments in energy efficiency and clean renewables … will generate more jobs for a given amount of spending than maintaining or expanding each country's existing fossil fuel sectors.***

- **New Brunswick should be investing $500 million annually to fuel the energy revolution**

http://www.unido.org/fileadmin/user_media_upgrade/Resources/Policy_advice/GLOBAL_GREEN_GROWTH_REPORT_vol1_final.pdf;
https://en.wikipedia.org/wiki/List_of_Canadian_provinces_and_territories_by_gross_domestic_product

Renewable Energy Costs are Falling

- Clean Energy Canada's 2016 Tracking the Energy Revolution report reports that globally, in 2015 there was:
  - $161 billion invested in solar energy and $110 billion in wind.

- The cost of solar power declined 82%; wind power by 61% since 2009.

- Canada invested $4 billion in 2015; New Brunswick will spend $130 million on wind, biomass, community renewables in 2016-2017.

http://cleanenergycanada.org/work/tracking-the-energy-revolution-global-2016/

The Potential for Job Creation is High

- Every $1 spent on energy efficiency programs generates between $4 and $8 of GDP.
- Every $1 million invested in energy efficiency programs creates between 30 and 57 job years (one job for one year).
- Clean energy comparisons are 15 jobs per $1 million invested.
- If New Brunswick invests 1.5% of GDP, or $500 million, that could generate thousands of efficiency and clean energy job years.

*Based on 2012 Energy Northeast/NRCan study: Energy Efficiency: Engine of Economic Growth in Eastern Canada).

Where Will the Money Come From?

- Sign a Memorandum of Understanding with the Government of Canada.
- Negotiate funding from a combination of the Low Carbon Economy Fund ($2 billion in 2016 federal Budget) and infrastructure programs to finance incremental greenhouse gas reductions like phasing coal out of electricity production.
- Set a provincial carbon price. Options include any combination of: raising the excise tax on fuels; carbon tax, cap and trade, output intensity standards and credit trading, and renewable energy credits trading.
- Aim for $500 million annually, or 1.5% of GDP.

http://www.unido.org/fileadmin/user_media_upgrade/Resources/Policy_advice/GLOBAL_GREEN_GROWTH_REPORT_vol1_final.pdf

Think Lower Energy Bills Not Low Rates

- The argument against carbon pricing is that it will raise costs to consumers and businesses.

- The opposite can be true: higher rates can mean lower bills because they encourage us to be more efficient and cut waste.

- We need a provincial Energy Vision that aims for Lower Bills, not Low Rates through energy efficiency and conservation:
  - German households pay an average monthly electricity bill of $96.36, at a rate of 33.88 cents a kilowatt-hour and usage of 284.42 kilowatts.
  - U.S. households, on the other hand, pay an average of $111.95 a month, at a rate of 11.88 cents per kilowatt-hour and usage of 942.33 kilowatts.

Complicated, but Higher Rates Can Mean Lower Bills

Jurisdiction	Average Retail Electricity Rate	Monthly Electricity Cost
	Excluding taxes	*1,000 kWh for Canadians sources*
	CAD c/kWh	*CAD Average Monthly Price in US*
Moncton, NB	12.30	$156.17
Halifax, NS	16.03	$160.30
Charlottetown, PEI	15.62	$122.98
St. John's, NFLD	11.55	$115.53
New York	21.08	$149.17
Massachusetts	19.91	$149.17
Rhode Island	19.99	$138.79
Vermont	18.90	$155.61
Maine	16.41	$138.79
Connecticut	22.12	$201.05
Delaware	14.85	$197.16
New Hampshire	19.74	$164.73
Maryland	15.69	$188.08

Conservation Council Proposes 3-Part Climate Action Plan for New Brunswick

- We propose a Comprehensive, Sensible and Fair Climate Plan

- Three parts:
  - Electricity
  - Provincial investments
  - Government policy

- 6.5 million tonnes of reduction potential:
  - Almost 40% of the reductions come from phasing coal out of electricity production

Electricity is a Big Part of the Solution

- A new, modern energy system will use more electricity in:
  - Transportation: electric vehicles
  - Industry: manufacturing and industrial processes

- We need an electricity mandate to:
  - Pursue all cost effective energy efficiency
  - Maximize penetration of renewable energy
  - Phase out fossil fuels, especially coal, for electricity generation

Electricity: Set Ambitious Stretch Targets

- Solar: 200,000 kilowatts (kW) of cumulative installed commercial and residential solar power by 2025 (100,000 kW each for residential and commercial, grid connected and off-grid).

- Transportation: 10,000 electric vehicles on the road by 2020-2025, with the number of electric car sales increasing each year so that by 2030 there would be 140,000 to 150,000 electric vehicles on the road.

Provincial Investments: Transparent Use of Federal Funding and Carbon Pricing Funds

- Demonstrate to New Brunswickers that Government is using federal funding and carbon pricing revenue (from excise tax on fuels and/or allowances) for tax incentives, grants, loan guarantees, training, education, and research to generate emissions reductions from buildings, transportation, industry, waste, agriculture, and forestry.

- Allow trading and other flexibility for export sensitive industries.

Government Policy: Revenue Recycling

- A Climate Action Act should require carbon pricing revenue to be invested in low-or-zero emitting investments just as Ontario and Québec have done.

- Revenue could be placed in a Green Fund (we could use the Province's Environmental Trust Fund) as Québec has done, or legislation could establish investment requirement categories or seed a Green Investment Bank as Ontario has done.

Government Policy: We Need Laws

- Pass a Climate Action Act to:
  - Set a target of 35 to 45% below 1990 levels by 2030 in law.
  - Establish mechanisms for carbon pricing, reforming Energy Utilities Board to pursue cost-effective efficiency, and industry and efficiency improvement targets, as well as regulation to coal phase-out from electricity.
  - Change reporting requirements to 10,000 tonnes from 25,000 tonnes of greenhouse gas emissions per year in line with legislated requirements in Ontario, Québec and British Columbia.

Government Policy: Infrastructure/Procurement

- Require lifecycle assessment of all infrastructure projects and pursue low-carbon options.
- Require climate change impact assessment and adaptation in all infrastructure investments.
- Include water conservation requirements in all investments in water and wastewater treatment facilities to save energy and to reduce emissions, including methane.
- Add low-carbon requirements to all government procurement.

Government Policy: Energy Code for Buildings

- Adopt the 2015 Energy Code for Buildings and commit to adopting the Code in the year it is released nationally
  - Train inspectors to ensure adequate enforcement.
  - The Code can:
    - Meet net zero energy standards for new construction by 2025.
    - Require electric vehicle charging infrastructure and solar readiness
    - Establish performance-based standard for retrofits, triggered by major renovation.

Government Policy: Municipalities Act

- Ensure new Municipalities Act is based on smart community land-use planning requirements

- Assess the potential of Property Assessed Clean Energy (PACE) financing to help home and business owners who are reluctant to invest in energy upgrades due to a lack of available capital.
  - PACE uses property taxes as a repayment vehicle for financing energy improvements from public or private third party capital pools. The property tax assessment placed on the property for the term of the PACE contract stays with the property until it is repaid.
    - http://www.pacenation.us/

Government Policy: Education, Retraining

- Ensure provincial curriculum develops climate change and energy literacy

- Invest in worker retraining: trades, including general contracting, electrical engineering, renewable energy technicians, software engineers (for Smart Grid and other electricity-related innovations).

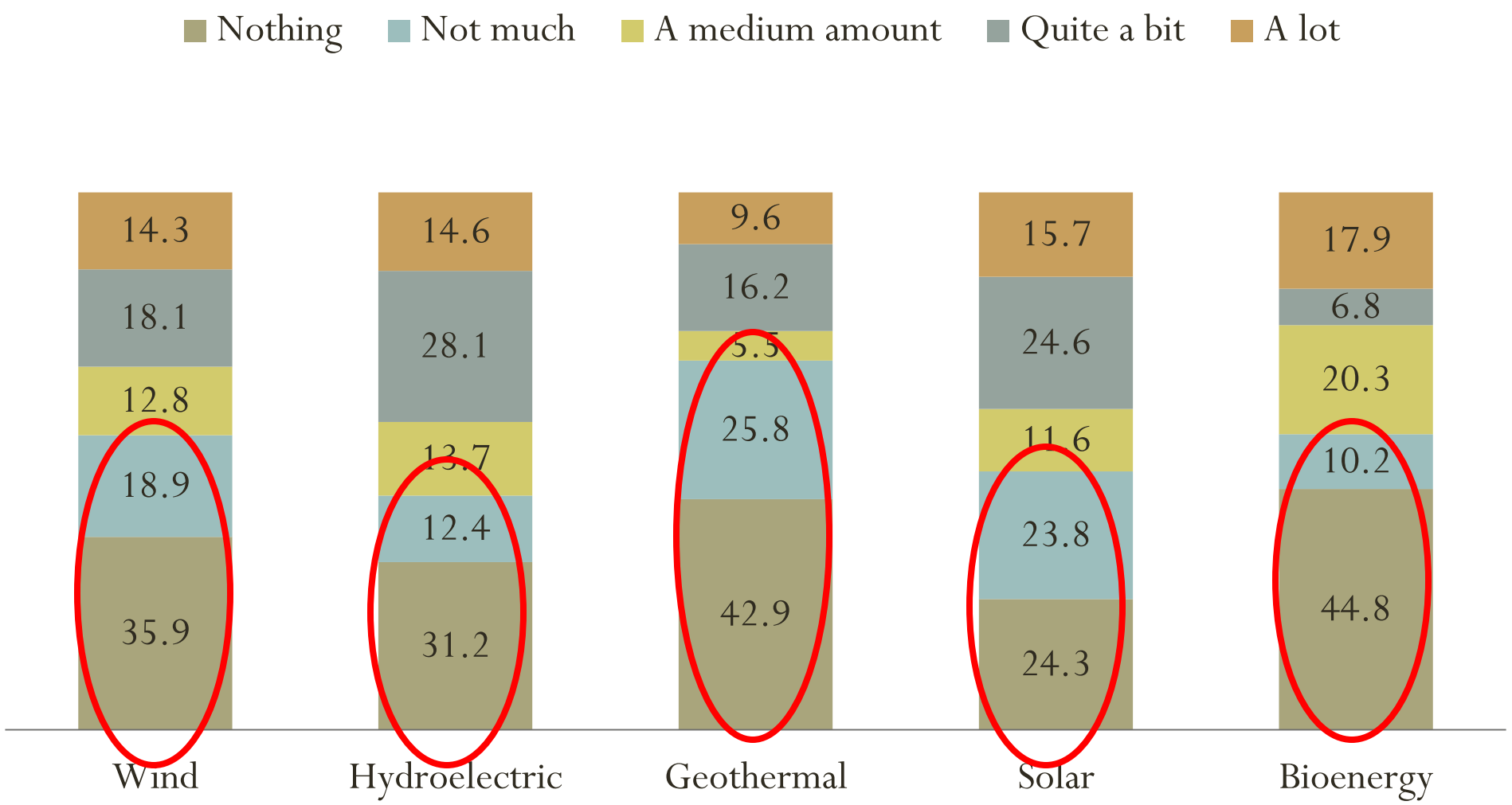
- A just transition for workers should be a priority with displaced energy and electricity sector workers the first in line for training and work in low-carbon economy jobs, including in the clean electricity sector.

Climate Change Communications
Energy Literacy
What Does Research Tell Us About How to Talk about Climate Change Solutions

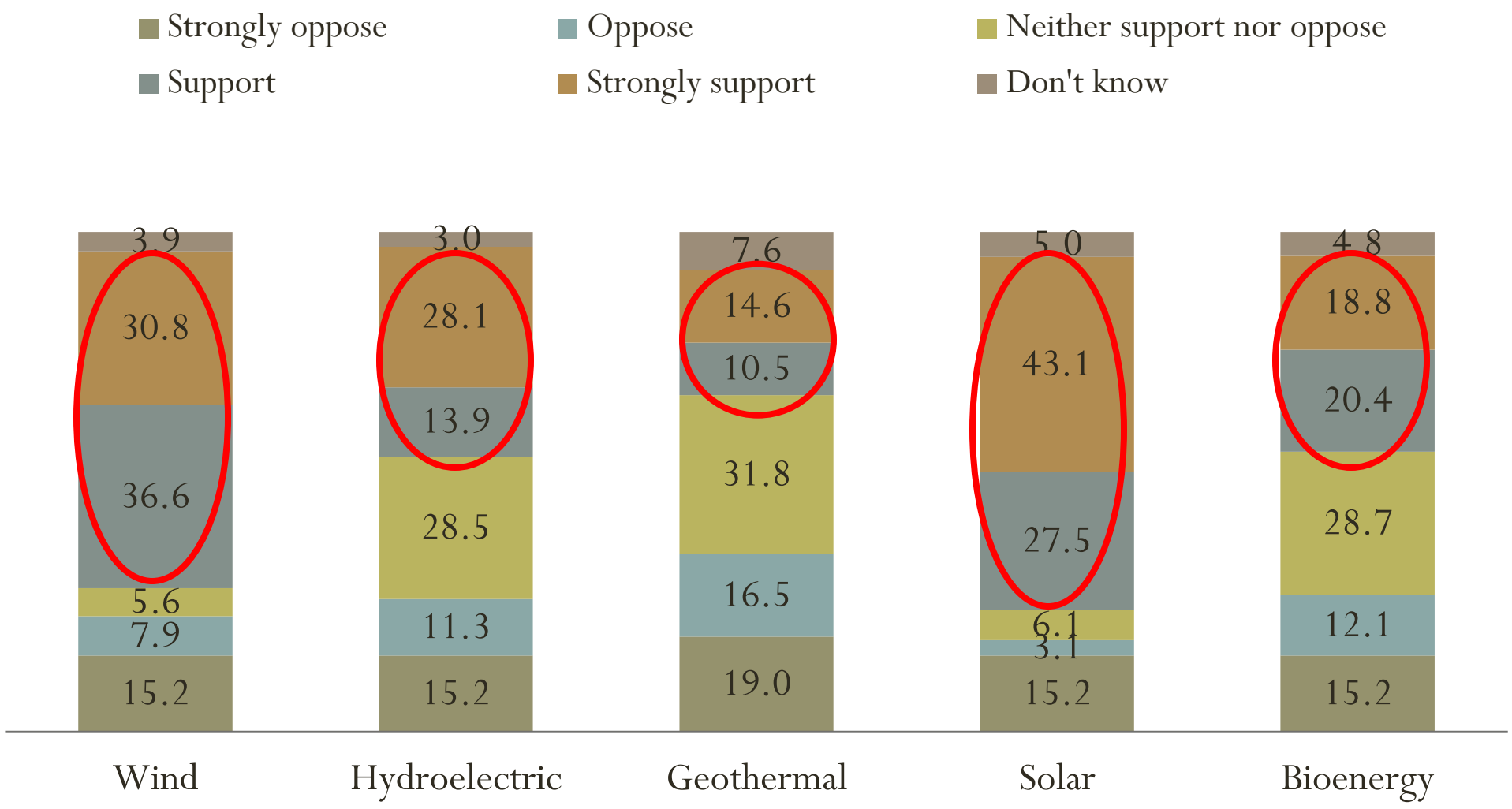
What Do New Brunswickers Think About Carbon Pricing?

- 2015 University of Montreal survey found:
  - 71% Support cap and trade; 5% more than the national average
  - 46% support increasing taxes on carbon-based fuels; 4% less than the national average

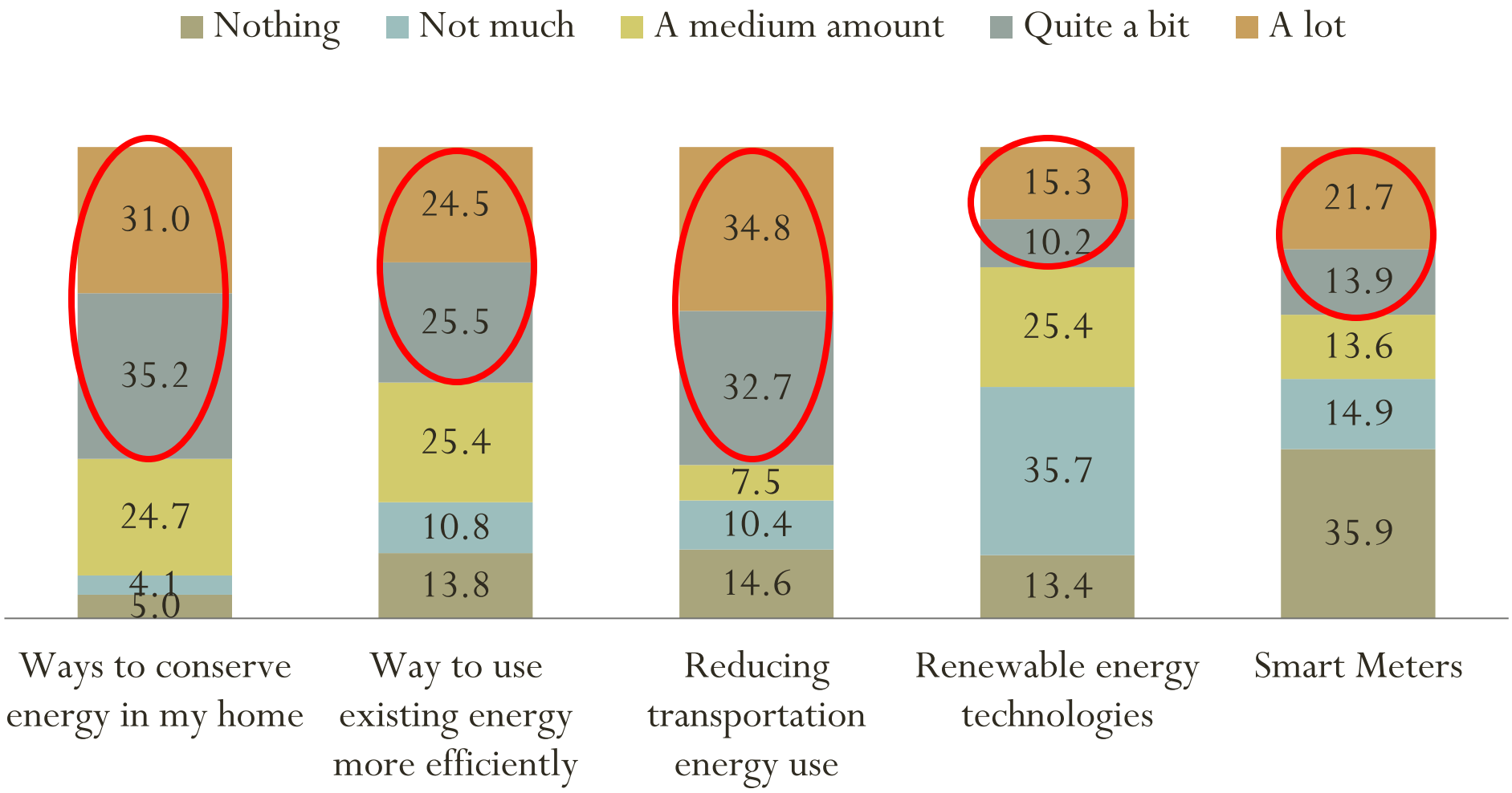
New Brunswick 2016: How much do you believe you know about energy sources in Canada?



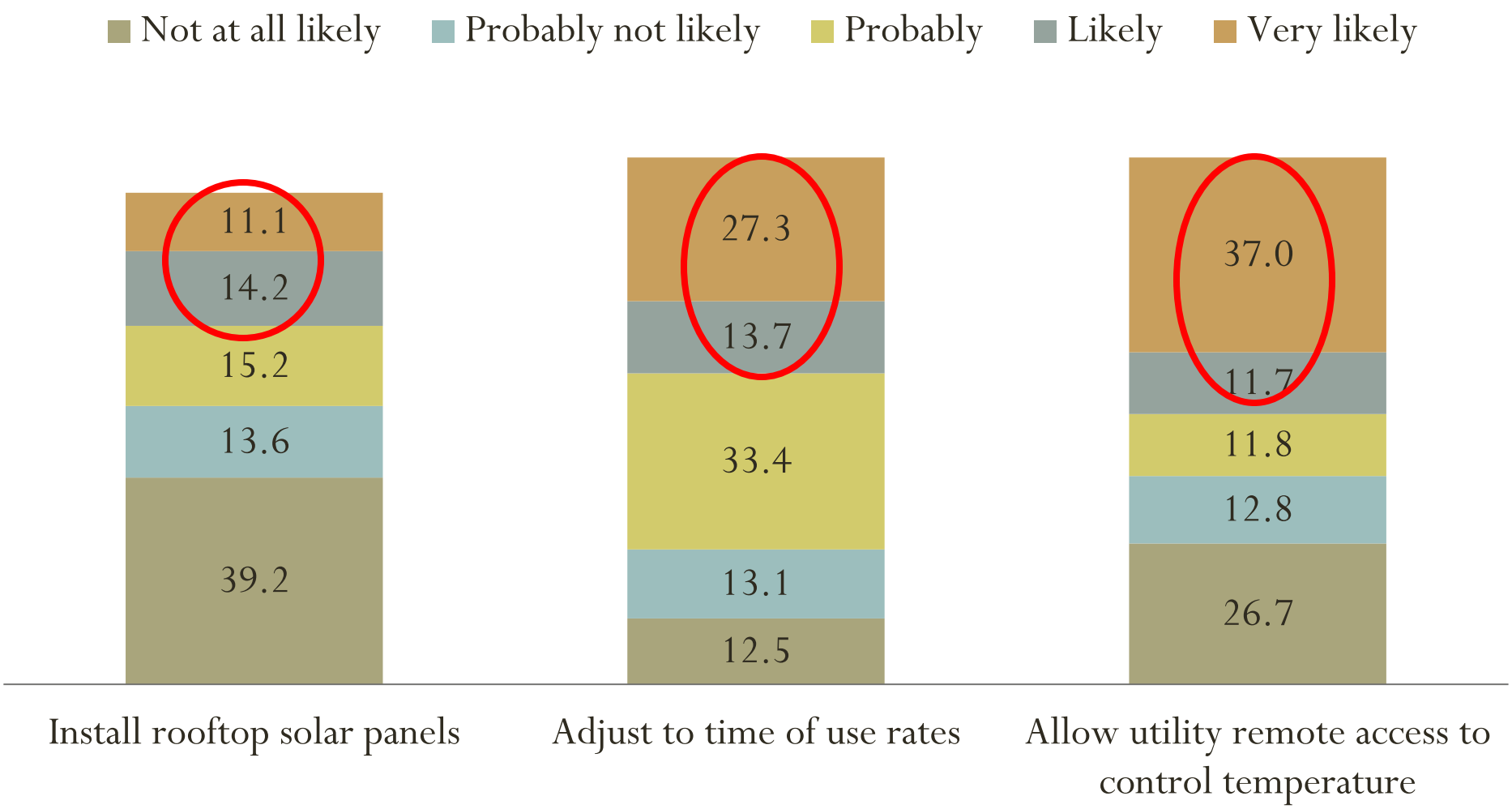
New Brunswick 2016: To what extent do you support or oppose further development of…



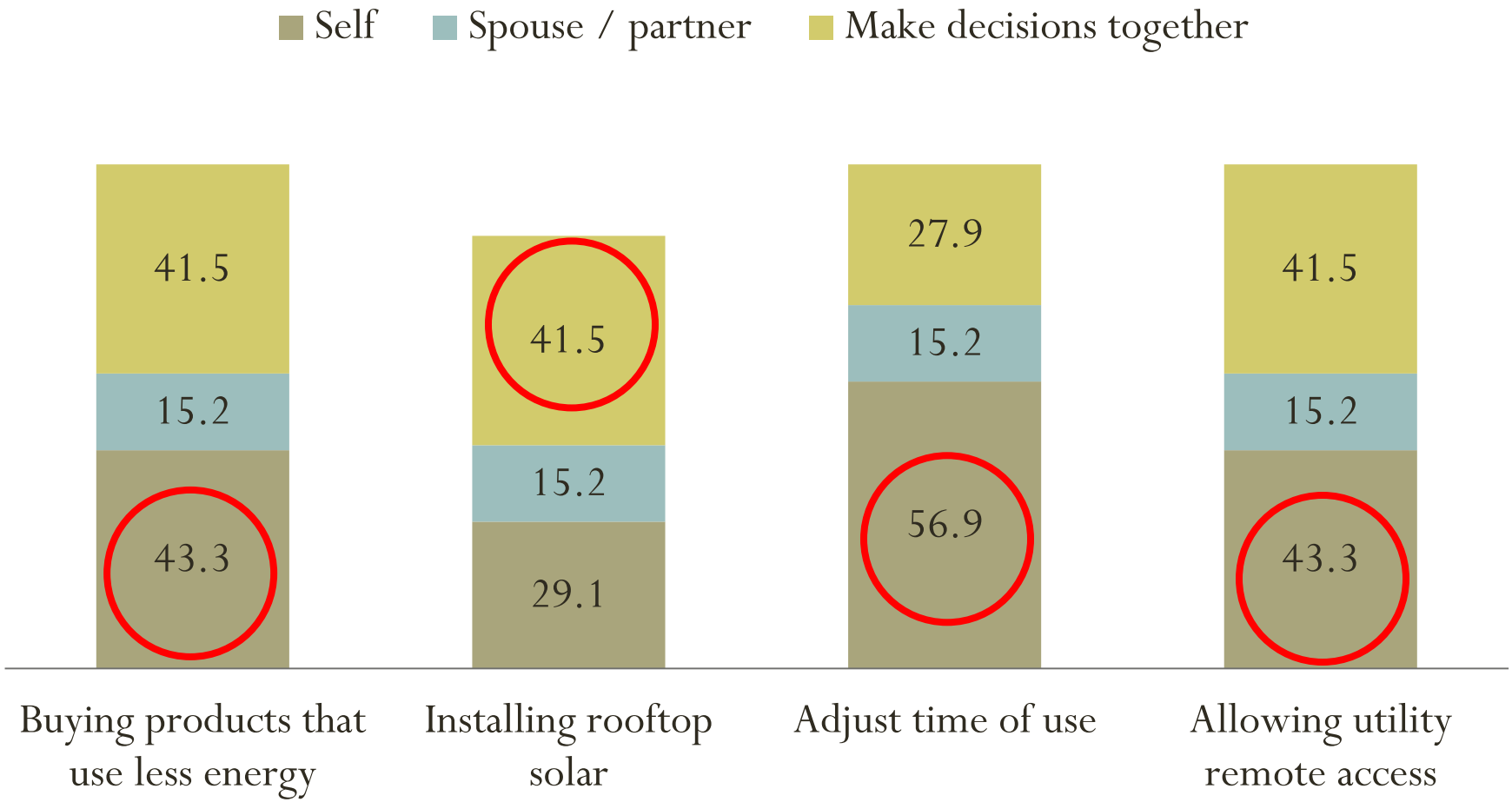
New Brunswick 2016: How much do you know about home and transportation energy use options?



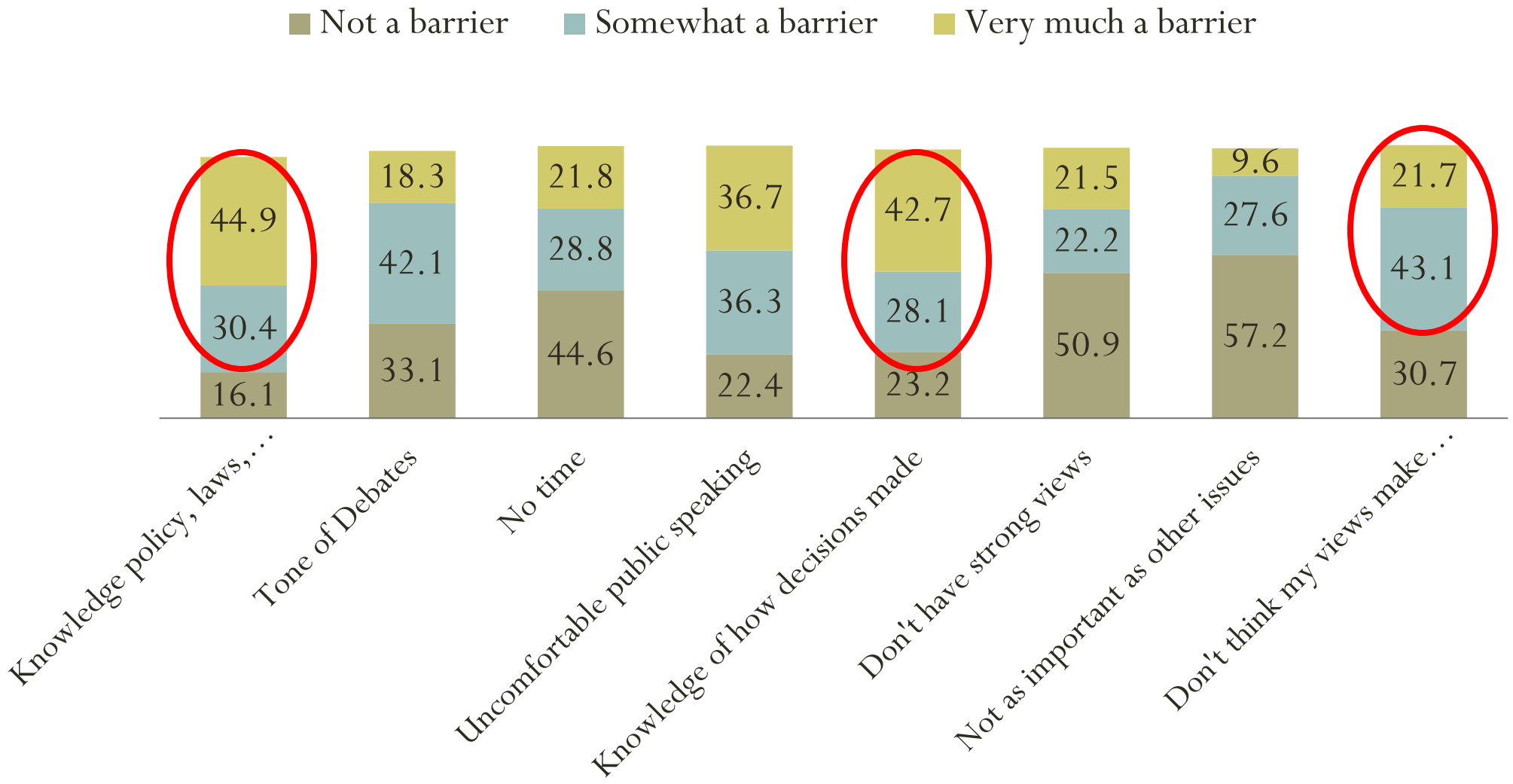
New Brunswick 2016: What is the likelihood you would over the next three years…?



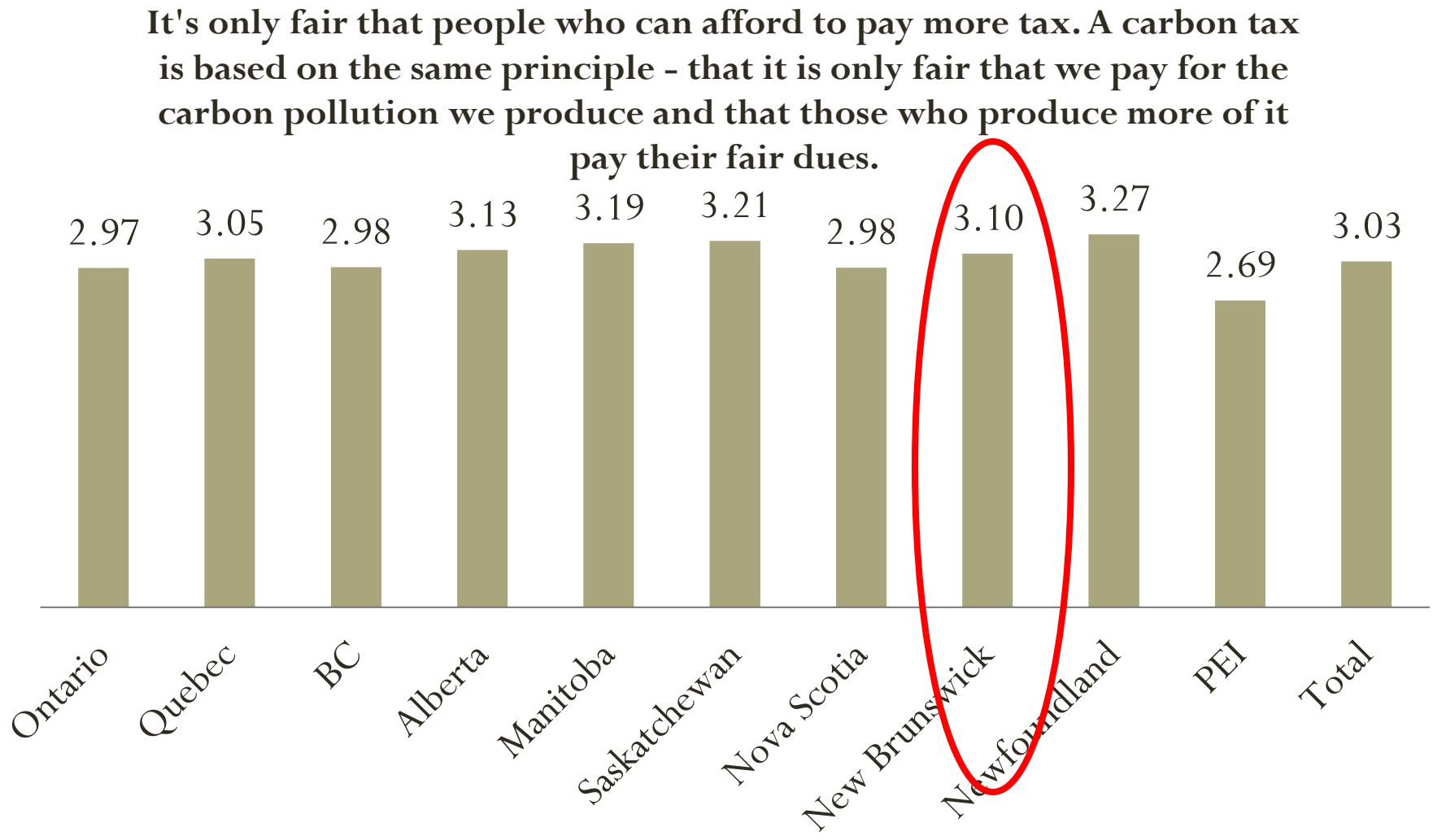
New Brunswick 2016: Who most influences energy-related decisions?



New Brunswick 2016: Barriers to you participating in energy discussions?

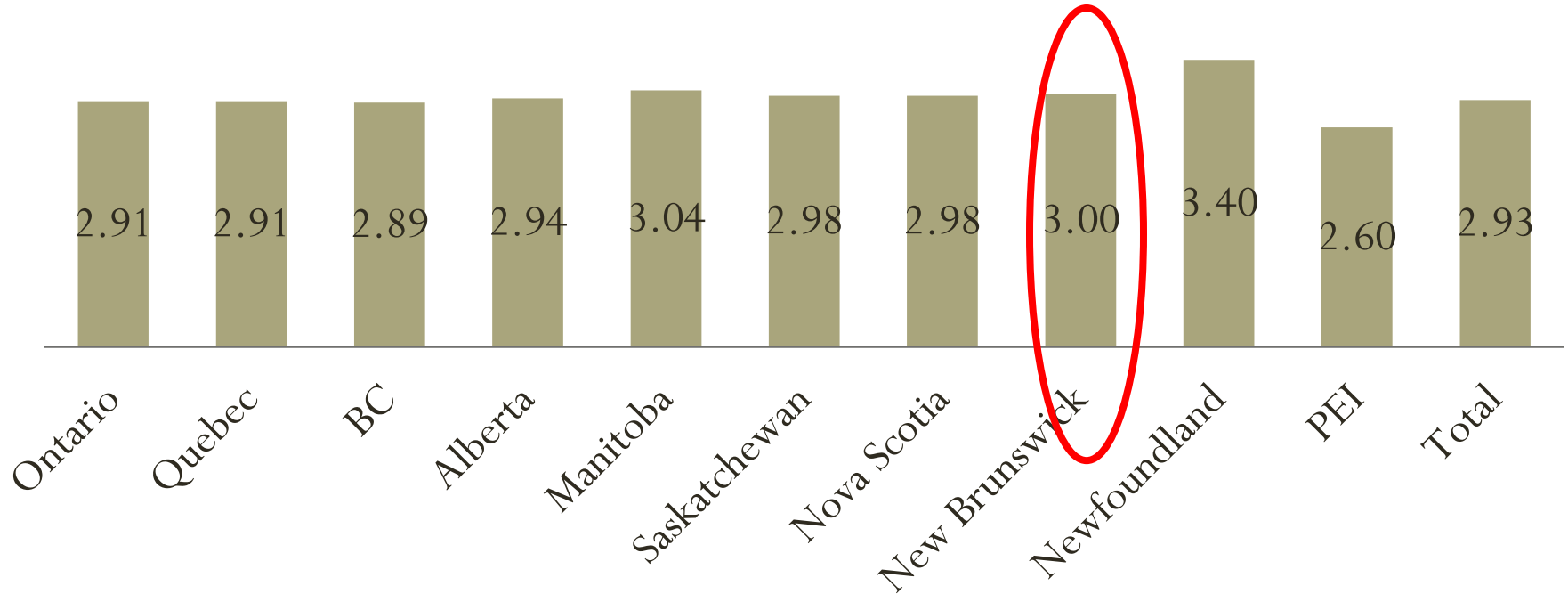


Carbon Pricing Talk: Fair/Polluter Pay



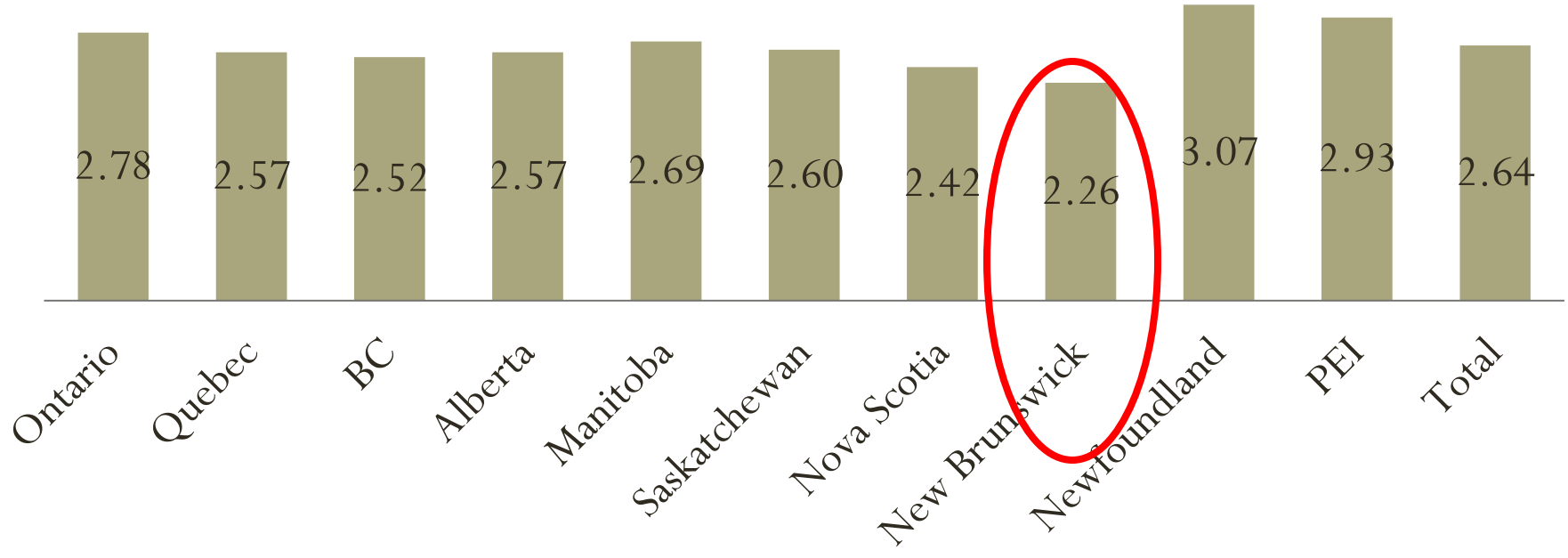
Carbon Pricing Talk: Common Sense

A carbon tax is honest and efficient: the more you pollute, the more you pay. It's as simple as that. It's an old-fashioned, straightforward solution with the minimum of red tape or interference. Because it works through the existing tax system...



Carbon Pricing Talk: Balance/Economy

Carbon pricing strikes the right balance. It allows us do what's right for the environment and encourages us to shift to cleaner and healthier renewable energy. Renewable energy means renewing manufacturing and revitalizing careers…



Next Steps

- Conservation Council will conduct focus groups to better understand they "Why" behind these survey results.
- With a deeper understanding of New Brunswickers perspectives and needs we will develop educational, communication and engagement materials aimed at increasing climate change and energy literacy as well as confidence in engaging in energy efficiency and renewable energy, especially solar, programs.
- We also are researching the capacity of communities like Fredericton and Keswick Ridge to adapt to extreme events like post-tropical storm Arthur.
- We will continue to share what we learn through our research into climate change solutions and adaptation.

Summary of Main Messages

1. Solving Climate Change requires system-wide, comprehensive solutions.

We must:

- Transform the energy system
- Do more to support sustainable forestry and agriculture
- Pursue deep reductions in greenhouse gases over the next decade

2. Climate Change Investments can generate clean economy jobs

3. Electricity is a big part of the solution. We need to:

- Aim for 100% renewable
- Phase coal out of electricity production
- Use more electricity in transportation and industrial processes

Take Home Message: Conclusion

- There is a strong scientific consensus that the climate is becoming unbalanced mostly because of human activity. We need policies and programs that are fair and cut waste by making polluters use clean energy and practice more sustainable agriculture and forestry. If we act together, we can limit the risks to our health and communities from a more extreme climate and help each other thrive.

Questions and Contact

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http://www.conservationcouncil.ca/our-programs/climate-and-energy/