Appendix A – Supporting Materials

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1 Introduction

This appendix includes supporting engagement materials from the development of the 2023 Integrated Resource Plan.

2 Round One – Initial Conversation

This section provides an overview of supporting materials from Round 1 engagement of the 2023 Integrated Resource Plan including:

- 2.1 - Customer Survey #1 – Copy of Survey
- 2.2 - Customer Survey #1 – Survey Analysis Summary

2.1 Round One Customer Survey – Copy of Survey

Introduction:

Thanks for sharing your thoughts on the decisions that will shape tomorrow's Manitoba Hydro.

The following 15-minute survey asks some important questions about your electricity and natural gas needs.

Your answers will help us prepare for the development of an Integrated Resource Plan - a long-term roadmap - to guide the actions and decisions needed to meet our customers' needs well into the future.

A summary of the survey results will be shared at hydro.mb.ca/future.

To stay informed of progress and be updated as next steps are planned, please sign up for regular updates at the end of the survey.

All responses will remain confidential. If you have any questions or concerns about this survey let us know. If you have questions about your service from Manitoba Hydro visit our Contact Us page.

Starting off...

1. Are you over 18 years old?
   a. No
      i. At this time, only individuals older than 18 years can participate. Thank you for your interest in the survey and please visit us at hydro.mb.ca/future for more information about integrated resource planning.
   b. Yes - (Survey continues)

2. Are you responding as a:
   a. Residential customer
   b. A customer working or living on a farm

c. Commercial customer
d. Industrial customer
e. Other (please specify): _____

3. **Please enter the first three characters of your postal code.**

Meeting Manitoba Hydro Customers' Future Energy Requirements

Manitoba Hydro must prepare for the future by understanding the future use of natural gas and electricity, including how they are produced and delivered.

There are many options to serve your future energy needs. For example: natural gas, hydro power, wind farms, natural gas-fired electrical plants, renewable natural gas, biomass (e.g. wood, agricultural waste, etc.), solar farms, nuclear (small modular reactors), energy purchases from outside Manitoba, conservation and efficiency measures to reduce or change energy usage, and others.

The future also includes how our energy landscape is changing with the introduction of things like climate change, electric vehicles, and more digital equipment.

4. **When planning to meet your future electricity and natural gas needs, there are many factors to consider. What factors are important to you? Please select all that apply:**
   a. Electricity and natural gas rates
   b. Reliability of your energy (minimize outages, power quality events)
   c. Environmental impacts (such as to land, water, air quality, wildlife)
   d. Social responsibility to the people, stakeholders, and organizations
   e. Reducing your emissions
   f. Other (please describe): _____

Your Future Energy Choices

The choices you make as a customer now and in the future impact how Manitoba Hydro plans for the future supply and delivery of electricity and natural gas to our customers.

5. **Do you currently use natural gas (such as for space or water heating, cooking, processing)?**

   a. No
   b. Yes
      i. Are you thinking of changing some or all of your appliances to electric supply instead?
         1. No
         2. Maybe, but it depends

            a. Can you describe the factors why you answered 'maybe' to making a change from natural gas to electric supply?

         3. Yes

a. Please indicate when you will make the change from natural gas to electric supply:
   i. Less than 1 year
   ii. 1 to 2 years
   iii. 2-5 years
   iv. 5-10 years
   v. 10+ years

6. Are you thinking of generating your own energy (through solar, wind, methane or other means)?
   a. No
   b. Maybe, but it depends
      i. Can you describe the factors why you answered 'maybe' to thinking of generating your own energy?
   c. Yes
      a. Please indicate when you plan on generating your own energy:
         1. Less than 1 year
         2. 1 to 2 years
         3. 2-5 years
         4. 5-10 years
         5. 10+ years

Electric Vehicles

Electric vehicles will impact Manitoba Hydro's electricity supply and delivery systems. We would like to hear more about your thoughts and plans for electric vehicles.

7. Do you currently own or lease an electric vehicle?
   a. No
   b. Yes

8. Are you thinking of buying or leasing an electric vehicle, either to add or replace your current vehicle(s) (personal or fleet)?
   a. No
      i. Can you please indicate why you will not be buying or leasing an electric vehicle (personal or fleet)?
         1. I do not need or want a vehicle
         2. I do not have an interest in changing to an electric vehicle
         3. I am concerned about the ability to charge my vehicle away from my home/business
         4. It is too expensive to purchase or lease
         5. I do not know enough about electric vehicles yet
         6. Other (please describe): _____
   b. Yes

i. Please indicate when you plan to buy or lease an electric vehicle (personal or fleet):
   1. Less than 1 year
   2. 1 to 2 years
   3. 2-5 years
   4. 5-10 years
   5. 10+ years

9. Most electric vehicles have programmable chargers built into them, like a programmable thermostat, where you can tell your electric vehicle when to start charging. If it was less expensive for you to charge your vehicle overnight, would you plan for that instead of during the day?
   a. No
   b. Yes
   c. n/a

Time Varying Rates

Manitoba Hydro currently charges the same rate regardless of when you use your electricity. Many utilities offer rates that vary based on when you use your electricity. Time varying rates can help you lower your costs if you shift your electricity use to less busy times of the day.

10. What is your opinion of Manitoba Hydro considering time varying rates?

   a. Strongly support ☒ SKIP 11
   b. Somewhat support ☒ SKIP 11
   c. Neutral ☒ SKIP 11
   d. Somewhat opposed
   e. Strongly opposed
   f. I do not care how my rates are set up ☒ Go to Q13

11. Please indicate why you are opposed to time varying rates. Please select all that apply.

   a. I think it will be too complicated to figure out when are the cheapest rates
   b. I am worried it may cost me more
   c. I prefer a flat rate, as it is simpler
   d. I am not able to change when I use my electricity, so do not see any benefit
   e. It does not fit my lifestyle or business needs
   f. Other (please describe): _____

12. When considering time varying rates, what would encourage you to change when you use your electricity? Please select all that apply.
   a. It would have to be automatic, so I did not have to think about it
   b. It would have to save me money

c. There would have to be rate options to suit my lifestyle or business needs
d. It would help Manitoba Hydro avoid or delay the need to build new infrastructure
e. It would need to be supported by easy to use technology
f. Other (please describe): _____

Demographics

Helping us know a bit more about you as a customer will help us better understand how we need to plan for your long-term electricity and natural gas needs. It will also help us understand if we are reaching out in the right way. If you feel comfortable, please answer the following questions.

13. Please indicate with which gender you identify:
a. Female
b. Male
c. Non-Binary
d. Please self declare:
e. Prefer not to answer

14. Do you identify as Indigenous?

a. Yes, Registered or Treaty Status
b. Yes, Non-Status
c. Yes, Inuit
d. Yes, Metis
e. No, I do not identify as Indigenous
f. Prefer not to answer

15. What is your age?

a. 18-24 years
b. 25-34 years
c. 35-44 years
d. 45-54 years
e. 55-64 years
f. 65-74 years
g. 75 years and over

16. What was the total income in your household last year?
a. Under $20,000
b. $20,000 to $39,000
c. $40,000 to $59,000
d. $60,000 to $79,000
e. $80,000 to $99,000
f. $100,000 to $119,000

g. $120,000 or Over
h. Prefer not to answer

17. What type of building do you currently live in?

a. Single-family detached home
b. Semi-detached home
c. Townhome or rowhouse
d. Multi-level dwelling such as an apartment or condo
e. Other (please describe): _____

For Commercial/Industrial Customers Only

18. Which of the following best describes your business?

a. Agricultural Producer
b. Agricultural Related Service Industries
c. Accommodation and Food & Beverage services
d. Arts, Entertainment & Recreation
e. Professional, scientific & technical services
f. Communication & Other Utilities
g. Construction
h. Educational Services
i. Financial & Insurance
j. Government services
k. Health & Social Services
l. Manufacturing
m. Primary Industries (Mining, Oil/Gas extraction, Forestry, Fishing, Hunting)
n. Real Estate
o. Retail
p. Transportation & Storage
q. Wholesale
r. Other Services
s. Other: _____

19. Approximately how many people does your organization employ in Manitoba?

a. Less than 5 employees
b. 5 – 9 employees
c. 10 – 49 employees
d. 50+ employees

Final Questions...

Thanks for sticking with us this far. The next section will allow you an opportunity to provide additional comments and receive information in the future.

20. If you would like to be kept directly informed of results from this survey and next steps as we prepare to develop an Integrated Resource Plan, please enter your contact information below.
    a. Name
    b. Company or Organization (if applicable)
    c. Email address
    d. Phone number

21. Going forward, what topics related to Manitoba Hydro's long-term energy planning are important to you?

22. If you have any other questions or comments that may help us prepare for the development of an Integrated Resource Plan (long-term roadmap), please detail them below.

Survey Feedback

How did we do with this survey? What can we improve?

One of the goals of an Integrated Resource Plan is to ensure that it best represents the future energy related wants and needs of Manitoba Hydro customers. This survey is just the first step in the conversation of understanding these future wants and needs. But if you feel that we could have done better with this survey, please let us know so we can improve for next time.

Closing Screen

We thank you for your time spent taking this survey and your response has been recorded.

Please visit us at hydro.mb.ca/future for more information about the Integrated Resource Plan.

2.2 Round One - Customer Survey Report
Integrated Resource Plan
Detailed Survey Report

January 2022

Manitoba Hydro

Survey Analysis

- The Integrated Resource Plan (IRP) Phase 1 survey used to initiate an energy conversation with our customers.

- A survey was selected as an engagement technique to provide an inclusive means for a wide audience of Manitoba Hydro customers across Manitoba to share their thoughts, opinions and input on current and future energy use of Manitoba Hydro's electricity and natural gas systems.

- The survey responses were collected online from November 2 to December 21, 2021.

- Survey data used for analysis and reporting has been cleaned using the following criteria:
    1. Responses from respondents that indicated they were not over 18 or did not answer excluded.
    2. Responses from postal codes outside Manitoba or did not answer excluded.
    3. Survey progress less than 68% excluded. This captured respondents that progressed through the entire survey but did not answer demographic questions.

Survey Respondent Type

	Percentage	Count
Residential customer	93.4%	12,858
A customer working or living on a farm	3.8%	517
Other	1.4%	195
Commercial customer	1.1%	158
Industrial customer	0.3%	43

Q: Are you responding as a residential customer, a customer working or living on a farm, a commercial customer, an industrial customer or another type of respondent?

Base: All respondents (n = 13,771)

Manitoba Hydro

Responses By Service Region

Winnipeg	56%
South Central	15%
Eastman	12%
Interlake North	7%
Parkland West	6%

Q: Please enter the first three characters of your postal code.

Base: All respondents. Note: 4% of respondents provided postal code information that was from Manitoba but could not be mapped to service regions. (n = 13,775)

Manitoba Hydro

Respondents Profile: Residential

Manitoba Hydro

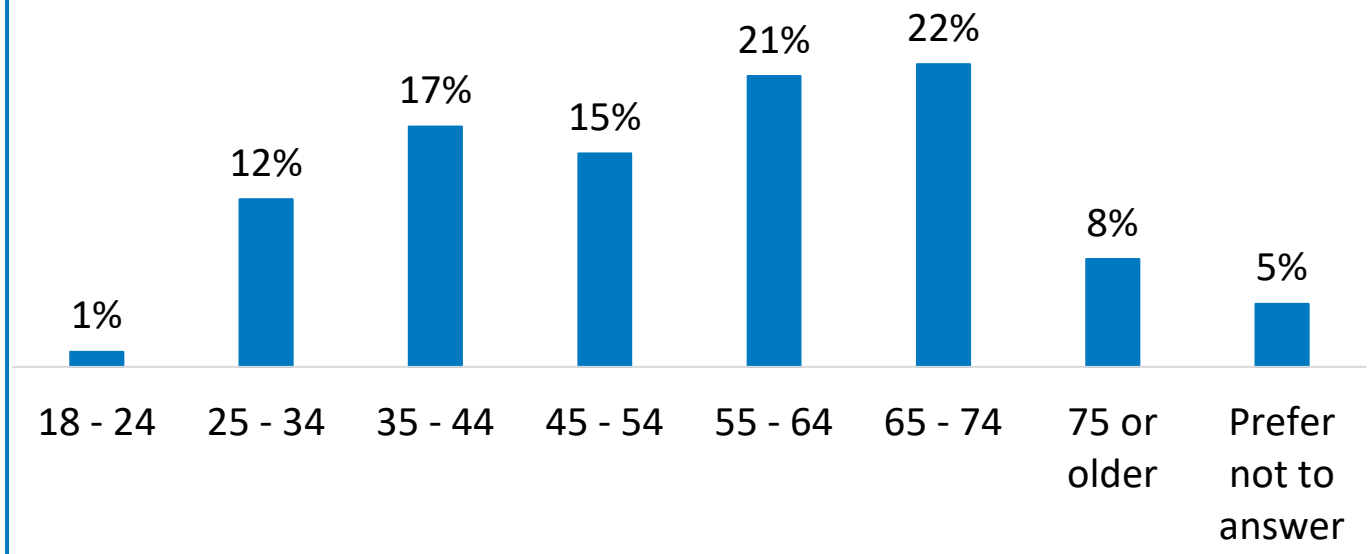
Demographics

Q: Please indicate with which gender you identify.

Male	57%
Female	36%
Prefer not to answer	5%
Prefer to self declare	1%
Non-Binary	1%

Base: All respondents (n = 13,539)

Q: What is your age?

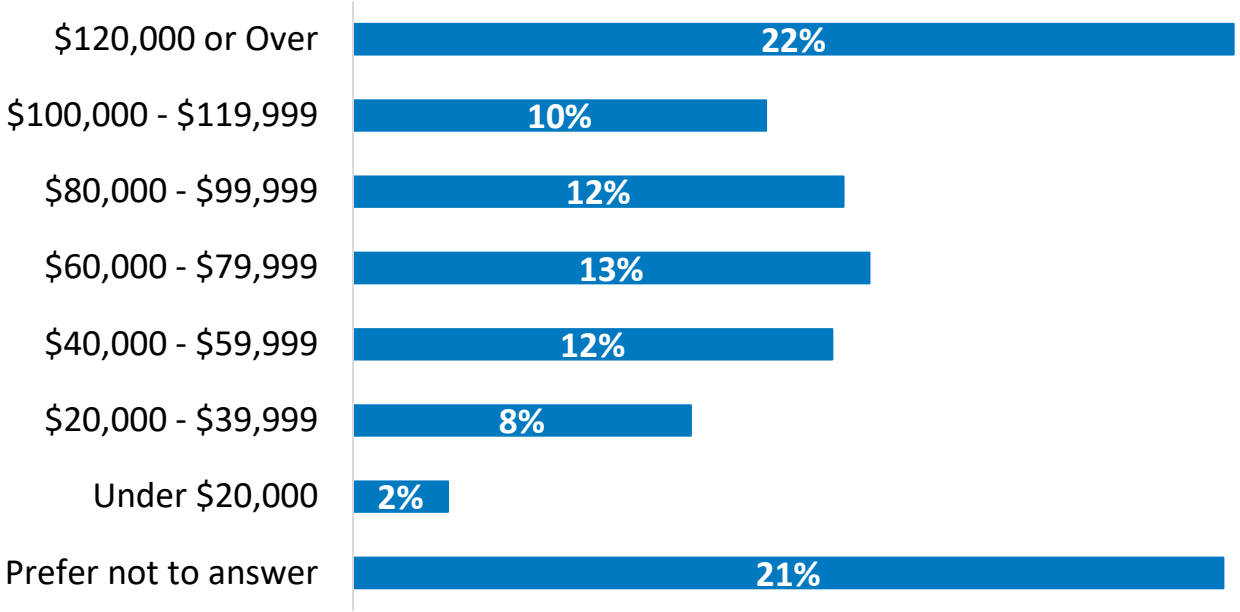


Base: All respondents (n = 13,532)

Manitoba Hydro

Demographics

Q: What was the total income in your household last year?



Base: All respondents (n = 13,496)

Q: What type of building do you currently live in?

Single-family detached home	82%
Multi-level dwelling such as an apartment or condo	9%
Other	3%
Townhome or rowhouse	3%
Semi-detached home	2%

Base: All respondents (n = 13,500)

Manitoba Hydro

Indigenous Representation

	Percentage	Count
No, I do not identify as Indigenous	83%	11270
Prefer not to answer	9%	1151
Yes, Metis	5%	664
Yes, Registered or Treaty Status	2%	326
Yes, Non-Status	1%	88
Yes, Inuit	0%	2

Q: Do you identify as Indigenous?

Base: All respondents (n = 13,501)

Manitoba Hydro

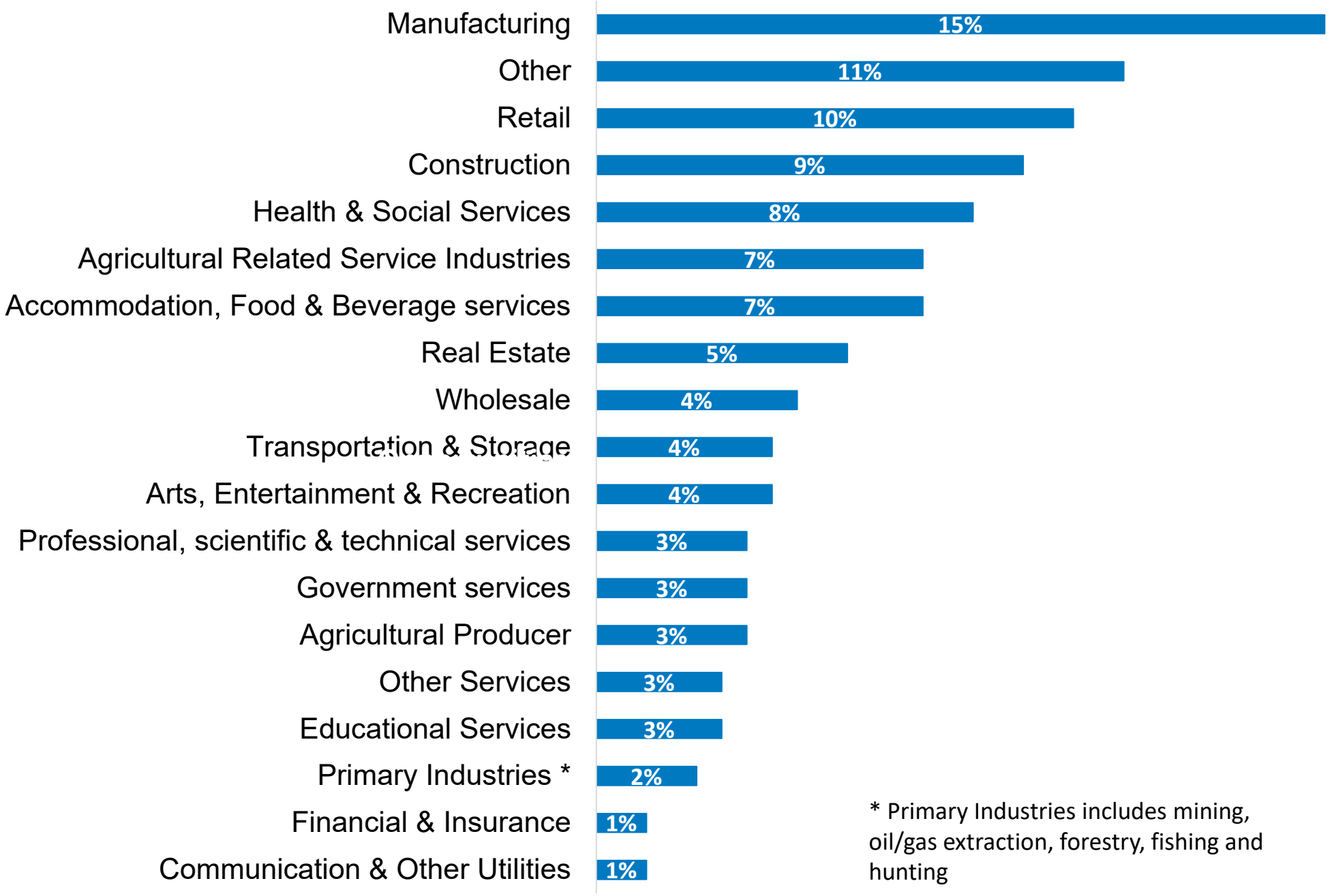
Respondents Profile:
Commercial and Industrial Business

Manitoba Hydro

Business Type

Q: Which of the following best describes your business?

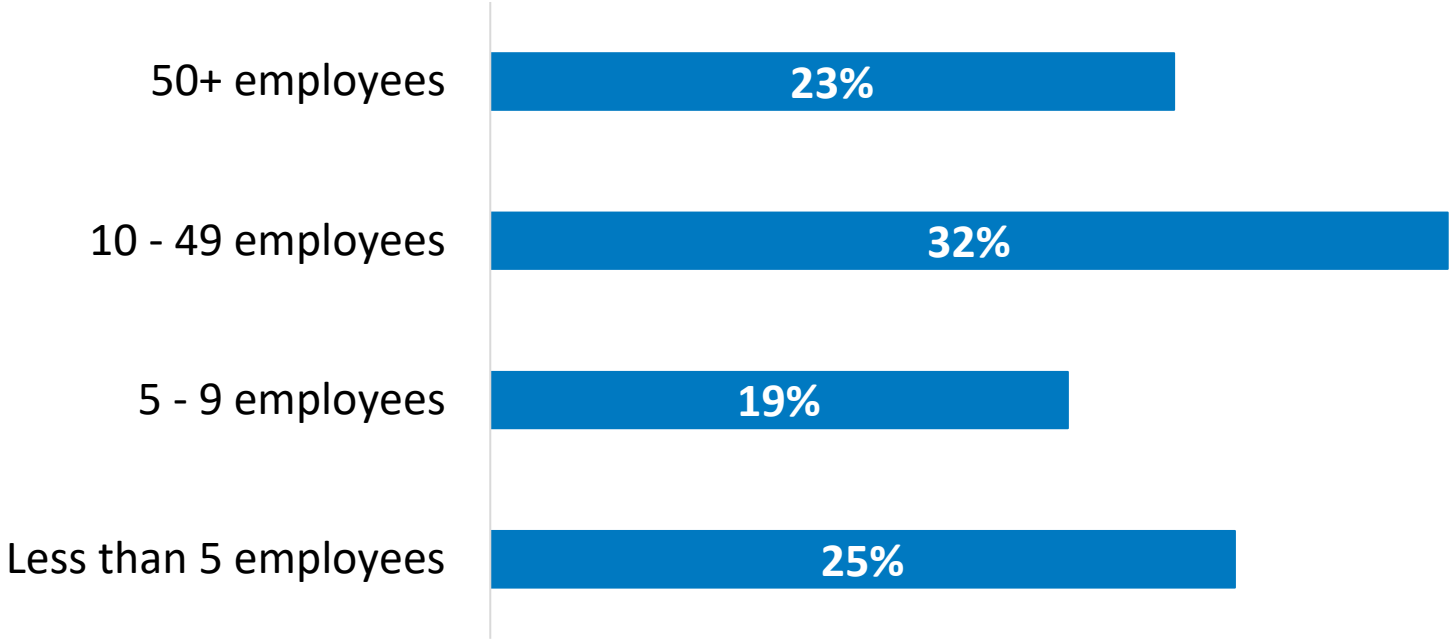
Base: Respondents that identified as commercial or industrial customers (n = 195)



* Primary Industries includes mining, oil/gas extraction, forestry, fishing and hunting

Manitoba Hydro

Commercial and Industrial Organization Size



Q: Approximately how many people does your organization employ in Manitoba?

Base: Respondents that identified as commercial or industrial customers (n = 195)

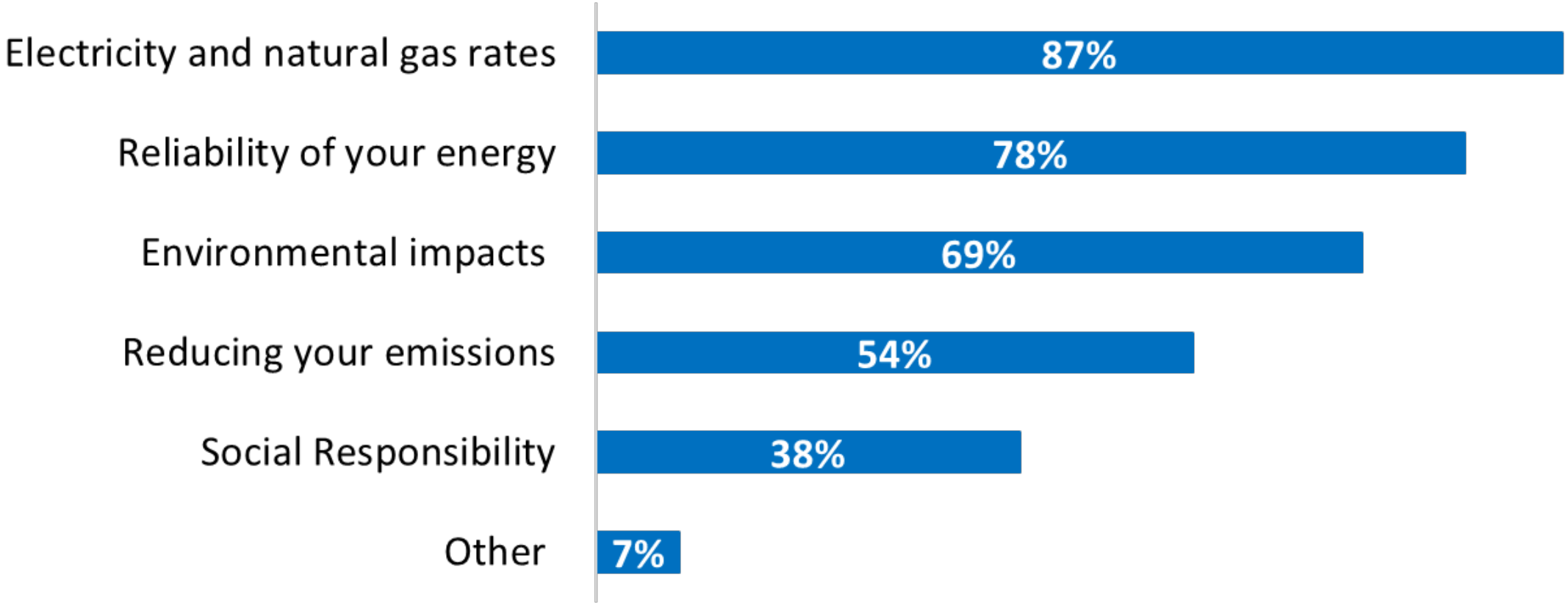
Manitoba Hydro

Aggregate Summary

(All Residential, Commercial and Industrial, Customers working or living on a farm and other survey respondent types)

Manitoba Hydro

Important Factors For Future Energy Planning



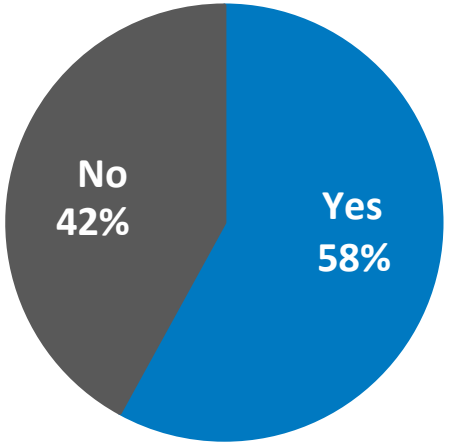
Q: When planning to meet your future electricity and natural gas needs, there are many factors to consider. What factors are important to you? Please select all that apply.

Base: All respondents. Respondents could select multiple response options so totals sum to over 100%. Relative percentages are reported in appendix. (n = 13,775)

Manitoba Hydro

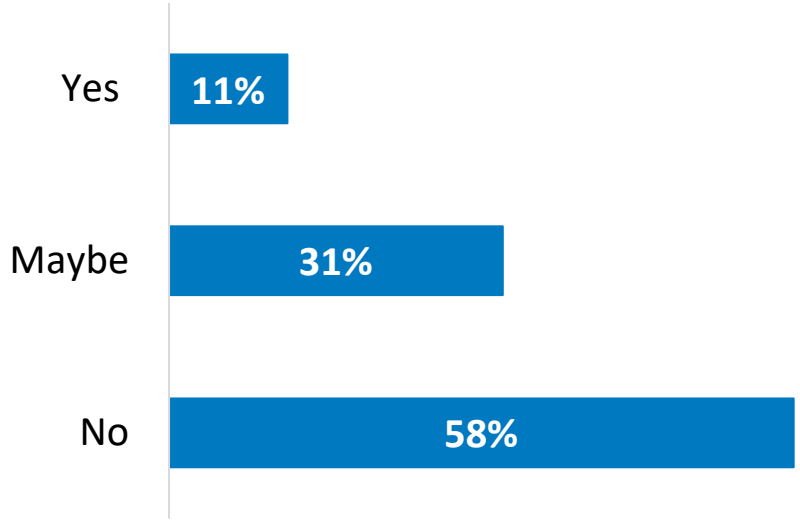
Current Natural Gas Usage

Q: Do you currently use natural gas (such as for space or water heating, cooking, processing)?



Base: All respondents (n = 13,745)

Q: Are you thinking of changing some or all of your appliances to electric supply instead?



Base: Respondents that use natural gas (n = 7,893)

Q: Please indicate when you will make the change from natural gas to electric supply?

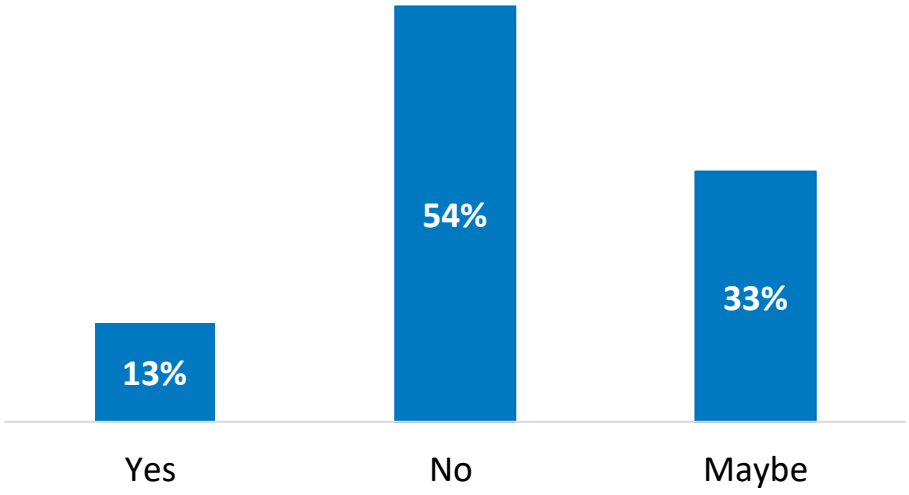
Less than 1 year	16%
1 to 2 years	25%
2 to 5 years	38%
5 to 10 years	18%
10+ years	4%

Base: Natural gas users that are thinking of changing to electric supply (n = 874)

Manitoba Hydro

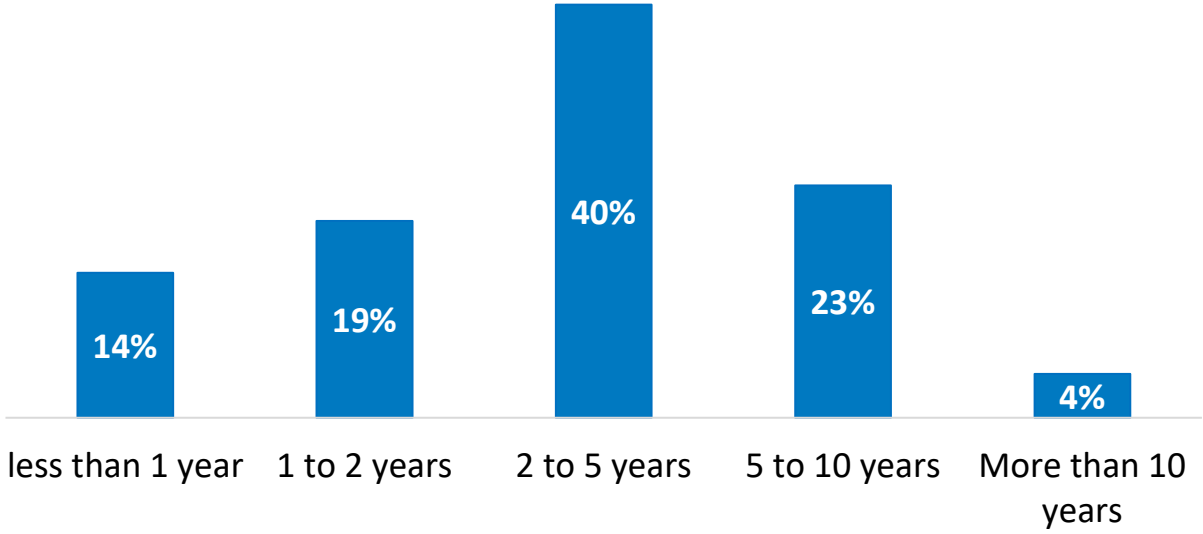
Self Energy Generation

Q: Are you thinking of generating your own energy (through solar, wind, methane or other means)?



Base: All respondents (n = 13,737)

Q: Please indicate when you are plan on generating your own energy.

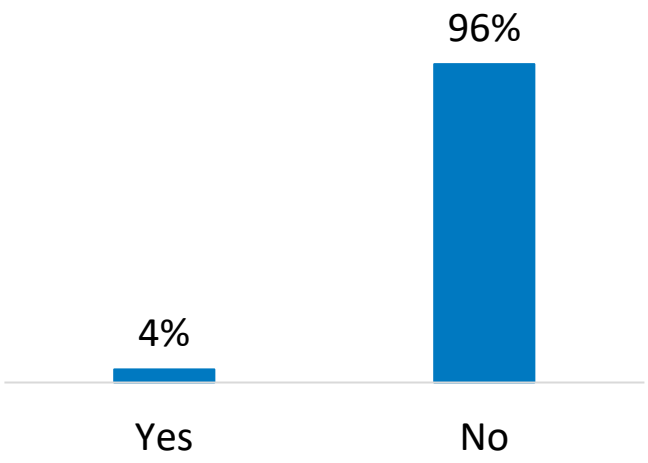


Base: Respondents that are thinking of generating their own energy (n = 1,769)

Manitoba Hydro

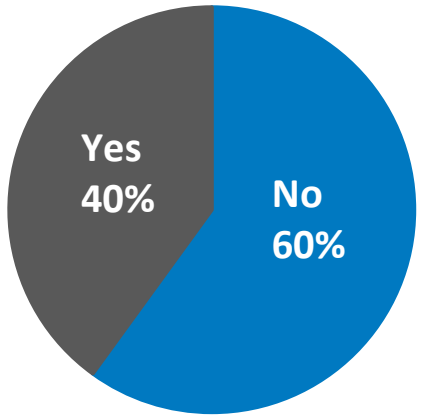
Manitobans Perceptions on Electric Vehicles

Q: Do you currently own or lease an electric vehicle?



Base: All respondents (n = 13,753)

Q: Are you thinking of buying or leasing an electric vehicle, either to add or replace your current vehicle(s) (personal or fleet)?



Base: All respondents (n = 13,738)

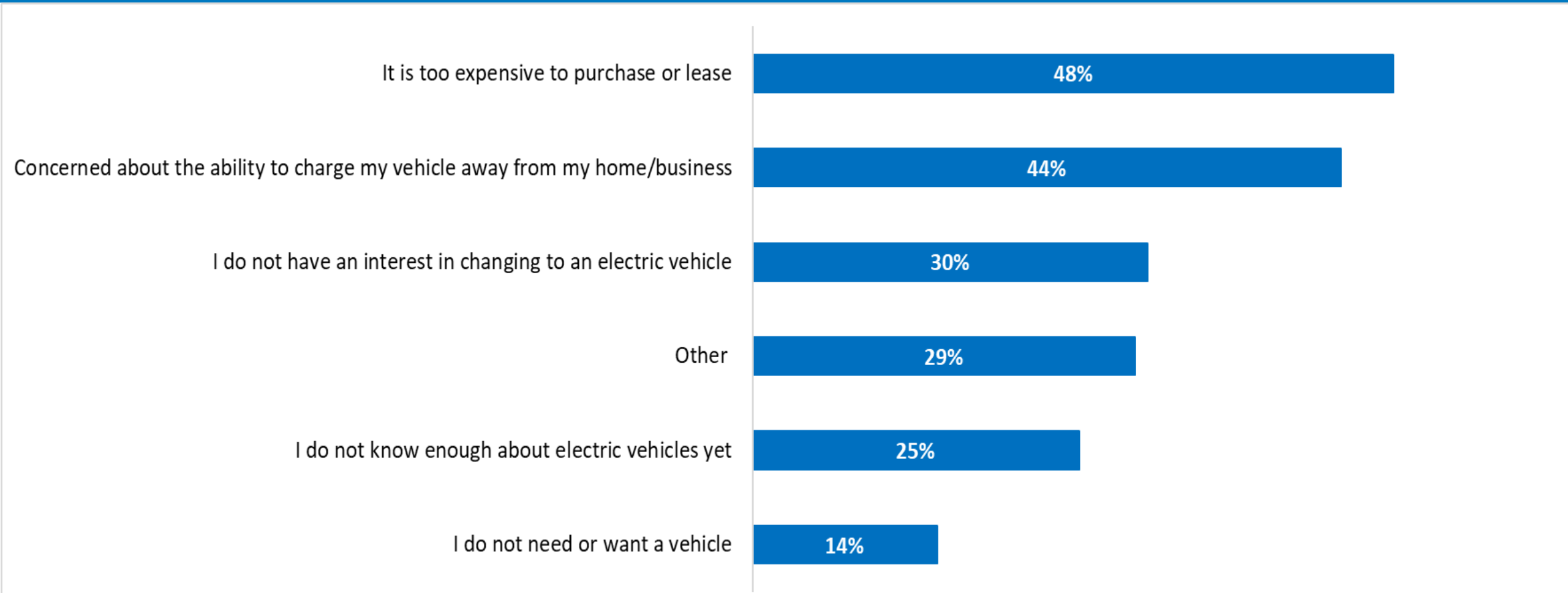
Q: Please indicate when you plan to buy or lease an electric vehicle (personal or fleet)?

Less than 1 year	6%
1 to 2 years	18%
2 to 5 years	49%
5 to 10 years	24%
10+ years	2%

Base: Respondents that indicated they plan to buy or lease an electric vehicle. (n = 5,471)

Manitoba Hydro

Barriers to Electric Vehicle Adoption



Q: Can you please indicate why you will not be buying or leasing an electric vehicle (personal or fleet)? Select all that apply.

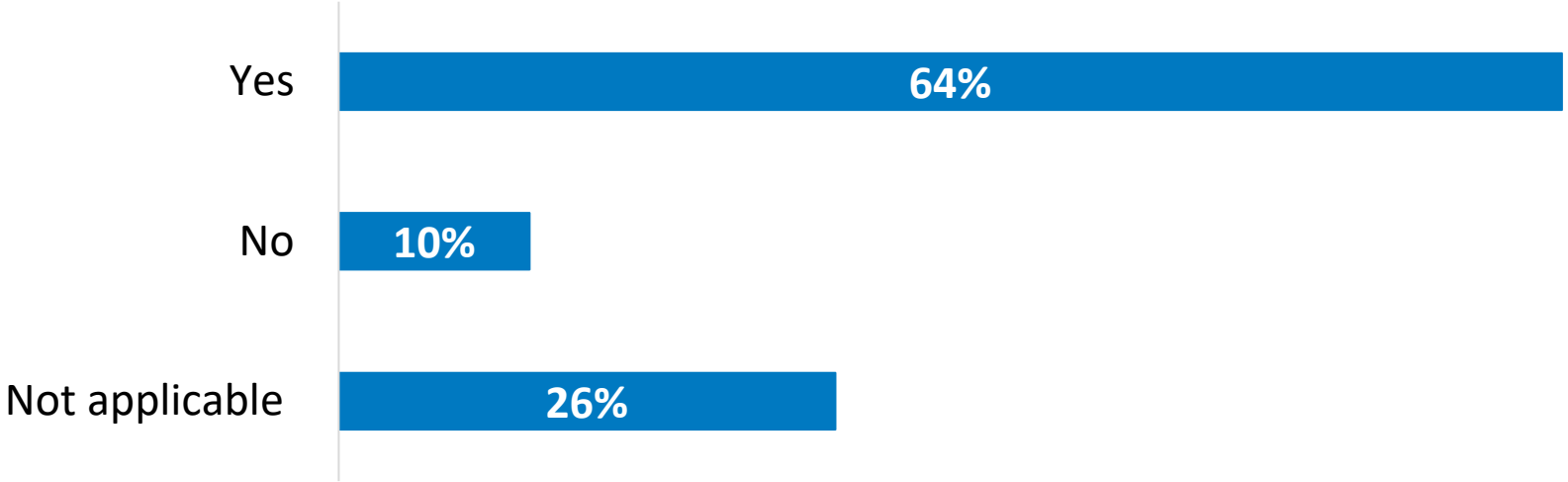
Base: Respondents that indicated they will not be buying or leasing an electric vehicle. Respondents could select multiple response options so totals sum to over 100%. Relative percentages are reported in appendix. (n= 8,259)

Manitoba Hydro

Programmable Charger Scenario

Survey respondents were provided the following scenario and asked for feedback:

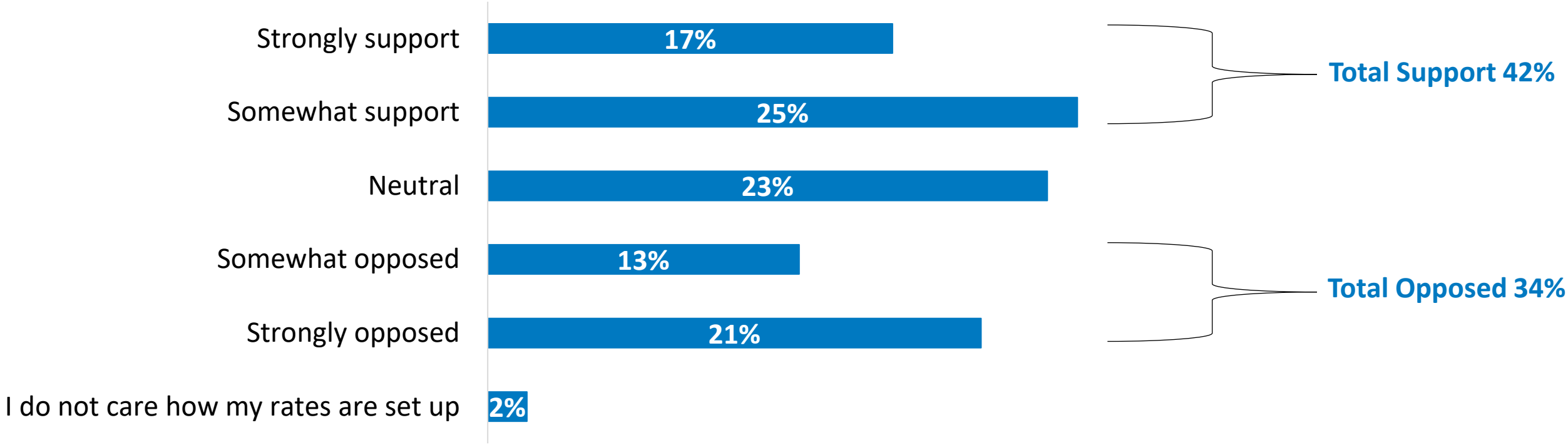
Most electric vehicles have programmable chargers built into them, like a programmable thermostat, where you can tell your electric vehicle when to start charging. If it was less expensive for you to charge your vehicle overnight, would you plan for that instead of during the day?



Base: All respondents (n = 13,743)

Manitoba Hydro

Manitobans Perceptions on Time Varying Rates

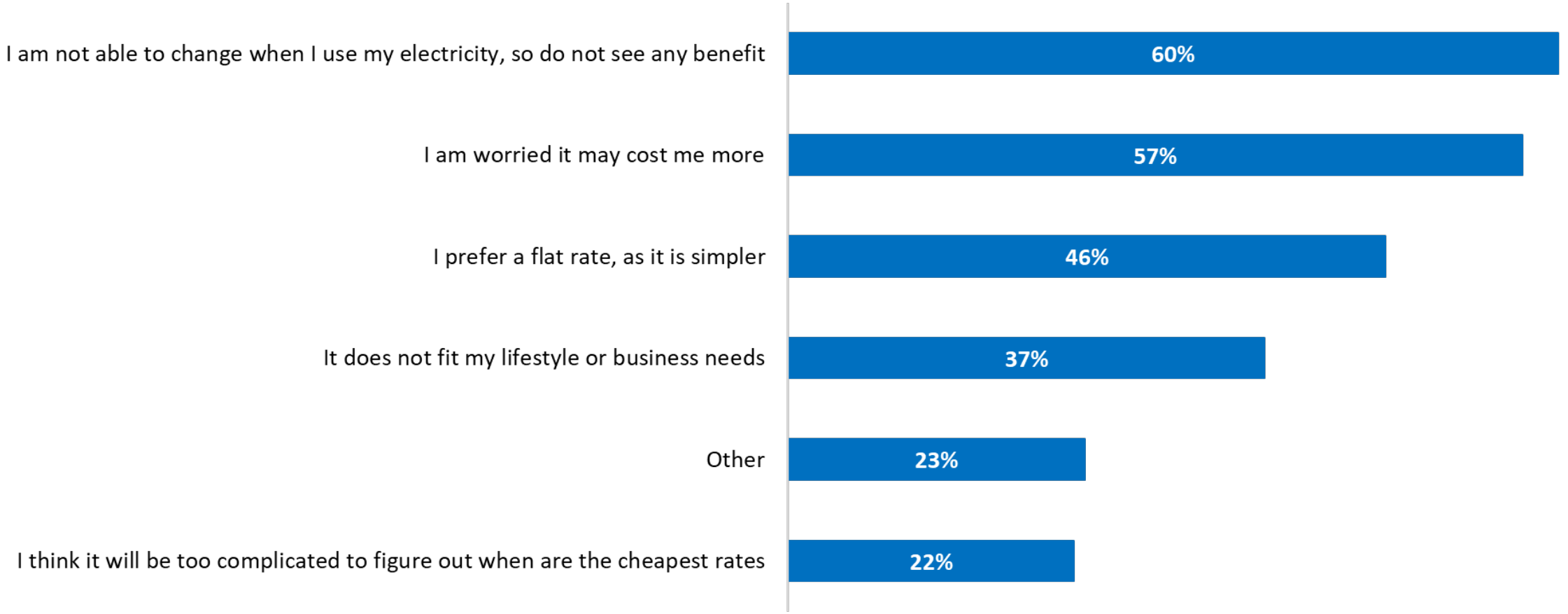


Q: What is your opinion of Manitoba Hydro considering time varying rates?

Base: All respondents (n=13,745)

Manitoba Hydro

Barriers to Adoption of Time Varying Rates

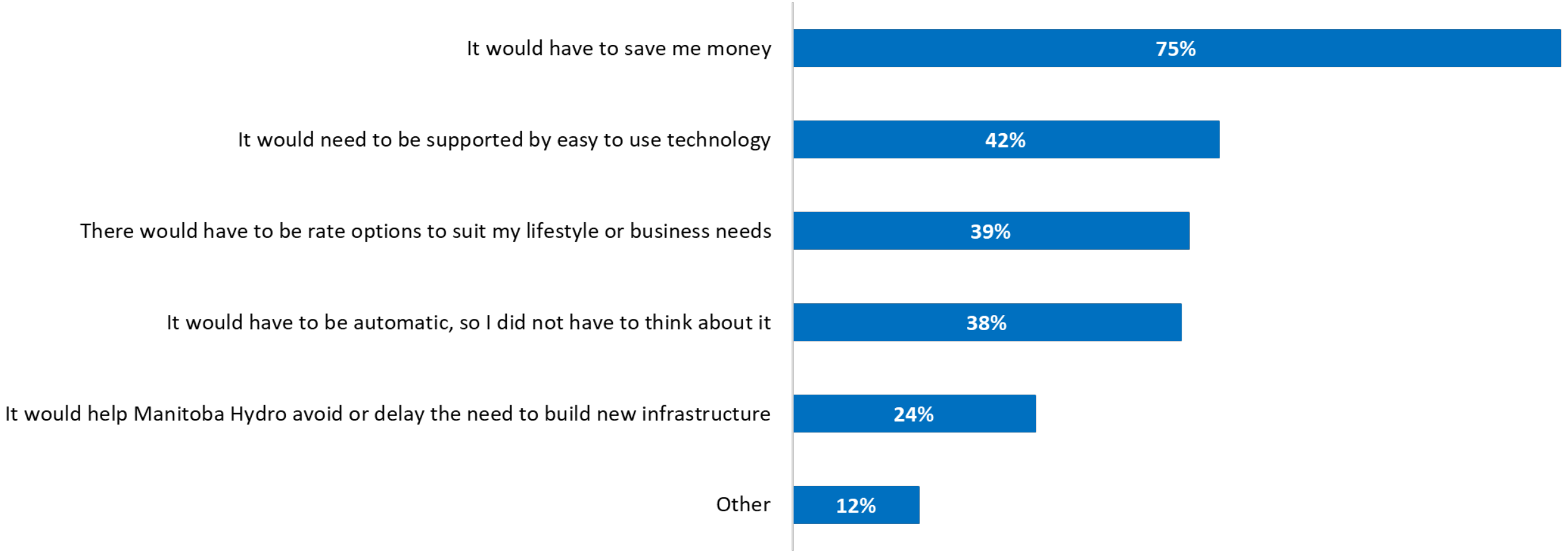


Q: Please indicate why you are opposed to time varying rates. Please select all that apply.

Base: Respondents that are somewhat or strongly opposed to Manitoba Hydro considering time varying rates. Respondents could select multiple response options so totals sum to over 100%. Relative percentages are reported in appendix. (n=4,613)

Manitoba Hydro

Motivators to Adoption of Time Varying Rates



Q: When considering time varying rates, what would encourage you to change when you use your electricity? Please select all that apply.

Base: Respondents that indicated they strongly support, somewhat support, strongly oppose, somewhat oppose or are neutral towards Manitoba Hydro considering time varying rates. Respondents could select multiple response options so totals sum to over 100%. Relative percentages are reported in appendix. (n= 13,520)

Manitoba Hydro

Prepared by the Customer Data and Analytics Research Department in collaboration with the Integrated Resource Plan Policy and Integration Department.

Manitoba Hydro

3 Round Two – Key Inputs and Scenarios

This section provides an overview of supporting materials from Round 2 engagement of the 2023 Integrated Resource Plan including:

- 3.1 - Focus Group Report – Prepared by Prairie Research Associates
- 3.2 - Customer Research Interview Report
- 3.3 - Customer Survey #2 - Copy of Survey
- 3.4 - Customer Survey #2 – Survey Analysis Summary

3.1 Focus Group Report

Prairie Research Associates Inc. was engaged to organize and facilitate the focus groups. The following report summarizing the key findings was prepared by PRA.

April 2022

REPORT ON

INTEGRATED RESOURCE PLAN FOCUS GROUPS

Prepared for Manitoba Hydro by PRA Inc.

Manitoba Hydro

Contact:

Nicholas Borodenko, Partner
borodenko@pra.ca
204-594-2080

PRA Inc.

KEY FINDINGS

Key findings

- **Rates are a strong driver, especially with individual decisions about the environment.** Although environmental impacts were identified as the top priority for many participants, further discussion uncovered that cost tended to play a bigger role in decision-making, especially in the context of gas versus electricity and the idea of electric vehicles.
- **Fixed-rate is the preferred approach.** Generally, participants prefer the current fixed-rate approach Manitoba Hydro uses over a theoretical variable-rate approach, as it is seen to be fairer for lower-income families and predictable for all customers.
- **Integrated Resource Plan may not be terminology that resonates.** Participants had no awareness of Manitoba Hydro's IRP and very few understood what it might be about. Many from each of the groups considered both the term and the description of the plan to be vague, and felt that information was missing. Overall, the plan is seen as important, but there tends to be little interest in keeping up to date with it, and most participants simply expect that a company of Hydro's size and importance would have a long-term plan/vision.
- **More specifics about the IRP needed.** Because few grasped a true understanding of the intentions of the IRP, participants were interested in more detail about the plan in terms of what it was set out to accomplish and specifics into how those goals would be met. An example given included breaking the plan down into smaller phases such as 5-year blocks of time. Participants felt this would help the general public better understand the focus of the IRP as a whole.
- **Social media may be the way for future engagements.** Engagement through social media platforms was the most discussed form of reaching out to under-represented groups. Younger respondents, especially, are more likely to engage with posts that are generating funny, creative content, or offering giveaway prizes or incentives.

BACKGROUND AND METHODOLOGY

Background and methodology

- As part of the process of developing their Integrated Resource Plan (IRP), Manitoba Hydro conducted a public survey in November 2021. Although the survey received close to 15,000 responses, demographic analysis of respondents indicated that women, youth (18 to 25), low-income, and Indigenous Manitobans were under-represented. Manitoba Hydro contracted PRA to conduct focus groups with members of these groups to discuss topics included in the survey and to understand how Manitoba Hydro can successfully engage with these groups.
- PRA conducted three focus groups, distributed as follows:
  - All three focus groups were conducted virtually through Zoom.
  - Two were conducted with Manitobans aged 18 to 25, and the remaining group was conducted with women aged 26 and up.
- The only other qualification criteria was that participants could not personally, or have a family member, work for Manitoba Hydro; however, PRA also ensured that there were at least three Indigenous participants (First Nations, Métis, or Inuit) and three lower-income participants (agree or strongly agree that their Manitoba Hydro bill has a major impact on their finances, or less than $75,000 combined income in a household of two or more people) in each group.
- In total, 21 participants attended the groups, with seven in each group.
- It is important to remember that, while focus groups provide insight into participants' attitudes and opinions, they cannot be said to be representative of the population as a whole. Any quantification of the results refers only to group participants and cannot necessarily be extrapolated to the entire sample population represented.

FUTURE ENERGY PLANNING

Considerations for meeting future energy needs

- The groups began with respondents answering a poll (similar to what was asked on the public IRP survey) asking them what factor is most important for Manitoba Hydro to consider when planning to meet their future electricity and natural gas needs.
- Across both groups, *environmental impacts* and *electricity and natural gas rates* were identified as the two most important factors to consider. Those in the two younger groups leaned more toward *environmental impacts*, while women in the older group were split.
- Despite rising costs, many recognized the importance of environmental sustainability in the context of providing energy to Manitobans; however, many that identified *environmental impacts* as their top choice indicated *rates* were a close second.

"I struggled with choosing between rates and environment as well. Just in the last few months, even, I've seen the rates for myself go up pretty significantly, but environment is just a little bit above that because if we destroy our environment we won't have anywhere to live."

- Those who discussed rates primarily talked about the current economy and the rising costs of gas and other goods. Younger participants were most often still living with parents, which meant concerns around affordability when it comes time to move out.

"Everything is getting more pricey, so if I can't even afford it in the first place, then that's the first problem."

Energy reliability tradeoff

- There were only a couple of participants between the three groups who perceived *reliability of energy* to be the most important factor, both of which were younger participants. This tended to be directly tied to personal experience, as most participants mentioned never having reliability issues with Manitoba Hydro, but those that had were the ones who chose reliability in the poll.

"Reliability with Hydro has never been an issue, so the thought has never crossed my mind."

"I just thought of the storm that was a couple years ago and my parents' house was one of them that was affected by the power outage, and then we had friends that had their power out for a week. That and how important it is to have reliability, especially in the winter in Manitoba when it gets really cold."

- Because of their positive experiences with reliable power, participants tended to have a difficult time understanding that there could be tradeoffs in reliability for lower rates or more environmentally friendly energy production. That is, most took the reliability for granted because they have very few issues with reliability and Manitoba Hydro.
- Although very few chose reliability as most important in the poll, this tended to be because participants had very little personal experience with unreliable power. When further probed for their thoughts on having reliable power, it did seem as though it was actually seen to be just as, if not more, important than rates and environmental impacts.

"If my power cuts out in the middle of my Netflix show, heads are going to roll. If my freezer loses power with all the meat I just bought at Costco, heads are going to roll."

Switching from natural gas to electricity

- Most participants have not put much thought into switching from natural gas to electricity in their homes. Since most of those in the younger groups live at home, they had not thought about it at all, and some were not completely sure how their home was powered.
- For those who lived in an apartment, how it was heated did not impact their decision, and the number one factor came down to affordability and whether or not they had to pay a Hydro bill on top of rent.
- Similar to the younger groups, women in the older group who owned homes did not consider how the home was powered when looking to buy. Most had never considered switching from gas to electricity. Some said they might consider it, but more so when it becomes time to upgrade to a new furnace, for example, depending on the upfront costs or how much it might save over time.
- Generally, any considerations participants mentioned about switching from natural gas to electricity in the future came down to costs more than environmental impact.

"It wasn't really a huge factor. We were really just looking for an affordable home. The housing market is so awful."

"I've never considered switching, but more just because it seems like quite the undertaking for those of us who are not handy at all. So, for me, it just seems like it would be an added step that was not necessary."

"I haven't really thought about it at all. Maybe once I actually started looking, then I would do some research upon gas, electricity, and the difference between rates."

"I feel like I'm somewhat ignorant to the gas, so I'd want to know how it works for the pros and cons compared to electricity before I would make a final decision."

Electric vehicles

- No participants already owned a battery-only electric vehicle, although one in the older group owned a hybrid.
- Interest was generally high around the topic of electric vehicles and some, even in the younger group, said they want to purchase electric for their next vehicle (within the next five years). There did, however, appear to be some uncertainty in what the upfront cost would be compared to gas vehicles.

"I plan on purchasing one for my next vehicle. If I were to buy a brand new car, it'd be almost the same price as buying a brand new electric car."

"In the next five years, I would like to own an electric vehicle, for sure. By then, hopefully the infrastructure is better too, so it would make a lot more sense, but obviously I have no means for an electric vehicle right now."

- The benefits of electric vehicles over gas-powered vehicles mentioned by participants were saving money on gas and reducing their environmental impact. However, a number of downsides were mentioned, including upfront costs, repair costs, battery life, availability of charging infrastructure, and the distance an electric vehicle can drive on one battery charge. Although most were in support of possibly owning an electric vehicle in the future, even those most interested had some questions about feasibility and were able to bring up a number of possible barriers to owning one.

"Canada as a whole isn't quite there yet on the electric car charging stations, whereas in the States, you have convenience store charging stations."

"I do have friends who have them, but as of right now, I understand there are a lot of costs that comes with them, especially when it comes to repair. If you do have a battery failure, it could be anywhere between like $5,000 to $20,000 to fix."

"I've heard of people renting a gas car for a road trip when they have an electric car."

Generating their own power

- When asked about generating their own power, some liked the idea, but it did not seem many had given it much thought.
- Those in the younger groups tended to be interested in the idea but had little knowledge on the topic. The older group seemed less enthusiastic overall about the thought and tended to have more realistic expectations of the barriers, especially the upfront costs and reliability.
- Interestingly, one participant from each group had experience with solar panels, either installed by their parents or partners. In most cases, women tended to feel that the decision about installing solar panels would default to the men in their lives.
- When discussing power generation, solar panels were the primary method participants focused on.

"I'll definitely have solar panels on my future house. If I don't, I think my dad would probably just slap them on anyway. We actually give power to Hydro and then we have a surplus on our bill at the end of the month, so that's always a good thing for people who were looking at the whole cost of Hydro."

"I haven't started looking at cost. I should say my husband, but he's very insistent that he wants to look at it because we're looking at getting our roof done within the next couple years, so he wants to add shingles that include solar power."

"If I had the funds to do it, I would absolutely do it because, obviously, in the long run it's better for the environment and it's going to save you a ton of money throughout your life."

Fixed-rate versus variable-rate structures

- When given an explanation of what a fixed-rate approach versus a variable-rate pricing structure would look like, almost none of the younger participants were aware of how Manitoba Hydro charged for energy. Those in the older group tended to lean towards Hydro using a fixed-rate approach, but still did not know 100%.
- Only a few participants across the three groups liked the idea of a variable-rate pricing structure, claiming that they would change some of their behaviours in order to use power at a time that it is cheaper. However, many participants guessed that Manitoba Hydro currently uses a variable-rate approach and none of them said that they currently consider that with their daily routines. That said, many of these were younger respondents who did not yet have the responsibility of paying a Hydro bill.
- Generally, there was greater preference for fixed energy rates over variable rates, as many saw the fixed-rate approach as "more fair" and liked that they could count on a more consistent bill amount. Most were not in favour of changing their behaviours in order to use energy at cheaper times.

"I think the flat rate's kind of more fair because some people might not have a choice if they are using electricity during peak hours or non-peak hours."

"I just want to know what I am going to be paying."

"I get off work at five and as soon as I get home, I want to watch TV. I'm not going to stay up all night watching TV when I have to work the next day."

PERCEPTIONS OF AN INTEGRATED RESOURCE PLAN

Initial impressions of the IRP

- No participants in any of the groups had heard the term “Integrated Resource Plan” before.
- To many, the term was considered “vague” and they were unable to discern what it may be about. A few participants provided their best guesses.

“I feel like it's their plan of action for how they allocate the resources, so whether that's using less in certain ways and where they're using it.”

“I think it is using power resources from different sources, like combining solar with wind. Like using them together to power homes.”

“A plan for efficiency and sustainability, probably. Making sure that you have enough resources available for everyone, right now, but you're also not going through them too quickly.”

- After hearing that the plan was Manitoba Hydro’s 20-year plan to continue bringing clean, reliable, and affordable energy to customers, many still considered the IRP term to be non-descriptive; however, there was no real consensus on how changing the term could help communicate what it is.
- Some words in the description like “clean” and “affordable” resonated with participants, although they still felt they needed more information to understand it.

“I do think it is kind of vague though. Like what does it really mean? Clean what?”

“As someone with not a lot of information on this, it just sounds kind of vague.”

What to know about the IRP

- As the discussion about the IRP continued, some participants were interested in knowing more about the plan to help them understand what it was about and what it was intended to do, especially if it meant significant changes. An example brought up as to how Manitoba Hydro could better communicate to the public about the plan was introducing milestone goals and achievements (5-year increments). This was seen as a transparent way to communicate what the plan is to accomplish and how Manitoba Hydro would reach those goals. Breaking it down this way was also seen as important because some participants thought it would be difficult to forecast energy needs out 20 years into the future and suggested adaptability of the plan would be important.
- There were some concerns around cost and how the plan would impact them financially, as well as the use of the term "affordability." Some participants noted that "being affordable" is different for everyone.

"When does it start? It says 20-year plan. Does that mean we are not going to start using clean stuff until 20 years? Or do we have a goal of being 90% cleaner in 20 years?"

"What does it mean for us as customers? Every five years is there a reduction? What percent will be complete? What is the timeframe for each level? Are my costs going to go up? Is it going to cost more for clean energy?"

"What do they considerable affordable? What might be considered affordable for one person may not be affordable to someone else."

- Women in the older group were more inquisitive, while those in the younger groups were more indifferent. However, there tended to be little interest overall outside of the groups, in that participants would not care to seek out more information or be interested in updates.

"As long as they're not like, 'Oh, we're going to raise prices by like three times in the next five years,' or, 'We're going to build a dam,' or some stuff like that. If that's not in the plan, then I don't really care about it too much."

Importance of the IRP

- In general, participants feel positively knowing that Manitoba Hydro has a 20-year plan for continuing to bring energy to their customers and feel that this type of planning is important.
- That said, many indicated that, like any bigger business, Manitoba Hydro should have a long-term plan in place anyway.

"I think it's good for their customers that they made this plan, because it helps reassure everybody that they're going to keep being reliable for them and continue to provide good service."

"It's important for any organization to have a plan like this."

- As mentioned, participants did not care to know more about the IRP going forward, especially those in the younger groups. There was agreement that Hydro is responsible for developing such a plan, but many felt that because it is a monopolized Crown corporation, keeping up to date about the plan would not impact them in any way.
- This sentiment was demonstrated among the younger participants, even when bringing into the discussion the fact that many would become Hydro customers themselves, and a 20-year plan could have impacts on their future.

"I think its important to know, but there's another side of me that's like that's their choice. Do I really have a choice? We all use Hydro. At the end of the day, it doesn't change that I need to use Hydro."

"There's not multiple sources of energy here so it's like whatever Manitoba Hydro does, we kind of have to go along with it."

"I have a lot of other things going on with school and this is probably one of the last things I would check into."

Developing the IRP

- There was very little consensus in terms of who participants feel Manitoba Hydro should engage with on energy planning.
- Women in the older group brought forth ideas mainly within the general public, such as “high school students because it impacts their future” and “first time home buyers.”

“Honestly, I think that they should be engaging high school students. They are the ones who are going to be impacted, especially if it's 20 years. They are the ones who are going to be dealing with it, on top of which young people that have the social media, these are young people who talk to each other. They're very socially aware.”

- Responses from the younger groups were less clear and participants were generally unsure, as some mentioned “the government” or “the city.”
- As was mentioned previously, there was sentiment that engagement was less important and there was expectation that Manitoba Hydro would continue development of the plan internally.

“I hope it's Hydro. I hope a power company would talk to themselves on how to make themselves better for the next 20 years.”

FUTURE ENGAGEMENT WITH MANITOBA HYDRO

Importance of engagement

- It was brought up to focus group participants that the recent survey conducted by Manitoba Hydro garnered responses that under-represented younger Manitobans (18 to 25) and women. When asked if this was a concern, women in the older group agreed that it was concerning, but those in the younger groups were split.
- Some younger participants said Hydro should want to get input from their demographic, but others felt that their age group does not have much of an opinion on Hydro and, therefore, they do not have feedback to provide. Because most in the younger groups are not Hydro customers, they only think about engagement in terms of being a customer and have trouble considering the long-term societal and environmental impacts Manitoba Hydro has.

"I feel like right now, not a whole lot of younger people are really dealing with it because rent is ridiculous. People our age can't afford to move out, so we're at home and not dealing with Hydro."

"You could hand me a bill at this age and I wouldn't know what's going on with it. I just know I have to pay it. That's pretty much all I know."

"I've heard so much about the environment and so many different issues. If I start hearing about it from more sectors it just... You don't feel numb to it, but you just hear about how the environment's crippling at all times, so I don't know."

How to engage

- In terms of how to engage these under-represented groups, the most commonly mentioned method was through social media; however, some younger respondents claimed to have no interest in seeing content from Manitoba Hydro and said it should just be available for those that want it.

"If I were in a place that had it somewhere on a poster or something and was talking about the (IRP) updates and just making it really accessible, I would stand there and read it. But if I was sent like a letter in the mail or an email regarding updates every month or something, I would probably unsubscribe."

- One respondent in the older group mentioned receiving survey links by text message, which appeared to receive some agreement from other participants.
- Many respondents talked about social media giveaway contests or incentives for doing surveys. However, some talked about needing a realistic chance at receiving a reward to be interested enough to engage.

"There's only so much you can do as a company to make people aware of, like, what's going on, right? And other than that, it has to be taken into the person's hands themselves. Social platforms are always great for that kind of thing, especially with the younger crowd."

"Social media. That's the only way I get any information."

"If I saw an account had like 5,000 followers and then there was a $200 giveaway, I would participate. But if I saw they had like 20,000 and it was a $200 gift, that would be probably my cutoff, 5,000.

"Honestly, most of the businesses I've followed on Instagram is from giveaways that I've just never unfollowed."

Topics of engagement

- There was very little brought forth in terms of what topics participants might be interested in seeing from Manitoba Hydro when trying to engage.
- Those in the older group brought up generic Manitoba Hydro information for home owners like home upgrades and promotions or billing information.
- Younger participants did not bring many ideas forward, but reiterated the chance of winning prizes. They also mentioned wanting to see funny, attention-catching content. Mascots were also mentioned in both younger groups, with one participant using the Duolingo mascot as an example of a funny and engaging idea, and another referring nostalgically an old Manitoba Hydro mascot, Louie the Lightning Bug.
- When talking about what they want to see on social media, younger participants, especially, seemed to allude more to video content than stagnant posts, as video is seen as more attention-grabbing.

"There's nothing entertaining about their page and I understand that they are a business, but there are multiple ways to deliver what you're trying to deliver."

"They basically use a mascot which is their logo, like they have a big giant owl and it does a bunch of funny things, and even though I don't use Duolingo, I follow them and I love their content."

"Just be more fun about it. You do see them on Facebook and it's like you're getting police notes. Maybe if it was more friendly, a little bit more funny, it would be worth following them, but as of right now it's very boring and dry."

3.2 Large Customer Research Interviews – Interview and Survey Questions

20 large customers participated in customer research interviews or responded to a survey with the following questions:

1. Largest sources of electricity use & natural gas use (space heating, process, feedstock etc)
2. Do you use energy other than electricity or natural gas?
3. What changes are you anticipating in energy usage? (Drivers?)
    a. If you don't foresee any change, could anything change that view?
    b. How much more/less ELEC and/or NG may you need?
    c. When do you expect your energy needs may significantly change?
4. Does your company have emissions reduction targets/commitments?
    a. What are your targets/commitments?
    b. Any actions planned to meet those targets/commitments?
5. Who, if anyone outside your organization is influencing your energy choice decisions?
6. What factors could:
    a. SPEED up plans for changes to electricity and natural gas usage?
    b. DELAY plans for changes to electricity and natural gas usage?
7. Are there things that would impact your decisions to stay in Manitoba?
8. Is there anything you thought I would ask but I didn't?
9. Do you have any questions for me, or anything more to add?

2023 Integrated Resource Plan

Select Customers & Organizations Research

June 2022

Manitoba Hydro

Integrated Resource Planning - Research

What & Why: As part of our round two external engagement, Manitoba Hydro (MH) wants to better understand if, when and why our customers are thinking about changing the amount or type of energy they will use over the next 20 years. The energy consumption of our top energy users has an outsized impact on MH's energy systems. Collecting data on customers that use the most energy helps to inform the development of key inputs and scenarios for the 2023 Integrated Resource Plan.

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Select Customers & Organizations Research

Who: Industrial customers use the most energy. Governments also use a lot of energy across multiple facilities and operate large fleets. Understanding if, how and when their energy needs could significantly change and what factors accelerate or delay those changes is critical to help MH develop its Integrated Resource Planning scenarios and sensitivities.

Some of these large customers operate in competitive markets and therefore engagement took place with the understanding that specific identifying information and customer names would not be shared publicly. This information is not shared to protect their identity and to avoid jeopardizing any competitive advantages they may have.

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Research Goals

Method: Connect with some of our largest customers either through one-on-one interviews or self-completed questionnaires.

- Discover whether customers anticipate major changes in the type, source or quantity of energy they may use over the next 20 years
- Understand what's motivating these anticipated changes (e.g., decarbonization, economics) and whether changes are contingent on certain assumptions (e.g., government funding, rising carbon price, and energy rates)
- Determine what may drive changes to happen earlier or later than planned
- Reflect learnings in Integrated Resource Plan (IRP) key inputs and scenarios

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Anticipated Outcomes

The research process and findings will be used to serve the following ends.

- Confirm assumptions in electric and natural gas load forecast
- Inform development of key inputs and scenarios for the IRP
- Share key learnings from research through internal and external stakeholder engagement

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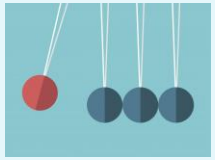
Key Findings



Expected changes in industrial energy use cover the full spectrum of possibilities

Some customers don't anticipate significant changes to their energy needs while others plan to electrify. Most have GHG targets and varying actions planned. A few are moved by regulations. Depending on their current energy, some perceive bio-gas or natural gas (NG) as a solution.

Changes in industrial energy use are primarily driven by carbon pricing and GHG reductions

Carbon pricing is driving change now or may in the future. Many are taking action or developing plans based on corporate emission reduction goals. Energy efficiency will limit growth in energy consumption, even when production grows.

Expected changes in government energy use are driven by net-zero GHG commitments.

Population growth and economic development will increase energy use; achieving net-zero emissions will shift the type of energy used. Federal government plans to electrify operations; provincial and municipal energy plans are developing.

Key Findings – Who & How Fast

Early decarbonizers viewed changes as adding brand value to their business.

Those with plans to decarbonize tend to be B2C customers (a direct product that ships to market) who saw value in the brand equity of “going green” and/or made public commitments to environmental targets.

Late decarbonizers need bottom line cost savings to justify fuel switching.

Those with less ambitious plans for decarbonizing tend to be B2B customers (suppliers for other businesses) who stay competitive by staying cost-effective. Changes to energy use are dependent on keeping costs low and taking advantage of government funding.

The pace of change is most impacted by carbon pricing and government funding.

The pace of carbon pricing increases and availability of government funds for the energy transition will have the biggest impact on the size and timing of energy changes. Availability and price of renewable natural gas (RNG), as well as lead time for electrical interconnection will also affect the pace of change.

Conclusions

How are we using what we heard from our customers about their future expectations for their energy use in the IRP Key Inputs and Scenarios?

- The research confirmed customers are considering a very wide range of potential futures which depend on external factors or drivers of change. The 5 key inputs and 4 scenarios accurately capture the most influential factors and the range of futures that MH should be planning for.
- *Scenario 4 (Accelerated decarbonization & steady decentralization)* was confirmed to allow for a pathway for net zero to reflect that many customers are seeking to decarbonize. These customers are strongly influenced by carbon pricing. Some are seeking to adjust prior to it impacting their operations while others are monitoring it and will adapt only once the economics warrant it.

Scenario 1: Slow decarbonization & slow decentralization	**Scenario 2:** Modest decarbonization & modest decentralization	**Scenario 3:** Steady decarbonization & modest decentralization	**Scenario 4:** Accelerated decarbonization & steady decentralization
Economy – lower growth **Decarbonization policy** – reduced ambition **Electric vehicles** – delays or reductions **Natural gas changes** – limited **Customer self-generation** – limited uptake	**Economy** – growth continues **Decarbonization policy** – one of the priorities **Electric vehicles** – many light-duty; some medium-duty **Natural gas changes** – growth decreases **Customer self-generation** – economics not favourable	**Economy** – growth continues **Decarbonization policy** – a priority **Electric vehicles** – light and medium-duty **Natural gas changes** – reduced use; some RNG **Customer self-generation** – economics not favourable.	**Economy** – new load attracted **Decarbonization policy** – key focus towards Net Zero by 2050 **Electric vehicles** – highest switching **Natural gas changes** – limited use; more RNG **Customer self-generation** – economics improve

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INDUSTRIAL CUSTOMERS

Is Change Coming?

Customers' plans to alter the amount and/or type of energy they consume varied significantly.

- No one *communicated* plans to change their energy needs due to significant expansion or reduced production, beyond that which is already known to MH through service requests.
- **Most projected changes in the amount or type of energy use are predicated on emission reductions plans** OR **changes in demand.**
- Most customers without climate commitments, alternatively had efficiency targets to reduce their energy intensity per unit produced.
- A few customers have plans to decarbonize through electrification.
- RNG is seen as a way to meet emission reduction goals for those that don't find electrification economical. On-site bioenergy is also gaining traction.
- Some customers would like to gain access to NG to reduce costs & emissions.
- Carbon capture & storage (CCS) is being considered by some customers.

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WHO IS EXPECTING TO SEE CHANGES?

B2C Industrials – Most likely to expect change

Industrial businesses that sell direct to consumers (B2C) are more likely to shift their energy use, driven by emission reduction commitments, such as net-zero targets.

- **Electrification:** Significantly more likely to be pursuing or expecting to electrify operations in the future.
- **Brand Equity:** Given that they sold a branded product to consumers, these industrial producers can benefit (charging a premium or gaining more market share) from the positive perception of decarbonization versus those that sell an unbranded commodity to another business.
- **Share Prices:** Decarbonizing operations may positively influence share prices and environmental, social, and corporate governance (ESG) ratings.
- **Financing:** Financing support mechanisms may be tied to performance on specific reductions in energy, water, emissions, and waste.

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B2B Industrials – Least likely to expect change

Business to business (B2B) industrials that produce a commodity or a product which is an input into producing another good are least likely to be forecasting significant changes in the type or amount of energy they use.

- **Little/No Brand Equity:** Products that are commodities or inputs for other businesses, most often compete on price. In this case, lowering the emission intensity of the product does not translate to a higher selling prices or increased market share; costs cannot be passed on.
- **Market Demand:** This group was more likely to state that their energy consumption was heavily influenced by demand for their commodity or local availability of the product they process.
- **Energy Efficiency:** Although energy efficiency projects were common among all industrials, this group was most likely to have corporate targets for reducing energy, water, and waste per unit of production.
- **Energy Prices:** This group was most likely to indicate they are sensitive to energy prices.
- **Regulation:** Changes to energy use are often driven by changes to government regulations.

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DRIVERS OF CHANGE

Drivers of Change

Expectations of change in the type or amount of energy usage varied significantly, bookended by those expecting little change or only change based on demand for their product, to those actively electrifying their operations, with the rest in between.

- **Carbon Pricing:** This was the cost common driver of change. Virtually every participant stated the increasing carbon tax will have an impact on their energy choices or for those without plans to change, is something that they are actively monitoring.
- **Energy Efficiency:** Most participants stated they are planning or had recently completed energy efficiency initiatives which in some cases may significantly change their energy consumption. Energy efficiency was often motivated by reducing $/unit of output and relatedly to trying to reduce the impact of the increasing carbon tax and energy prices.
- **Corporate Commitments to Emission Reductions:** Several customers expect to reduce their consumption of fossil fuels, either through electrification, RNG or distributed energy resources (to a lesser extent); to meet corporate emission reductions commitments.
- **Demand for Product**: Several customers stated that changes in their energy use would be driven by changes in demand for their product. For example, one customer stated their energy consumption could change if a market for hydrogen developed.
- **Regulations:** Industrials that were less likely to be expecting significant change were motivated by changes in federal or provincial regulations.
- **Market Opportunity:** Opportunities exist for those that currently produce RNG and are working with MH to determine if it can be added to the natural gas network. Others were interested in reducing emissions by using RNG in place of natural gas.
- **Energy Prices:** If prices in Manitoba increased more than in other regions, customers who weren't dependent on local inputs (ex: potatoes, pork, etc.) could shift production to other regions thus reducing their energy consumption.

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Customer Assumptions & Expectations of Manitoba Hydro

The following are the assumptions that are fundamental to framing how customers see their future energy needs evolving.

- **Carbon Price – Persists & Escalating:** Participants predicting significant changes to their energy use assume the carbon price will survive changes in government and that it will continue to escalate up to $170/tonne by 2030. One customer, based on their international research, believes the carbon price will double shortly after 2030.
- **Electrical Capacity Available:** Those considering electrification, to lower their GHG emissions, assume they will be able to access clean renewable electricity from MH.
- **RNG Available:** There is a presumption among a couple customers that they will be able to access RNG to meet their future low-carbon energy needs. They also assume MH would deliver this RNG.
- **Electricity Rates:** Participants assume Manitoba Hydro will be able to reliably supply electricity at stable and affordable prices.
- **Raw Materials:** Assumes input product is available/stable in Manitoba.

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Speed of Change

The following are the factors that customers indicate would either speed up, delay, or altogether change their expectations of their future energy requirements.

- **Carbon Pricing:** The rate to which the carbon price will increase was mentioned by virtually every participant as having an impact on the speed of change to industrial customers' energy needs/mix. They are all tracking it. It will take a very high carbon price for many of the commodity-based industrials to justify electrification.
- **Funding:** The availability of federal and provincial funding for energy efficiency and/or decarbonization significantly impacts the economics and thus timing of projects.
- **RNG:** The degree to which RNG is available and cost competitive, in conjunction with the carbon price, will have an impact on the timing of demand for RNG as well as the required volume by MH to transport.
- **Regulations:** New regulations requiring adjustments to operations have an impact on future energy requirements or even demand for their product. Regulations such as air quality requirements, the Clean Fuel Regulation, and zero emission vehicle mandates are of note.
- **Energy Prices:** The changes in prices between electricity, NG, RNG, bio-energy and carbon capture will influence the speed of any future energy transition.
- **ESG in Financing**: If ESG ratings or sustainability factors gain prevalence in the cost of capital then it could accelerate the speed and depth of action regarding GHG emissions, energy and water use, and waste production.
- **Electrical Interconnection:** For those increasing electrical usage, the lead time to access additional electrical capacity could delay the timeline of changes and/or the magnitude.

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GOVERNMENT

Government - Energy Usage Changes

Federal Government	**Change:** Space heating electrification as equipment expires, fleet electrification by 2030, 100% clean electricity by 2022 and interest in RNG for space heat. **Emission Reductions:** National reduction of 40% by 2025 and >90% by 2050. Prioritize dirty grids.
Provincial Government	**Change:** No significant changes planned yet. Announcement and funding to come soon on transportation (provincial fleet & public), provincial buildings (energy efficiency), and regional efforts.
City of Winnipeg	**Change:** Transit and fleet electrification, aiming to pipe landfill RNG in MH network, energy efficiency, and studying electrification. Working to create carbon-neutral new building policy. **Emission Reductions:** 20% by 2030 and net-zero by 2050. Updating Climate Action Plan for ~2024.
City of Brandon	**Change:** No significant changes planned except for expansion of water treatment facility. **Emission Reductions:** Net-zero by 2050. Few implementation plans except for flaring of landfill methane. Developing Climate Action Plan for ~2024 as part of 30-year city plan.
Association of Manitoba Municipalities	**Change:** Energy use changes in municipalities are driven by economic development. **Speed:** Restrained by timely access to electrical capacity and access to NG. Need more funding. **Emission Reductions:** Not a current driver. No discussion on NG bans. Some RMs want more NG.

Most expect fleet electrification to be the first shift in their energy usage

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WHAT ELSE DID WE LEARN?

Customer Service Findings

Service Expectations	**Interconnection Timelines:** Some customers state that long lead times in obtaining the electrical service they require have delayed projects. These long lead times have even resulted in some lost opportunities for economic development in Manitoba.
	Power Quality & Reliability: Although it did not come up often, power quality/reliability can have an outsized impact on some customers operations.
Desire for New Products	**100% Clean Electricity:** Several customers want MH to enable them to certify that 100% of their electricity was emission-free.
	Renewable Natural Gas: A few customers expect to be able to access RNG to meet GHG reduction targets and they expect MH to source it for them. Some customers are working with Manitoba Hydro on RNG.

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Questions?

Email us at IRP@hydro.mb.ca

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3.4 Round Two Customer Survey – Copy of Survey

Survey Content & Questions:

Section 1 Introduction - Integrated Resource Planning Process

Integrated Resource Planning Process

Over the past few months, we've continued the conversation about Integrated Resource Planning by asking customers to share their views on the key inputs and potential future scenarios we've developed to use in the modeling and analysis for our Integrated Resource Plan.

We want to hear from you again as we continue the conversation to verify the proposed key inputs and scenarios and to ensure our energy supply and delivery systems continue to serve all our customers safely, reliably, and affordably into the future.

Who's Listening

The Integrated Resource Planning Team at Manitoba Hydro

Section 2 - Conversations in the Integrated Resource Planning Process

Understanding Customers' Future Energy Needs and Decisions

- A survey open to all customers gathered input on how electricity and natural gas needs are changing. Read a summary of what we heard.

Verify Key Inputs and Energy Scenarios * We Are Here

- Conversations with customers and interested parties verifies key inputs with the potential to impact future energy needs and helps develop possible future scenarios. Read the workshop presentation.

Modelling and Analysis

- Results of modelling using key inputs and scenarios are shared. Next steps of evaluation in preparation to develop roadmaps are discussed.

Preliminary Outcomes Shared

- Customers and interested parties are given the opportunity to review and provide feedback.

Integrated Resource Plan Finalized

- The Integrated Resource Plan is finalized and shared.

To learn more about the Integrated Resource Planning Process, see this video.

Section 3 - What are Key Inputs?

Key inputs are inputs with potential to have a significant impact on future energy needs. To develop the key inputs, we considered drivers and factors in the Manitoba energy landscape and focused on those which will

likely have the most impact and will change over the next 20 years. The rate of change for each is unknown and could vary significantly.

Economic Growth

- Economic growth captures several influencing factors and can in turn impact other trends and changes. Factors impacting economic growth could include global, economic and environment factors, population growth, immigration and business development.

Decarbonization Policy

- Decarbonization is the reduction carbon emissions which in turn lowers greenhouse gas emissions. Factors creating uncertainty for Decarbonization include international climate change commitments, government policy, viability of new technologies and available incentives.

Electric Vehicles (EV)

- Electric Vehicles include light duty (i.e. passenger cars), and medium duty and heavy-duty vehicles (fleet vehicles). Influencing factors include the cost of new EV's, available incentives, availability of charging infrastructure as well as policies, mandates and standards.

Natural Gas Changes

- Natural Gas changes includes the end-use of natural gas, the role of the natural gas system including its infrastructure, and its role in serving peak space heating needs in Manitoba. The factors creating uncertainty include the cost of natural gas alternative infrastructure, cost of natural gas vs. electricity, availability and cost of alternate fuels, available incentives, viability of industrial process energy alternatives.

Customer Self-generation

- Customer self-generation refers to customers owning and using equipment to produce and serve all or a portion of their energy needs. Influencing factors creating uncertainty include cost of behind the meter resources, cost of electricity, electric rate structure, available incentives and policies, mandates and standards.

To learn more about Key Inputs, Watch the Video.

Which key input do you think will have the biggest impact in the Manitoba energy landscape in the next 20 years?

- Economic Growth
- Decarbonization Policy
- Electric Vehicles
- Natural Gas Changes
- Customer Self Generation
- Other, please describe

- Not sure

Section 4 - What are Future Energy Scenarios?

A scenario is a combination of the inputs resulting in specific potential energy future. The following proposed scenarios provide a range of potential energy futures in our province. We want to look at a range of scenarios to learn what the range of potential implications might be. Then we can start to plan what we should to do to be prepared for the future.

Scenarios form the basis for modelling and analysis, which looks at the energy demand over time and assesses potential energy supply and delivery options.

The four proposed scenarios build upon the key inputs and provide a reasonable range of what the energy future might look like in Manitoba. The scenarios are based on potential rates of change (slow, modest, steady and accelerated) for the biggest influencers in Manitoba's evolving energy landscape: Decarbonization and Decentralization.

The scenarios are developed relative to one another. Each circle represents the amount of change for an input for a scenario. The more dots present, the more change is anticipated.

Scenario 1: Slow Decarbonization and Slow Decentralization	
Key Inputs	**Details**
Economic Growth	Lower growth
Decarbonization Policy	Reduced ambition
Electric Vehicles	Delays or reductions
Natural Gas Changes	Limited
Customer self-generation	Limited uptake

Scenario 2: Modest Decarbonization and Modest Decentralization	
Key Inputs	**Details**
Economic Growth	Growth continues
Decarbonization Policy	One of the priorities
Electric Vehicles	Many light-duty and some medium-duty
Natural Gas Changes	Growth decreases
Customer self-generation	Economics not favourable

Scenario 3: Steady Decarbonization and Modest Decentralization	
Key Inputs	**Details**
Economic Growth	Growth continues
Decarbonization Policy	A priority
Electric Vehicles	Light-duty and medium-duty
Natural Gas Changes	Reduced use and some RNG
Customer self-generation	Economics not favourable

Scenario 4: Accelerated Decarbonization and Steady Decentralization	
Key Inputs	**Details**
Economic Growth	New load attracted
Decarbonization Policy	Key focus towards NetZero by 2050
Electric Vehicles	Highest switching
Natural Gas Changes	Limited use and more RNG
Customer self-generation	Economics improve

Amount of Change for each Key Input for each Scenario				
Key Inputs	**Scenario 1**	**Scenario 2**	**Scenario 3**	**Scenario 4**
Economic Growth	●	●●	●●	●●●
Decarbonization Policy	●	●●	●●●	●●●●
Electric Vehicles	●	●●	●●●	●●●●
Natural Gas Changes	●	●●	●●●	●●●●
Customer self-generation	●	●●	●●	●●●

To learn more about the Proposed Scenarios, Watch the Video.

Which of the proposed scenarios do you believe is most likely to happen in the next 20 years?

- Scenario 1: Slow decarbonization and Slow decentralization

- Scenario 2: Modest decarbonization and Modest decentralization
- Scenario 3: Steady decarbonization and Modest decentralization
- Scenario 4: Accelerated decarbonization and Steady decentralization
- A different scenario is more likely to happen <open long answer text box> If so, what type of scenario?
- Not sure

Section 5 - Communication and Engagement Feedback

From the IRP process, key inputs and scenario information presented, did you have enough information to be able to meaningfully participate in this survey?

- Yes
- Somewhat
- Not at all, If selected – What other information did you need?

Are there topics related to energy planning you would like more information on?

- Digitalization (Adapting to changes in technology to support and serve our customers)
- Decarbonization
- Alternative energy supply sources (Hydrogen, Renewable Natural Gas, Solar)
- Decentralization (Customer self-generation)
- Other, please specify

Thinking about future engagement with the IRP process, how would you like to review information? (Select all that apply)

- Recorded video
- Written report
- In-person presentation
- Virtual presentation
- Website
- Other, please specify

What are the best ways of sharing IRP updates and information with you? (Select all that apply)

- Email
- Text message
- Telephone
- Social media
- Manitoba Hydro bill inserts
- Radio
- TV
- Manitoba Hydro website

Do you have any additional comments on the IRP process?

Are you currently or have you ever been a Manitoba Hydro employee?

- Yes, current employee
- Yes, previous employee
- No, have never been employed by Manitoba Hydro
- Prefer not to answer

Section 6 - Demographic Information

If you would like to be kept directly informed of results from this survey and next steps as we develop the Integrated Resource Plan, please enter your contact information below.

- Name
- Email

Which gender do you identify with?

- Female
- Male
- Non-binary
- Prefer to self-describe, please describe
- Prefer not to answer

Do you identify as Indigenous?

- Yes, Registered or Treaty Status
- Yes, Non-Status
- Yes, Inuit
- Yes, Métis
- No, I do not identify as Indigenous
- Prefer not to answer

What age range do you fall in?

- 18 – 24
- 25 – 34
- 35 – 44
- 45 – 54
- 55 – 64
- 65 – 74
- 75 or older
- Prefer not to answer

What was the total income in your household last year?

- Under $20,000
- $20,000 - $39,999
- $40,000 - $59,999

- $60,000 - $79,999
- $80,000 - $99,999
- $100,000 - $119,999
- Prefer not to answer

Section 7 - Closing – End of Survey Message

Thank you for your feedback your response has been recorded.

We will be taking your input and feedback to help shape the key inputs and scenarios that will feed into the Modelling and Analysis phase.

Please visit us at hydro.mb.ca/future for more information about the Integrated Resource Plan or email us at IRP@hydro.mb.ca.

3.5 Round Two Customer Survey Report

Phase 2 Survey

Feedback Collected:
July 28 – August 12, 2021

Manitoba Hydro
energy for life

Key Findings

Decarbonization Policy

Decarbonization policy was seen as the top driver that will have the largest impact on Manitoba's energy landscape in the next 20 years.

Customer Interests

Alternative energy supply sources and self-generation were the top topics that customers want to learn more about.

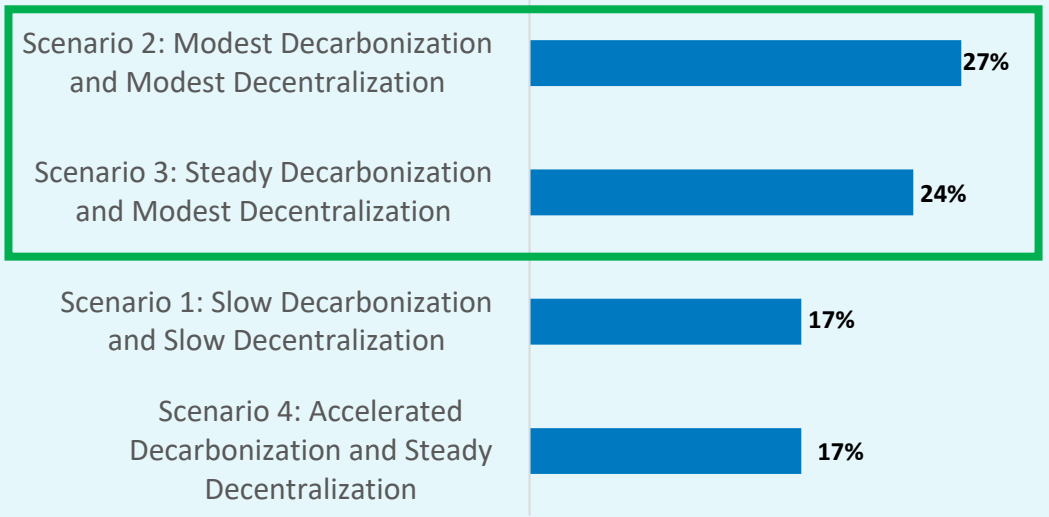
Engagement Preferences

Websites and written reports were the most popular formats for reviewing future IRP information.

Perceptions of Future Energy Scenarios

Modest and steady paces of decarbonization and decentralization are seen as the most likely scenarios to occur in the next 20 years.

Q: Which of the proposed scenarios do you believe is the most likely to happen in the next 20 years? n=1048

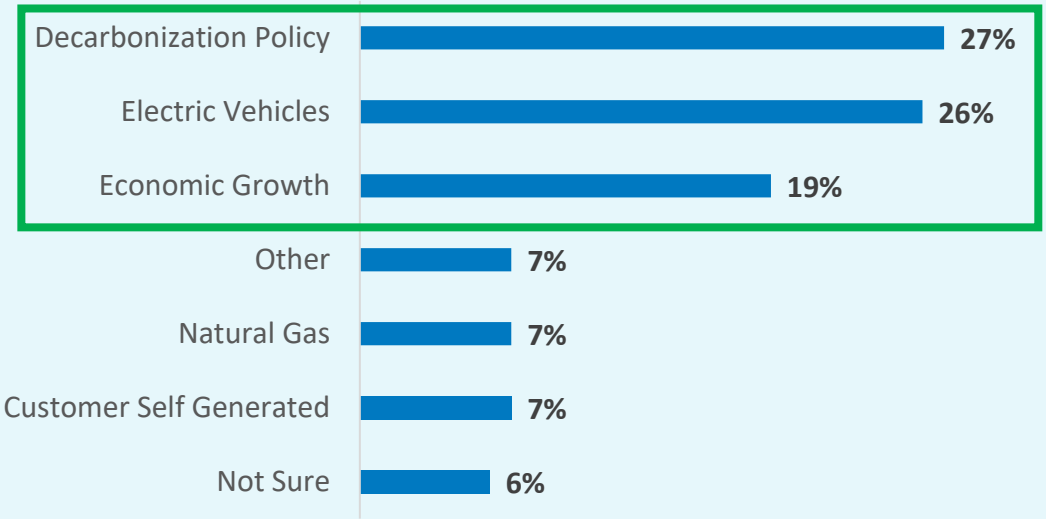


Key Inputs on Manitoba's Energy Future

Customers identified the top three key inputs on our energy future as

- **Decarbonization Policy**
- **Electric Vehicles**
- **Economic Growth**

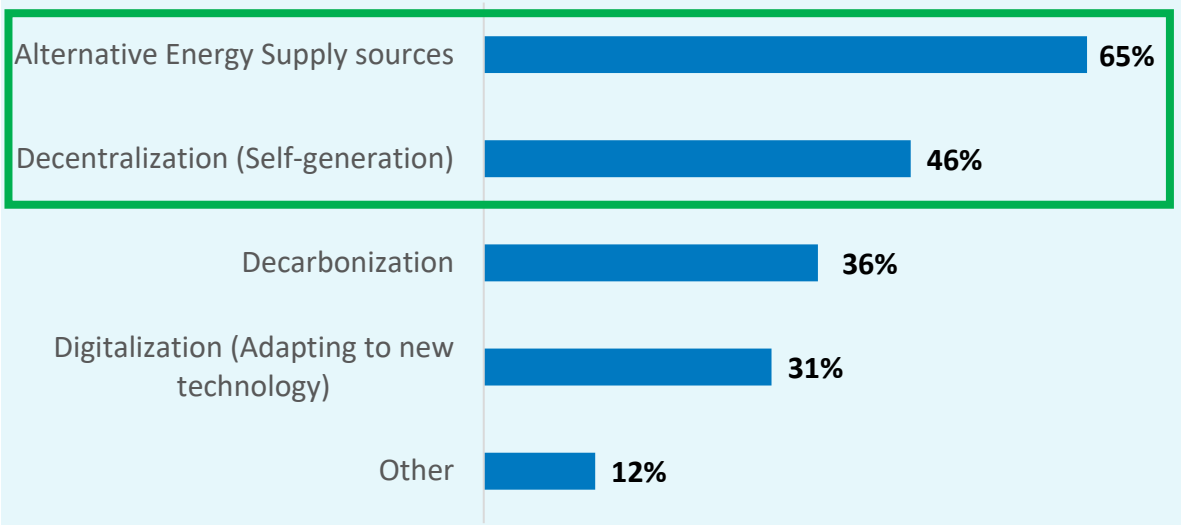
Q: Which key inputs do you think will have the biggest impact in the Manitoba energy landscape in the next 20 years. n=1185



What do customers want to know more about?

Customers are most interested in learning about topics that can directly impact their energy use like alternative supply sources and self-generation.

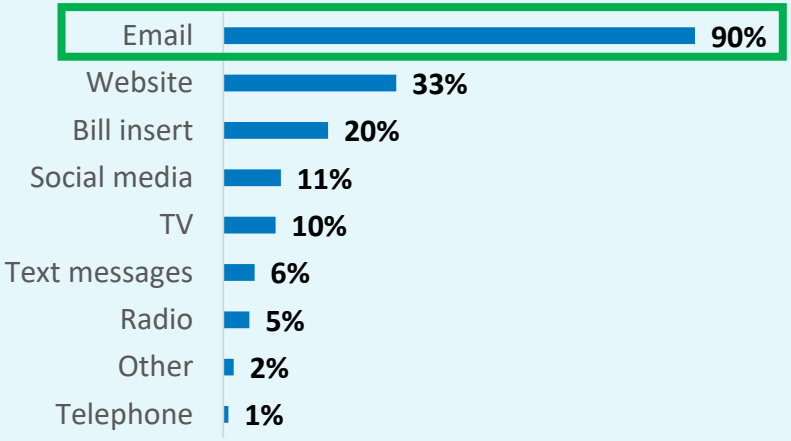
Q: Are there topics related to energy planning you would like more information on? n=870



Engagement Preferences

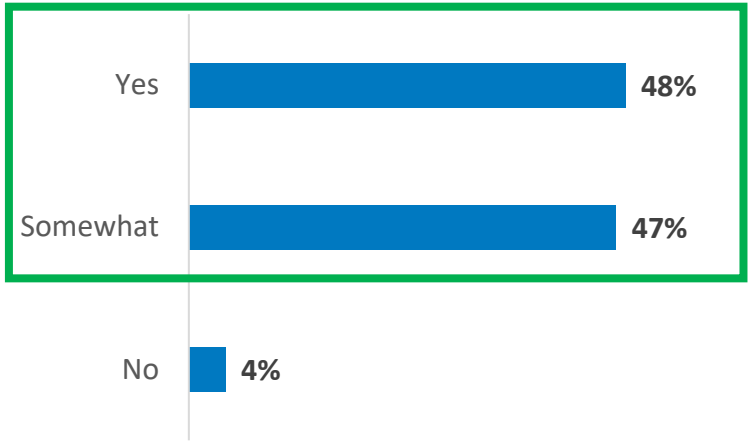
Customers want updates through email.

Q: What are the best ways of sharing IRP updates and information with you? (Select all that apply) n=990



Customers felt they could meaningfully engage.

Q: From the IRP process, key inputs and scenario information presented, did you have enough information to meaningfully engage in this survey? n=990

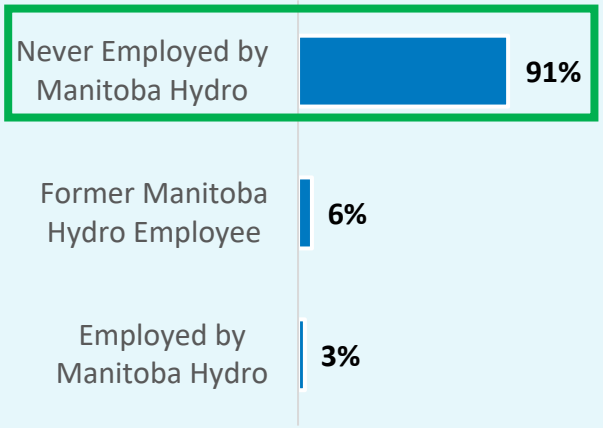


RESPONDENT PROFILE

Respondent Demographics

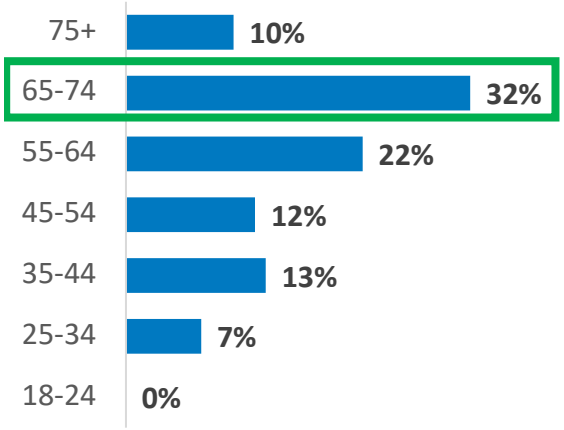
Employment:

Q: Are you currently or have you ever been a Manitoba Hydro employee? n=990



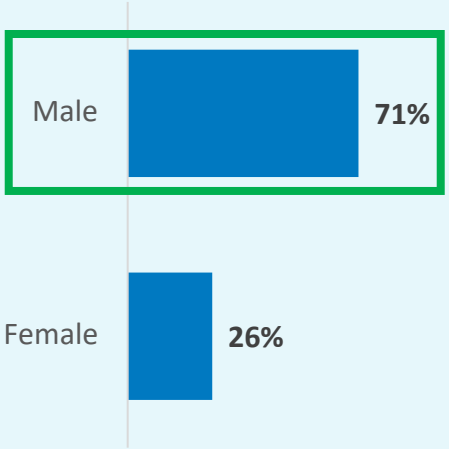
Age:

Q: What is your age? n=949



Gender:

Q: Please indicate with which gender you identify. n=948



QUESTIONS?

CONTACT: IRP@HYDRO.MB.CA

4 Round Three – Initial Modelling Results

This section provides an overview of supporting materials from Round Three engagement of the 2023 Integrated Resource Plan including:

- Round Three Customer Survey – Copy of Survey

4.1 Round Three Customer Survey – Copy of Survey

Introduction:

Thank you for attending the Integrated Resource Planning (IRP) workshop for Manitoba Hydro. As discussed at the end of the session, this survey is to gather your opinions about the workshop and the IRP process.

As you will remember, the presentation given during the workshop addressed three areas:

- Background of the IRP and outcomes of Round 2 engagement
- IRP modelling process summary
- IRP initial modelling results

Thinking of the presentation, how clearly was the information presented for each of these by Manitoba Hydro?

	Very clear	Clear	Somewhat clear	Not very clear
1. Background of the IRP and engagement process	O4	O3	O2	O1
2. IRP modelling process summary	O4	O3	O2	O1
3. IRP initial modelling results	O4	O3	O2	O1

4. What additional information, if any, would have helped clarify the information provided? Is there anything that was missing?

_____

_____

No additional information needed	O
Don't know	O

5. As part of the workshop, participants were asked to take part in discussions about other factors to consider in the modelling. Did you feel that these discussions allowed you to meaningfully contribute to the IRP process?

Yes, definitely	Yes, somewhat	No, not at all
O	O	O

6. What would have made the discussion more useful or would have allowed for a more meaningful contribution?

Nothing else O
Don't know O

7. The IRP process requires ongoing consultation and planning. If invited in the future to attend a workshop about the IRP, how likely would you be to attend (if it was at a time and date that worked for you)?

Definitely would O
Probably would O
Probably would not O
Definitely would not O

8. Could you please indicate why you would likely not attend a future workshop about the IRP?

9. Is there anything else you would like to share with us about the IRP process?

No other comments O

Thank you for your time.

5 Round Four – Preliminary Outcomes

This section provides an overview of supporting materials from Round Four engagement of the 2023 Integrated Resource Plan including:

- Round Four Customer Survey – Copy of Survey

5.1 Round Four Customer Survey – Copy of Survey

Thank you for your interest in our Integrated Resource Plan (IRP) Round Four presentation. This survey is to gather your feedback on the information presented, and to seek your opinion about the IRP process.

Thinking of the online presentation, how clearly was the information presented for each of these areas by Manitoba Hydro?

	Very clear	Clear	Somewhat clear	Not very clear
1. Summary of completed Modelling & Analysis Results	O	O	O	O
2. IRP Roadmap: Learnings	O	O	O	O
3. IRP Roadmap: Near-term actions	O	O	O	O
4. IRP Roadmap: Signposts				

5. What additional information, if any, would have helped clarify the information provided? Is there anything that was missing?

_____

_____

_____

No additional information needed	O
Don't know	O

6. Thinking of the near-term actions and signposts presented in the presentation, what do you feel are priorities for actions and for ongoing monitoring? The near-term actions are grouped under five themes. Please select the five sub-actions that you think are most important to prepare to meet Manitoba's changing energy needs. (Select 5)
   - 1.0 Actively manage increasing winter peak load
   - 1.1 Explore the potential for dual fuel space heating, including development of a pilot project.
   - 1.2 Pursue high-value energy efficiency measures in collaboration with Efficiency Manitoba.
   - 1.3 Develop demand response product options.
   - 1.4 Develop rate design options
   - 2.0 Pursue near-term options to be ready for potential rapid demand growth
   - 2.1 Pursue cost-effective enhancements to existing hydropower plants.
   - 2.2 Increase readiness to put new future resources into service including looking for ways to minimize lead times to initiate, plan and construct.
   - 2.3 Prepare detailed plans for high potential near-term new resources, such as wind and dispatchable capacity.

2.4 Establish a range of potential resource development plans that meet Manitoba's future capacity and energy needs.
2.5 Develop grid modernization and expansion strategies to enable future peak demand growth and enhance operations.
3.0 Develop options to reduce carbon content in natural gas
3.1 Develop renewable natural gas market participation structure.
3.2 Continue investigation of renewable natural gas market and supply potential.
3.3 Investigate hydrogen blending feasibility and market potential.

4.0 Enhance Integrated Resource Planning to address evolving needs.
4.1 Continue building the energy planning community and evolve engagement with interested parties, including Indigenous and community leadership, as well as representation from a variety of customer segments.
4.2 Develop a framework to evaluate total energy-related costs to help Manitobans understand the implications of future energy choices.
4.3 Study evolving role of energy markets and interconnections.
4.4 Advance detailed planning to reflect regional variations across Manitoba.
5.0 Continue planning to meet the challenges of deep decarbonization.
5.1 Determine impacts of integrating variable renewable resources like wind, including transmission requirements.
5.2 Identify and assess the potential of hydrogen supply, direct-use, storage and other infrastructure.
5.3 Explore potential long-term role for new technologies such as energy storage, carbon capture and storage, hydrogen fueled combustion turbines, biomass, small modular reactors.

7. Manitoba Hydro plans to monitor and report on various signposts including government actions, customer decisions, zero emission vehicles, and technologies and markets. Which of the four signposts do you feel are influencing your energy decisions?
   a) Government Actions
   b) Customer Decisions
   c) Zero Emission Vehicles
   d) Technology and Markets

8. Please explain why these are impacting your decisions:

9. Are there additional signposts or specific areas within these signposts that should be monitored? If so please not them below and explain why they are important to monitor.

10. Thinking about the engagement format overall, and for future IRP engagement, how can Manitoba Hydro improve this process? What additional ways of communicating with you might have helped you to understand and participate in the IRP process?

11. The IRP process will continue beyond publication of the 2023 IRP report and there will be opportunities to participate in the future. What else would you like to share about the IRP process and how it might be improved in the future?