Southern Bruce County NG
Line Load Forecasting Survey

Prepared by:

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Methodology & Demographics

Methodology

- These are the results of a telephone survey among owners of residential properties in the municipalities of Kincardine, Huron-Kinloss, and Arran-Elderslie to determine the level of interest in converting to natural gas.

- Only households in areas of these municipalities that are eligible for gas service were included in the sample. The eligible areas, with the corresponding *municipality* in brackets, consist of:

  - Kincardine excluding outlying rural areas (*Kincardine*)
  - Tiverton (*Kincardine)*
  - The lakeshore from Kincardine to Point Clark (*Huron-Kinloss*)
  - Ripley (*Huron-Kinloss*)
  - Lucknow (*Huron-Kinloss*)
  - Chesley (*Arran-Elderslie*)
  - Paisley (*Arran-Elderslie*)

- Inclusion in the sample was based on the 6 digit postal code of each household address with additional filtering by geo-coding addresses where necessary. *See the technical appendix for more detail.*

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Methodology

- Sampling was conducted with a stratified sample of permanent residents and non-permanent residents with properties in the service area from each municipality.
- The main sample was listed landlines in the service area. Additional sample of non-permanent residents were identified based on households who use a mailing address outside of the sample region to receive their property tax bills. See the technical appendix for more details
- The strata of permanent residents was weighted by municipality and household size according to Statistics Canada data
- The survey was conducted by telephone among 554 randomly-selected households within the sample area, between July 6th 2017 and July 17th 2017. The results were weighted to 500.
- Respondents were screened to ensure they were 18 years or older and the owner of the property in question.
- The overall results are considered accurate to within ±4.4%, 19 times out of 20. The margin of error will be larger within each sub-grouping of the sample.
- Tracking results come from a study conducted by the municipalities in 2014. The total n-size for the 2014 sample was 753 respondents. These results are considered accurate to within ±3.6%, 19 times out of 20.

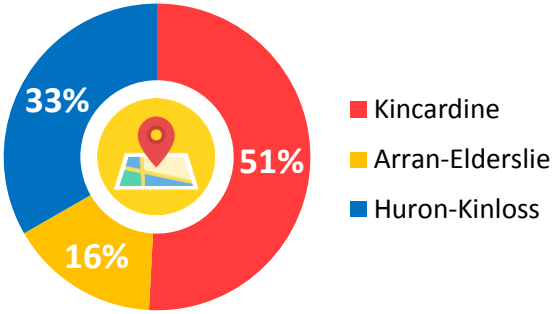
Note: *Graphs and tables may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.*

Sample Breakdown

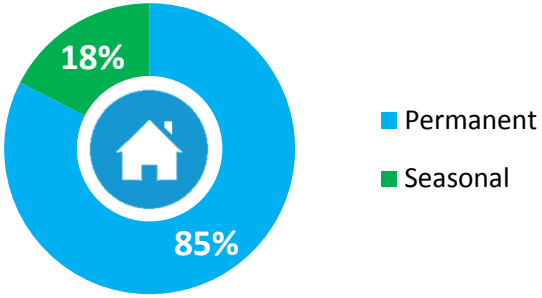
Sample Sizes

	Unweighted N	Weighted N
Total	554	500
Kincardine	251	254
Huron-Kinloss	176	166
Arran-Elderslie	127	79
Permanent	439	408
Non-permanent	115	92

Municipality



Residency



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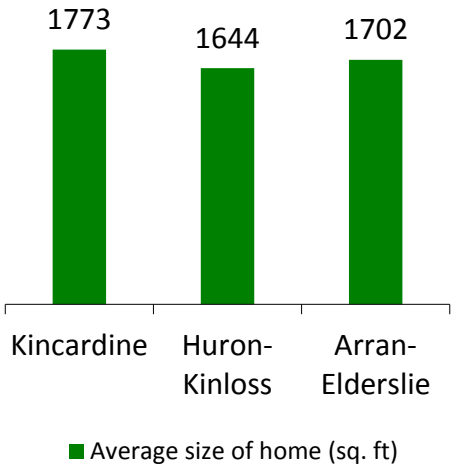
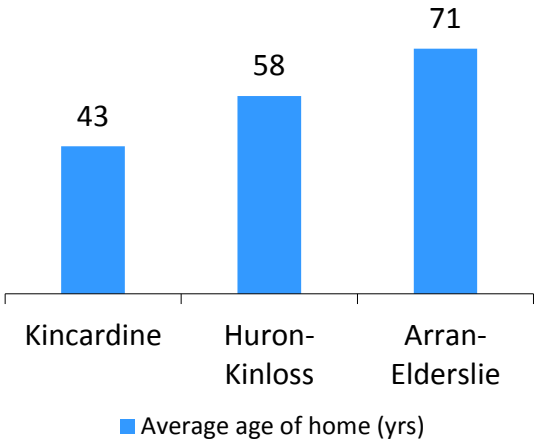
Demographics: *Households Profile*

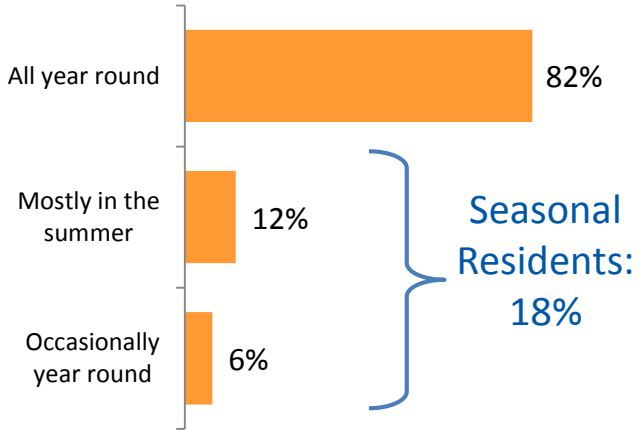
Size of Home



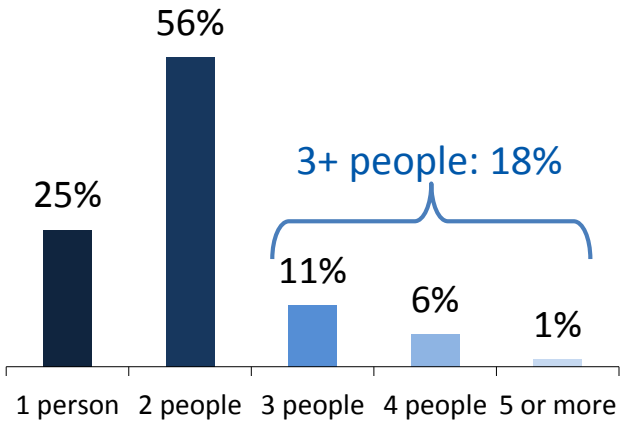
Age of Home



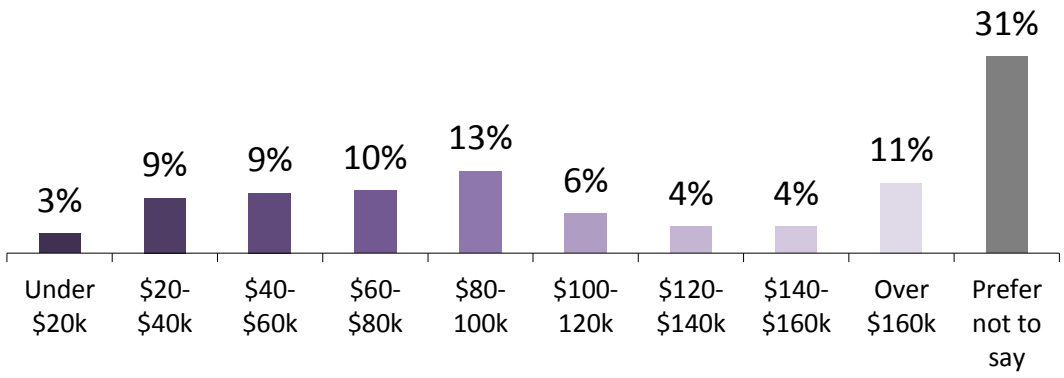
Home Occupancy



Household Size



Household Income



Demographics: *Average annual heating costs*

2014

Average annual home/water heating costs

Quartiles	Frequency
$0-$1,500	23%
$1,500-$2,399	19%
$2,400-$3,099	17%
$3,100+	17%
Don’t know	24%

2017

Average annual home/water heating costs

Quartiles	Frequency
$0-$1,400	21%
$1,400-$2,299	20%
$2,300-$3,199	21%
$3,200+	20%
Don’t know	19%

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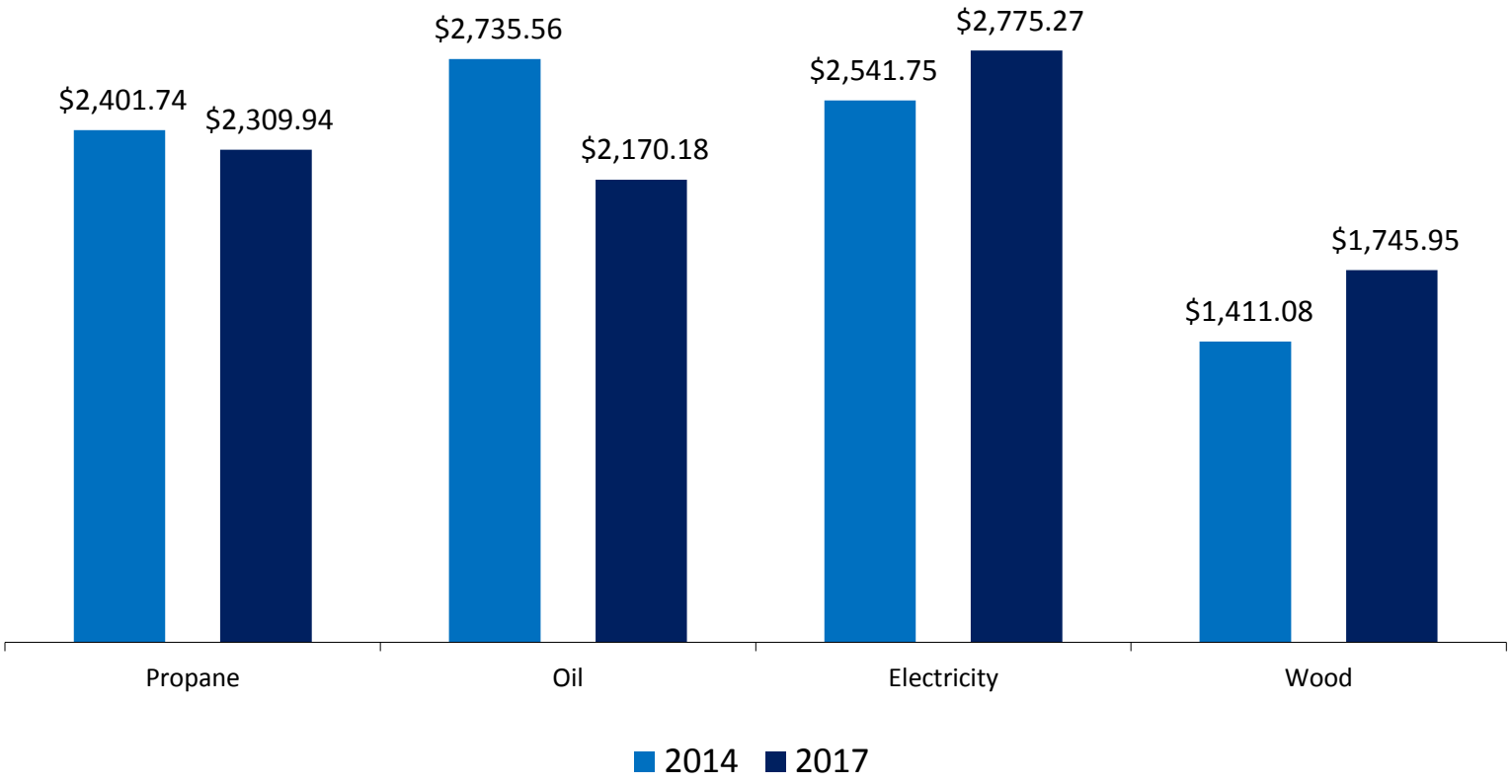
Demographics: *Average annual heating costs by fuel type*



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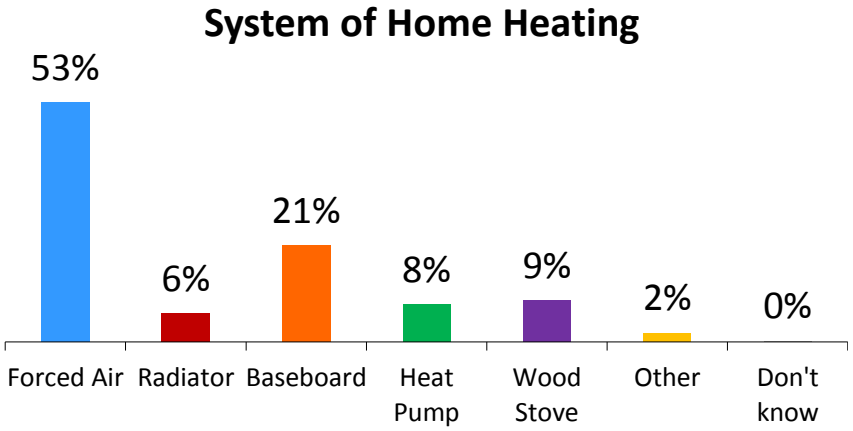
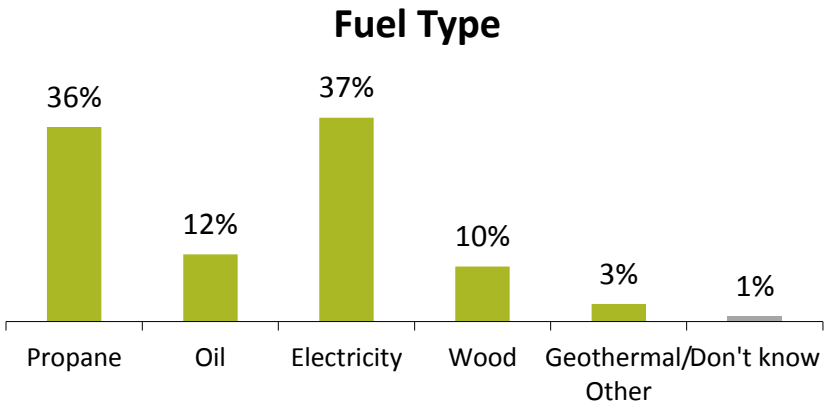
Home Heating

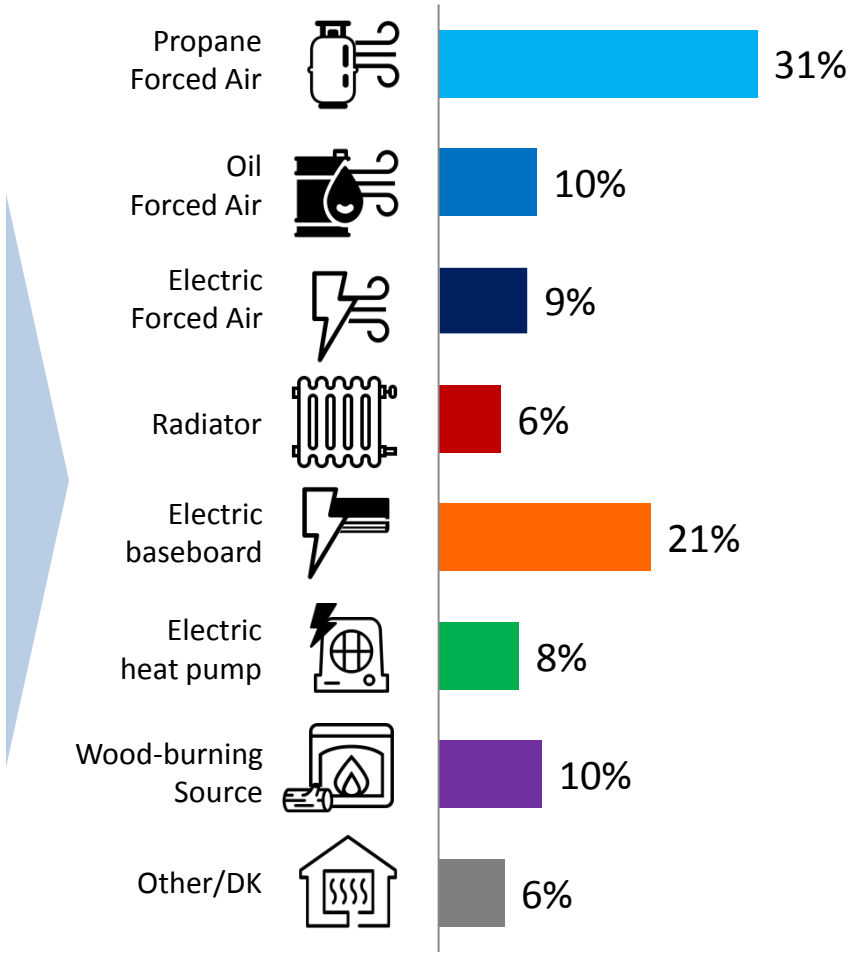
Home heating systems: 31% have propane forced air; 21% have electric baseboards

Q What type of system provides the primary source of heat for your home?
[asked of all respondents]



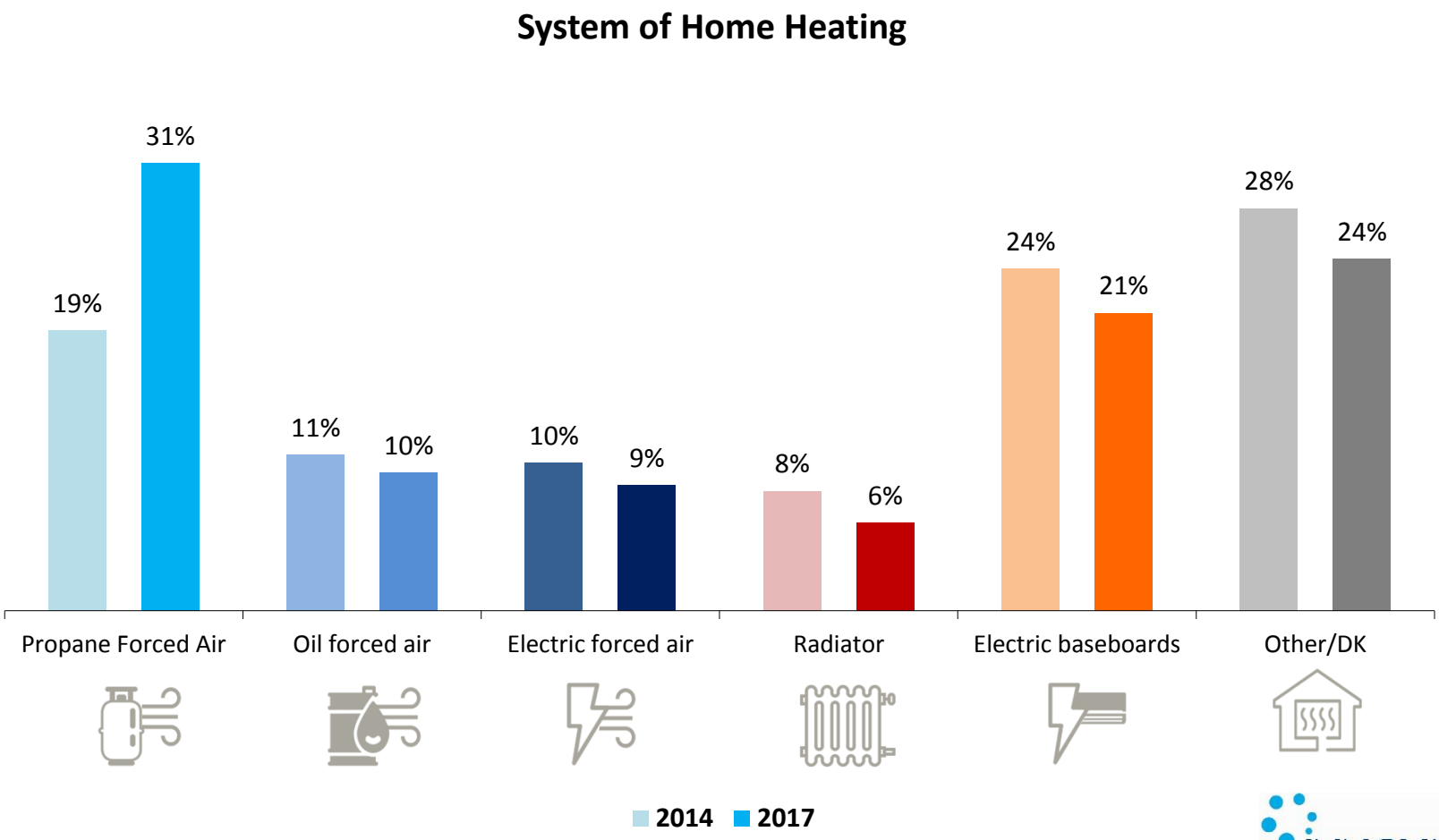
Q What is the primary energy source for heat in your home?
[asked of all respondents]





Heating system tracking: 12 point increase in respondents with propane forced air since 2014

Q What type of system provides the primary source of heat for your home?
[asked of all respondents]



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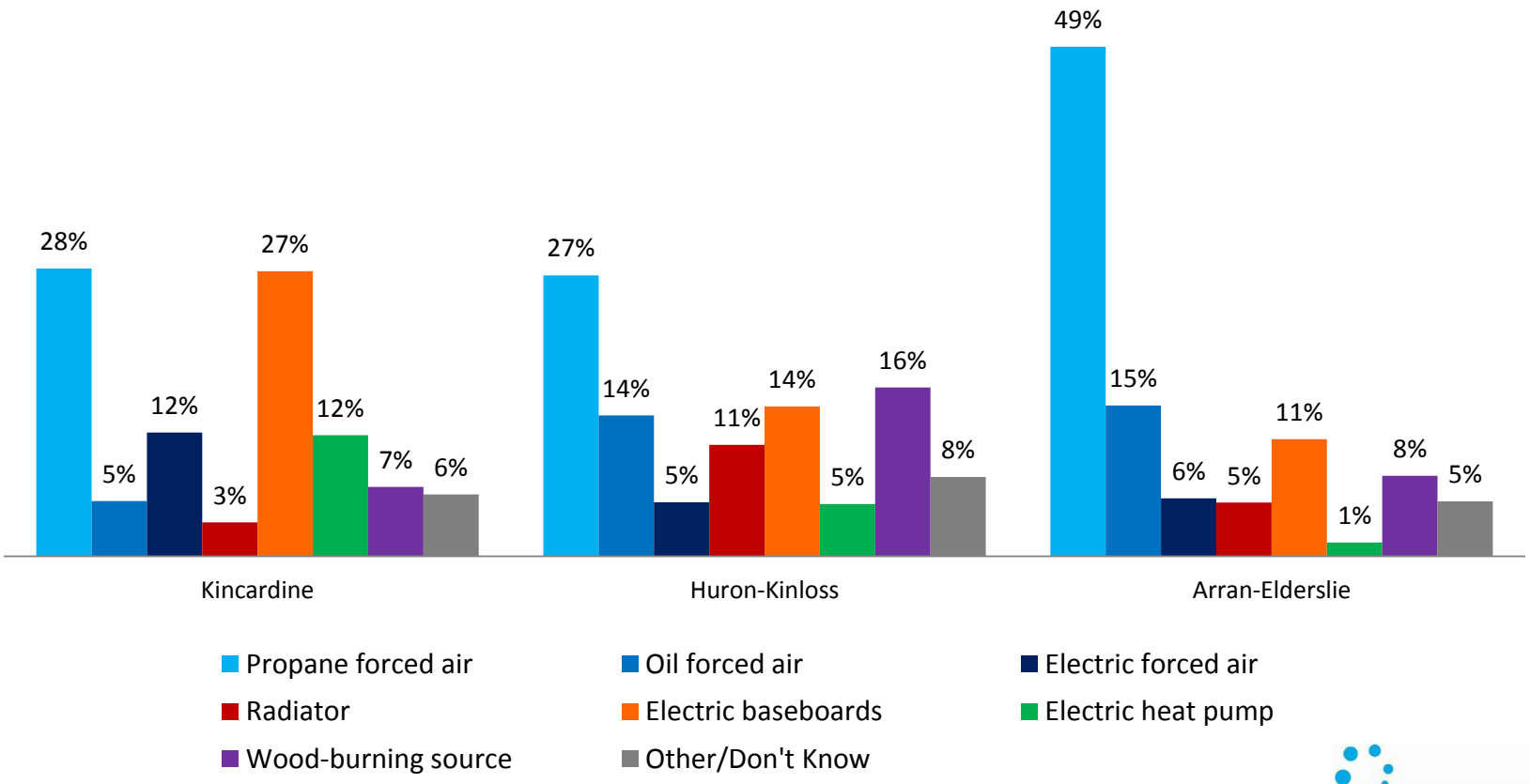
Type of heating *by* municipality: Almost half (49%) of respondents in Arran-Elderslie have propane forced air

Q What type of system provides the primary source of heat for your home? AND What is the primary energy source for heat in your home?

[asked of all respondents]



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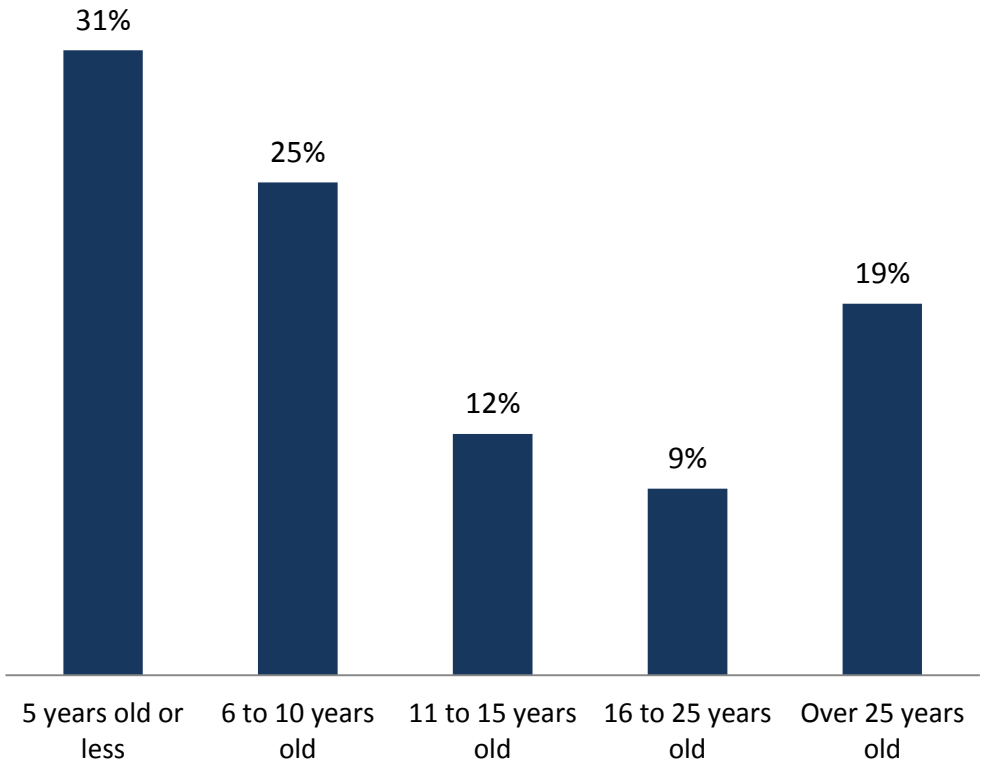
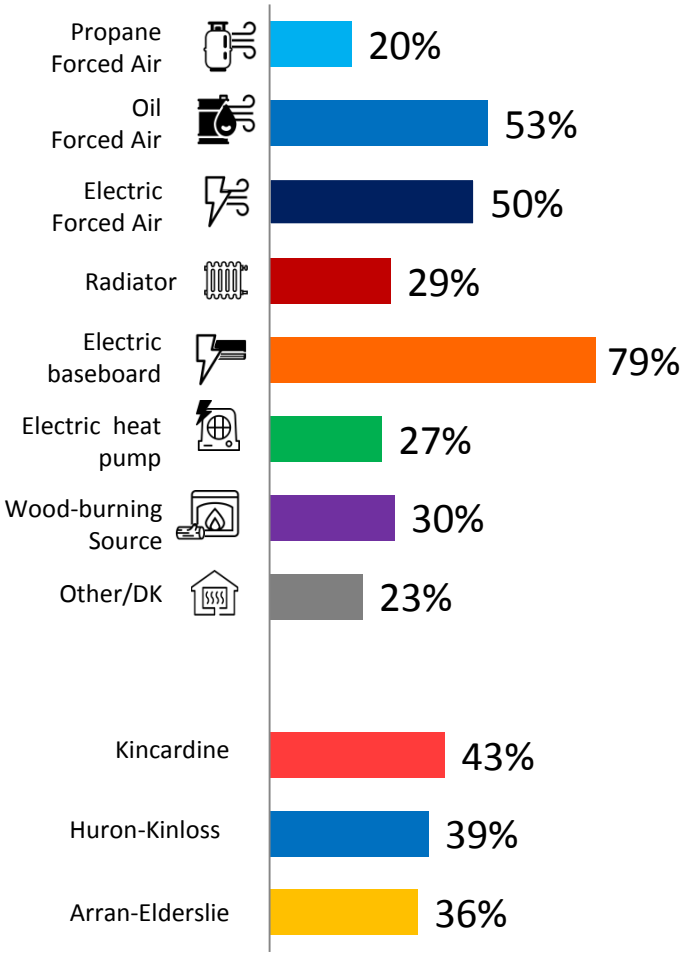
Age of systems: Those with electric baseboards (79%) and Kincardine residents (43%) most likely to have older systems

Q How old is your heating system? If you are not sure please provide your best guess.
[asked of all respondents]



Sample Breakdown ▸▸

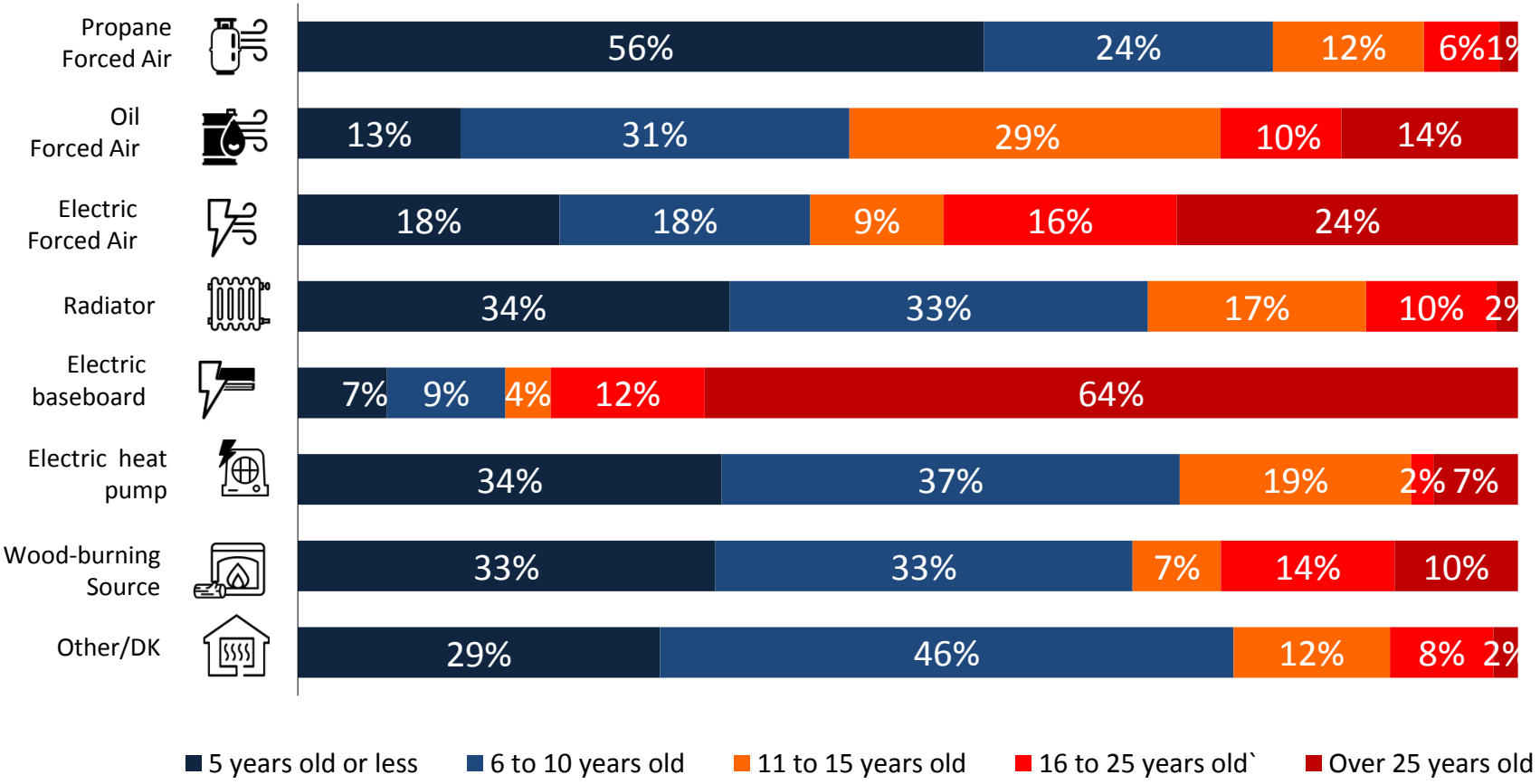
Percentage older than 10 years.



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

Age of systems: Respondents with electric baseboards have oldest systems; propane forced air generally newest

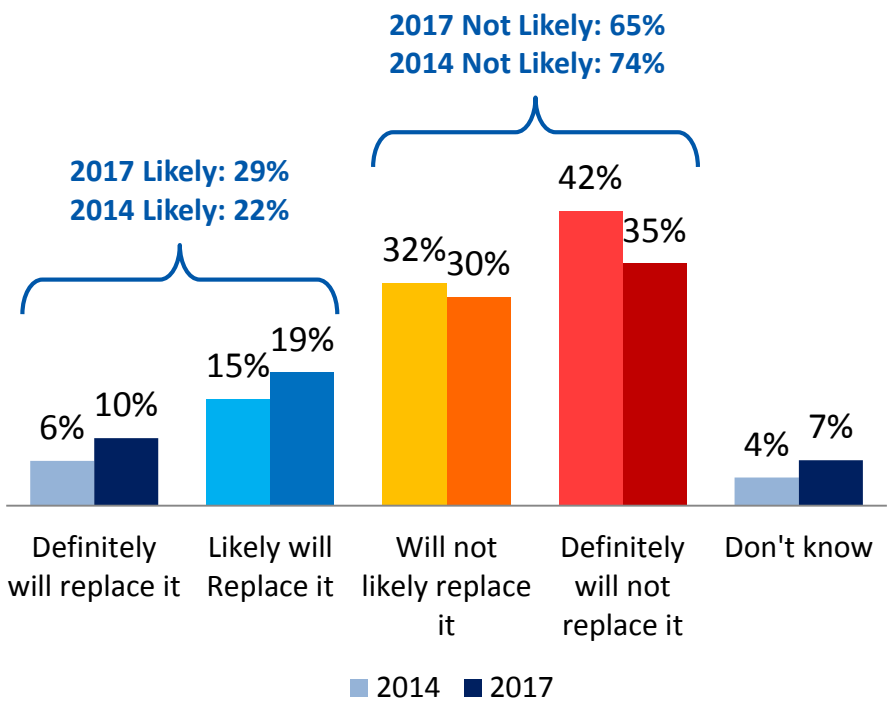
Q How old is your heating system? If you are not sure please provide your best guess.
[asked of all respondents]



Note: "Don't know" not shown

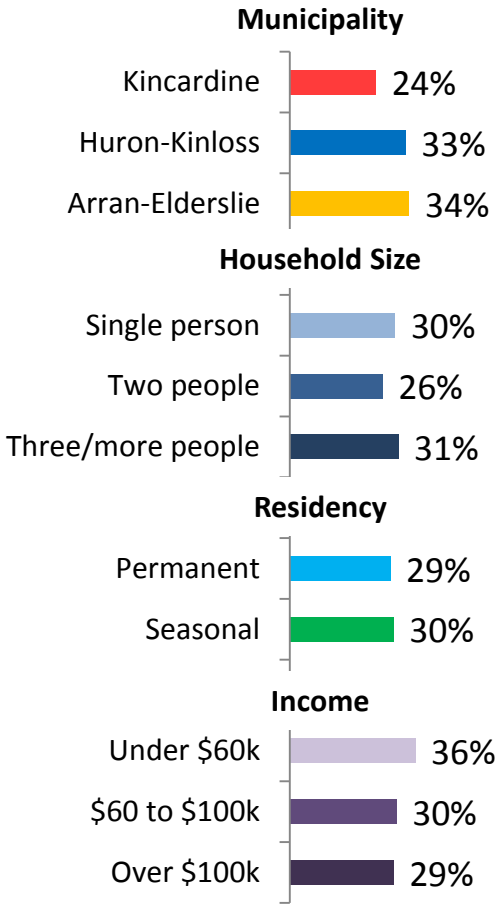
Replacing home heating: Households making under $60k and those in Arran-Elderslie most likely to replace system

Q How likely are you to replace your home heating system in the next 5 years?
[asked of all respondents]



Sample Breakdown ▸▸

Those who will "likely" or "definitely"



Notes: "Refused" not shown.
This question is asked before any discussion of natural gas conversion and is intended to gauge ***existing*** plans to replace systems, separate from any work related to a natural gas conversion.

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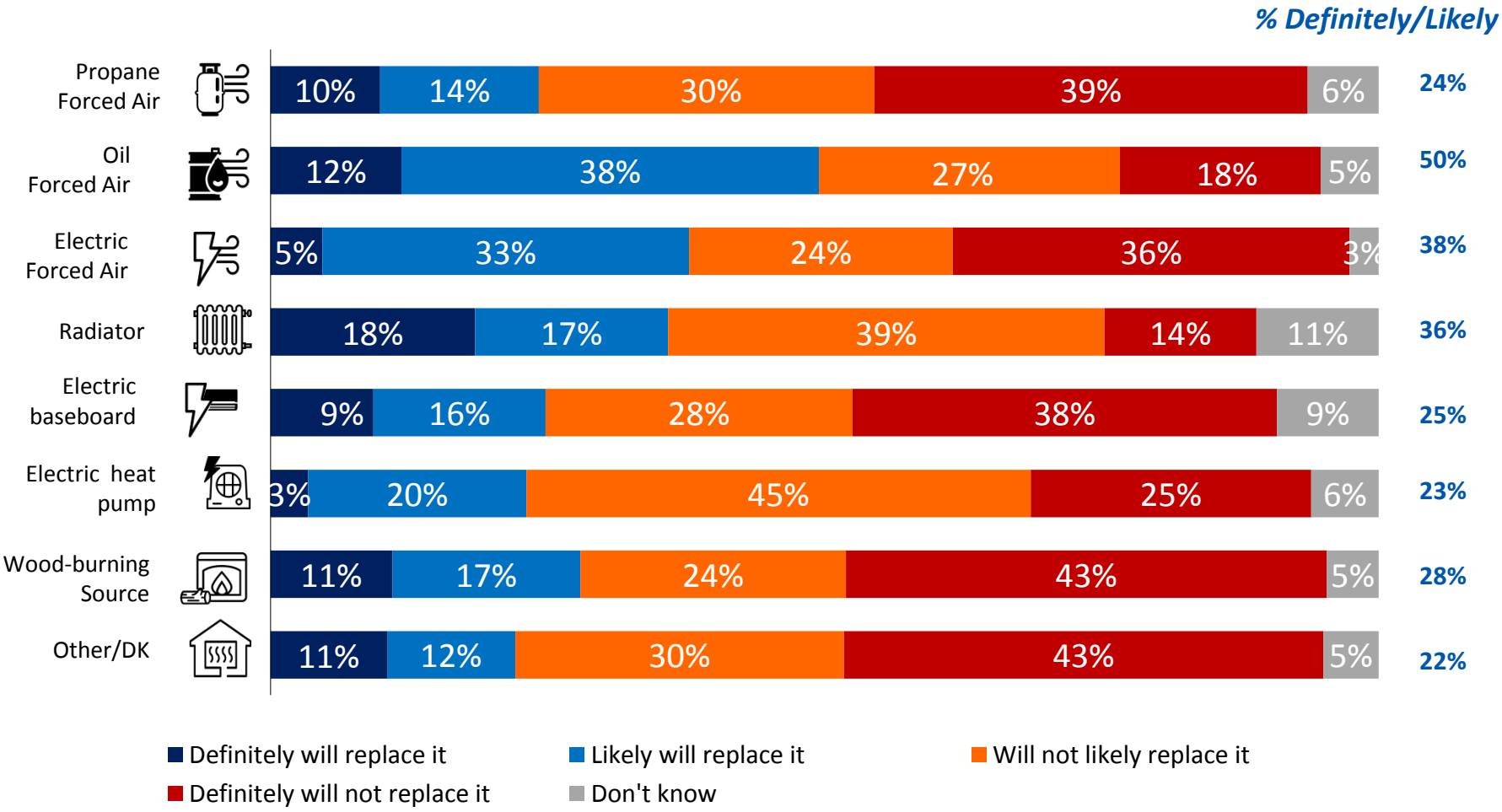
Replacing home heating: Those with oil forced air most likely to replace their system (50% Definitely or Likely)

Q How likely are you to replace your home heating system in the next 5 years?
[asked of all respondents]



Notes: "Refused" not shown.
This question is asked before any discussion of natural gas conversion and is intended to gauge ***existing*** plans to replace systems, separate from any work related to a natural gas conversion.

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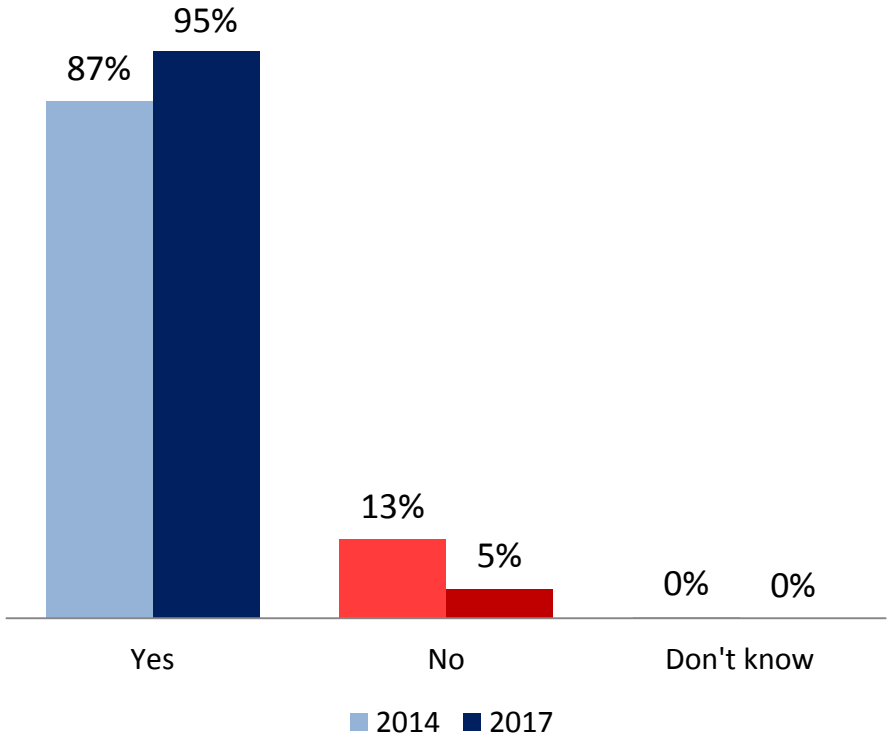
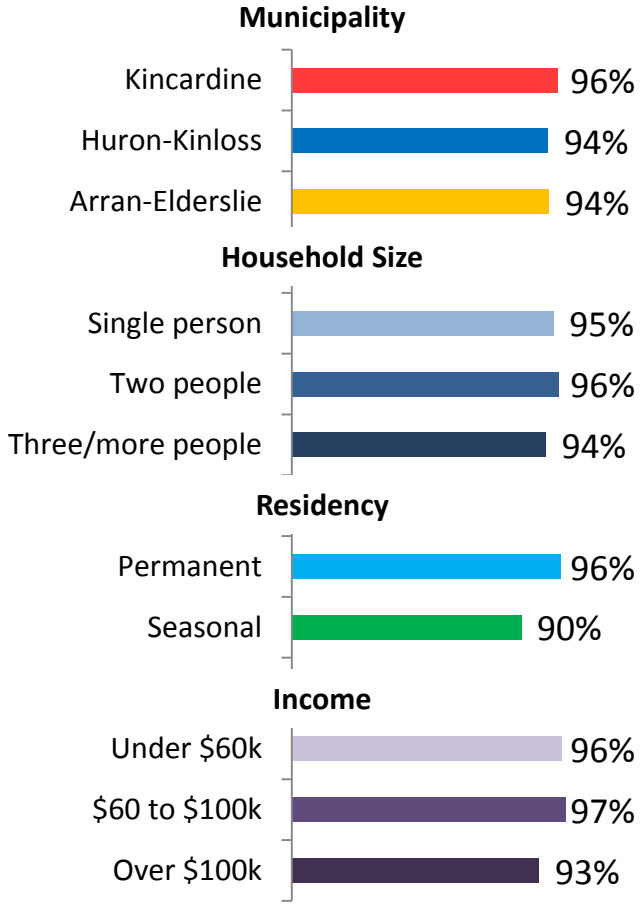
Project Awareness: Awareness up 8 points compared to 2014 survey

[2017 QUESTION] Are you aware that the municipalities in your area are working with EPCOR to bring natural gas service into your community?

[2014 QUESTION] Are you aware that that the municipalities in this area are considering a plan to build a distribution system to bring natural gas service into your community?
[asked of all respondents]



Sample Breakdown
Those who say "yes"



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Home heating conversion scenarios

Key Idea: Different conversion scenarios mean different costs and savings.

When respondents were asked about financing options and their interest in conversion they were given information about the estimated costs and savings they would face based on the type of heating system they used. They were told:

- **Preamble to financing question:** *"Thinking first about the conversion costs, there are two options. The upfront cost to convert a [**SYSTEM NAME**] heating system to natural gas would be approximately [**UP FRONT COST**]. Alternatively financing could be arranged, secured by a lien against your house, which would typically cost [**FINANCED COST**] per month for 10 years."*
- **Preamble to conversion question:** *"In addition to the conversion costs above, natural gas also means that you are paying a different amount for the energy you use in your home heating system. The cost of [**FUEL SOURCE**] is approximately **[COST RATIO]** the price of natural gas."*

This information is as follows:

Best Case: Lower cost or higher savings

Worst Case: Higher cost or lower savings

	Forced Air	Hot Water Radiator	Heat Pump	Baseboard
Propane	**UP FRONT:** $750-$1000 **FINANCED:** $8 -$10 **PRICE RATIO:** 1.25x		N/A	N/A
Oil	**UP FRONT:** $4k-$5k **FINANCED:** $41-$51 **PRICE RATIO:** 1.5x		N/A	N/A
Electricity	**UP FRONT:** $4k-$5k **FINANCED:** $41-$51 **PRICE RATIO:** 1.5x			**UP FRONT:** $10k-$12k **FINANCED:** $101-$121 **PRICE RATIO:** 1.5x
Other/DK	**UP FRONT:** As much as $4k-$5k **FINANCED:** $41-$51 **PRICE RATIO:** 1.5x		N/A	N/A

"Typical" Scenario	***UP FRONT:** As much as $10-$12k **FINANCED:** As much as $121 **PRICE RATIO:** At least 1.5x

***Those whose heating scenario was not reflected in the above table were shown a "typical" cost scenario.**

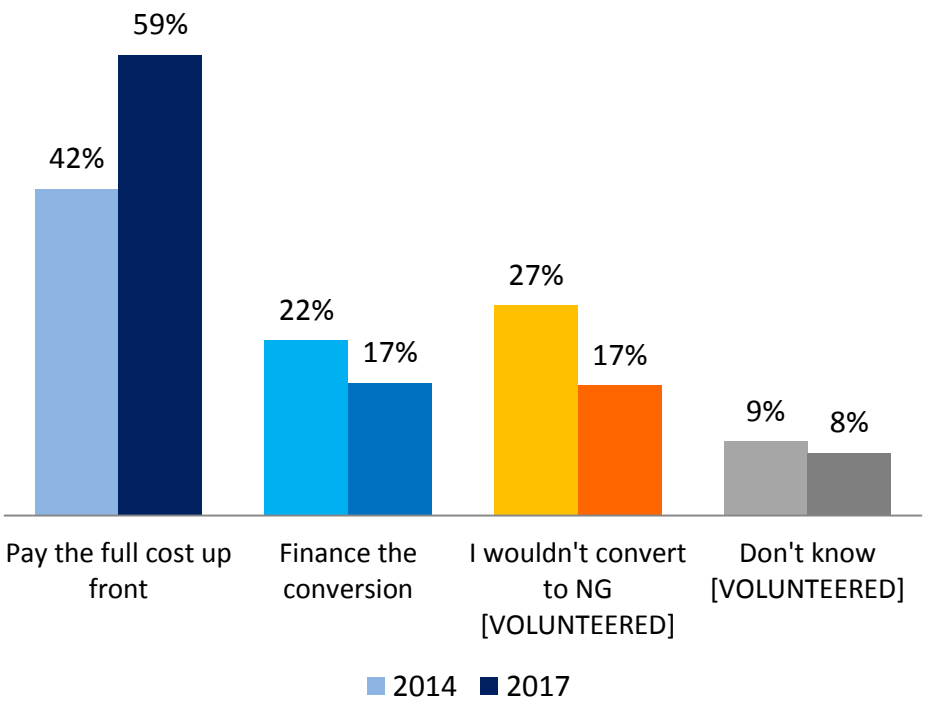
Note: *The frequency of heating system types reported above includes responses of "other" from which the open-ended answer was later recoded as one of the main types. However in all cases the cost scenario faced by these respondents was the **Other/Don't Know** cost scenario.*

Financing: Large increase in those who say they would pay the full cost upfront; highest within highest income group

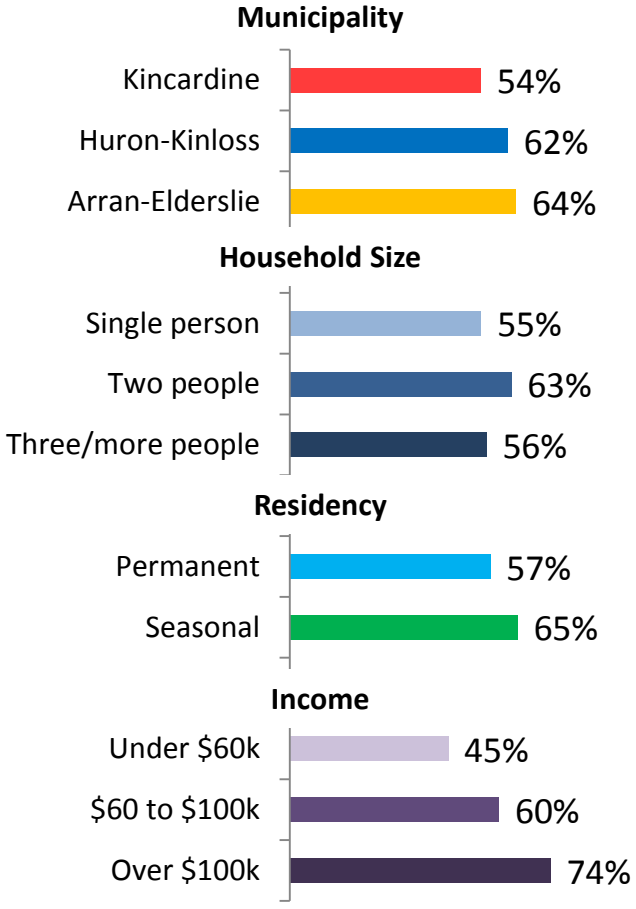
Q

Thinking first about the conversion costs, there are two options. The upfront cost to convert a [**SYSTEM NAME**] heating system to natural gas would be approximately [**UP FRONT COST**]. Alternatively financing could be arranged, secured by a lien against your house, which would typically cost [**FINANCED COST**] per month for 10 years.

Given these options, if you chose to convert your home heating to natural gas, would you be more likely to…
[asked of all respondents]



Sample Breakdown ▸▸
Those who say "pay full upfront"



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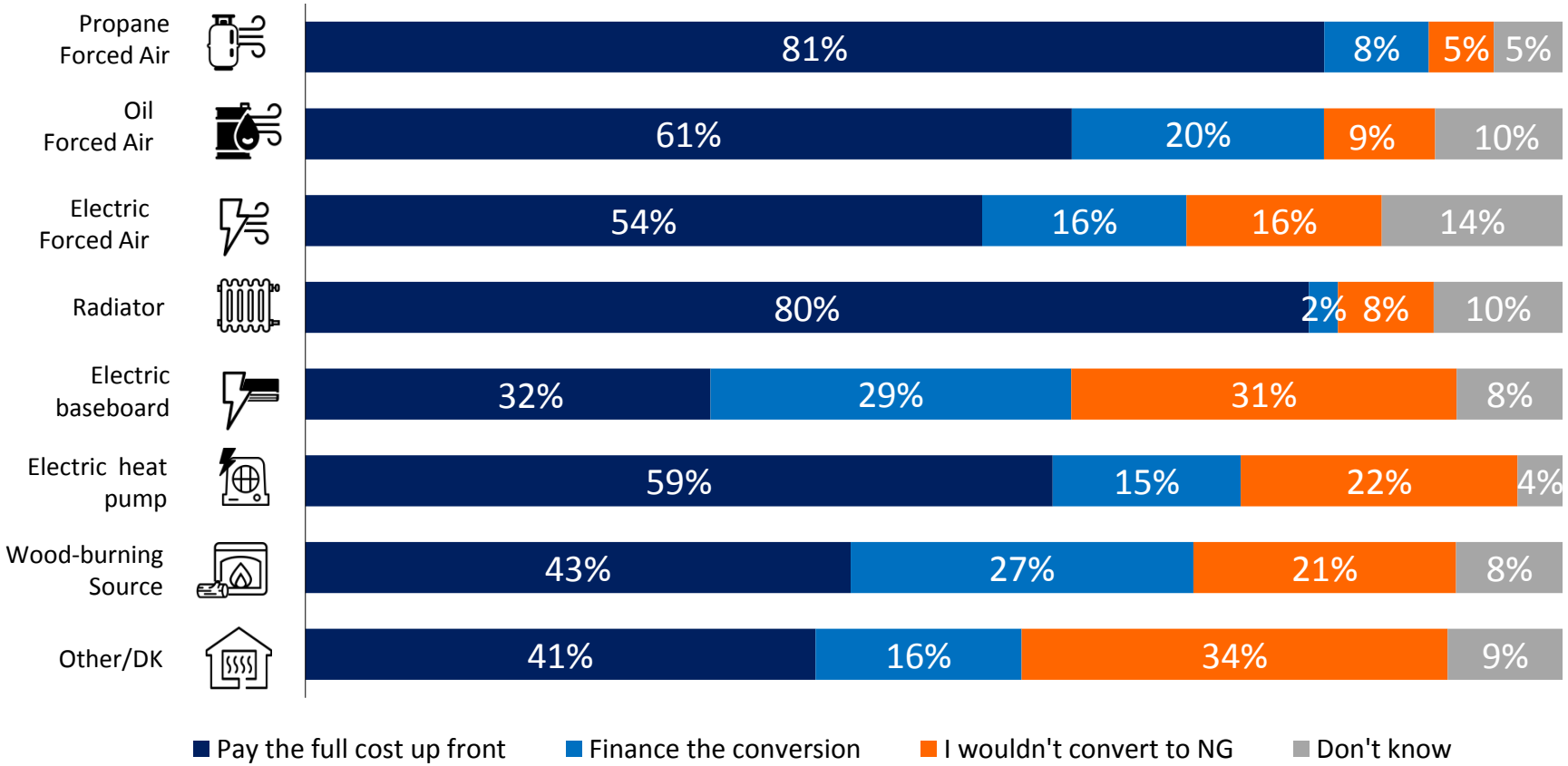
Payment strategy: 81% of those with propane forced air would pay cost upfront

Q

Thinking first about the conversion costs, there are two options. The upfront cost to convert a [**SYSTEM NAME**] heating system to natural gas would be approximately [**UP FRONT COST**]. Alternatively financing could be arranged, secured by a lien against your house, which would typically cost [**FINANCED COST**] per month for 10 years.

Given these options, if you chose to convert your home heating to natural gas, would you be more likely to…

[asked of all respondents]



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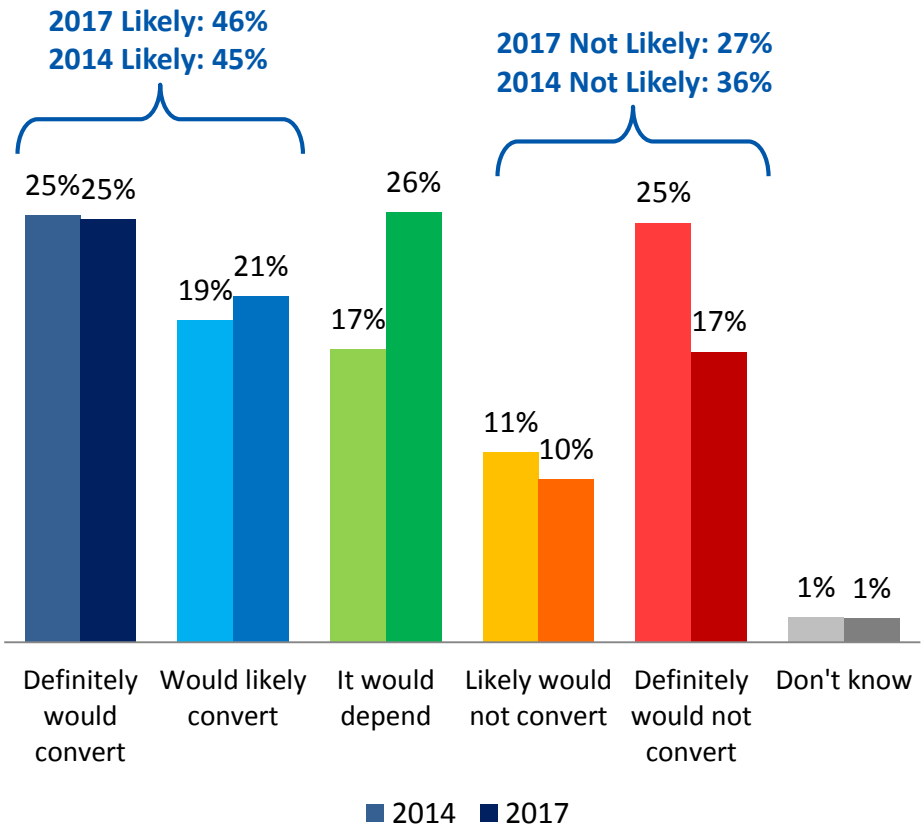
Likelihood of Conversion: Majorities of respondents in Arran-Elderslie and Huron-Kinloss would convert

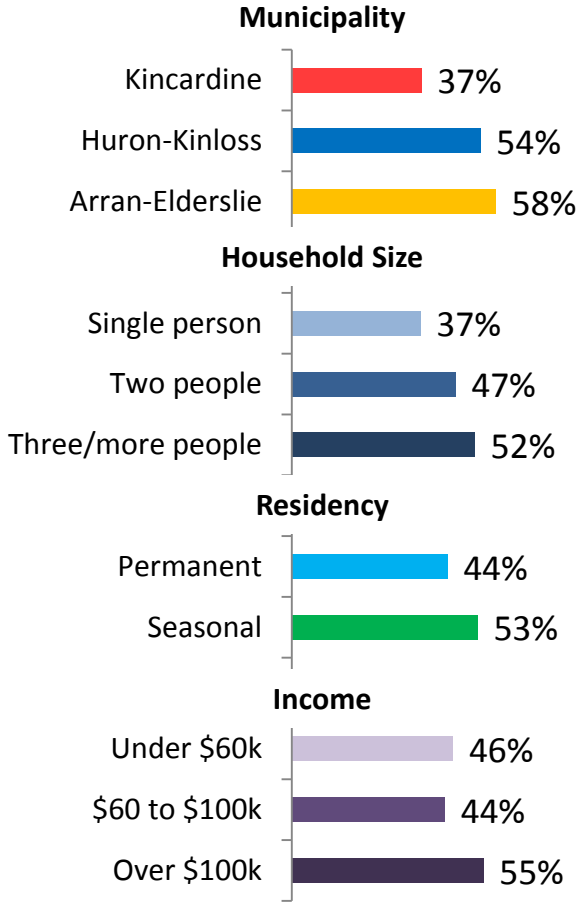
Q Thinking about both this price difference and the conversion costs, how likely would be to convert your home heating system to natural gas when it became available?

[asked of all respondents]



Sample Breakdown ▶▶

Those who say "likely"



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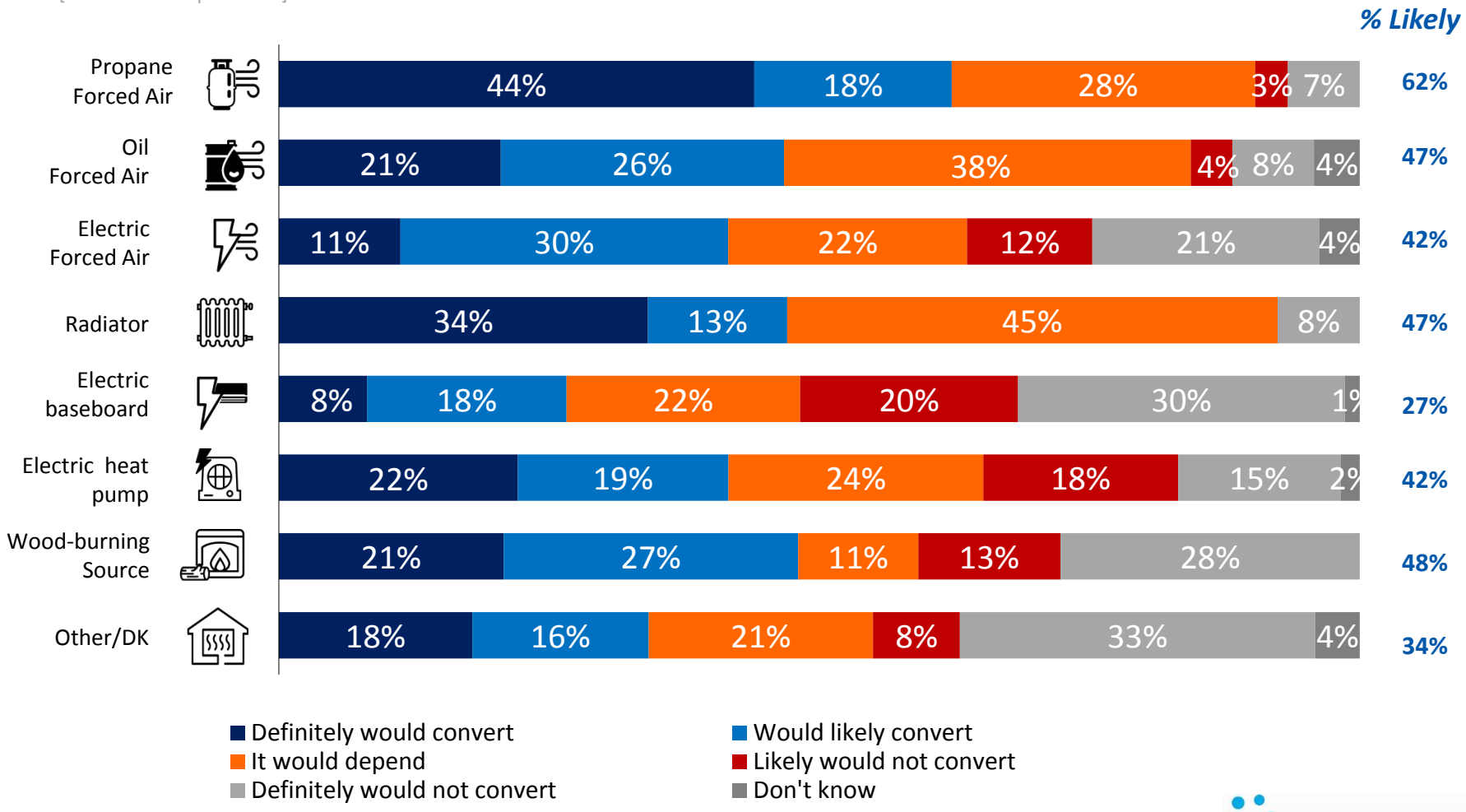
Conversion breakdown: Respondents with propane forced air most likely to convert (62%)

Q Thinking about both this price difference and the conversion costs, how likely would be to convert your home heating system to natural gas when it became available?

[asked of all respondents]

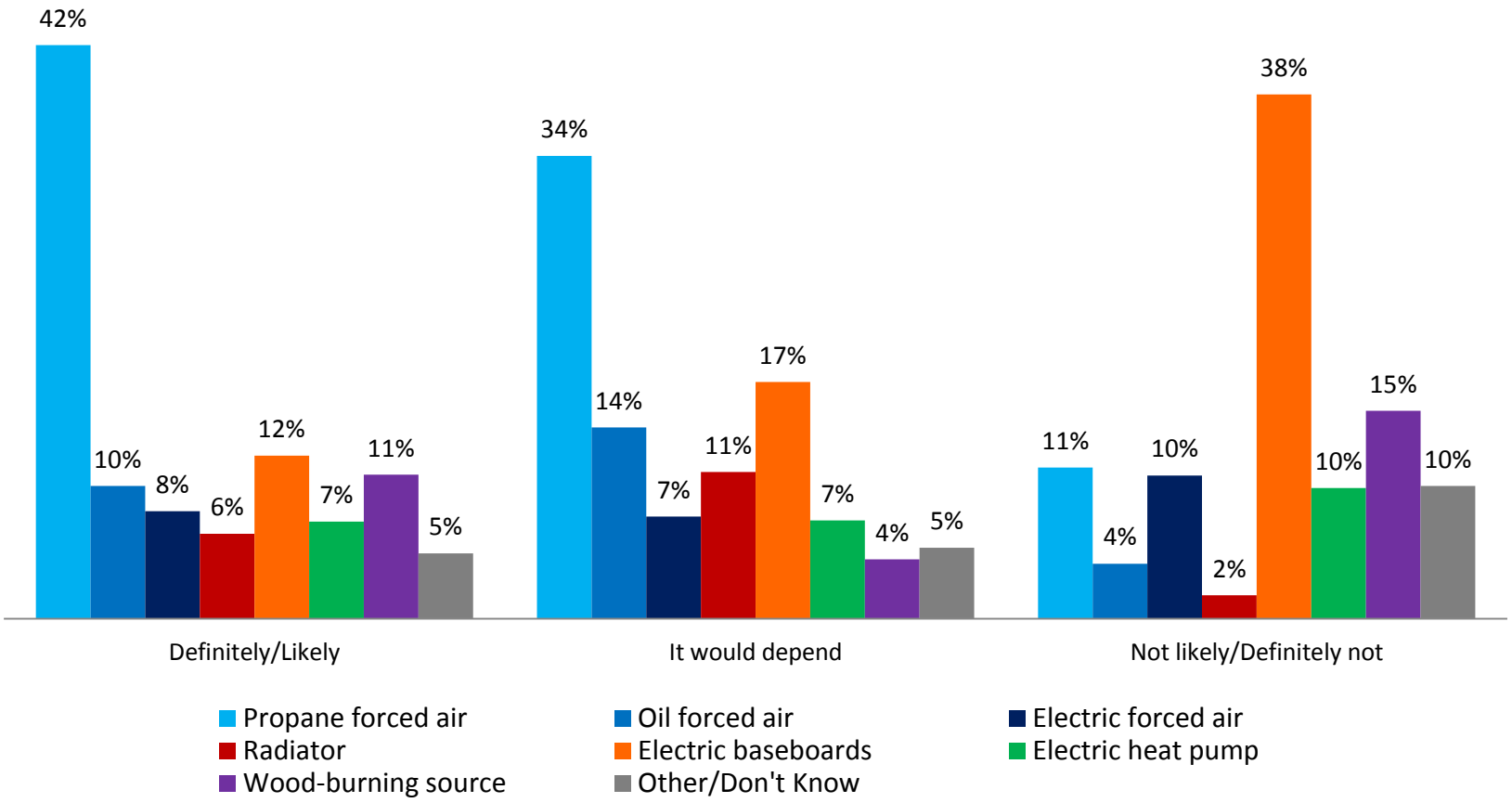


Note: "Refused" not shown

Type of heating *by* Conversion: Plurality (42%) of those who would convert have a propane forced air system

Q What type of system provides the primary source of heat for your home? AND What is the primary energy source for heat in your home?

[asked of all respondents]

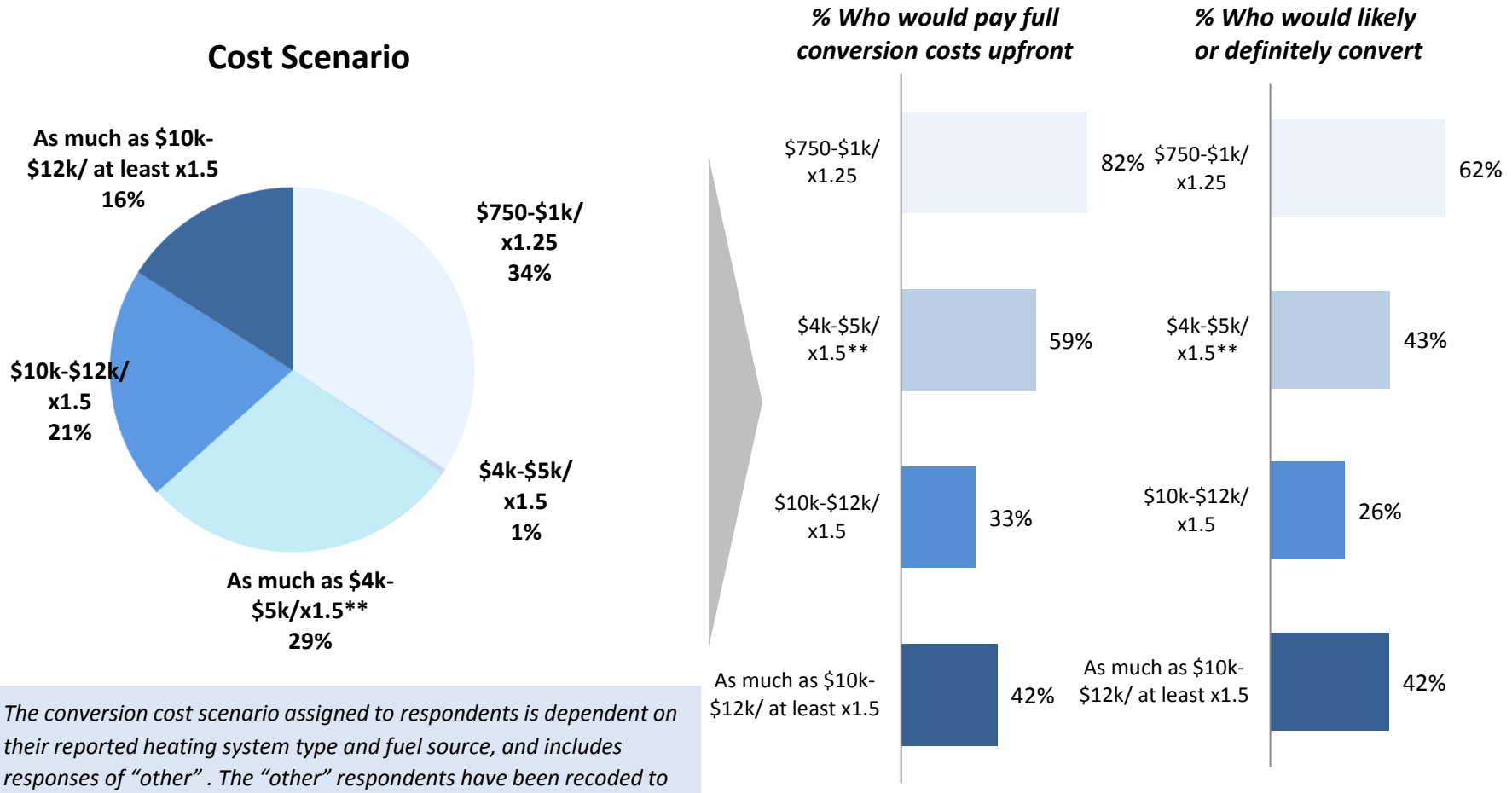


Note: "Don't know" not shown

Conversion breakdown: 62% of those who saw the lowest cost scenario would convert

Q Thinking about both this price difference and the conversion costs, how likely would be to convert your home heating system to natural gas when it became available?

[asked of all respondents]

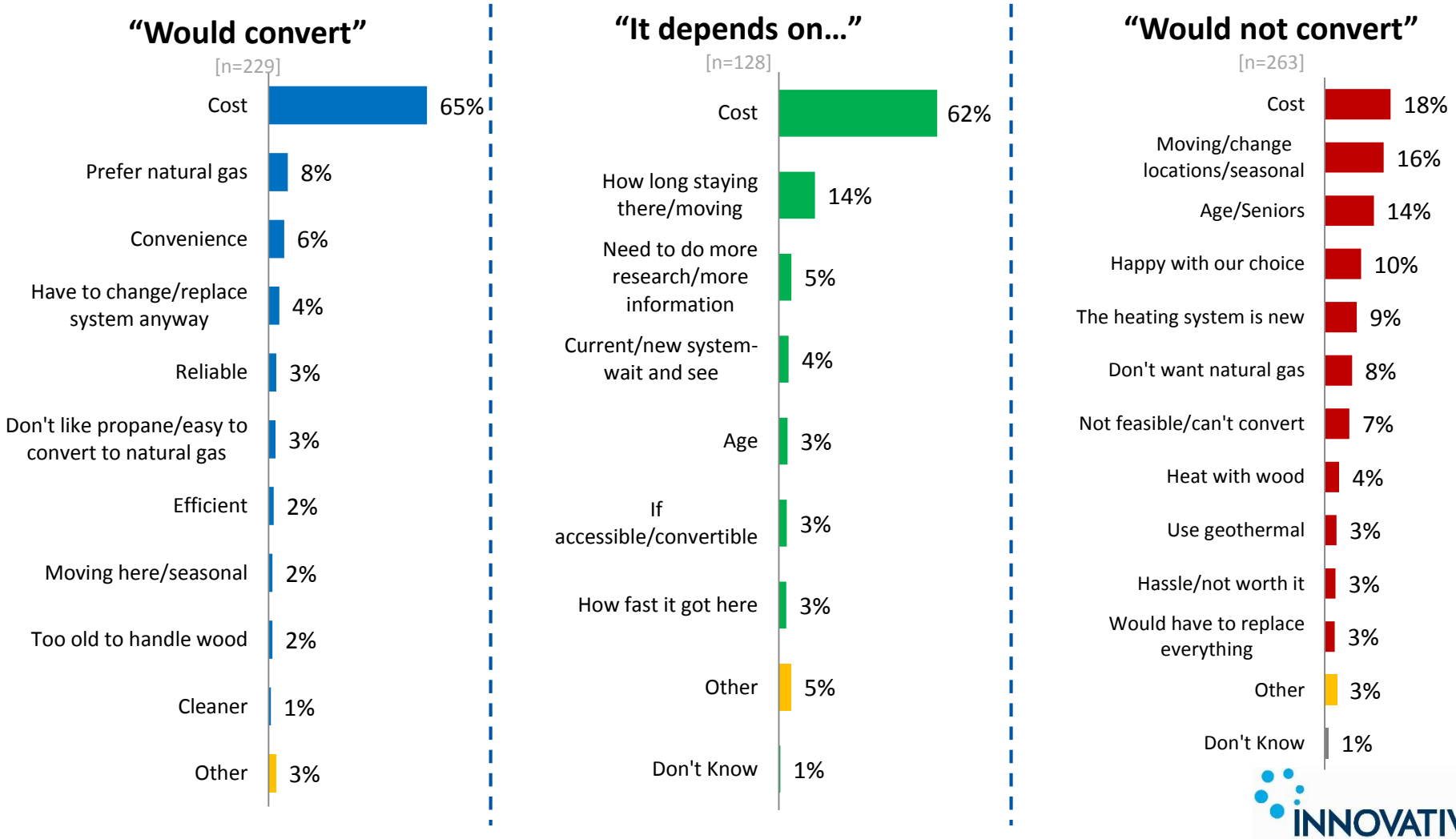


Note: *The conversion cost scenario assigned to respondents is dependent on their reported heating system type and fuel source, and includes responses of "other" . The "other" respondents have been recoded to fit into one of the main types of heating if applicable, however in all cases the cost scenario shown to the "other" respondents was the **other/Don't Know** cost scenario (As much as $10k-$12k/< 1.5 times).*

**Due to low n-sizes, the "As much as $4k-$5k/1.5x" category is combined with the "$4-$5k/1.5x" category for all analysis.

Motivators in converting heating/not: cost is the main factor for those converting or on the fence about it

Q And what's the main reason why you would/would not convert? **OR** What does it depend on?
[asked of all respondents, depending on their answer to likelihood of conversion to natural gas]



Note: "Refused"/"Bad respondent" not shown

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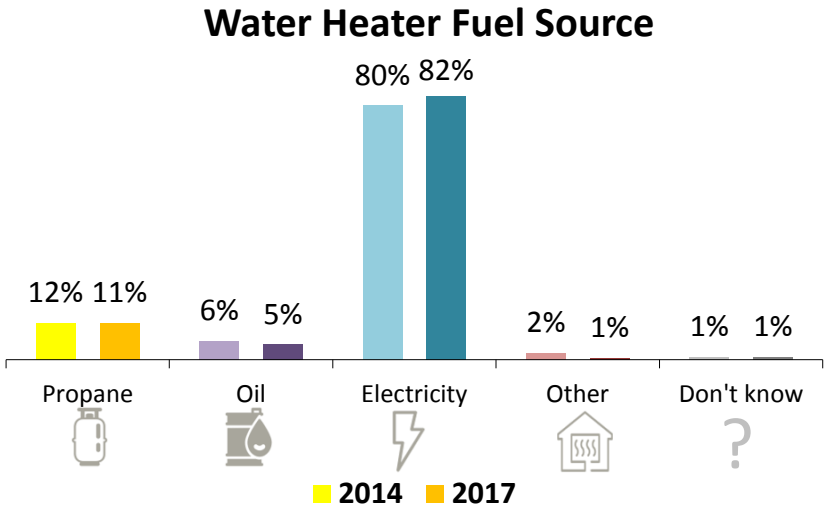
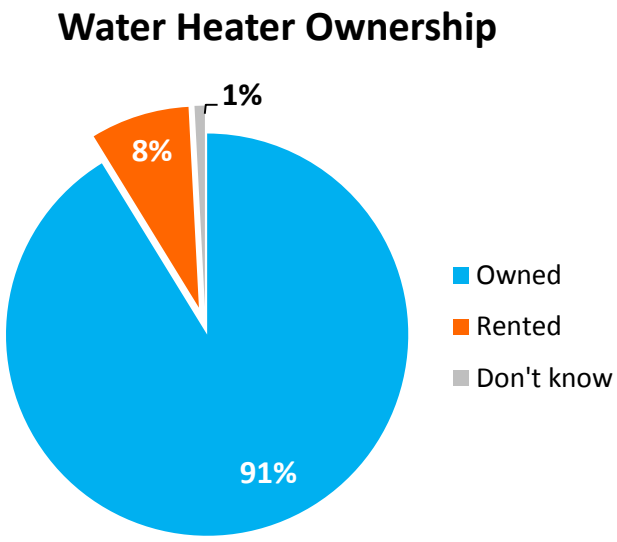
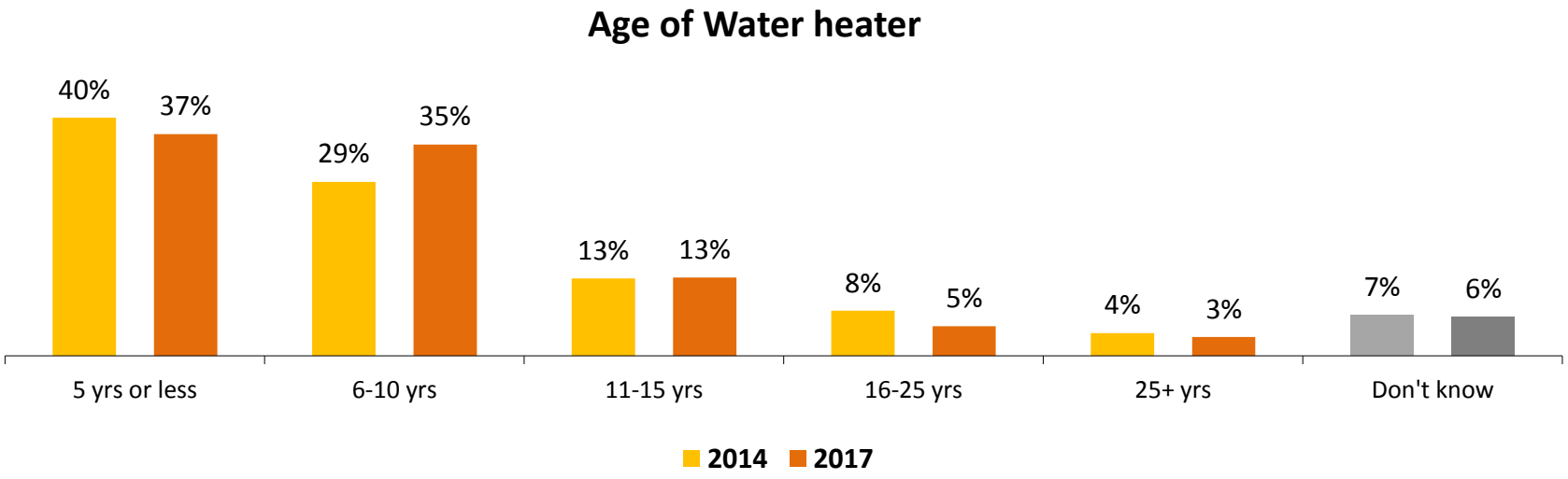
Water Heating

Demographics: *Water Heating Profile*

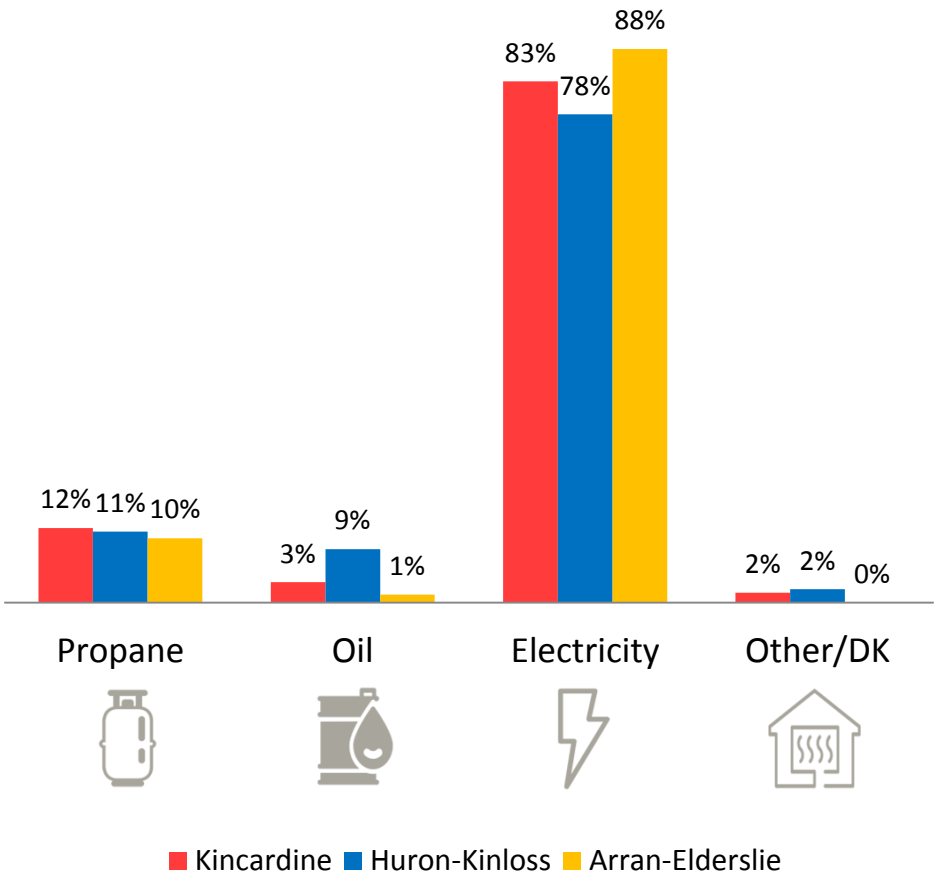




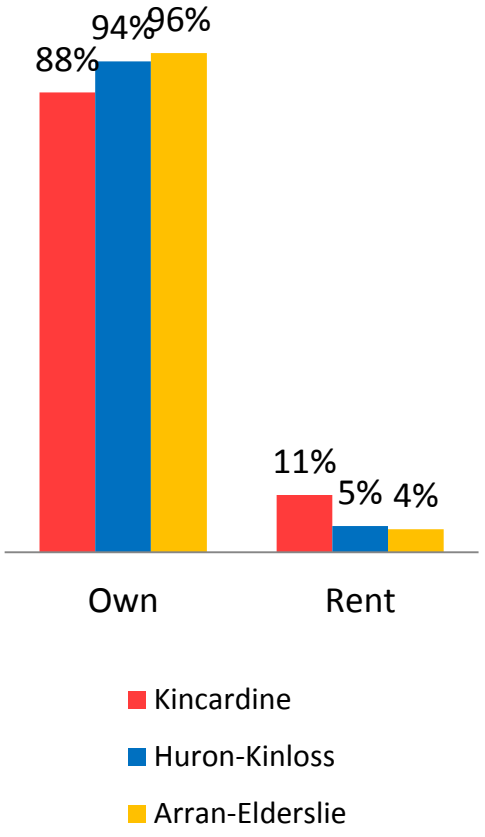


Type of water heating *by* municipality: strong majority uses electricity to power water heater and own their own heater

Q What is the main fuel source for your water heater?
[asked of all respondents]



Q Is your water heater owned or rented?
[asked of all respondents]



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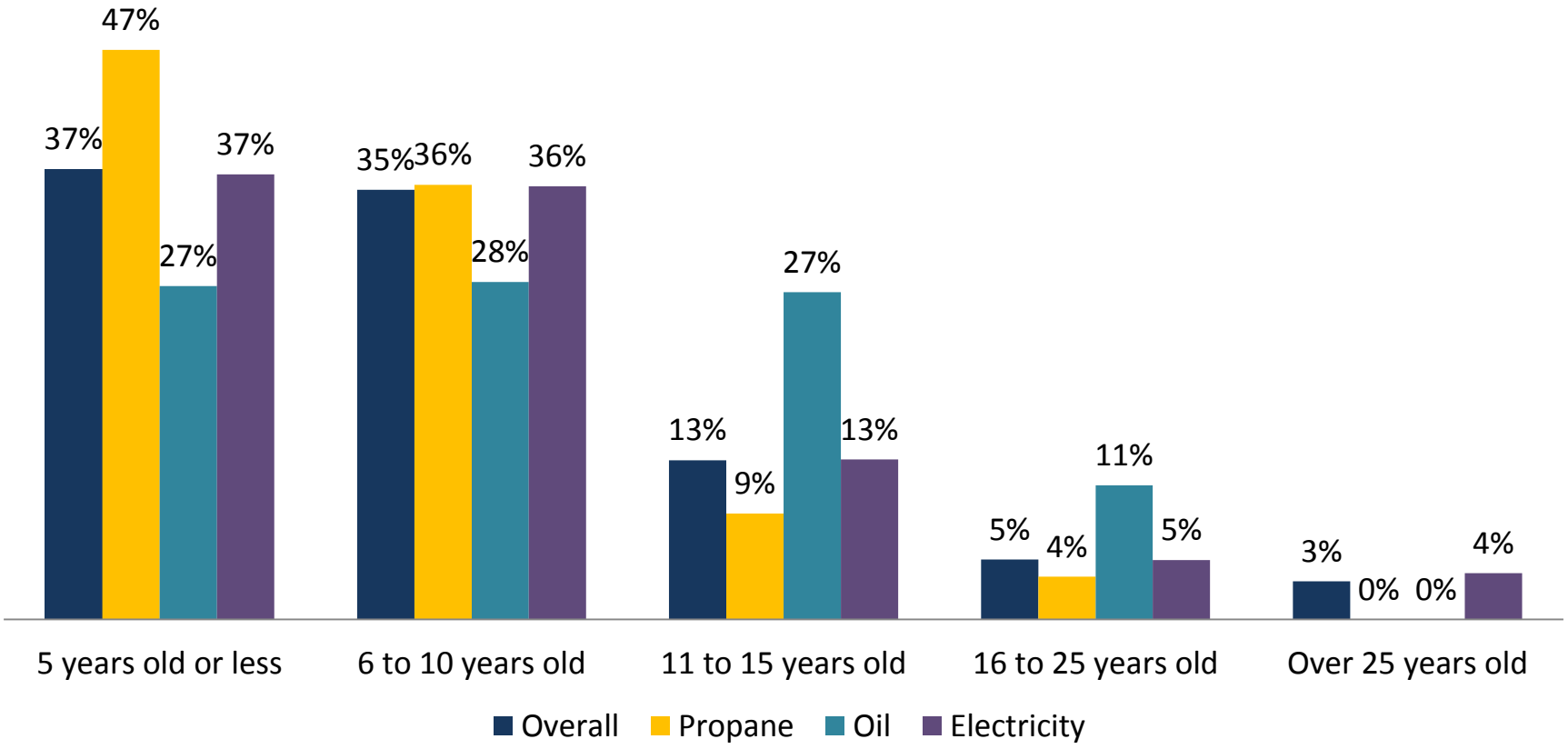
Age of water heater *by* fuel source: close to half (47%) of propane water heaters are 5 years old or less

Q And how old is your water heater?
[asked of all respondents]



Note: 'Don't Know' not shown

Water Heater Conversion Scenarios

Key Idea: Different conversion scenarios mean different costs and savings.

When respondents were asked about their interest in converting their water heaters they were given information about the estimated costs and savings they would face based on the type of water heater they used. They were told:

- **If they own a propane water heater:** *"Most propane water heaters can be readily converted to natural gas but, if a liner is needed, the conversion may cost up to $1000."*
- **If they own a different kind of water heater:** *"The purchase and installation of a typical natural gas water heater costs about $1,700 depending on the complexity of the installation."*
- **If they rent a water heater:** *"Natural Gas water heaters can be rented. Typical monthly rental rates range from $13 per month to $24 per month. Depending on your home, there may be additional expenses for the conversion."*

And then everyone was informed that: "*Over the past few years the price of **[FUEL SOURCE]** has tended to be **[PRICE RATIO]** the price of natural gas*."

- **The scenarios can be summarized as follows:**

This information is as follows:

	Propane	Electricity	Oil	Other/Don't Know
Own	**COST:** up to $1000 **PRICE RATIO:** 1.25x	**COST:** $1700 **PRICE RATIO:** 1.5x	**COST:** $1700 **PRICE RATIO:** 2x	**COST:** $1700 **PRICE RATIO:** approx. 1.5x
Rent	**COST:** $13-$24/month **PRICE RATIO:** 1.25x	**COST:** $13-$24/month **PRICE RATIO:** 1.5x	**COST:** $13-$24/month **PRICE RATIO:** 2x	**COST:** $13-$24/month **PRICE RATIO:** approx. 1.5x

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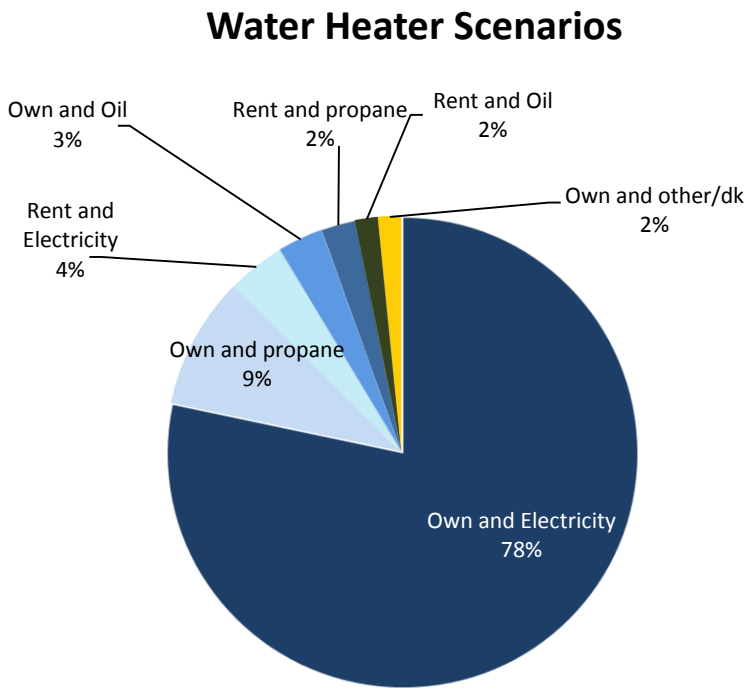
Water Heater Conversion Breakdown



Fuel Type/ Ownership	Conversion Costs
Own and electricity	**COST:** $1700 **PRICE RATIO:** 1.5x
Own and propane	**COST:** up to $1000 **PRICE RATIO:** 1.25x
Rent and electricity	**COST:** $13-$24/month **PRICE RATIO:** 1.5x
Own and oil	**COST:** $1700 **PRICE RATIO:** 2x
Rent and propane	**COST:** $13-$24/month **PRICE RATIO:** 1.25x
Rent and oil	**COST:** $13-$24/month **PRICE RATIO:** 2x
Own and other/DK	**COST:** $1700 **PRICE RATIO:** approx. 1.5x

Note: *The conversion cost scenario assigned to respondents is dependent on their reported water heating fuel source, and includes responses of "other" . The "other" respondents have been assigned the cost scenario of* $1700/1.5x.

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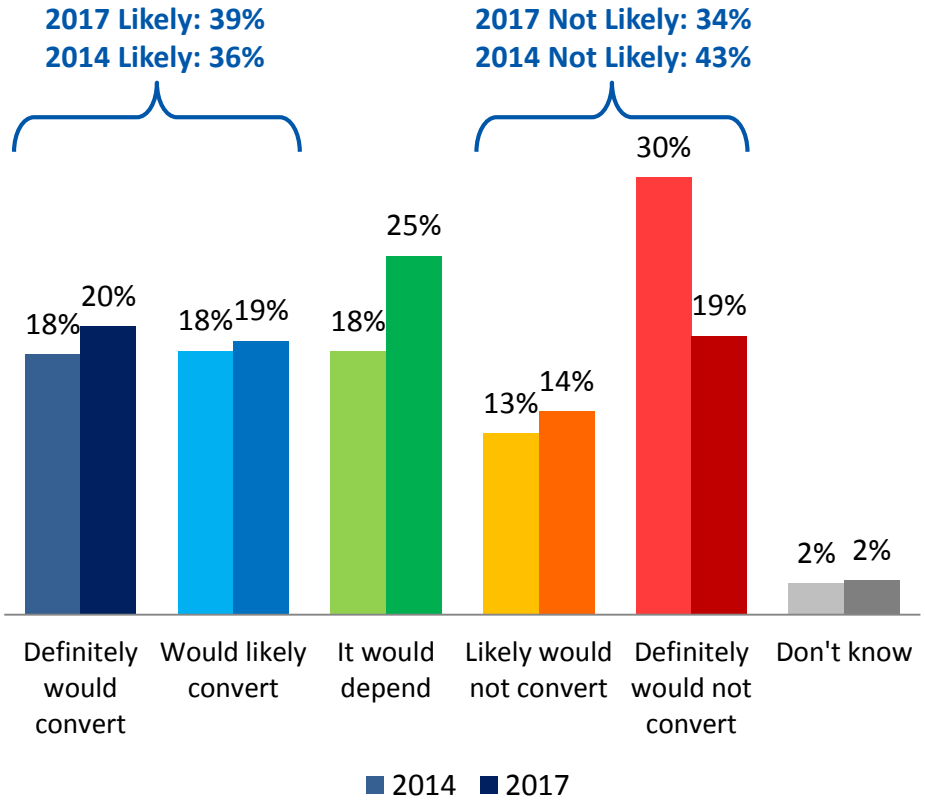
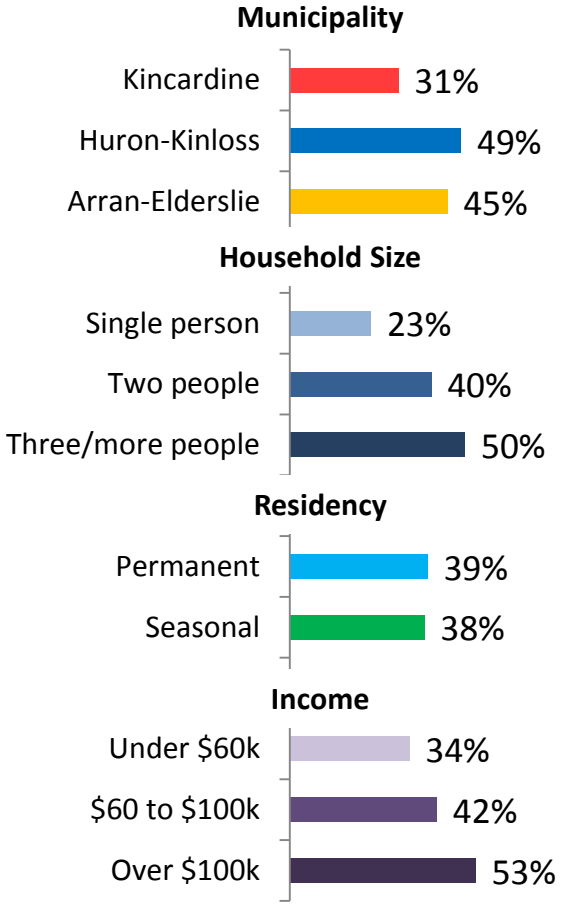
Likelihood to convert water: 'not likely' down 10 points since 2014; large households and high earners most likely

Q Considering this, how likely would you be to convert your water heater to natural gas if it became available?
[asked of all respondents]



Sample Breakdown ▸▸

Those who say "definitely" or "likely"



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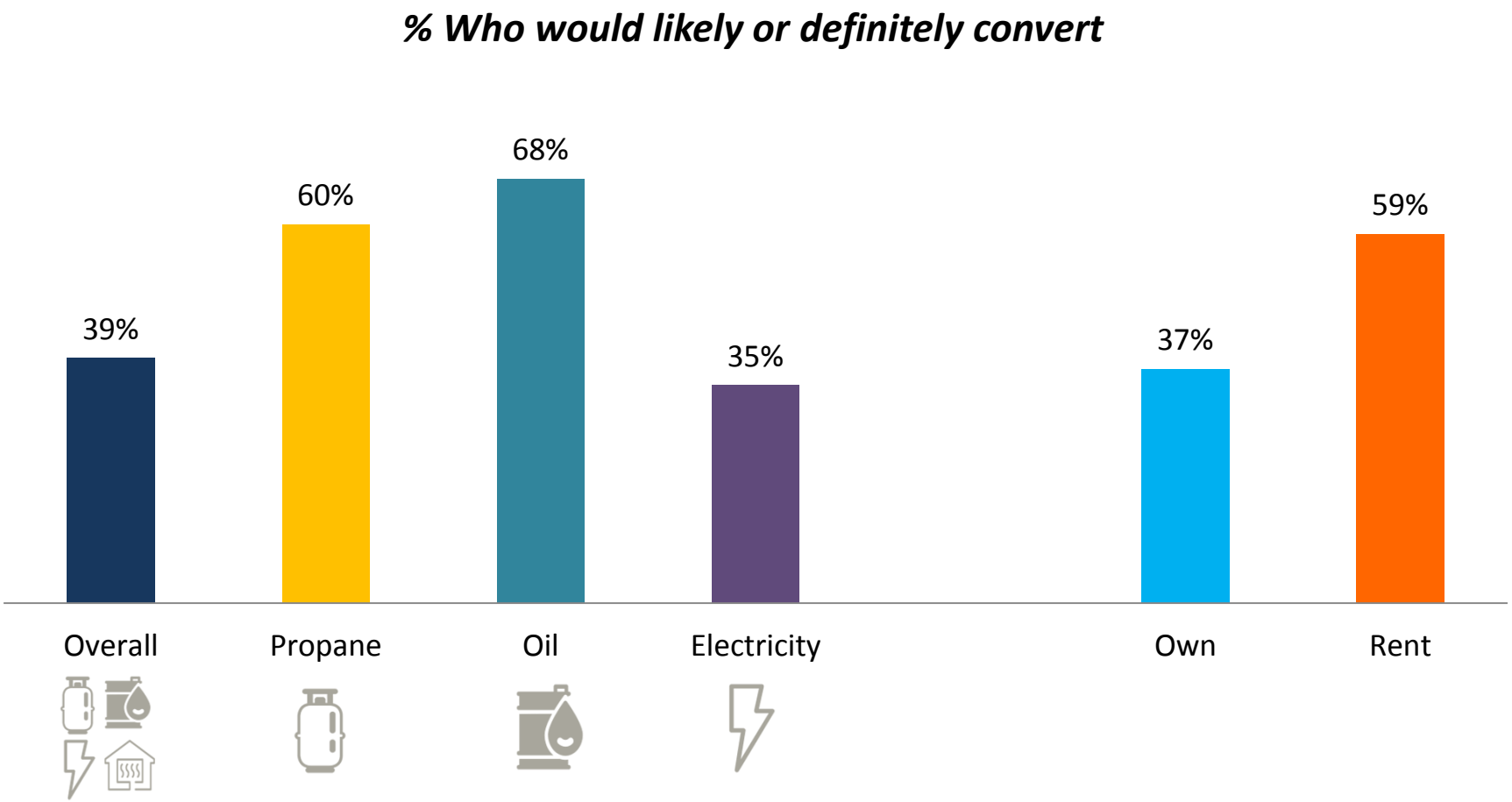
Conversion breakdown: 2-in-3 (68%) of those with oil water heaters would likely convert; 59% of those who rent

Q Considering this, how likely would you be to convert your water heater to natural gas if it became available?
[asked of all respondents]



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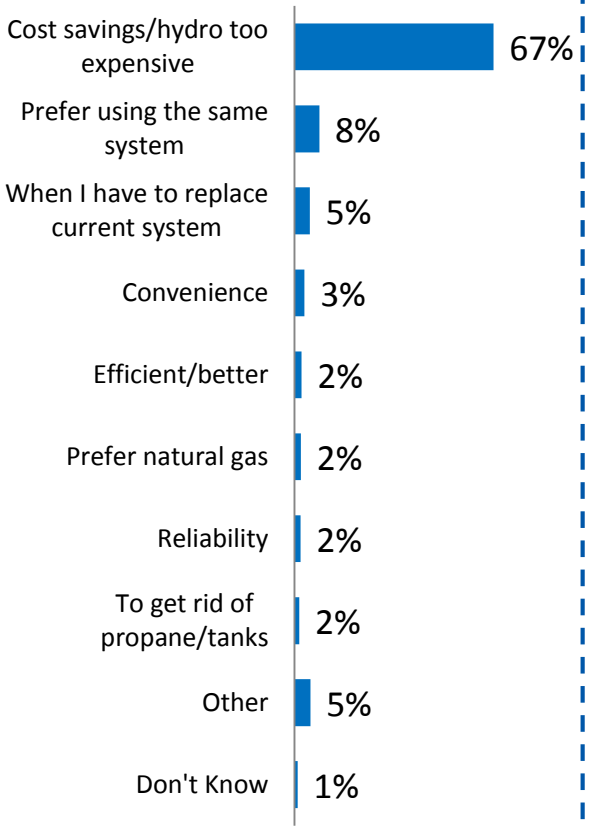
Motivators in converting water/not: xx

Q And what's the main reason why you would/would not convert? **OR** What does it depend on?
[asked of all respondents, depending on their answer to likelihood of converting their water heating system]

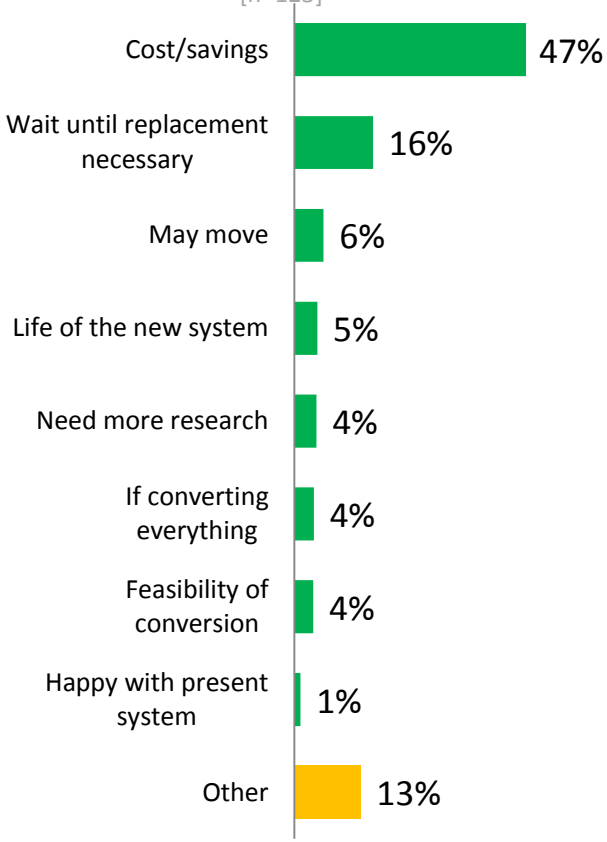
"Would convert"

[n=193]



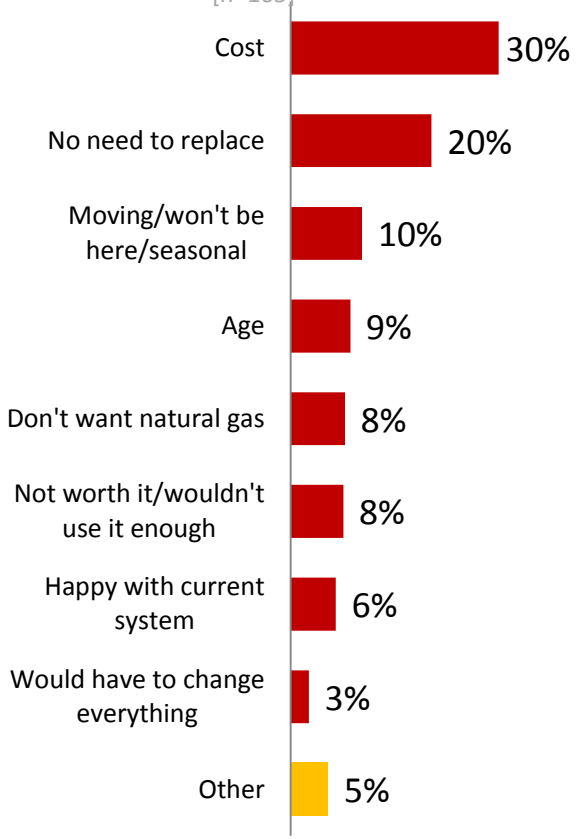
"It depends on…"

[n=123]



"Would not convert"

[n=165]



Note: "Refused" / "Bad respondent" not shown

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Urgency of Conversion

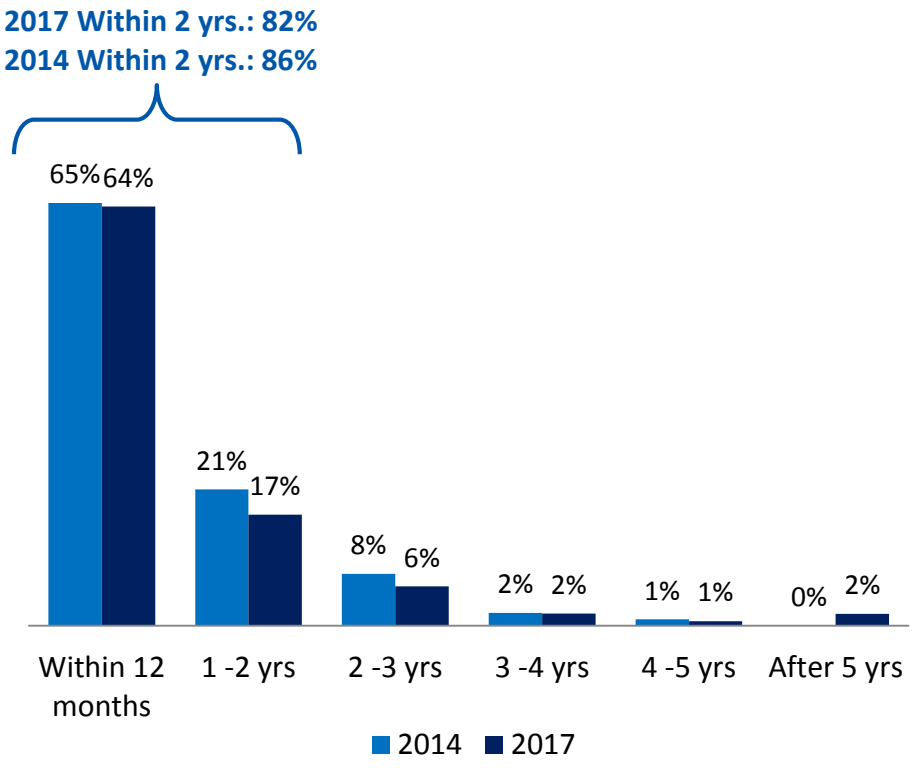
Timeline of conversion: over 4-in-5 (82%) are likely to convert within 2 years; especially high earners and large households

Q **[2017 Question]** Given your interest in converting at least part of your home to natural gas, assuming gas service is available *January 2018*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating, n=262]

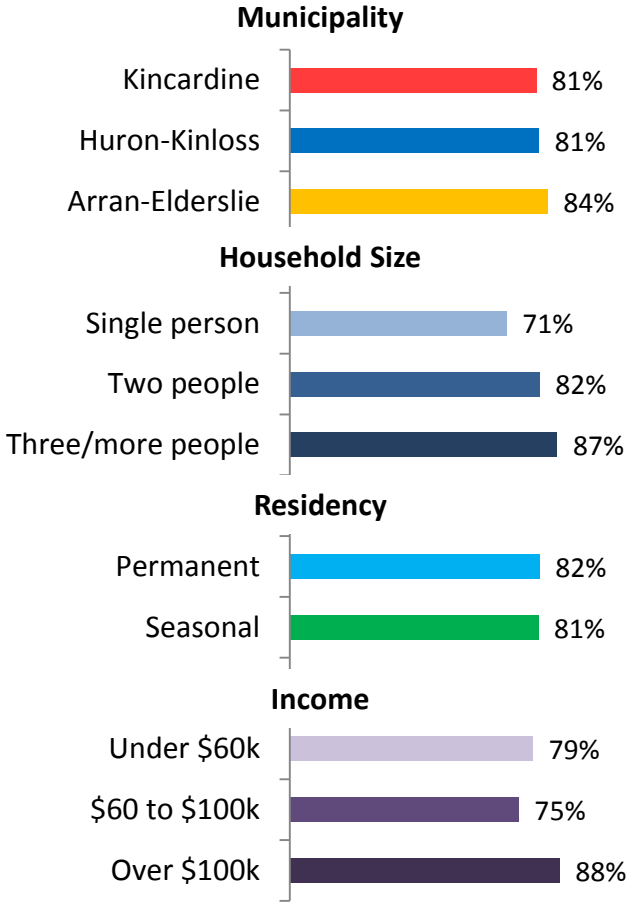
[2014 Question] Given your interest in converting at least part of your home to natural gas, assuming gas service is available *after January 2016*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating]



Sample Breakdown ▸▸

Those who say "Within 2 years"



Note: 'Don't Know' 2014 (3%), 2017 (8%) not shown

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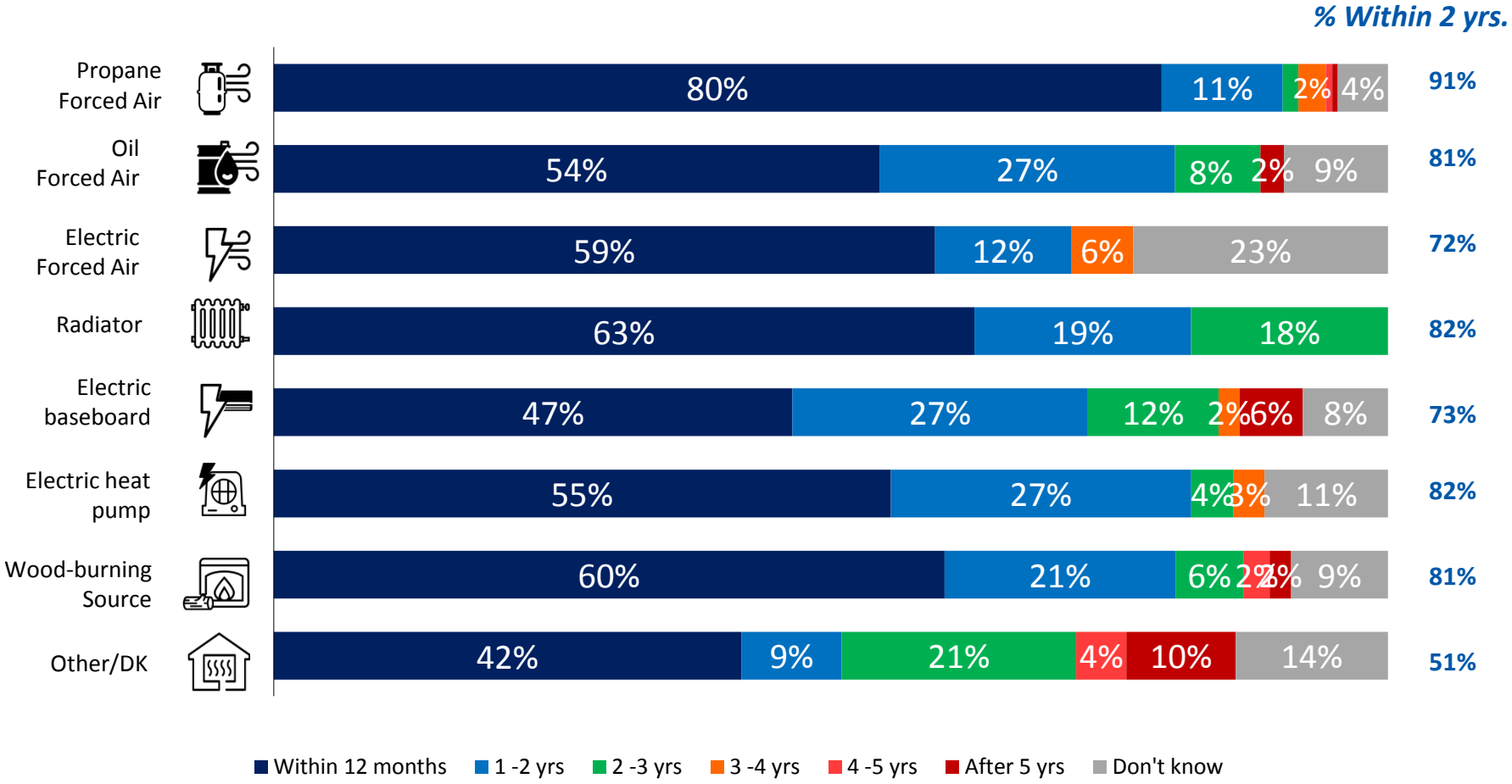
Conversion breakdown: 91% of those with a propane forced air system would likely convert within 2 years

Q Given your interest in converting at least part of your home to natural gas, assuming gas service is available *January 2018*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating, n=262]



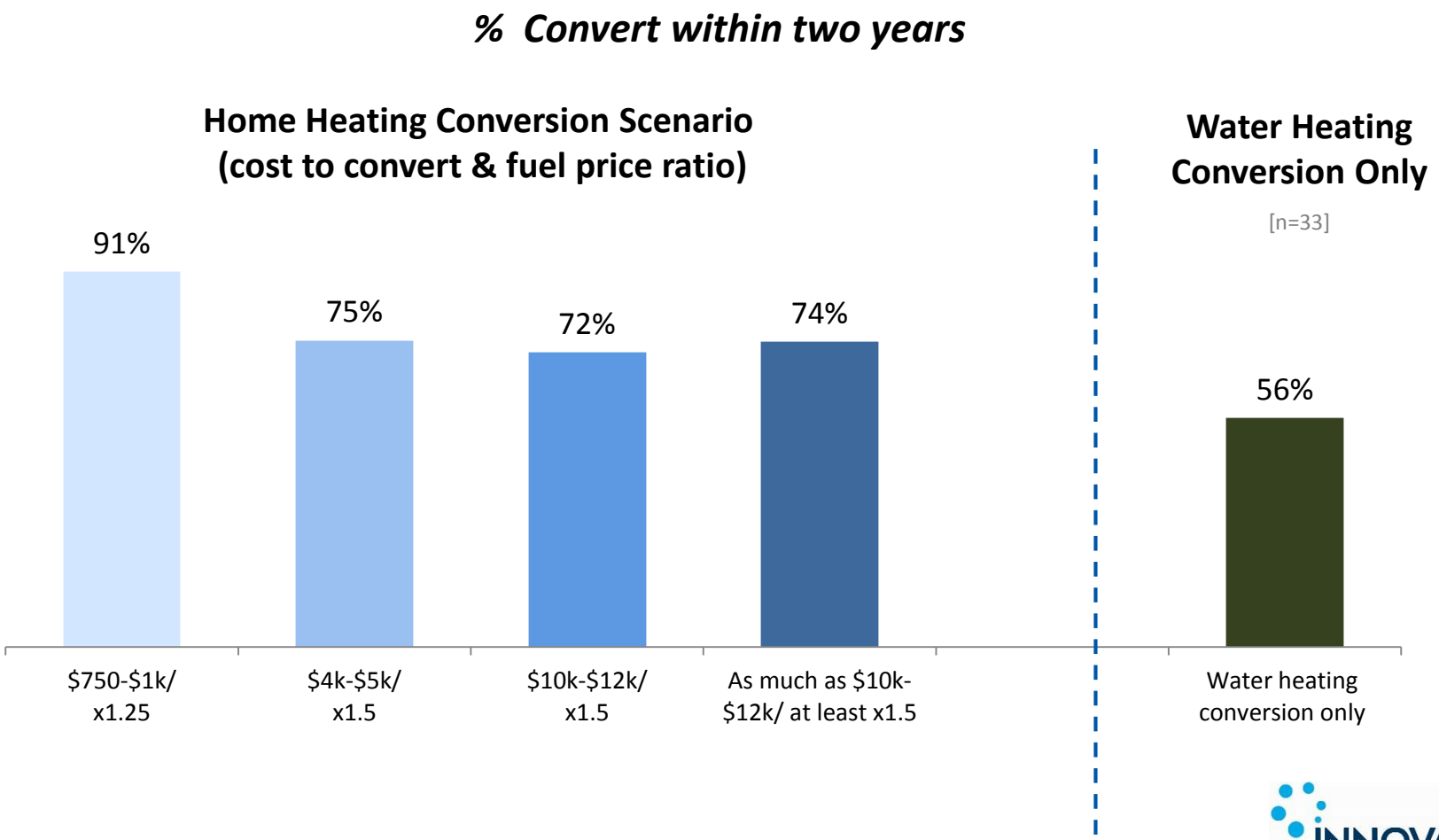
Note: "Refused" not shown

Urgency by costs & water heater conversion: 91% of those with the lowest conversion cost likely to convert within 2 yrs.

Q

Given your interest in converting at least part of your home to natural gas, assuming gas service is available *January 2018*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating, n=262]



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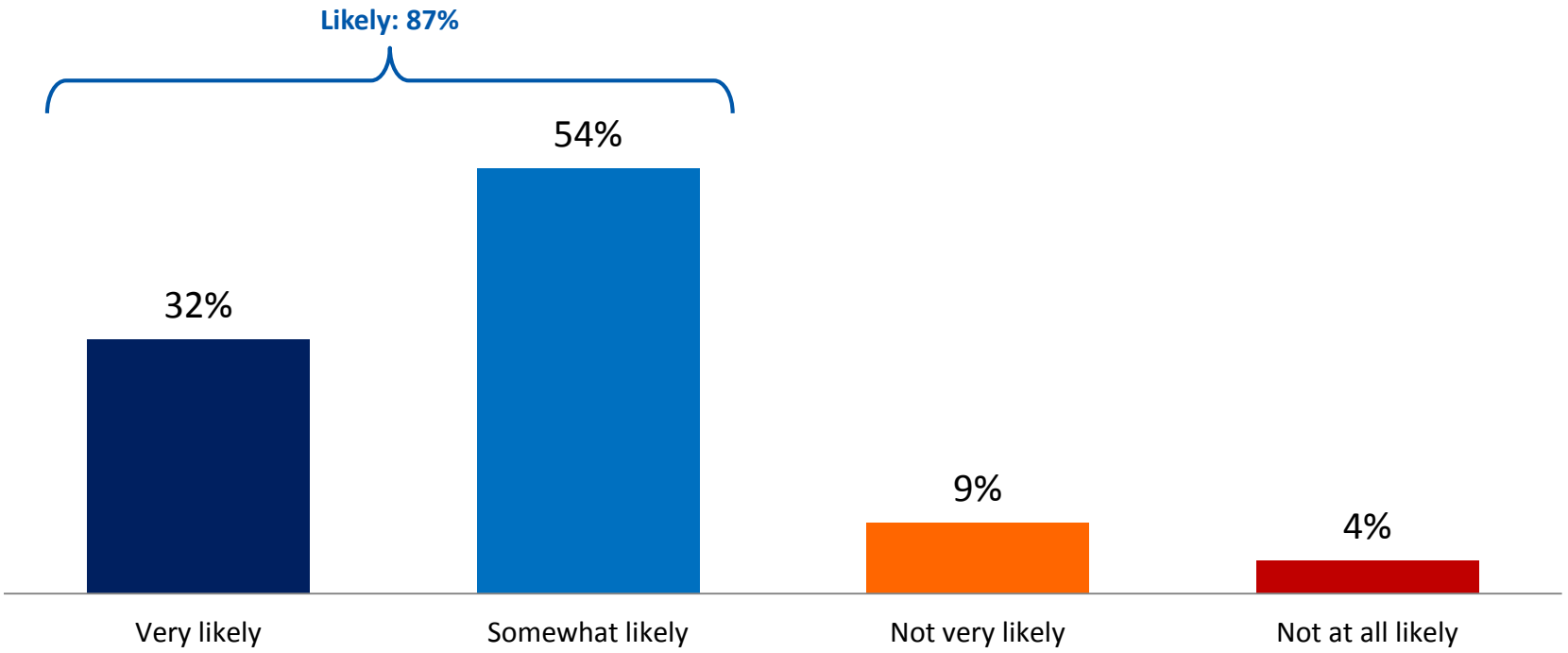
Conversion grant: 87% would likely convert within the first year if given a grant with 32% saying ‘very likely’

Q If a grant of between $400 and $500 were available to help with conversion costs for those who converted within the first year of natural gas service, how likely would you be to convert within the first year?

[asked only of respondents who would likely convert between 1-4 years after natural gas availability, n=66]



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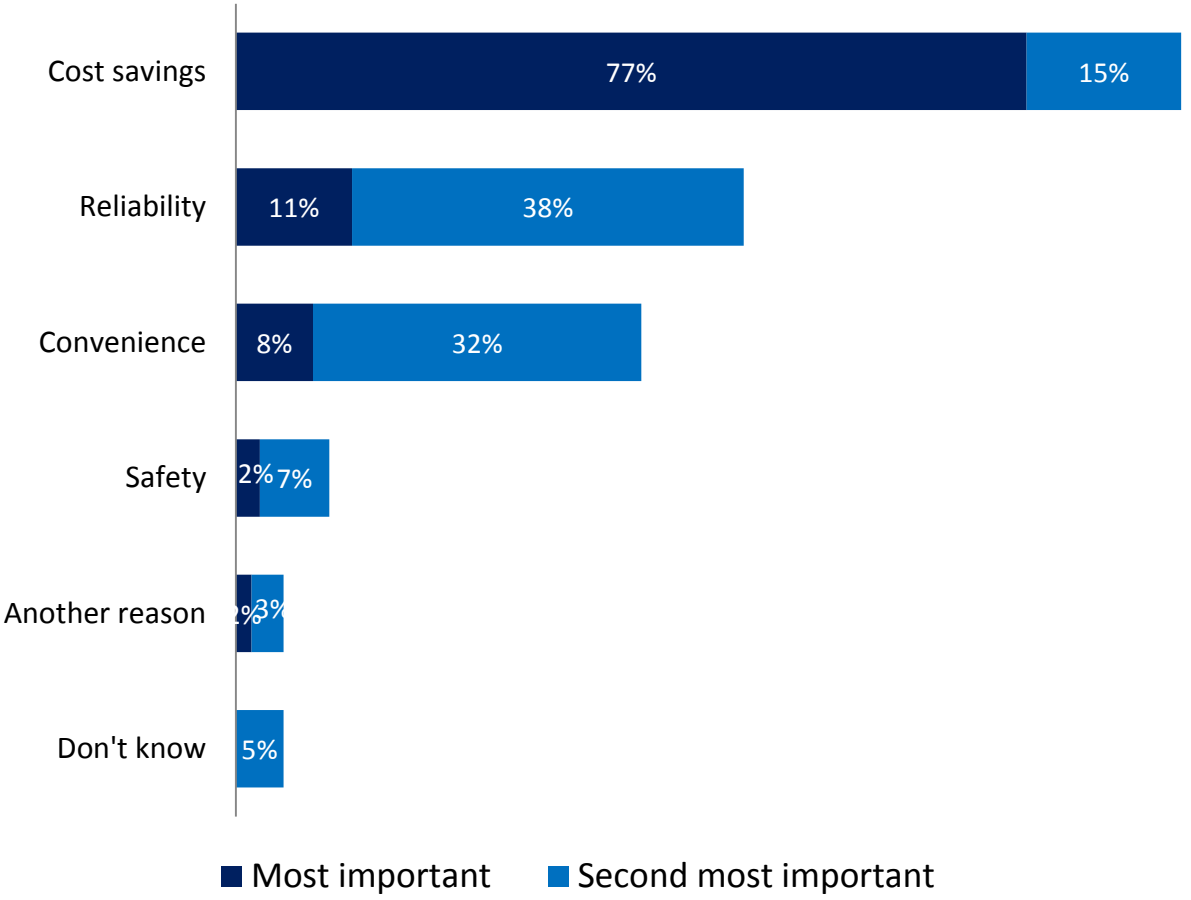
Considerations when Converting

Reasons for converting: cost savings are the top issue among a majority (77%) of respondents

Q There are a number of reasons why homeowners would consider converting to natural gas. For you, which of the following reasons is the most important? ***AND*** which reason is the second most important?

[asked of all respondents, depending on their answer to likelihood of converting their water heating system, n=262]

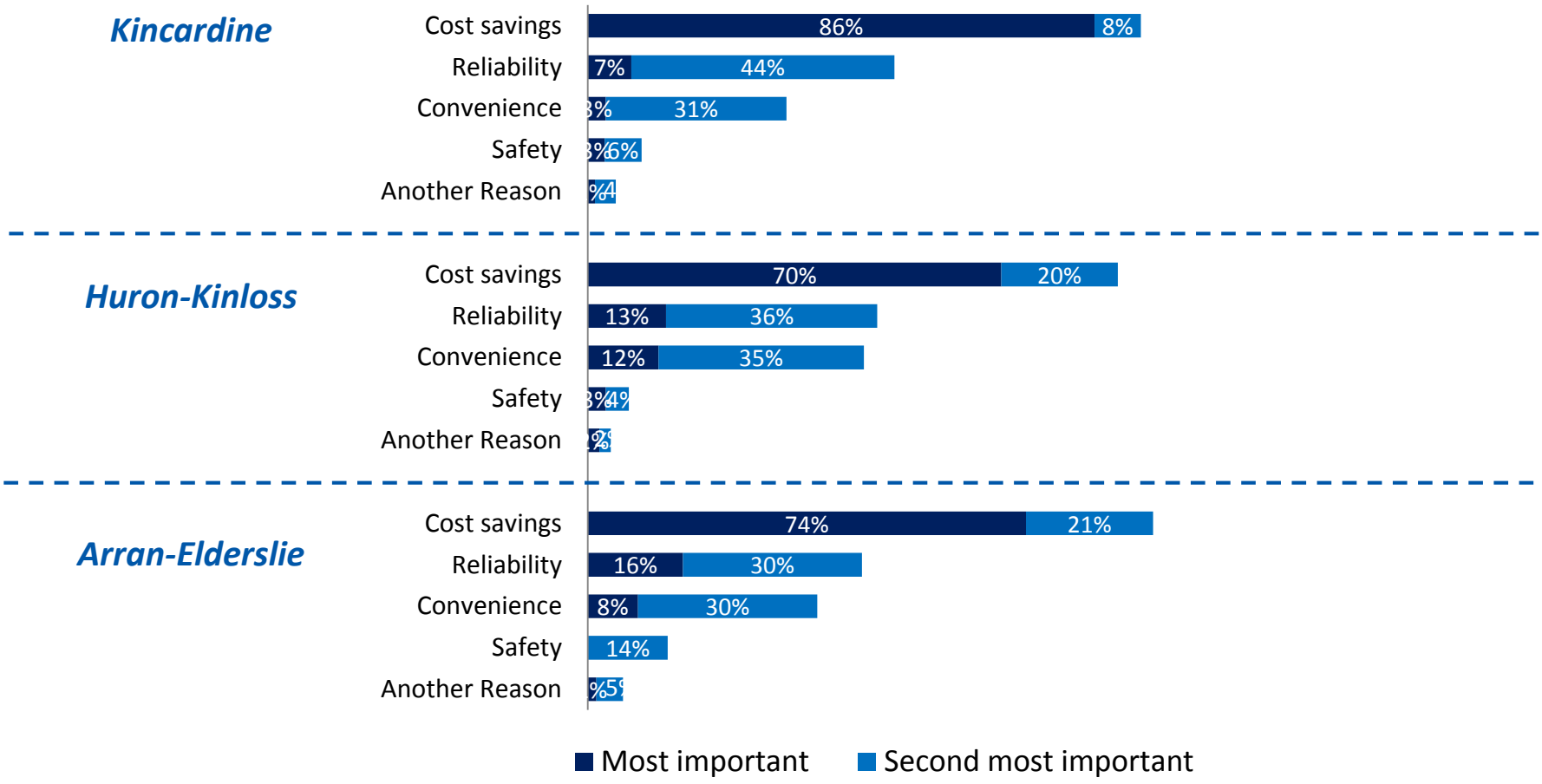


Note: "Refused" not shown

Reasons for converting *by* municipality: cost savings are cited as most important issue in all municipalities

Q There are a number of reasons why homeowners would consider converting to natural gas. For you, which of the following reasons is the most important? ***AND*** which reason is the second most important?

[asked of all respondents, depending on their answer to likelihood of converting their water heating system]



Note: "Don't Know" not shown

Reason for converting *by* home heating type: those with electric forced air most likely to say cost savings

Q There are a number of reasons why homeowners would consider converting to natural gas. For you, which of the following reasons is the most important? ***AND*** which reason is the second most important?
[TABLE RESULTS DISPLAY MOST IMPORTANT ISSUE]
[asked of all respondents, depending on their answer to likelihood of converting their water heating system]

Reason to Convert

Home heating type

	Cost Savings	Reliability	Convenience	Safety	Another reason
Propane forced air	73%	15%	8%	4%	-
Oil forced air	86%	8%	6%	-	-
Electric forced air	92%	8%	-	-	-
Radiator	72%	3%	17%	4%	4%
Electric baseboard	90%	5%	2%	3%	-
Electric heat pump	79%	16%	-	-	5%
Wood-burning source	76%	7%	12%	-	5%
Other/Don't know	49%	21%	19%	4%	7%

Monthly Cost Saving Scenarios

Key Idea: Different conversion scenarios mean different costs and savings.

Respondents were randomly assigned either a low, medium, or high monthly cost savings scenario. The estimated savings for their scenario were based on home heating system type.

Respondents were then asked whether or not they would convert based on these specific, hypothetical cost savings.

The estimated savings for each heating system type were as follows:

Best Case: higher savings

Worst Case: lower savings

	Forced Air	Hot Water Radiator	Heat Pump	Baseboard
Propane	Low: $20 Medium: $35 High: $45		N/A	N/A
Oil	Low: $55 Medium: $85 High: $110		N/A	N/A
Electricity	Low: $70 Medium: $105 High: $140			
Other/DK	Low: $70 Medium: $105 High: $140		N/A	N/A

Typical Scenario	Low: $20 Medium: $80 High: $140

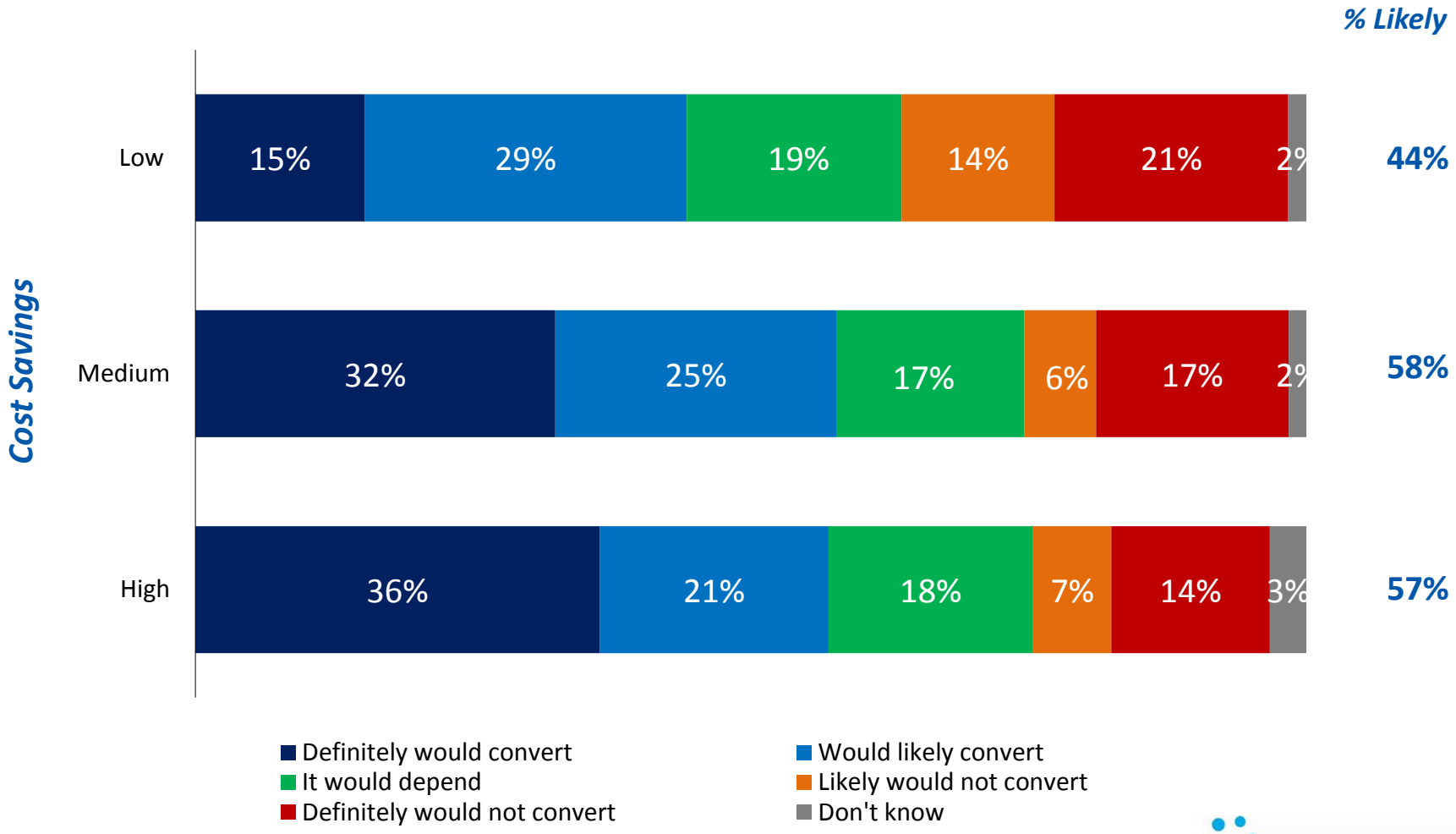
*Those whose heating scenario was not reflected in the above table were shown a "typical" cost scenario with the following costs and figures.

Note: *The frequency of heating system types reported above includes responses of "other" from which the open-ended answer was later recoded as one of the main types. However in all cases the cost scenario faced by these respondents was the **other/Don't Know** cost scenario.*

Monthly cost savings: those with medium and high cost savings both equally likely to convert

Q The cost savings from natural gas can depend on a number of factors. However, if your bill were [SAVINGS SCENARIO] less per month than it currently is, how likely would you be to convert to natural gas?

[asked of all respondents, low n=167, medium n=175, high n=158]



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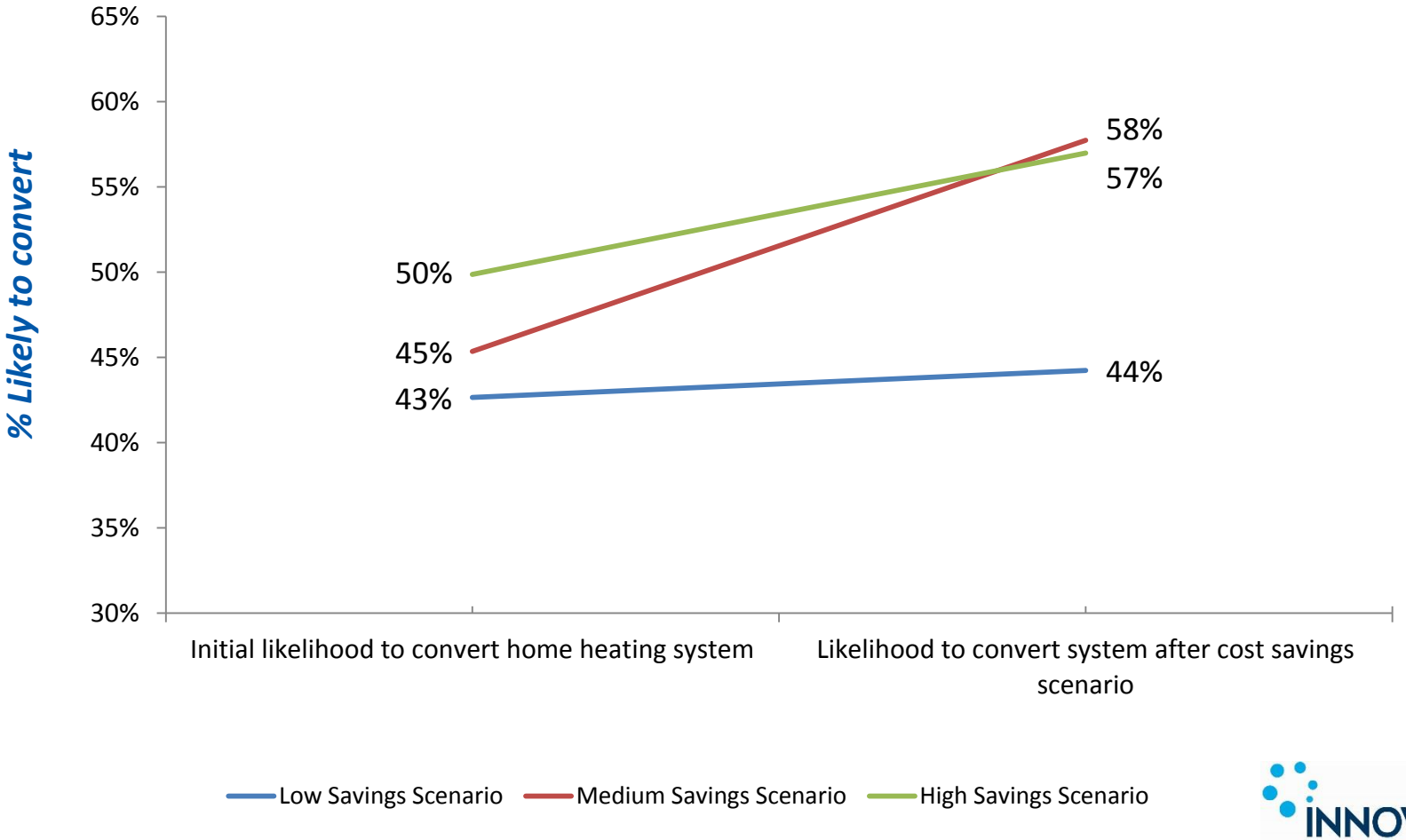
Monthly cost savings: medium and high savings scenarios both increase conversion to near 6-in-10 households

Q Likelihood to convert home heating system and likelihood to convert system after introduction of specific cost savings scenario ***BY*** Specific cost saving scenario

[asked of all respondents]



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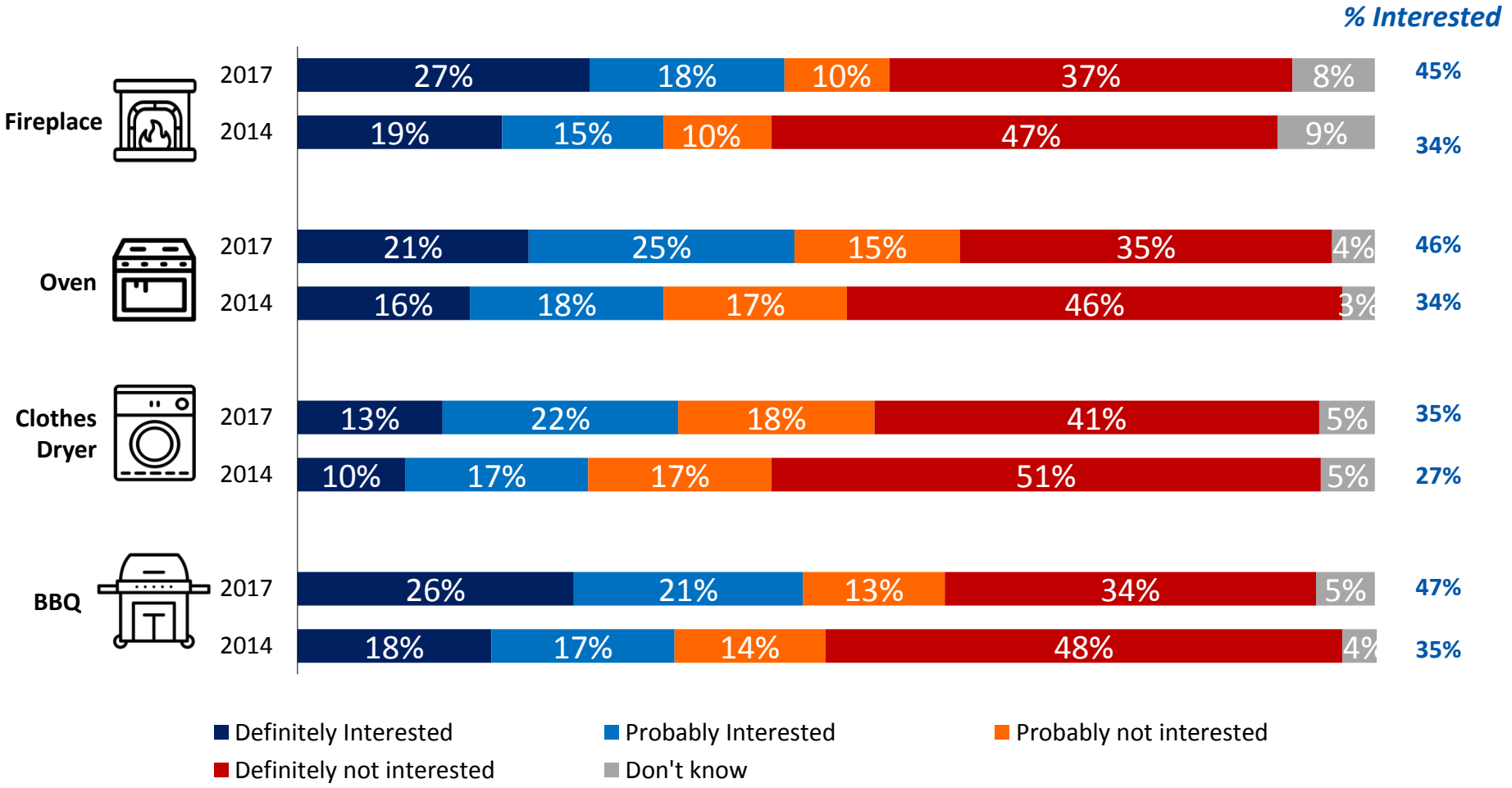
Other Appliances

Converting other appliances: Increase in those interested in converting secondary appliances

Q I am going to read you a list of appliances that could be powered by natural gas. For each appliance, please tell me if you would be definitely interested, probably interested, probably not interested or definitely not interested in natural gas for the appliance.
[asked of all respondents,]



Note: "Refused" not shown

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Technical Appendix

Sample Regions

- The sample was designed only to contact residents who would likely be eligible for gas service according to the most recent version of the pipeline route.
- The project will provide service in the following communities (with municipality in brackets):
    - Kincardine excluding outlying rural areas (*Kincardine*)
    - Tiverton (*Kincardine)*
    - The lakeshore from Kincardine to Point Clark (*Huron-Kinloss*)
    - Ripley (*Huron-Kinloss*)
    - Lucknow (*Huron-Kinloss*)
    - Chesley (*Arran-Elderslie*)
    - Paisley (*Arran-Elderslie*)
- Inclusion in the sample was based on the 6-digit postal code of each household address as well as geo-location of individual addresses where necessary for a more precise match. Only households whose postal codes matched the service area would be included.
- The included postal codes were:
    - **Kincardine and the Lakeshore**: Every postal code in FSA N2Z *except* the rural postal codes of N2Z 2X4 and N2Z 2X5
    - **Tiverton:** N0G 2T0
    - **Ripley:** N0G 2R0
    - **Lucknow:** N0G 2H0
    - **Chesley:** N0G 1L0
    - **Paisley:** N0G 2N0

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Sample Stratification and Weighting

- The sample was stratified between non-permanent residents and permanent residents in each municipality.

- Stratified random sampling ensures that a fully representative population is included in the sample, in this case the sample was designed to be properly representative of each municipality, and also to represent non-permanent residents as fully as possible.

- Non-permanent residents were defined as owners of households that are in the service area, who use a mailing address outside of the sample region to receive their property tax bills. Non-residential properties were filtered from this sample list.

- Quotas were established for each strata using a combination of property tax roll data and Statistics Canada household counts (see Table 1 on following slide)

- Weighting was applied among permanent residents using Statistics Canada data to ensure the sample was representative of household size and municipality (see Tables 2 and 3 on following slide)

Sample Stratification and Weighting

Weight targets were based on Statistics Canada 2016 census data for the towns along the pipeline route within each municipality. In Huron-Kinloss, only data for the entire municipality was available. As such, these targets are based on the entire municipality, adjusted downward by the percentage of properties in the service area according to municipal tax rolls provided by the municipality.

Oversamples: To increase the overall reliability of results in the two smaller municipalities, respondents were oversampled in these municipalities. These larger samples are reflected in the unweighted tables below.

Table 1: Overall sample weight targets

	Permanent Residents			Non-Permanent Residents
Municipality	1 Person households	2 person households	3+ person households	
Kincardine	65	86	67	32
Huron-Kinloss	29	52	39	55
Arran-Elderslie	37	41	34	13

Table 2: Unweighted N sizes

	Permanent Residents			Non-Permanent Residents
Municipality	1 Person households	2 person households	3+ person households	
Kincardine	50	125	49	27
Huron-Kinloss	19	51	23	83
Arran-Elderslie	32	48	42	5

Table 3: Weighted N-sizes

	Permanent Residents			Non-Permanent Residents
Municipality	1 Person households	2 person households	3+ person households	
Kincardine	67	87	68	32
Huron-Kinloss	28	50	37	52
Arran-Elderslie	24	26	21	8

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