

## **Appendix E: Load Impact and Conservation Effect Analytical Model**





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# Ontario Smart Price Pilot Program Survey Results

January 25, 2007



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# Methodology



## Methodology

- As part of this study, IBM's National Survey Centre conducted a survey of the Ontario Smart Price Pilot Program participants.
- A dual methodology was implemented for this study:
  - Invitations to participate in an online survey were sent to all participants on November 22nd who had provided an email addresses as part of the study.
  - The mail survey was distributed by regular mail on November 23rd to all participants who did not provide email addresses as part of the study. The mail surveys also contained unique links to the online survey to encourage participants to complete online.
- A total of 289 surveys were returned by the survey cut-off date of December 14th for an overall response rate of 77%.
- Response rate by survey invite type was:
  - Online invites = 183 / 199 (92%)
  - Mail invites = 106 / 176 (60%) – completed either by mail or online

## Sampling and Margin of Error

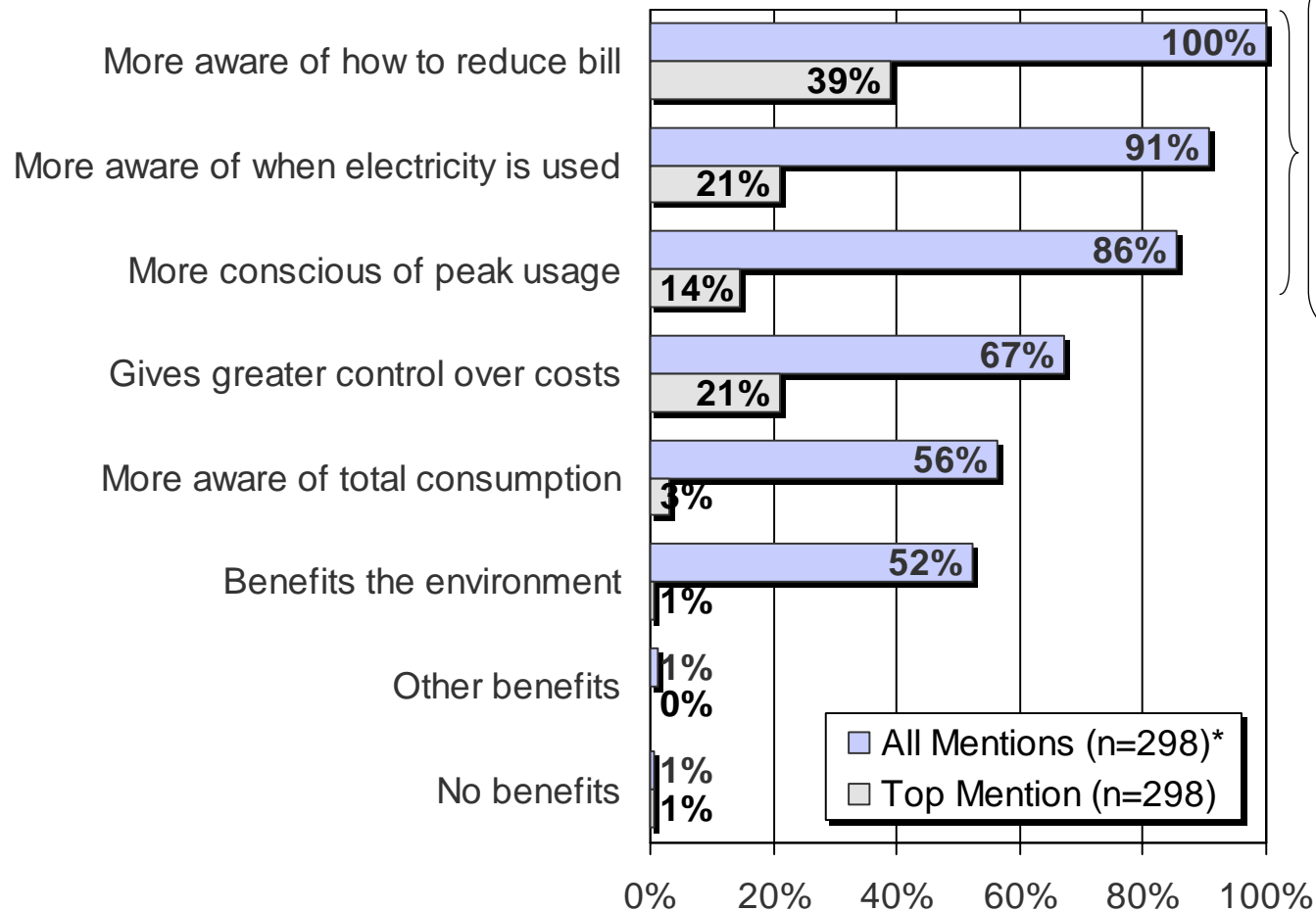
- The margin of error (at 95% confidence) for the overall results is  $\pm 5.7\%$  for the 289 surveys received.
- The margin of error for the different sub-groups presented throughout the report will vary depending on the sample size:
  - TOU : n=94;  $\pm 10.2\%$
  - CPP : n=103;  $\pm 9.7\%$
  - CPR : n=101;  $\pm 9.8\%$
- As a reference, the margin of error associated with the different sub groups ( $\pm 10\%$ ) indicates a difference of at least 20 percentage points is needed to prove a statistically conclusive result.
- Significant results are highlighted throughout the report.



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# General Opinions about the Time-of-Use Pricing Plan and the Ontario Smart Price Pilot Program

## Q2A/B: What benefits do you feel the time-of-use pricing plan offers to electricity consumers? What is the MAIN benefit the time-of-use pricing plan offers to its customers?



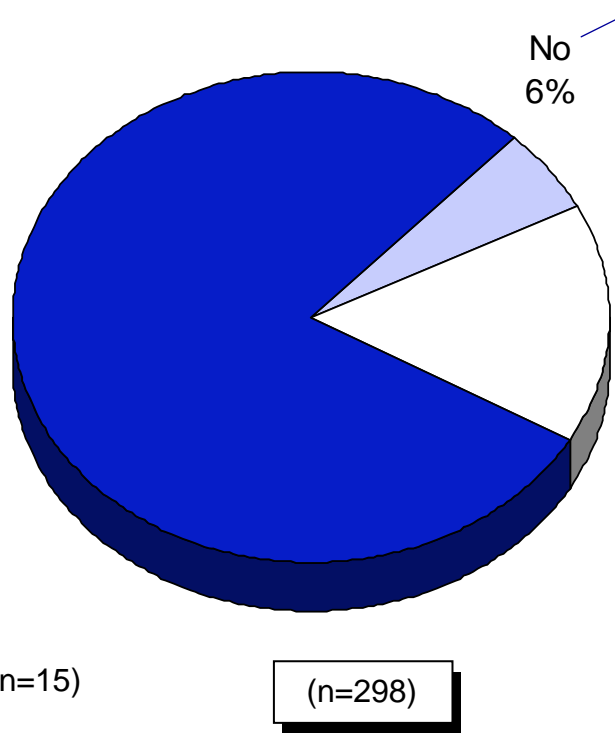
Being more aware of how to reduce their bill and knowing when electricity is being used are clearly the top benefits of the time-of-use pricing plan. Being more conscious of peak usage is also a main benefit according to pilot participants.

Note: \* Percentages add to more than 100% due to multiple responses.



## Q3A/B: Would you recommend the time-of-use pricing plan to your friends if the pilot project was expanded? Why or why not?

The majority of pilot study participants would recommend the time-of-use pricing plan to their friends. Results are consistent regardless of which plan the participants were enrolled in for the pilot – TOU (69%), CPP (85%) and CPR (80%).



### Why?

- More aware of how to reduce bill (n=53)
- Gives greater control over costs (n=45)
- Benefits the environment (n=32)
- More conscious of peak usage (n=24)
- More aware of when electricity is used (n=15)
- Increases awareness (n=12)
- Reduces consumption (n=9)
- More beneficial (n=6)
- Prepares consumers for future implementation of smart meters (n=6)
- Increases consumers' responsibility (n=2)

### Why Not?

- Requires too much effort to reduce consumption (n=7)
- Potential savings are not great enough (n=6)

### Not Sure

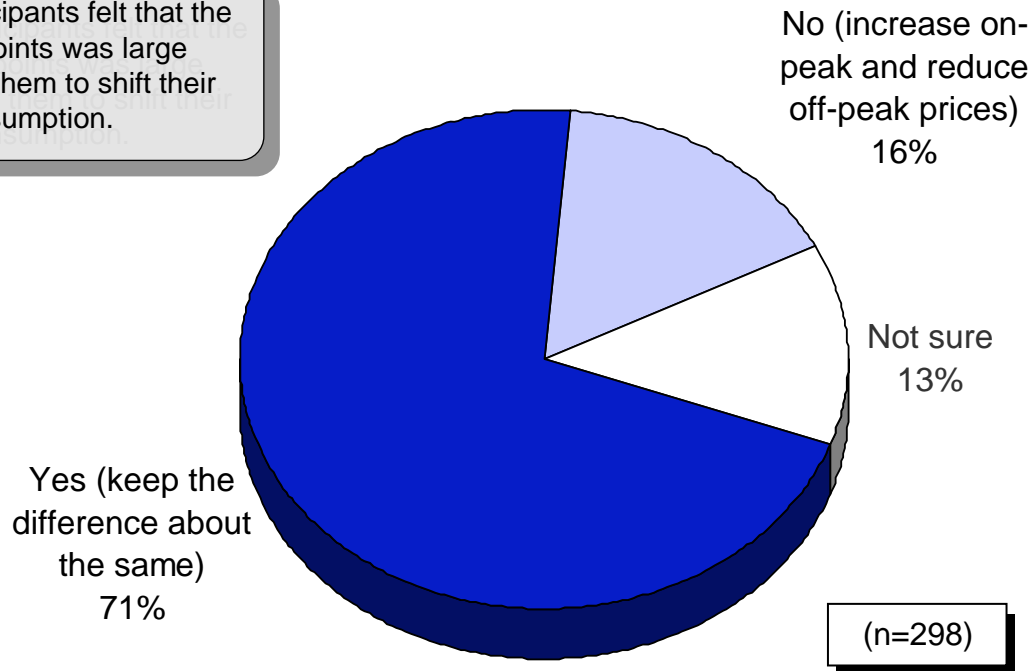
16%

### Why Not?

- Requires too much effort to reduce consumption (n=10)
- Unsure if the time-of-use pricing plan is actually beneficial (n=8)
- Potential savings are not great enough (n=5)
- Information provided is either too complicated or insufficient (n=4)
- Plan is only beneficial if you have a flexible schedule (n=3)

## Q3C: Do you feel the current difference between the “Off-peak” price and “On-peak” price is large enough to provide you with the necessary incentive to shift your electricity consumption to “Off-peak” periods?

For the most part, participants felt that the difference in price points was large enough to encourage them to shift their electricity consumption.



Pricing Plan Enrolled In:	TOU (n=94)	CPP (n=103)	CPR (n=101)
Yes (keep the difference about the same)	67%	81%	64%
No (increase on-peak and reduce off-peak prices)	16%	12%	21%
Not sure	17%	8%	15%



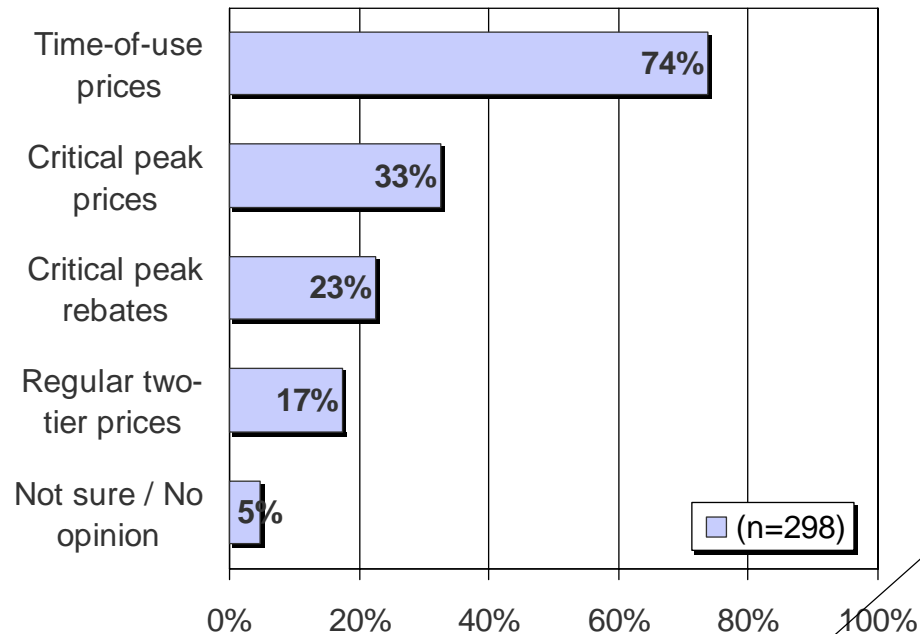
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# Pricing Plans



## Q4A: What type of pricing plan (the amount you are charged for electricity consumption) is of most interest to you?

Three quarters of pilot participants indicated that time-of-use prices was the plan of most interest to them. While interest in the CPP and CPR plans was only moderate, less than a fifth prefer the regular two-tier pricing used by Hydro Ottawa before the pilot. This shows good uptake of the pilot and rates by participants – most would not want to go back to two-tier pricing.



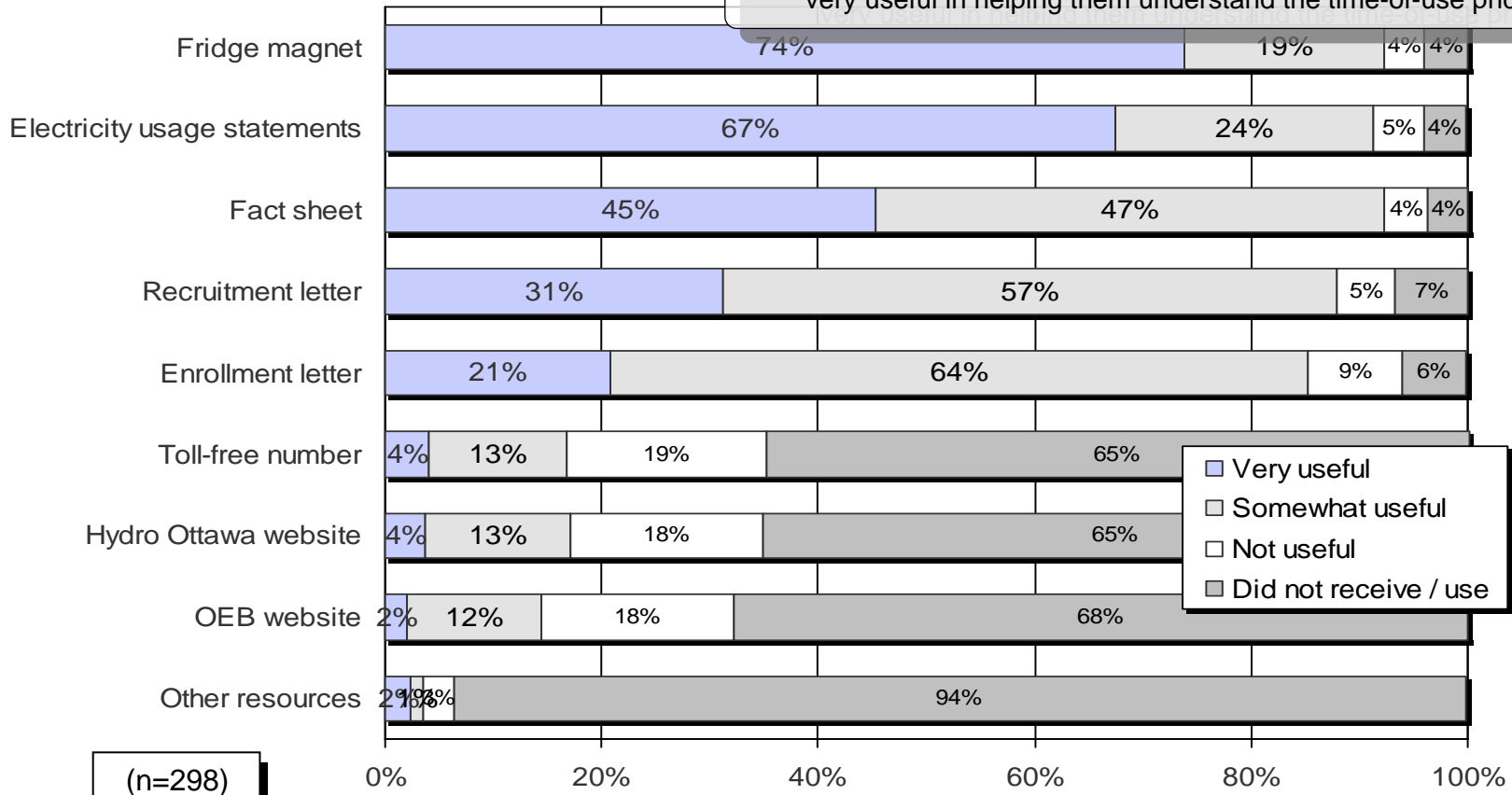
Interestingly, participants enrolled in the TOU rate plan were significantly less likely to indicate that the CPP plan was of MOST interest to them.

Pricing Plan Enrolled In:	TOU (n=94)	CPP (n=103)	CPR (n=101)
Time-of-use prices	76%	75%	71%
Critical peak prices	19%	42%	36%
Critical peak rebates	19%	21%	27%
Regular two-tier prices	25%	13%	16%
Not sure / No opinion	6%	3%	5%

Note: \* Percentages add to more than 100% due to multiple responses.

## Q4B: What resources did you find useful in helping you understand the time-of-use (or “smart”) prices?

Participants found the fridge magnet and electricity usage statements very useful in helping them understand the time-of-use prices.



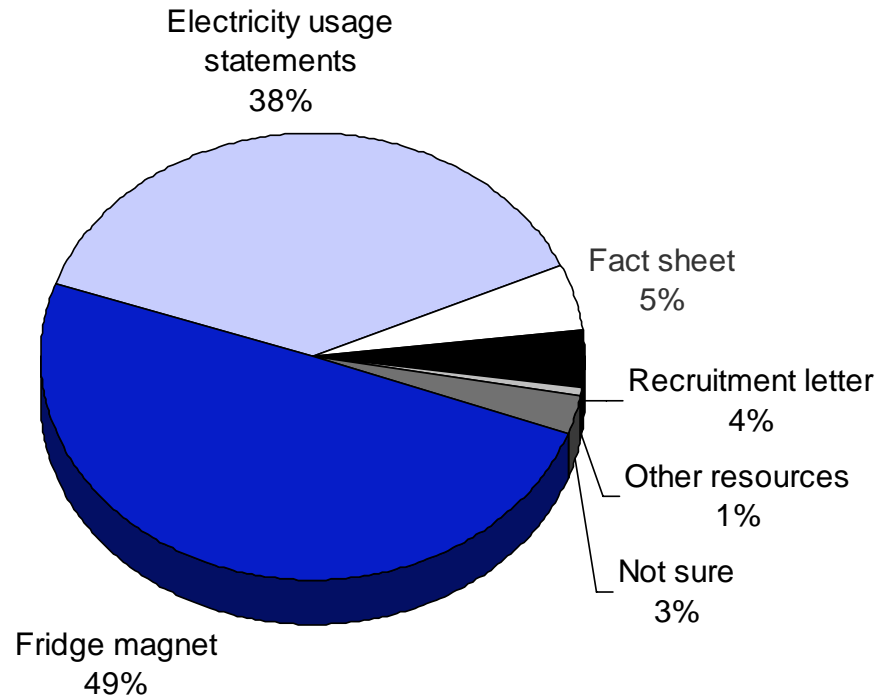
(n=298)

While early pilot communications (e.g., the fact sheet, recruitment letter and enrollment letter) were considered useful by most; the toll-free number and client websites were not considered a key resource when obtaining information to help understand the time-of-use prices.

## Q4C: What resources did you find MOST useful in helping you understand the time-of-use (or “smart”) prices?

Participants found the fridge magnet and electricity usage statements the MOST useful resources in helping them understand the time-of-use prices.

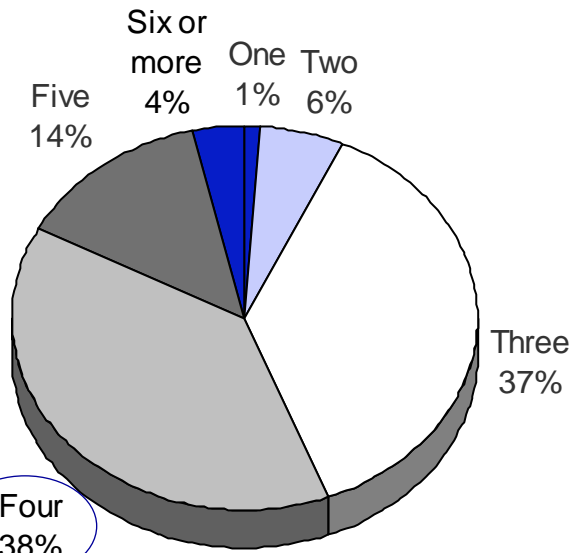
(n=296)



Pricing Plan Enrolled In:	TOU (n=94)	CPP (n=103)	CPR (n=101)
Fridge magnet	45%	47%	57%
Electricity usage statement	43%	41%	31%
Fact sheet	0%	9%	5%
Recruitment letter	5%	4%	3%

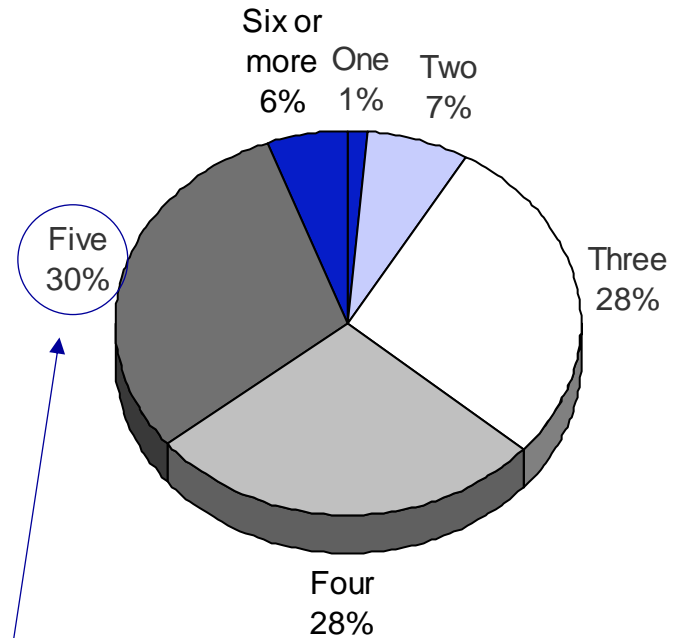
## Q5A/B: Thinking about the time-of-use prices, how many times does the price change during a summer / winter weekday?

### Number of price changes during summer weekday (n=285)



Two fifths (38%) were able to correctly identify that the price changed four times during a summer weekday. Results are consistent regardless of which plan participants were enrolled in – TOU (35%), CPP (40%) and CPR (36%).

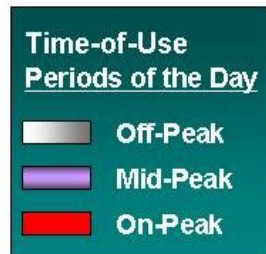
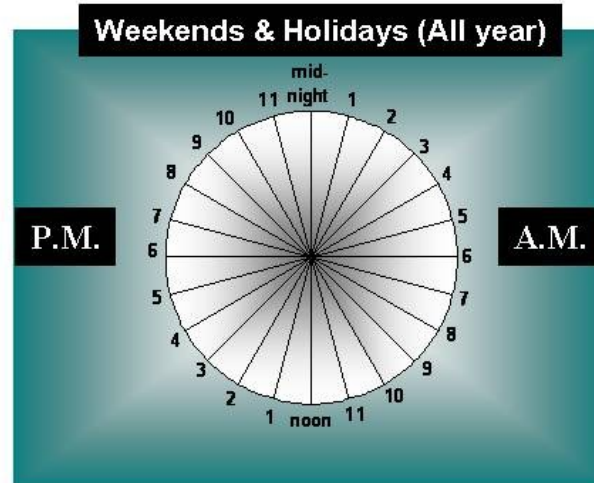
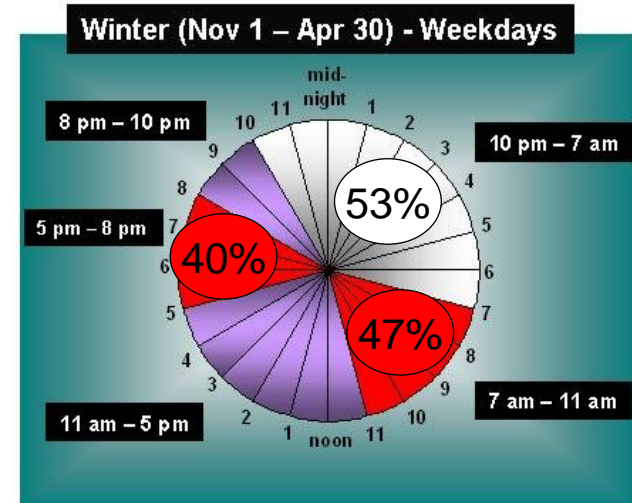
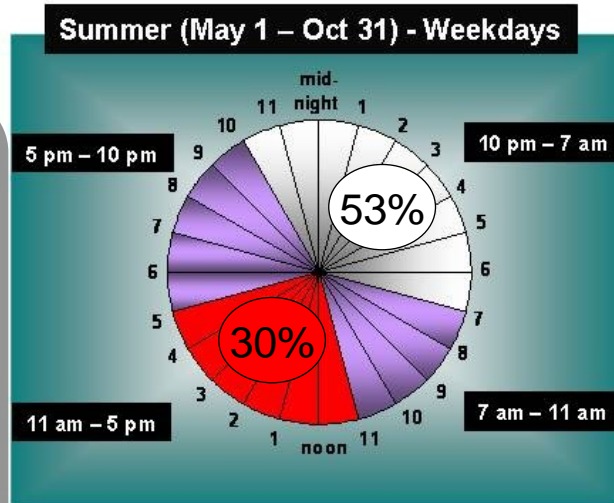
### Number of price changes during winter weekday (n=288)



A third (30%) were able to correctly identify that the price changed five times during a winter weekday. Results are consistent regardless of which plan participants were enrolled in – TOU (33%), CPP (29%) and CPR (26%).

## Q5C/D: Do you recall the specific hours for the following time periods for weekdays in the summer / winter?

The percentages in the graph identify the number of pilot study participants who correctly identified the start and end times for the different time periods. Participants had considerable difficulty remembering the start and end times of the on-peak and off-peak periods. This emphasizes the importance of a well designed and easily accessible format for communicating the time periods to participants. There were no significant differences in terms of recall between the different enrollment groups.



Source: Ontario Energy Board.

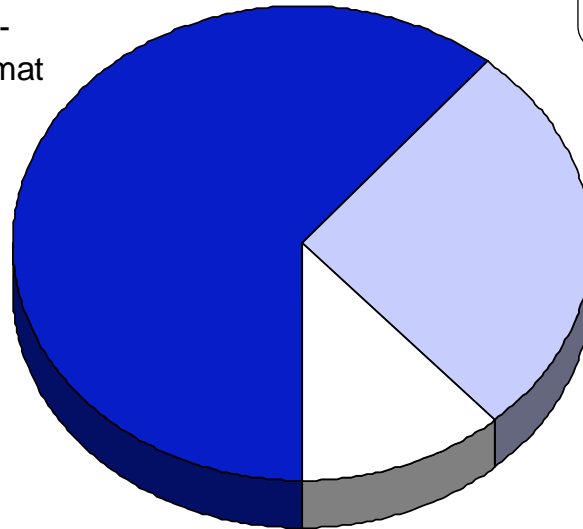
www.oeb.gov.on.ca



# Q6A/B: Which format do you find easier to understand? Why do you prefer this format?



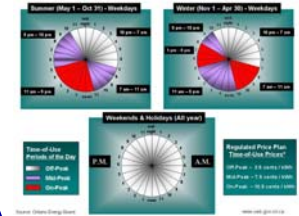
Format A -  
Tabular Format  
61%



(n=298)

Participants definitely prefer the tabular format for displaying the different time periods and associated time-of-use prices. This is consistent with the findings from the focus groups.

Format B -  
Graphical Format  
27%



- Clearer / easier to read (n=75)
- Easier to remember (n=4)

- Clearer / easier to read (n=163)
- Already familiar with the format (n=10)
- Colors in Format B are hard to look at (n=5)

Pricing Plan Enrolled:	TOU (n=94)	CPP (n=103)	CPR (n=101)
Format A – Tabular Format	54%	67%	61%
Format B – Graphical Format	33%	21%	28%
No preference	13%	12%	11%

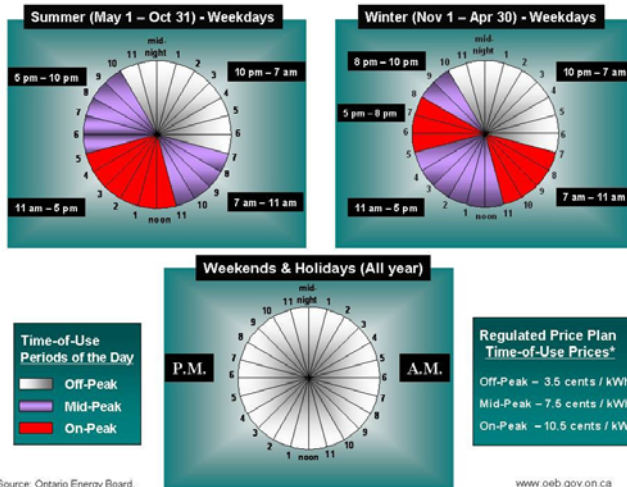
# Q6C: Also, are there any changes you would suggest should be made to the other format that would make it more helpful?

Day of the Week Jours de la semaine	Time Heures	Time of Use Périodes d'utilisation	Price/Price* (¢/kWh)
Weekends & Holidays Fins de semaine et fêtes	All Day / Toute la journée	Off-peak / Période creuse	3.5 ¢
Summer Weekdays (May 1 <sup>st</sup> - Oct 31 <sup>st</sup> )	7 am to 11 am / 7 h à 11 h 11 am to 5 pm / 11 h à 17 h	Mid-peak / Période moyenne On-peak / Période de pointe	7.5 ¢ 10.5 ¢
Jours de semaine l'été (du 1 <sup>er</sup> mai au 31 octobre)	5 pm to 10 pm / 17 h à 22 h 10 pm to 7 am / 22 h à 7 h	Mid-peak / Période moyenne Off-peak / Période creuse	7.5 ¢ 3.5 ¢
Winter Weekdays (Nov 1 <sup>st</sup> - Apr 30 <sup>th</sup> )	7 am to 11 am / 7 h à 11 h 11 am to 5 pm / 11 h à 17 h	On-peak / Période de pointe Mid-peak / Période moyenne	10.5 ¢ 7.5 ¢
Jours de semaine l'hiver (du 1 <sup>er</sup> novembre au 30 avril)	5 pm to 8 pm / 17 h à 20 h 8 pm to 10 pm / 20 h à 22 h 10 pm to 7 am / 22 h à 7 h	On-peak / Période de pointe Mid-peak / Période moyenne Off-peak / Période creuse	10.5 ¢ 7.5 ¢ 3.5 ¢

Effective August 2006 / Effet à partir du 2006 août

- Format A – Tabular Format:
  - Change colour coding
  - Make it less busy / use fewer colours
  - **Separate summer and winter magnets**
  - Use a larger or different font
  - Eliminate it / I would not use it
  - **Change chart format**
  - Add more information
  - Make magnets unilingual

Suggestions for improvement were similar for both formats; unique suggestions are indicated in **bold**.



- Format B – Graphical Format:
  - Make it less busy / use fewer colours
  - Change colour coding
  - **Separate AM and PM clocks / change clock format**
  - Eliminate it / I would not use it
  - Add more information
  - Use a larger or different font
  - Make magnets unilingual

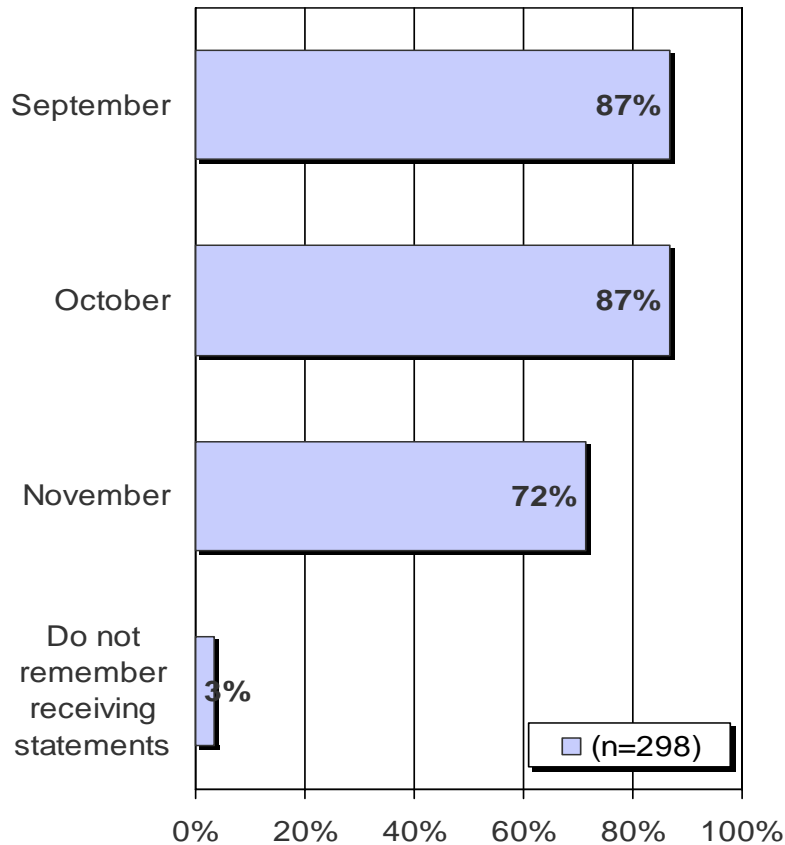


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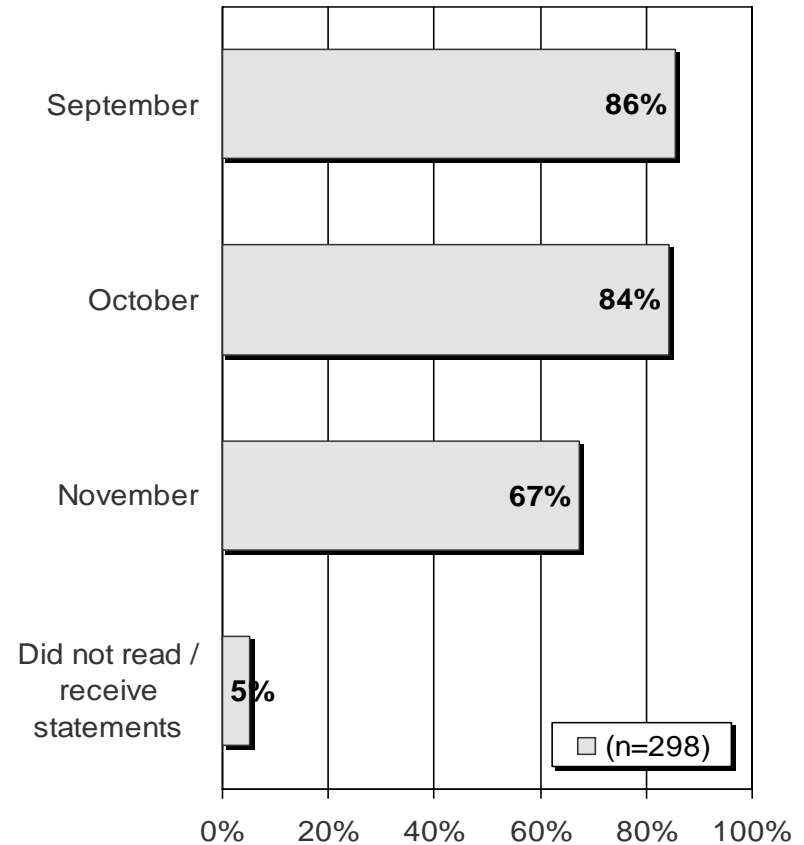
# Electricity Usage Statements

# Q7A/B: Do you recall receiving/reading customized electricity usage statements in...?

**Received statement in...**



**Read statements in...**

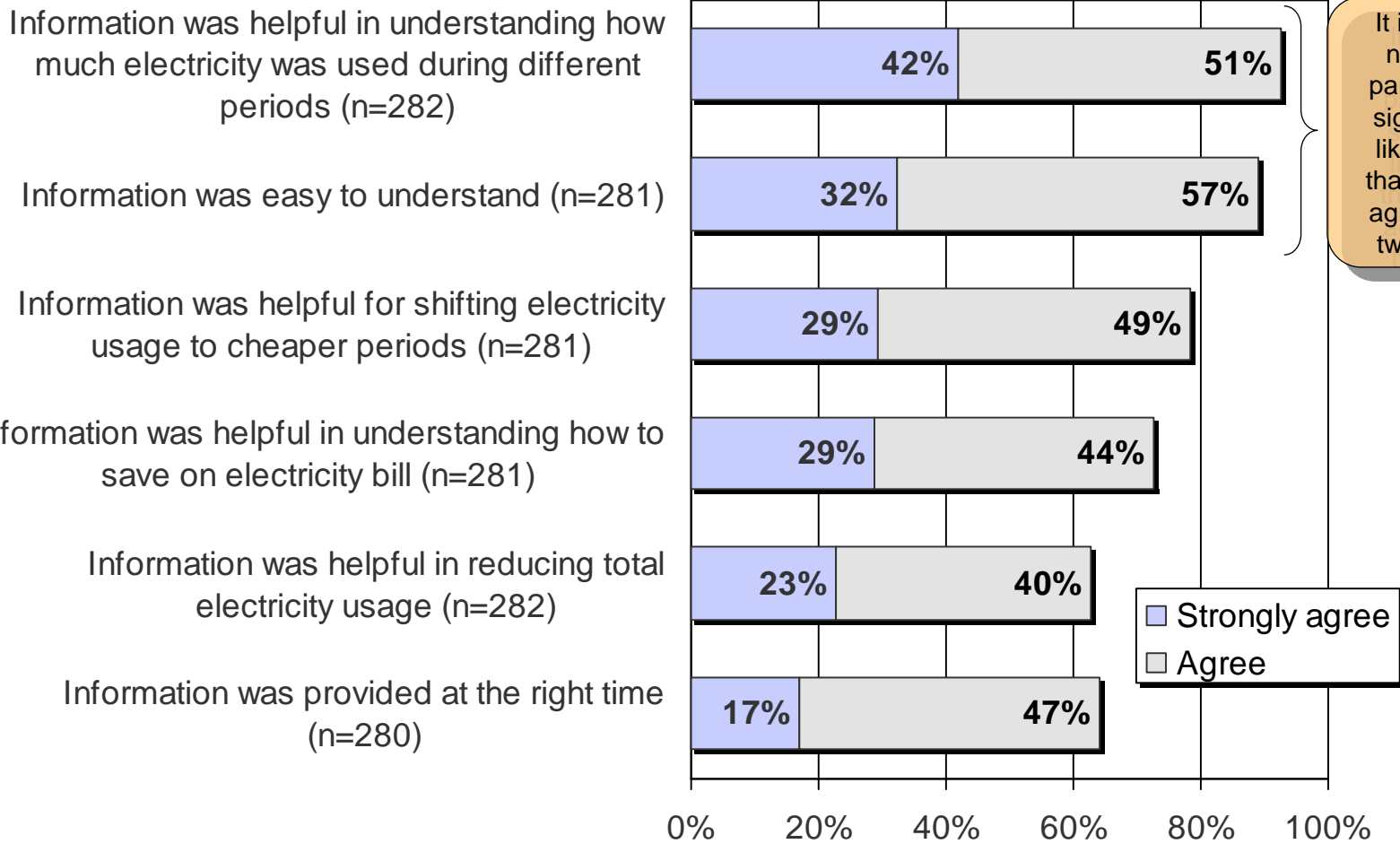


Participants recall receiving and took time to review their monthly statements each month. The drop off in November may be attributed to the fact that participants had a short window between the statement and survey mailings.

Note: \* Percentages add to more than 100% due to multiple responses.

## Q7C: Thinking about the last customized electricity usage statement that you received and read, to what extent do you agree with each of the following statements?

Overall, participants agreed that the information they received on their electricity usage statement was helpful, easy to understand and timely.

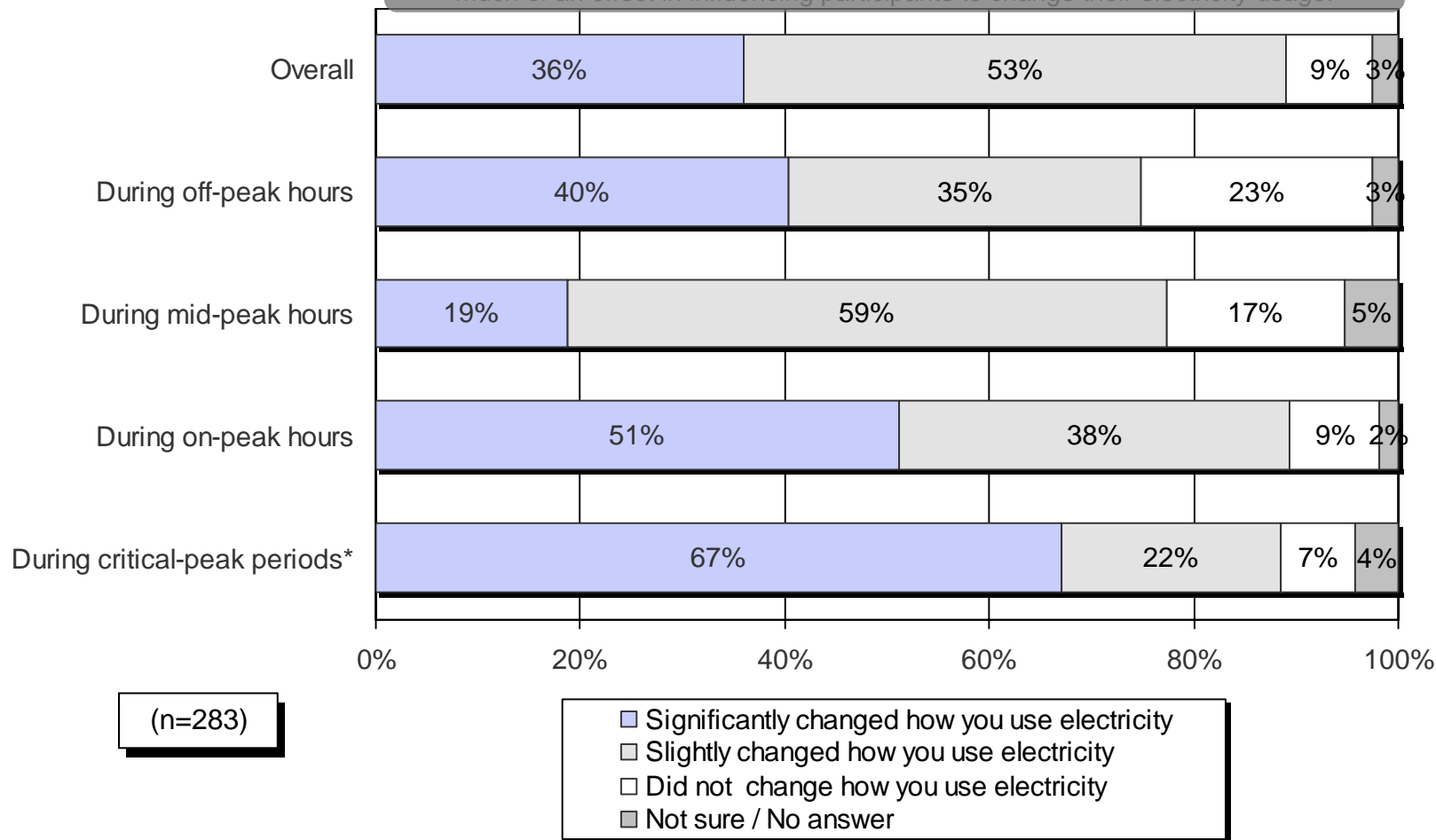


It is important to note that CPR participants were significantly less likely to indicate that they 'strongly agree' with these two statements.

Strongly agree  
Agree

## Q7D: After reviewing your electricity usage statements, to what extent have you (or others in your household) made a change in how you use electricity?

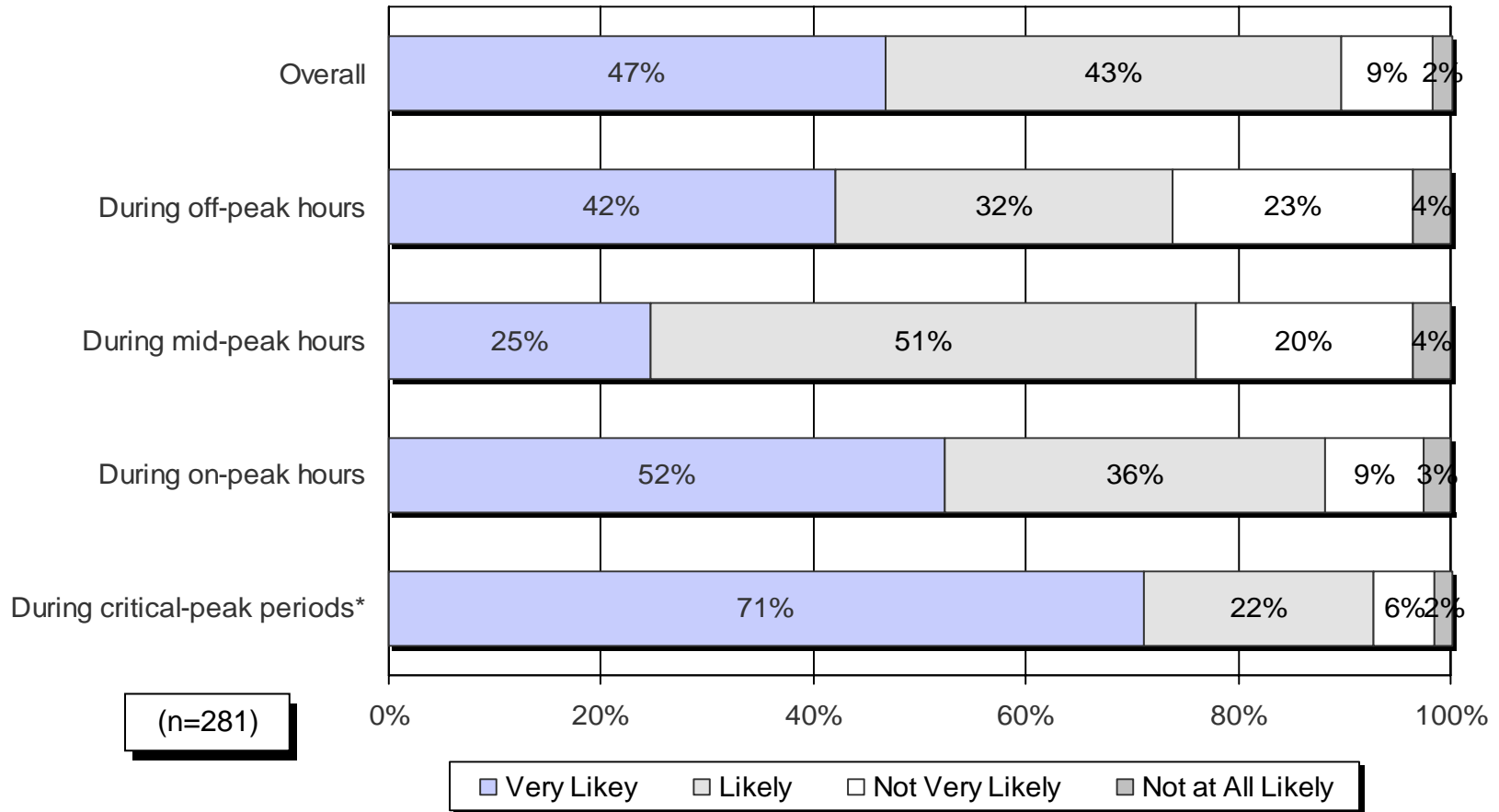
Participants were more likely to significantly change how they use electricity during on-peak and critical-peak periods. The mid-peak price point did not seem to have as much of an effect in influencing participants to change their electricity usage.



Note: \* Asked only to CPP and CPR pricing groups (n=191).

# Q7E: As a result of reviewing your electricity usage statements, how likely are you to change how you use electricity in the future?

Again, participants can see themselves changing their electricity usage in the future more often during the on-peak and critical-peak periods.



Note: \* Asked only to CPP and CPR pricing groups (n=190).



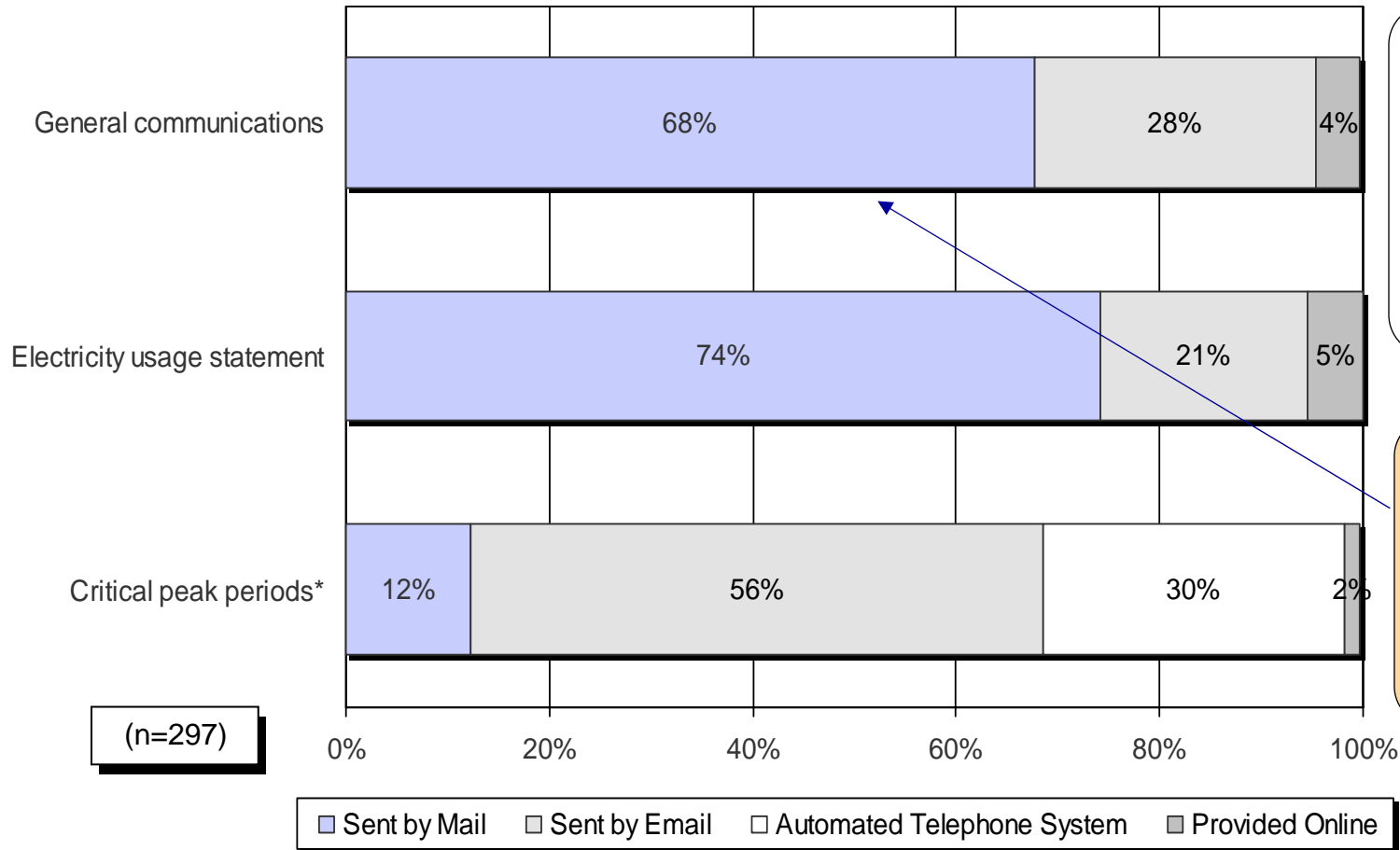
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# Communications





## Q8A: Thinking about the different communications you received, please indicate your preferred method of receiving this information



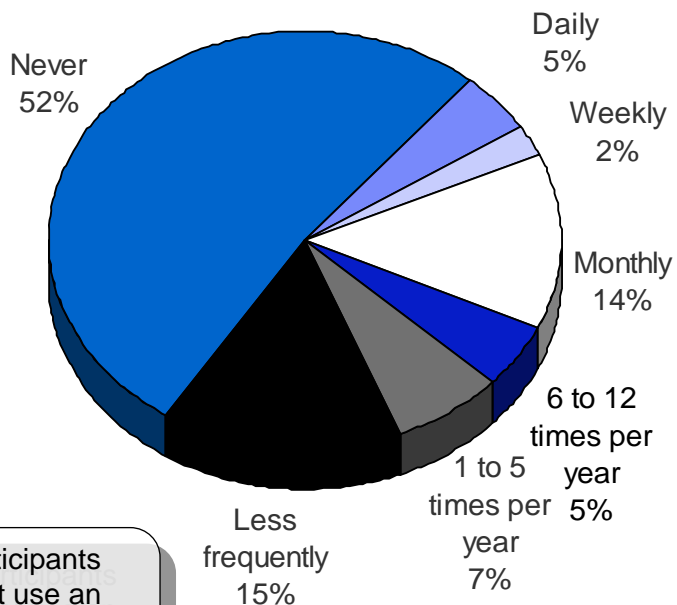
Participants prefer to receive any general communications and electricity usage statements by mail. Critical peak notifications should be sent by email or via an automated telephone system.

It is important to note that TOU participants were significantly more likely to indicate that they prefer to receive general communications by mail (83%).

Note: \* Asked only to CPP and CPR pricing groups (n=203).

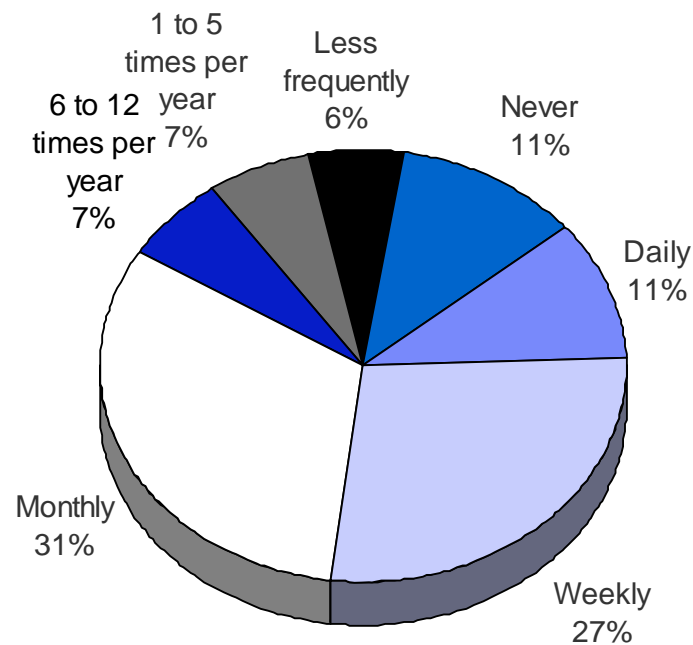
# Q8B: How often would you access information on your electricity usage statement if the information was available by...

## Automated Telephone System (n=294)



Most participants would not use an automated telephone system to access their electricity usage statements.

## Internet / E-mail (n=292)

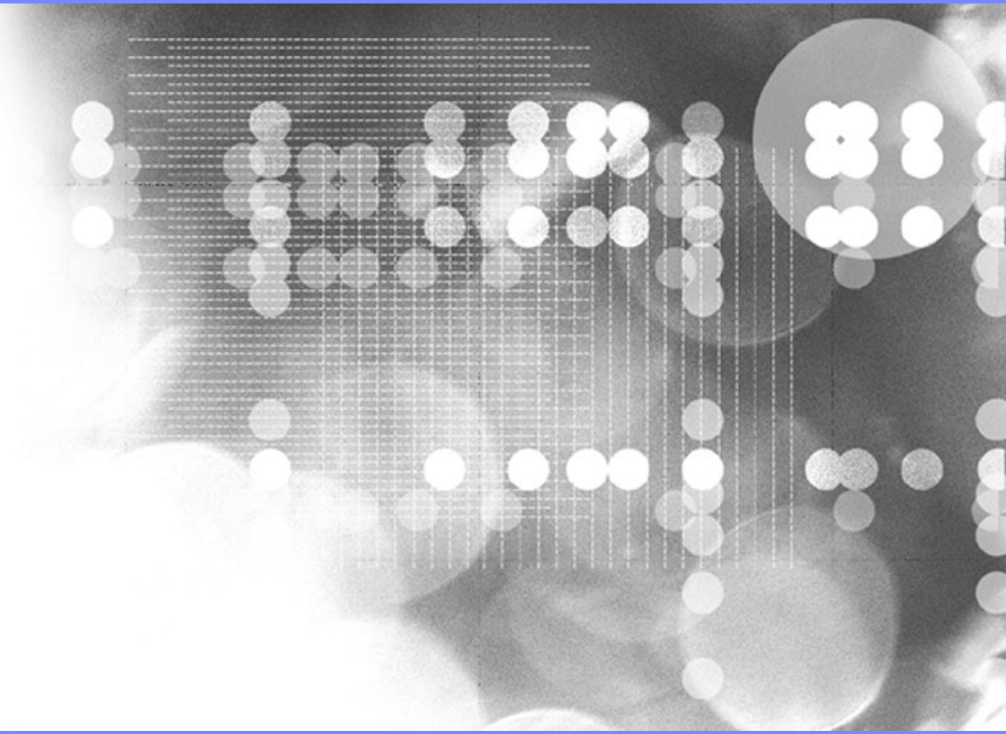


There is significant interest among participants to have this information available online and/or via email. Most (69%) would access this information electronically on a monthly (or more frequent) basis.

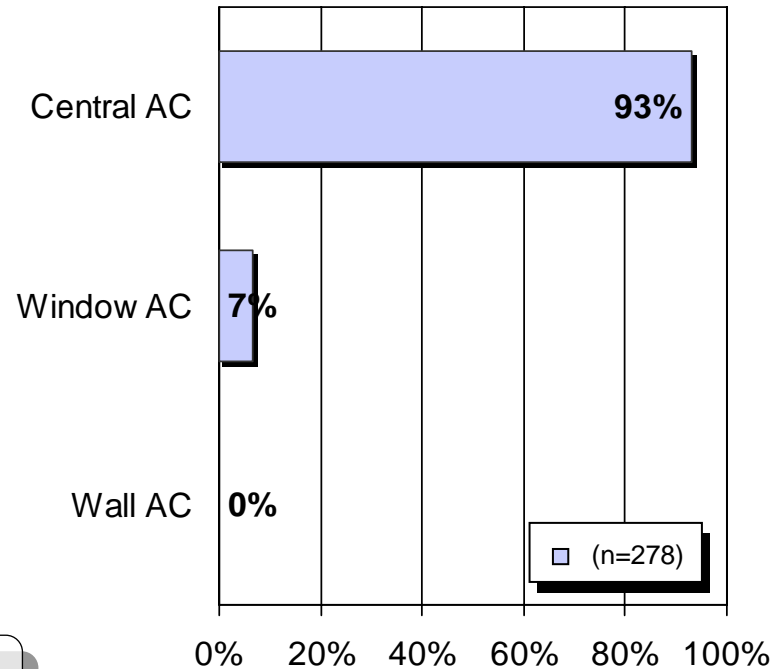
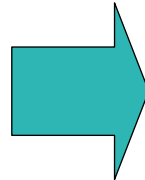
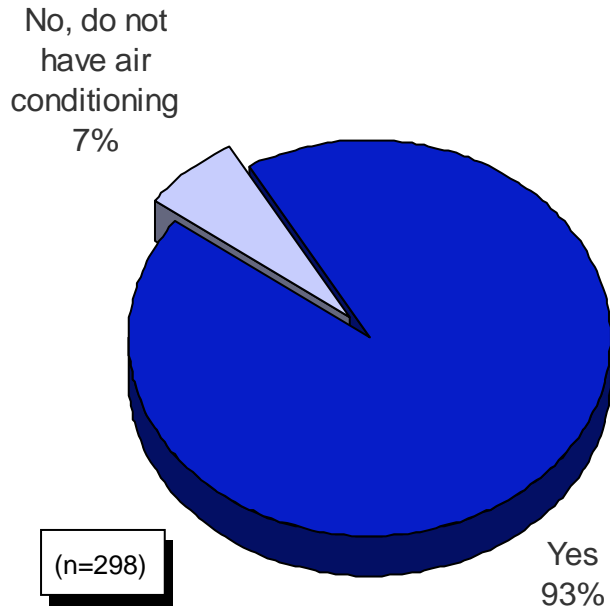


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# Appliance Holdings



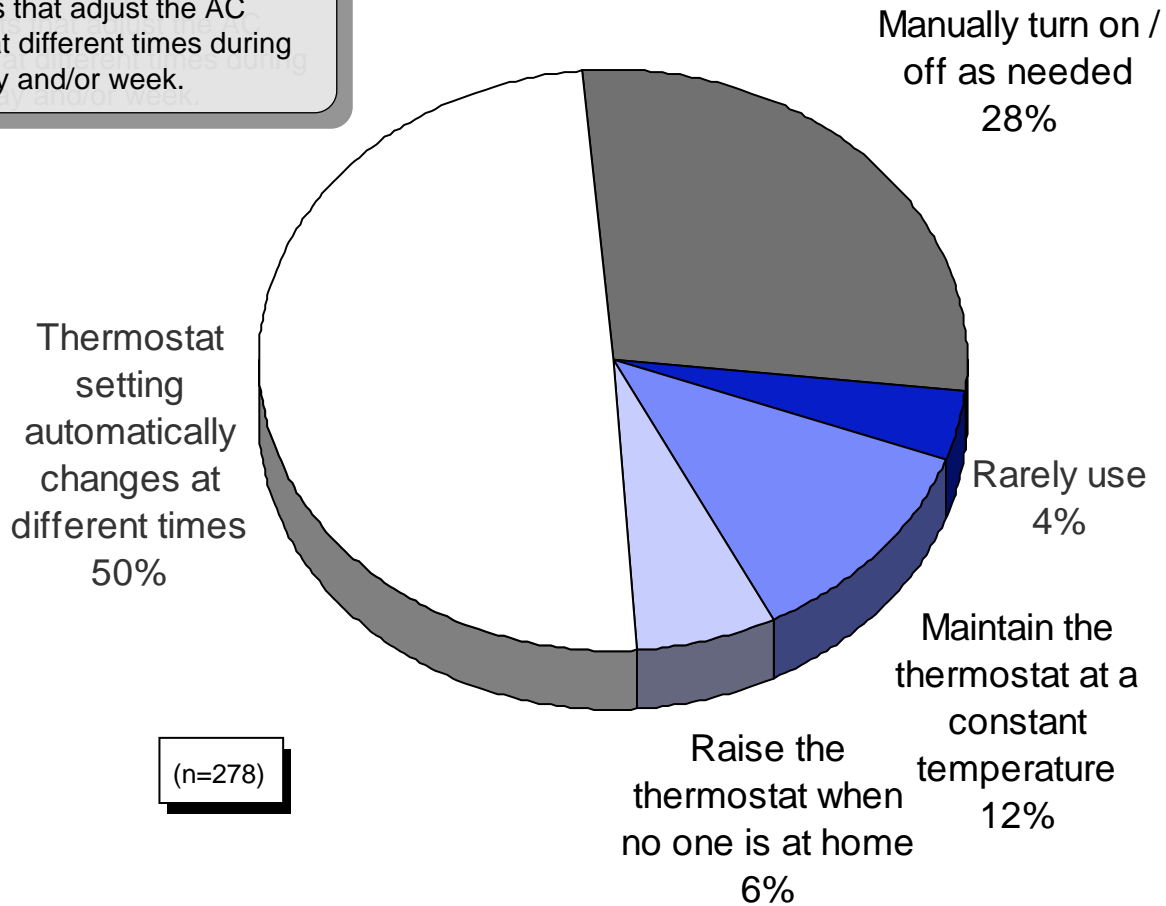
# Q9A/B: Do you pay for air conditioning for your home? What type of air conditioning systems do you have in your home?



Almost all pilot participants have central air conditioning in their homes.

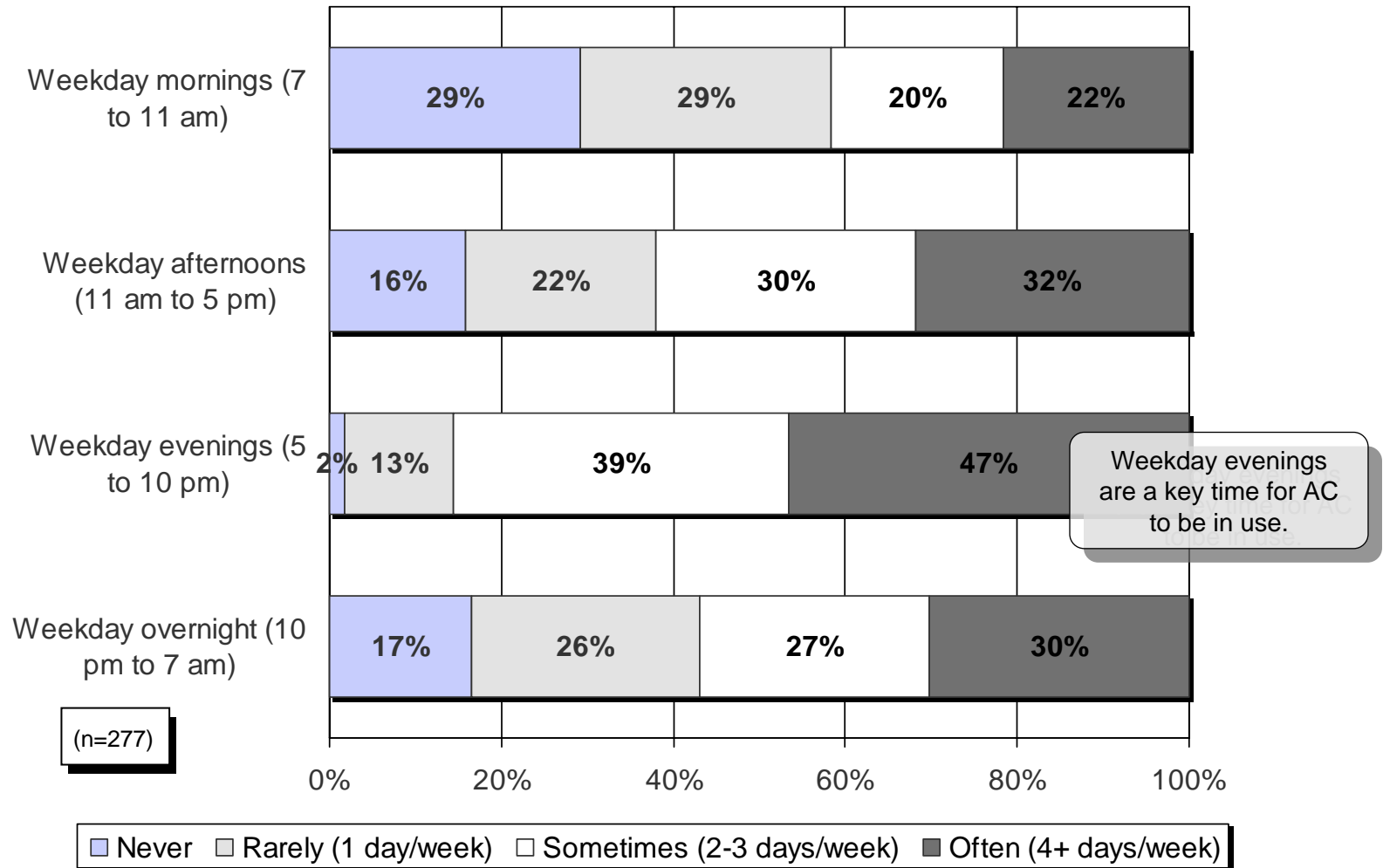
## Q9C: How do you usually operate your main air conditioning system?

Half of participants use programmable thermostats that adjust the AC automatically at different times during the day and/or week.



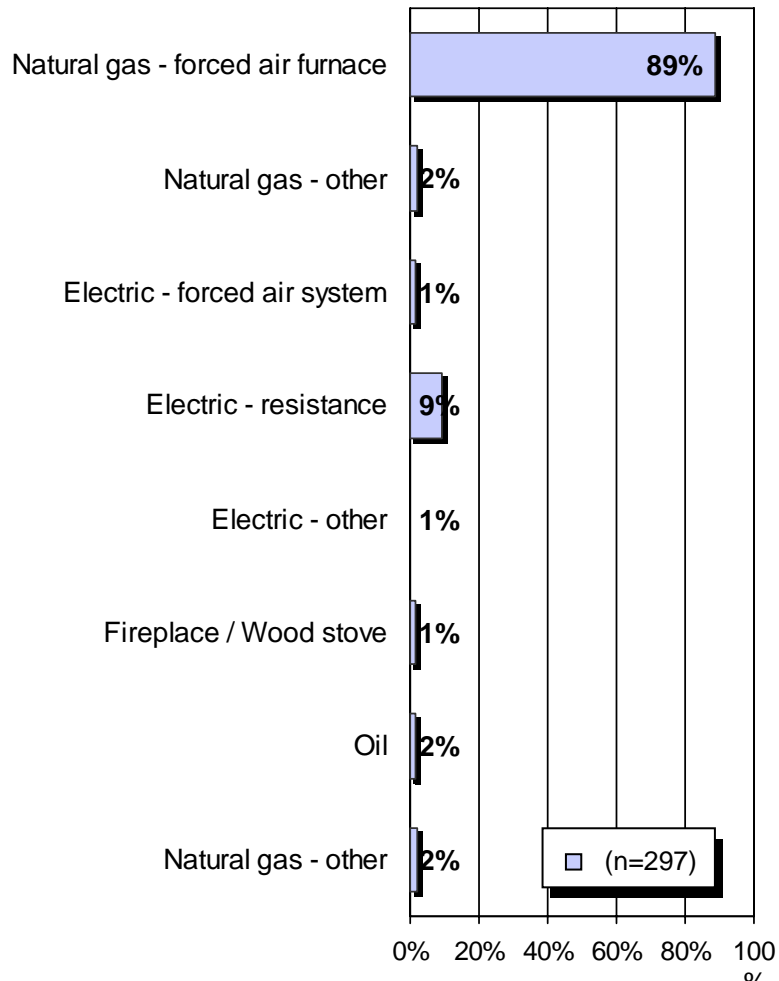
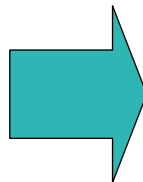
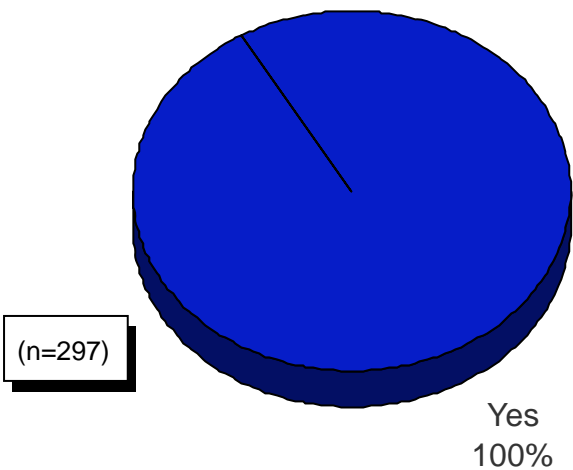
(n=278)

## Q9D: How often is your air conditioning turned on during the summer during the following time periods . . .



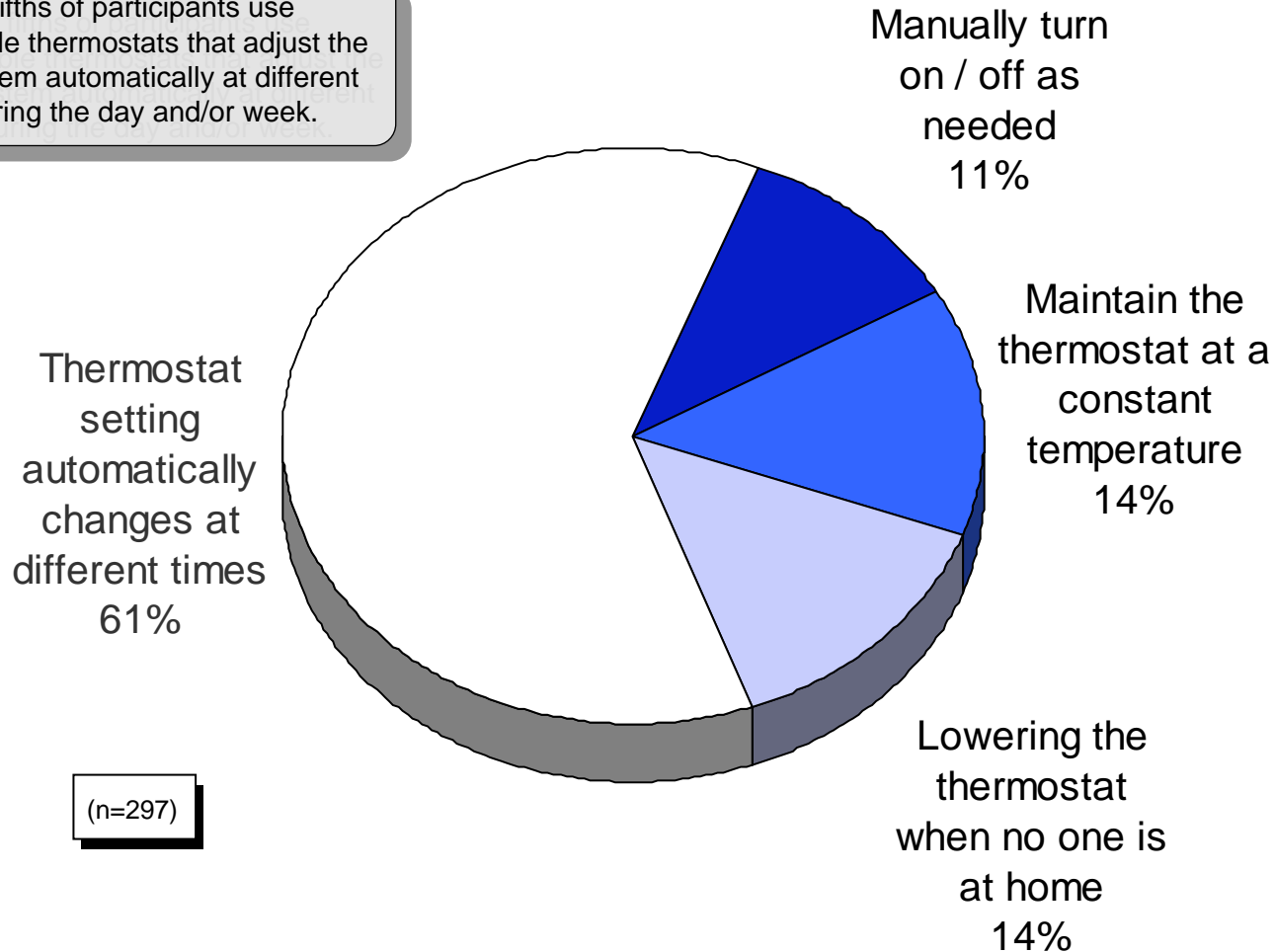
# Q10A/B: Do you pay to heat your home? What type of heating systems do you have in your home?

Most participants use a natural gas – forced air furnace to heat their homes.



## Q10C: How do you usually operate your main heating system?

Three fifths of participants use programmable thermostats that adjust the heating system automatically at different times during the day and/or week.

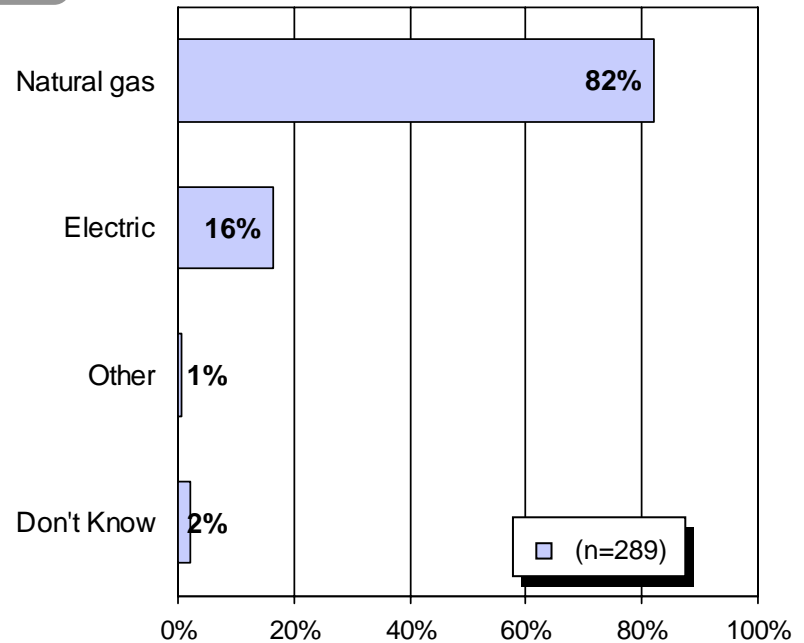
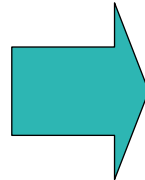
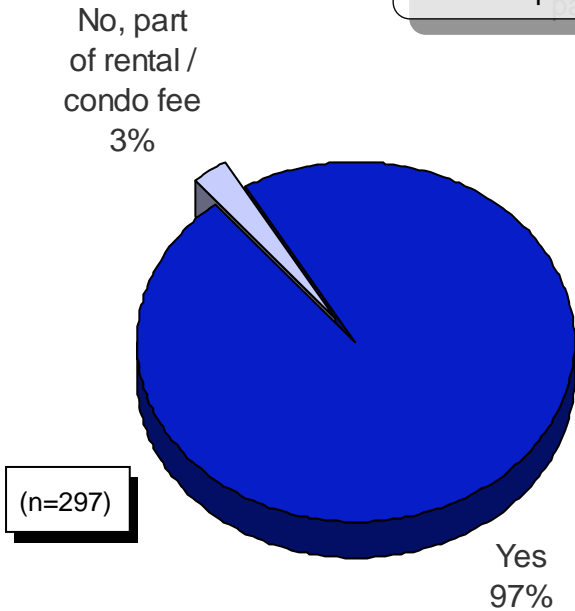


(n=297)

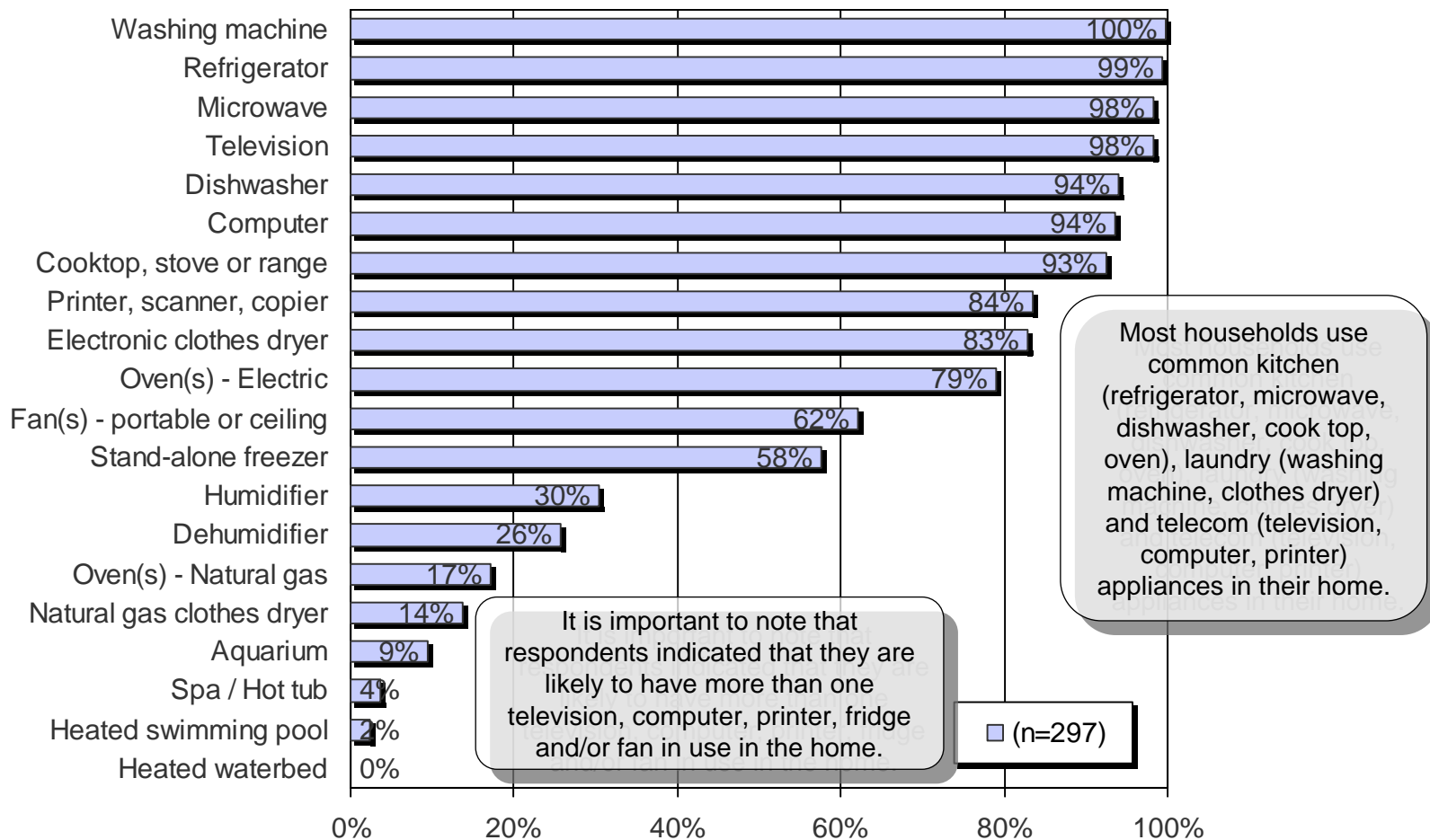


# Q11A/B: Do you pay for heating water at your home? What type of water heating systems do you have in your home?

Natural gas heaters are also commonplace among pilot participants.

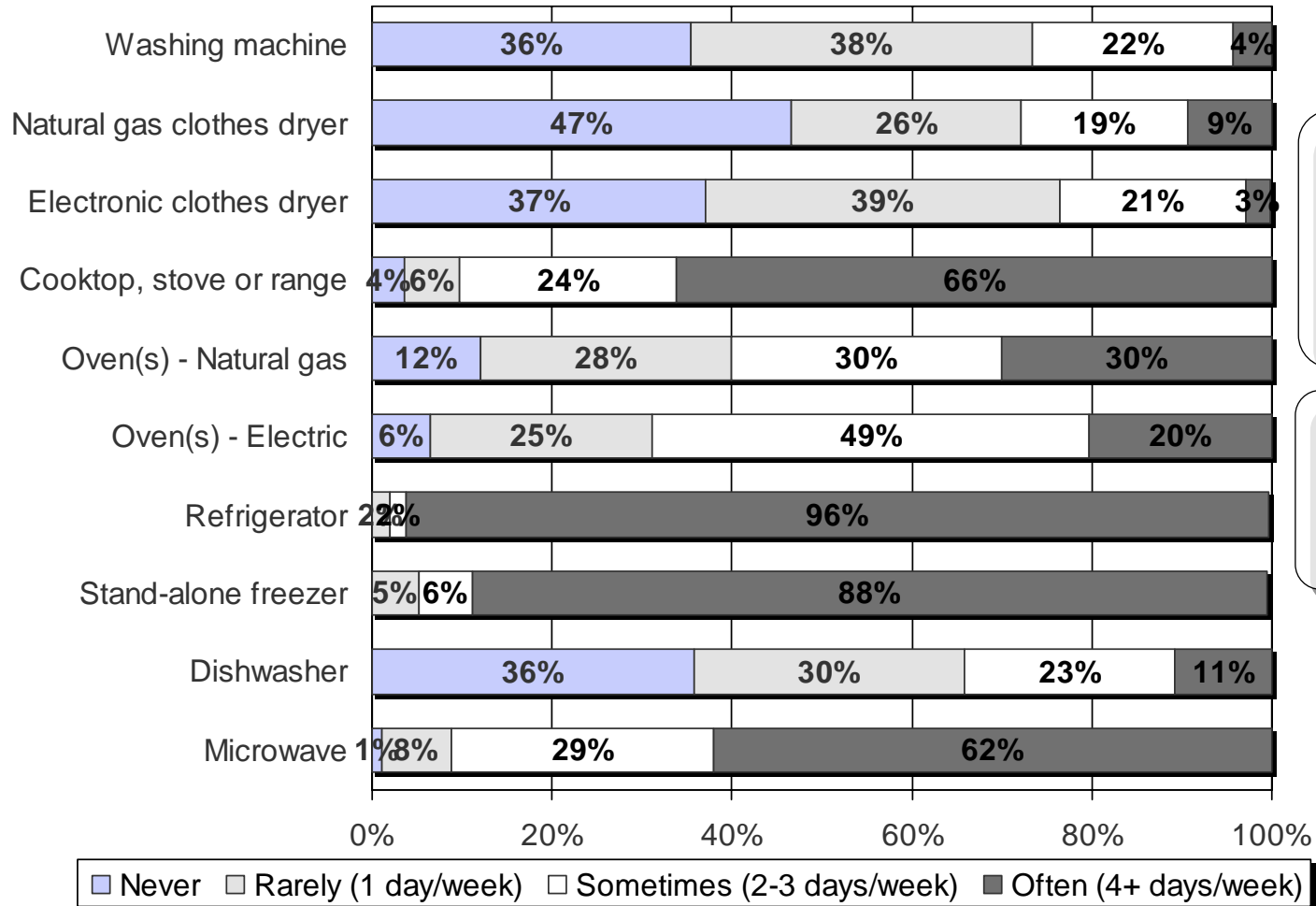


## Q12A: Which of the following appliances do you use in your home?



Note: Responses are the percentages of participants using at least one appliance in that category.

## Q12B: How often are the following appliances used on weekdays between 11 am and 8 pm?

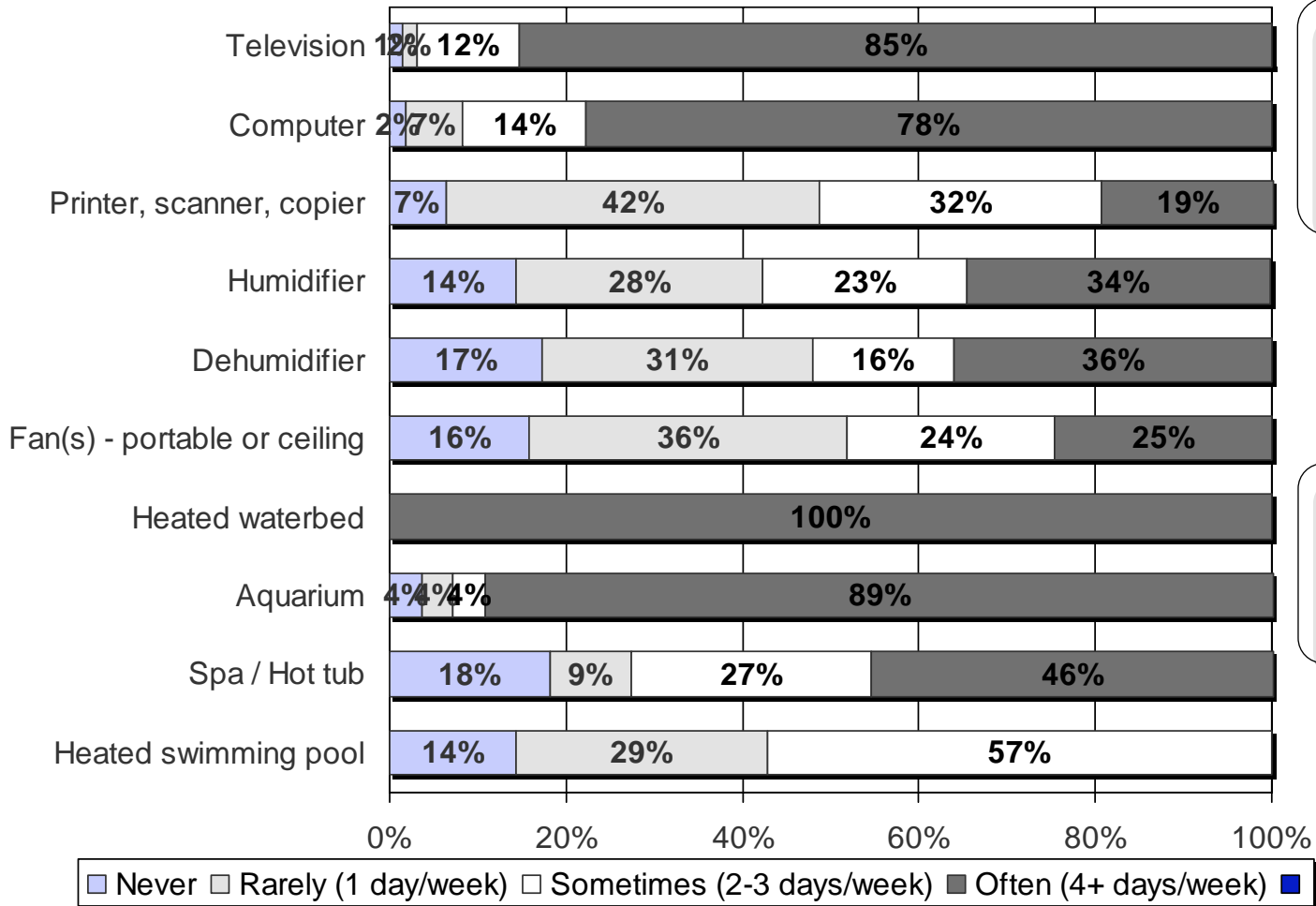


Cooktops, microwaves and other kitchen appliances are often used during the daytime hours of 11am to 8pm.

Not surprisingly, refrigerators and stand alone freezers are almost always turned on.

Base: Those that have the appliance in their home.

## Q12B: How often are the following appliances used on weekdays between 11 am and 8 pm?



Televisions and computers are also commonly used during the hours of 11am to 8pm.

Again, heated waterbeds and aquariums are almost always turned on.

Base: Those that have the appliance in their home.



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# Your Home and Demographics

## Q13A/B/C: Demographics – Home

<i>Type of Dwelling:</i>	ALL (n=298)	TOU (n=94)	CPP (n=103)	CPR (n=101)
Single-family detached house	51%	52%	50%	53%
Single-family semi-detached house	12%	13%	14%	11%
Townhouse, duplex or row house	28%	27%	30%	27%
Condominium	8%	9%	7%	10%
<i>Home Ownership:</i>				
Own	99%	99%	99%	98%
Rent / lease	1%	1%	1%	2%
<i>Year Home Built:</i>				
Before 1970	3%	2%	2%	5%
1970 to 1979	2%	1%	1%	3%
1980 to 1989	2%	3%	0%	3%
1990 to 1999	22%	17%	23%	24%
2000 to 2005	68%	75%	70%	60%
2006	4%	2%	4%	5%

## Q13D/E: Demographics – Home (cont'd)

<i>Sq. Ft of Living Space:</i>	ALL (n=295)	TOU (n=92)	CPP (n=102)	CPR (n=101)
Less than 1,500	17%	17%	15%	19%
1,501 to 2,000	41%	39%	43%	42%
2,001 to 2,500	28%	32%	29%	23%
2,501 to 3000	10%	7%	8%	14%
3,001 or more	4%	5%	5%	3%
<i>Basement :</i>	ALL (n=298)	TOU (n=94)	CPP (n=103)	CPR (n=101)
Sq. Ft. provided includes basement	42%	42%	42%	42%
<i>Average sq. ft of basement:</i>	660	672	598	715

## Q14A/B/C/D: Demographics - Family

<i>Number of People Living in Home:</i>	ALL (n=298)	TOU (n=94)	CPP (n=103)	CPR (n=101)
One	14%	15%	9%	19%
Two	41%	39%	41%	42%
Three	21%	20%	23%	19%
Four	18%	21%	17%	16%
Five or more	7%	4%	11%	5%
<i>Average Number of People Living in Home:</i>				
Total (mean)	2.6	2.6	2.8	2.5
18 year of age or older (mean)	2.0	2.0	2.1	2.0
<i>Highest Level of Education:</i>				
Elementary (grades 1 to 8) / some high school (9 to 12)	1%	2%	2%	1%
High school graduate	6%	8%	5%	5%
Some college / university	10%	14%	8%	9%
College / university graduate	58%	47%	61%	64%
Post graduate degree	25%	29%	24%	21%
<i>Total Annual Income:</i>				
Less than \$50,000	11%	9%	10%	13%
\$50,000 to \$74,999	19%	25%	14%	17%
\$75,000 to \$99,999	24%	24%	26%	21%
\$100,000 to \$149,999	30%	29%	27%	33%
\$150,000 or more	17%	12%	23%	16%



## Q14E/F/G: Demographics - Vacation

<i>Took a Vacation:</i>	ALL (n=298)	TOU (n=94)	CPP (n=103)	CPR (n=101)
% took a vacation	39%	34%	42%	40%
<i>Number of Nights Away From Home:</i>				
1 to 5	23%	17%	34%	16%
6 to 10	41%	40%	42%	41%
11 to 20	30%	33%	22%	35%
21 or more	6%	10%	2%	8%
<i>Average number of nights away from home (mean)</i>	3.7	3.8	3.2	4.1
<i>Someone Remained in Home:</i>				
% had someone remain in home during vacation	28%	38%	23%	25%

Of those participants who went away on vacation since August 1st, the average number of nights away from home was 3.7 and 28% reported that someone stayed at home during their vacation.

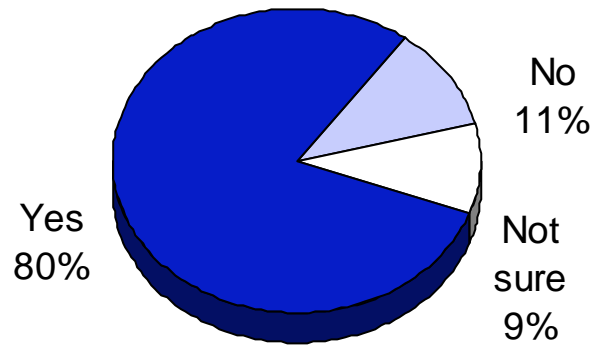


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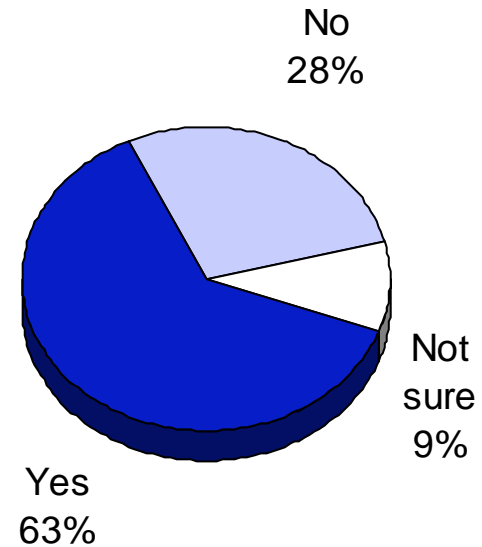
# The Ontario Energy Board

**Q15A/B: Were you aware that the Ontario Energy Board is sponsoring this pilot project before completing this survey? Had you ever heard of the Ontario Energy Board before this pilot project?**

**Awareness of OEB as pilot sponsor (n=298)**

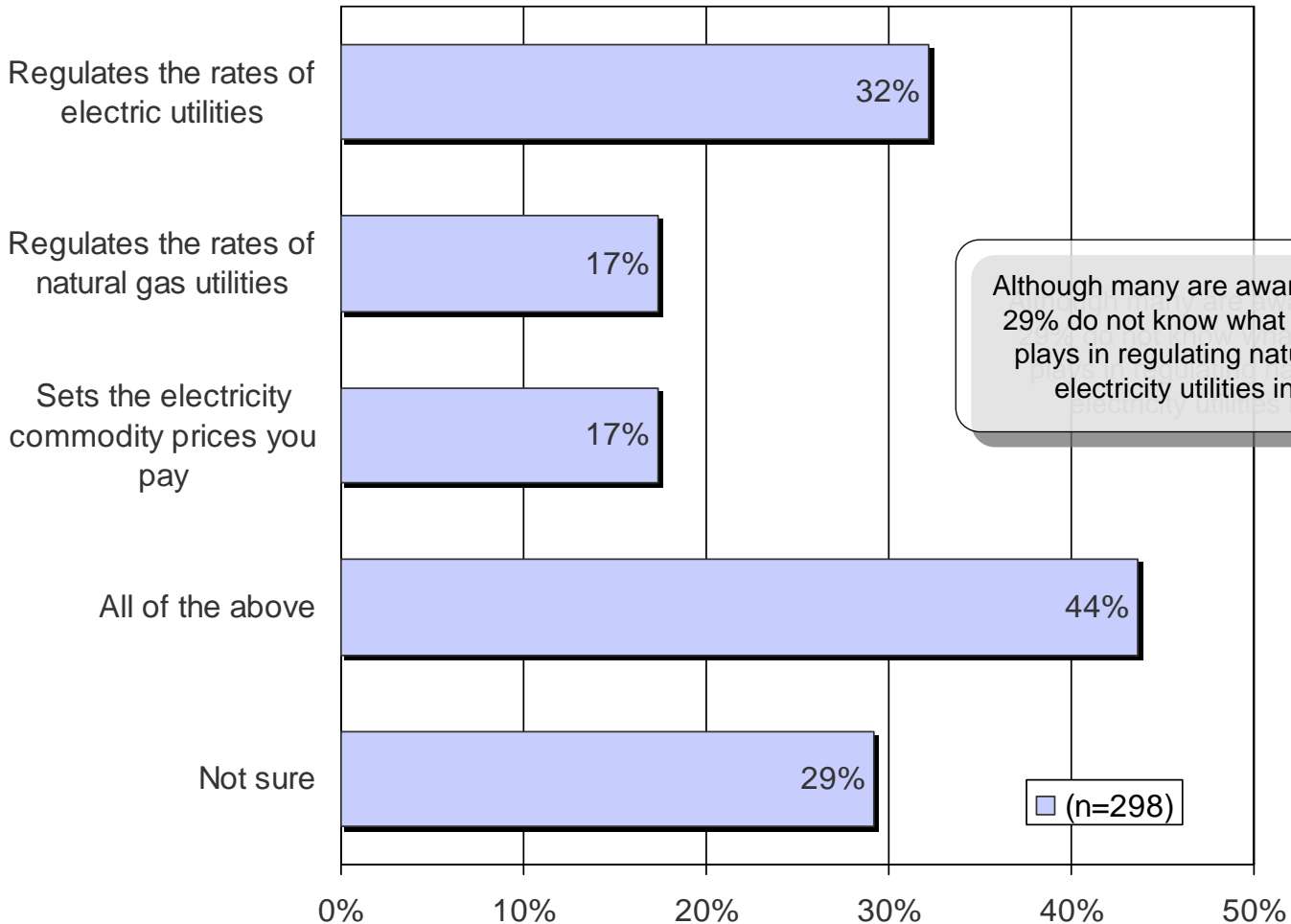


**Awareness of OEB before pilot (n=298)**



While awareness of the OEB as in general is average (at 63%), awareness of the OEB as a sponsor of the pilot project is strong (at 80%).

## Q15C: Which of the following describes the role of the Ontario Energy Board?



Although many are aware of the OEB, 29% do not know what role the OEB plays in regulating natural gas and electricity utilities in Ontario.

Note: \* Percentages add to more than 100% due to multiple responses.