Appendix F: Focus Group Report

Ontario Energy Board Smart Price Pilot - FOCUS GROUPS

TOU (Time of Use Pricing Only): October 10, 2006, 6:00-7:30 pm
CPP (TOU + Critical Peak Pricing): October 10, 2006, 8:00-9:30 pm
CPR (TOU + Critical Peak Rebate): October 11, 2006, 7:00–8:30 pm

Introduction

The Ontario Energy Board (the "OEB") initiated a pilot project that began operating in early August 2006 to test time sensitive prices. Hydro Ottawa is assisting the OEB with this pilot project and all participants are customers of Hydro Ottawa.

The pilot project was designed by the OEB to include a series of focus groups in order to obtain direct feedback from participants. eMeter Strategic Consulting was retained by the OEB, in part, to carry out these focus groups and to prepare this summary report. eMeter Strategic Consulting has conducted focus groups for similar projects, such as the SmartPowerDC project in Washington, D.C. In addition, eMeter's staff have managed and participated in other time-of-use pricing pilots, including the management or observation of focus groups. Such projects include the California Statewide Pricing Pilot and Pacific Gas & Electric's Residential Time-of-Use Program (which has grown to 100,000 participants).

Most of the questions were the same across the three pricing groups noted above, with minor variations that focused on questions specific to Critical Peak Pricing (CPP) and Critical Peak Rebates (CPR).

The report is organized as follows:

- A general overview summarizing the more salient feedback provided by the participants for each pricing group;
- Detailed responses of participants in the TOU pricing focus group, by topic;
- Detailed responses of participants in the TOU + CPP pricing focus group, by topic; and
- Detailed responses of participants in the TOU + CPR focus group, by topic

Focus Group Recruitment Process

Focus group participants were recruited from the list of all Ontario Energy Board Smart Price Pilot participants, separated by pricing group. Participants were only invited to the sessions relevant to their pricing group. They were solicited by telephone, and in each group 14-15 participants responded and attended. Focus group participants were each given an honorarium of $75. The weekday evening sessions each lasted 90 minutes.

Focus Group Topics

Participants were guided through a series of discussion questions covering the following topics:

- Reasons for agreeing to participate in the pilot project
- Understanding of time-of-use bills, pricing and periods
- Feedback on the project recruitment and associated educational materials
- Feedback on monthly Electricity Usage Statements
- Behavioural change after going on time-of-use prices
- Feedback on the critical peak process and critical peak pricing (CPP/CPR groups only)
- Role of feedback in behavioural change
- Post-pilot behaviour expectations
- Understanding of the pilot's sponsorship and future implications

Overview of TOU Group findings:

Most participants were aware that time-of-use prices were coming to the province in the near future. Their answers reflected an understanding of the rationale behind time-of-use prices. Many participants had an accurate understanding that electricity costs vary from hour to hour according to variations in supply and demand in Ontario's electricity market, and that time-of-use (TOU) prices were a way to take this into account. Most understood that the off-peak, mid-peak and on-peak price periods also addressed demand and reliability (e.g., many references to shifting consumption to help avoid brown-outs). They also understood that there was a difference between the charge for their electricity usage and other charges on their electricity bill such as distribution or debt retirement.

They perceived the pilot project to be an opportunity to gain experience in learning how to control their own electricity consumption (i.e., shift and conserve) in order to achieve bill savings and increase reliability of supply, in anticipation of the future province-wide roll-out of TOU prices. They were interested in the benefit of receiving regular monthly statements with interval meter information and saw smart meter data as a tool to help them understand and manage their own electricity consumption.

The single most helpful reference for all participants was a table of the times and prices that was distributed in the form of a refrigerator magnet to each participant at the outset of the pilot. Participants stressed the importance of posting this information around the house in order to respond appropriately to price signals.

Participants also placed great importance on the information provided in the Electricity Usage Statements mailed to them at the beginning of each month. They desired evidence of bill savings and evidence that their efforts to shift consumption from high price periods ("on-peak") to low price periods ("off-peak") were making a difference. Their suggestions for improvements on the statements included adding their electricity costs under the regular (tiered) flat prices so they could compare those against their charges based on the new TOU prices. The reason for this was that they wanted to be able to better understand or measure the results associated with their behavioural changes (i.e., shifting consumption) so far on the pilot project. This additional information would also help them make decisions about their future electricity consumption.

The majority of participants appeared to understand that the primary purpose of the time-of-use prices in conjunction with smart meters is to provide consumers with an incentive to shift consumption from expensive to cheaper periods and that such efforts could result in bill savings. They also understood that they could benefit from conservation efforts regardless of the type of meter they had or the type of prices they were charged. For example, in the first focus group when asked if TOU prices were more about "conservation" or more about "shifting", there were 14 that raised their hand in response to shifting while one

felt it was more about conservation. Some of the specific comments of pilot participants that demonstrated this include the following:

- "It's not about conservation. The focus of the pilot is to 'shift' as much consumption to off-peak as possible. I can reduce my bill by reducing my consumption on the old rates. I don't need a smart meter for that".
- "I've done about as much as I can do to conserve. What I use is now going to stay pretty constant. This pilot is about shifting".
- "The pilot is not about 'what' you use, it's about 'when' you use it".
- "It was about 'shifting', like doing laundry on the weekends. When the pilot started is also the first time I ever used the time delay switch on my dishwasher."
- "I used to run the filter on my pool from 7-7 during the day. Now I run the filter from 7-7 at night when it's cheaper."

Some participants saw the prices as a way to educate the other members of their households – and even their neighbors – in the importance of being conscientious and perhaps motivate more "responsible" electricity consumption.

More importantly, all were interested in measuring the benefits of this behaviour. From the discussion regarding the Electricity Usage Statements, it was clear that most participants tried to understand and use the data on their electricity consumption in order to quantify, validate, confirm or inform their behavioural choices. They combined feedback on their own electricity consumption with other available information on ways to shift and reduce usage and saw these as working together.

While some experts have suggested that the current design of the TOU prices (as used in this pilot project) was too complex for residential consumers, all except one of these participants considered these TOU prices easy to understand; the one participant who would not have characterized the prices as "easy" wanted to acknowledge an added layer of complexity in that there were seasonal changes in the schedule of on-, mid- and off-peak periods; still, he did not consider this too difficult to understand.

Participants agreed that it was possible, and not too much of a hardship, to respond to TOU prices and to shift consumption by running laundry and dishwashing appliances late at night or on weekends. Some said that they would have to see more savings on their monthly bills to motivate them to continue the inconvenience of doing laundry late at night, but many also said that the prospect of avoiding brownouts would motivate them to continue load shifting practices around the home.

Overview of CPP Group findings:

This group was particularly aware of the energy industry, including public policy and sophisticated topics such as peak load management. The group included several ex-engineers, a former facility manager and an employee of Johnson Controls, which markets energy management control products.

About two thirds of the participants participated in the pilot project in order to prepare themselves for the TOU prices they knew were coming. Some of these respondents were specifically interested in knowing how well they would fare under the new time-of-use prices; specifically, they wanted to know to what degree doing household tasks at different times when the price was lower would affect their current lifestyles, and whether these practices would be tolerable on a permanent basis. Conservation and reliability of supply were also cited as motivating factors, with a number of references to the need to avoid brown-outs. Half the group expressed an interest in the aspect of having more control over their electricity bill, being more aware of their usage patterns, or saving money on their bills. A few participants cited the $75 incentive payment (for agreeing to be in the pilot project) as one of their top 3 reasons for participation.

This group felt that there would always be those consumers in the community who were wasteful, but that pricing was potentially a good inducement for more people to consume electricity more responsibly. However, the group was not convinced that the pricing reflected on this project would motivate more people to conserve or reduce peak load by shifting consumption, because they felt that the pricing might not result in a significant enough bill savings.

Many participants commented that they had expected TOU prices to be more beneficial to them than has turned out to be the case on the project. However, no one reported a negative reaction to TOU prices and the group was generally supportive of these prices as a way to motivate individuals and communities to control electricity consumption.

In response to a comment about small savings after making a concerted effort, one participant noted that “It’s not about how much we each save from bill to bill. If we don’t do these changes, we’ll end up paying a lot more in the future. If we keep [using electricity] like we were, it’s just going to cost us all more. In the future, this change will save us all money.”

Participants recommended that one simple way to assist consumers when implementing or marketing time-of-use prices across the province in the future would be to replicate the refrigerator magnet and include the table from that magnet on a simpler fact sheet page.

Similar to the TOU pricing group, it was very important to participants to be able to refer to their Electricity Usage Statements to compare their electricity costs on TOU prices with their costs on (tiered) flat prices. The reason for this is that they wanted to know how they were doing in order to make informed decisions about their consumption. To that end, they recommended that when TOU prices are implemented in the future, that the regular electricity bills come monthly, as the

current bi-monthly schedule would not give them timely enough information to assess the effectiveness of their practices. For example, if they changed their consumption habits on a particular day or week, they wanted to find out if it made a positive or negative impact on their bill soon enough to decide whether they should continue the practice.

If one change could be made on the format of their regular bill, participants would want to add the usage data (in color, by day and TOU period, in bar chart format) as currently shown in the Electricity Usage Statements. Some also desired that their personal usage data be made available more often than monthly, for instance a daily or "real time" update accessed via the Internet, for the same reasons discussed above.

Every participant rescheduled their usage of dishwashers and laundry machines to off-peak hours. Most felt that this load-shifting behaviour was not rewarded significantly under the TOU pricing system, but were still committed to continuing this behavioural change for reasons that went beyond bill savings.

The participants were asked if they felt the TOU prices were difficult or easy to understand. All responded that they felt it was easy, however, one did note that winter TOU prices would be more difficult with two on-peak periods. When asked if they would prefer only two periods [off- and on-peak], those that did respond said they preferred it the way it was with three periods with none saying they would prefer a change to just off-peak and on-peak.

A concern was expressed that in comparing the TOU prices against the tiered prices, all of the TOU prices except the "off-peak" price were higher than the tiered prices. In other words, during virtually all of the hours they were not sleeping on the weekdays, the TOU prices – mid-peak and on-peak – were higher.

Critical peak pricing was not as salient a category as on-peak pricing for this group of participants. Many were so responsive to regular on-peak TOU prices that they did not think that they could or would do anything differently when a critical peak event was called than they would do anyway for a regular on-peak period. However, they all understood the importance of reliability underscored by "critical peak" times, and there was discussion about avoiding brownouts and the contribution that the business and commercial sector should make toward peak load reduction. There was a greater awareness in this regard than the group on only TOU prices. The suggestion came up to use mass media for critical peak days if this is implemented in the future on a province-wide basis.

Participants were committed to managing their electricity usage better, and needed two resources: more accessible interval meter data on their recent usage (some would check this daily if it were possible) and more ways to measure or sub-meter their home appliances to see where the usage was occurring (i.e., to know exactly how much electricity each appliance uses).

TOU prices with the Critical Peak prices were not too difficult for these participants to understand, and participants were generally supportive of the prices because of benefits to supply and cost, with the caveat that they want the price structure to fairly reward responsible consumption:

- "The point is not so much saving money now, but in the future, we'll be paying more if we continue without changing our behaviour."
- "I agree. It's like the people who never recycle, you can't tell them anything, so move on. They just have to pay more for their consumption"
- "I see all my other neighbors, who have 4,000, 5,000 square foot homes, and they have their air conditioning blasting and the lights on in every room of the house 24/7... I hope that if we get into (TOU pricing) for real, all over Ottawa, that it will go against these guys and not against us who are trying hard to save money for our own pockets but also for the environment and everything. So that's where I have problems with the program, but it seems to be going the right way."

Overview of CPR Group findings:

This group expressed that they had already been familiarized with ideas about conservation during peak hours because of a recent Hydro Ottawa education campaign on this topic. They perceived that commercial use was the biggest contributor to peak demand on the system, and did not think that residential electricity usage patterns would be penalized under TOU prices. They did, however, believe that if enough residents responded to peak pricing, there would be a positive affect on both supply and prices.

As we found with the TOU focus group, the CPP focus group participants also thought that the TOU prices and periods were easy to understand. One participant expressed that it took a little more work to understand the Critical Peak Rebate, but it was not difficult. To help them understand the prices and explain the prices to others, the group was unanimous in their preference for the magnet, with its table of TOU prices and periods. They also relied upon the Critical Peak notifications (phone and email) for awareness of the Critical Peak periods and prices.

Participants paid close attention to the Electricity Usage Statements and used them to make decisions about their electricity usage based on the perceived cost to them. They wanted to see their other regular electricity charges reflected on the usage statements because they felt it was important to confirm that TOU prices were not negatively impacting them, and also to confirm that, under the TOU prices, they were managing their costs and consumption well. They wanted more frequent access to their own usage data for the same reasons.

All changed the times they ran dishwashers and laundry machines. Most cited this project as raising their awareness of the times they used electricity. This group of participants was conscientious about energy conservation and used this portion of the discussion to share tips on ways to conserve more, both during on-peak and off peak periods.

They did not change their behaviour significantly when a critical peak event was called because they felt they were already doing their utmost to minimize electricity usage to what they characterized as “basic power” during peak times in response to the on-peak TOU price. “Basic power” to them meant the non-negotiables, such as appliances that they could not shut off or unplug, such as refrigerators or clocks.

They felt it was easy to implement load-shifting strategies in response to TOU periods, and that it would be worth it to continue these practices even if it resulted in only $1 savings on their bill, because they felt it would benefit the province by promoting reliable electric supply.

The group understood that TOU prices (but not necessarily CP prices) would be implemented throughout the province in the future, and participants felt they could support and promote this as a result of being on the pilot project. They would tell their friends and neighbors that TOU prices are easy to adapt to and a good way to address the supply problems faced by the province. One participant

pointed out that it is important for people to know that the new pricing is not to be feared, that if you change the times at which you use electricity there would be no negative impact on your bill, and that responding to the TOU prices would achieve savings and also help the province.

- "I tell my neighbors that you're in control of your usage. It puts the power back in your hands."
- "I curl, so I had a captive audience the other night and I was telling them about this project. One of the skeptics said, 'but what if you only save three bucks over a few months?' and I replied, 'but if all eight of us saved, that would mean something!' It doesn't matter to me that it's just a dollar, you're doing something right and important."
- "I would tell people not to fear change. People will be skeptical, they'll be looking at the new format of the bill versus the old and saying, am I really saving, so maybe in the first bulk bills you could send out information on what they're saving, because people will get lost in the stats and there will always be skeptics."
- "There will be people who end up spending more, and maybe they'll call to complain, but they're going to be paying the right price and it will be up to them to manage it. Dual bills in the beginning to assure people that they're saving would be good."

Focus Group Responses by Topic: TOU (Time of Use) Group

Why did they agree to participate in the pilot — TOU

Participants were asked to reflect on their top three reasons for joining the pilot project. Most participants were aware that time-of-use prices were coming to the province. Their answers reflected an understanding for the rationale behind time-of-use prices, and they perceived this to be an opportunity to control their own electricity consumption in order to achieve bill savings, conservation and reliability of supply. They were interested in the benefit of receiving regular statements with interval meter information and saw smart meter data as a tool to help them understand and manage their own energy consumption.

Anticipation of coming TOU prices:

- 11 participants knew that TOU prices were coming and wanted to be prepared
- 1 was from England and wanted to compare this pricing system with what she had experienced there

Savings:

- 9 hoped to see cost savings on their bill and get some money back

Conservation:

- 4 saw the project as a way to practice conservation; one of these said that they were energy conscious anyway and this project fits their lifestyle

Understanding or managing (shifting) electricity consumption:

- 6 wanted to understand their electricity usage better; one of these, who had a new house and wanted to start new habits, saw this as a good way to assess their electricity consumption
- 3 wanted to see where and when they could improve their electricity usage
- 2 were interested in seeing how their electricity usage varied at different times of the day

Concern about brown-outs and adequate supply:

- 7 were concerned about brown-outs and adequate electricity supply
- One wanted to specifically reduce their peak demand
- One joined out of curiosity (the person did not elaborate on this)

Understanding of prices, bills, usage TOU

Many participants had an accurate understanding that electricity costs vary from hour to hour according to the market, and that time-of-use prices were a way to reflect this. Most understood that the price periods also addressed demand and reliability. They also understood that there was a difference between the charge for their electricity usage and other charges such as distribution or debt retirement (one customer who had recently moved back to the country complimented herself, in jest, since she was doing her part to pay back a debt she had nothing to do with).

Most people were active about telling their friends, neighbors and co-workers about their participation in the project and showed the magnet and their Electricity Usage Statements to others as a way to explain TOU prices and the terms of the project.

Only one participant thought the periods and prices were of medium difficulty to understand, citing the change in mid-peak times in the winter rates; all others thought the periods and prices were easy to understand.

Most participants understood that their Electricity Usage Statement did not reflect distribution and other charges, and was in this way different than their regular Hydro Ottawa bill.

A few participants had never thought about electricity costs being time-differentiated until they became familiar with the pilot project.

- "There's probably lots of moms who just turn on the dishwasher at 2 in the afternoon because the dishes are dirty, and it wouldn't make a difference if they did it at 10 pm, but they just don't know that it would save them money to do it later."
- "True, but sometimes I'm wiped out by 10:00 and can't wait to do all that."

Feedback on recruitment and educational materials TOU

It was clear from this discussion of the pilot project correspondence and educational materials (letters, fact sheets, enrollment forms and the fridge magnet) that the prices, the periods, and the terms of the project had been clearly presented and were understood. The single most helpful reference for all participants was the refrigerator magnet with a table of the time periods and associated prices. Participants stressed the importance of posting this information around the house in order to respond appropriately to price signals.

All participants felt that the materials they received during the pilot were clear and understandable.

The magnet was the most helpful item in helping them understand the TOU prices and time periods. They all have posted the magnet prominently and have referred to it repeatedly.

Participants were shown the two graphics from OEB: a description of TOU prices in “pie” format, and one in “bar” format, and asked to compare these with each other and against the table on the magnet they received for the project. All thought that the best graphic to explain TOU was the table format that was on the project magnet:

> All preferred the table (as presented on the magnet) to the two chart graphics supplied by OEB.
>
> Many liked the pie chart because it reminded them of a clock, but they also thought the pie chart was too busy, and the “weekends and holidays” pie in particular was seemingly unnecessary information.
>
> They also felt that the specific times not being clearly spelled out in the “bar” charts was problematic because they had to figure out the time periods by studying the chart.
>
> All emphasized that any such information on times and prices should be able to fit on a magnet, as they post and use this information regularly.
>
> They suggested issuing separate magnets for summer and winter prices.
>
> One suggested that a list of typical electricity consumption of major appliances be put on the same page to help someone make a decision of what to run when.

Most comments addressed the actual electricity usage statements (see below).

Feedback on the Electricity Usage Statements — TOU

Customers placed great importance on the information from their Electricity Usage Statements. They desired evidence of bill savings and evidence that their efforts to shift and conserve were making a difference. Their suggestions for improvements on the statements were motivated by interest in understanding their own household consumption, comparing against their historical behaviour or their electricity costs under the (tiered) flat rate plan, and a desire for information that would help them make decisions about their future electricity consumption.

- “The statement has colors!”
- “It’s more personalized than a regular bill, it has your name and address.”
- “I’d be interested in seeing how my usage compares to similar households.”
- “I liked the breakdown by day instead of aggregate; I was able to see that the week I worked at home I used way more energy and it varied more than the days I’m gone from the house.”

One customer was particularly upset that the Electricity Usage Statements did not reflect the distribution and other charges from the regular Hydro Ottawa bill, nor did the monthly data of the Electricity Usage Statement coincide with the bi-monthly usage period of his Hydro Ottawa bill, so he had no way of comparing his charges based on the old tiered price versus the new TOU prices. He emphasized that he felt misled. “It doesn’t give you apples-to-apples comparison. You’re just time-shifting. I would recommend that for the first month, you go about your business as normal, then the next month shift usage, and then you’ll be able to compare what your regular usage would be against what it would be with time-shifting.”

But another pointed out that since you’re going to pay the delivery charges anyway, you should just look at what he called the “number in the corner” to see your actual usage.

A few others expressed satisfaction with the savings reflected in just the electricity commodity charges on their Electricity Usage Statements, and did not need to know what more they would be paying in terms of distribution and other regular charges as these were not affected.

Some were disappointed that they had not saved more.

Some suggested that the bar graph illustrating the TOU prices (found at the bottom of the statement) was superfluous. They would prefer in its place a chart summarizing their usage by TOU period for the entire month.

Behavioural change after going on the new prices — TOU

Most understood that the point of TOU pricing was not merely conservation but focus on peak load management and encouraging shifting behaviour. All were interested in quantifying the benefits of this behaviour. About half the participants were already enthusiastic about energy conservation, and some of these saw the prices as a way to educate the other members of their households in the importance of being conscientious and perhaps motivate more “responsible” electricity consumption. Some reported that they did not change their habits to accommodate peak and off-peak pricing; two reasons mentioned were that they wanted to see how the prices would affect their normal behaviour, or that they were already engaging in shifting and conservation prior to the project.

4 people said that they did not change any of their habits significantly as a result of being on the project.

One commented that he is learning more about his own usage patterns.

Most said they focused mostly on shifting, and not on conservation, in response to the project. The participants who said that they shifted noted that they shifted the times in which they washed dishes and clothes, and some had already been resetting their thermostats all the time, but they did not change their behaviour in other ways.

They understand that even though there are appliances that never get turned off, there are also choices they can make about other energy usage based on the cost; they cited laundry and dishwasher. The point was made that one could get the most energy-efficient of the constantly running appliances, and then make other decisions about whether to keep that extra freezer or get a gas heater.

- One person said that “there is a lot of focus on peak and non-peak hours, what about general conservation?”
- To this another participant responded, “Conservation can be done whether you have a smart meter or not. As I understand the focus of the pilot, is to convince people to use power in the off peak periods because it’s going to be a) to stop brown-outs and b) it’s going to be cheaper. “
- “I’ve changed my habits a little bit, but it’s not necessarily from the pilot, it’s from learning a little bit more. We haven’t changed a lot of our habits, because I want to see how my current habits would cost under the new rates. If I see that it would be a big difference in costs, I would maybe find it more cost effective to buy more clothes and do laundry on weekends!”
- “This year there was big push in Ottawa to set your A/C at 25; I always try to get people to turn things off or get my daughter to stop leaving the fridge door open when she’s standing there; but I never used the delayed start feature on the washer and dryer until now, and my wife is now trying to get the laundry done on weekends.”
- Another was also prompted to use the delayed start feature on his dishwasher as a result of participating in the pilot project.
- “We’re not changing our behaviour, we just wanted to learn our own energy usage. I want to know if the difference in the rate changes what we pay; we may have changed our behaviour a bit and will probably not revert to the old behaviour, but we just want to see how the rate change affects us.”
- “I’m not changing anything, just baking and cooking.”
- “I bought a timer for my pool filter and flipped my filter to run during off-peak.”
- “I don’t think I could change any more unless I hang my clothes to dry.”
- “I have two small babies, and when they [make messes], you wash!”
- “I didn’t do that much, but I’m comfortable with what I did and it’s not hurting.”

Role of feedback in behavioural change — TOU

From the discussion of electricity usage statements, it was clear that most participants tried to understand and use the data on their electricity consumption in order to quantify, validate, confirm or inform their behavioural choices. They combined feedback on the timing of their electricity consumption (i.e., shifting) with available information on ways to conserve and saw these as working together. The most significant information on the TOU Electricity Usage Statements was information on how much money they were saving during peak times, which helped them assess their load shifting behaviour and decide whether to continue this behaviour or not.

- One person said that if the Electricity Usage Statements were to tell him how much he was actually saving by shifting his consumption on the new TOU prices, “It would drive the nail home. If I knew that we had saved, I’d get a warm fuzzy, I’d know we had done all we can, I’d think we were going to save a whole potful of money if and when these rates go in.”
- Another said, “I did make the comparison, and it was a savings of a dollar and even after changes; if I hadn’t made changes, it would have cost me more, how much I don’t know, but it’s still cheaper than if I had not made the changes. It’s not much, but there’s still the greater social good of energy conservation during peak hours.”
- “If you want to drive it home, then ask people to ignore behaviour change in month of November, and then compare a time-shifting month with that to see what the difference is.”
- “What about motion – sensing switches for lights?” “Bad for rolling over at night!” “I don’t think I’d live long enough to see the savings on that.”

Three or four participants were already very conscientious about finding resources to help them conserve and manage their electricity use. These were the ones who looked at their Electricity Usage Statements and tried to figure out what they were doing differently on “spiky” days. So the project and the TOU rate structure helped them pay attention to load shift as well as conservation.

One participant referred to the Hydro Ottawa Energy Guide website as a helpful way to manage their home electricity consumption.

5 participants (about 1/3 of the group) would not use a website that gave them up-to-the-day information on their electricity consumption, but the other two-thirds of the focus group would check such a site regularly or frequently. The group was very computer literate; only one did not own or use a computer.

One participant had read their Hydro Ottawa bill about the Kill-A-Watt meter and how someone had determined the inefficiency of his freezer.

Post-pilot expectations TOU

This question was addressed to some extent above. There was no indication that they have seen time-of-use prices to have a negative effect. In some cases even if the actual cost savings was small, the fact that they were contributing to reliability and it wasn't costing them anything to shift consumption was enough to motivate them to continue shifting their consumption to off-peak.

Many would keep shifting their electricity usage if they found out that they were only saving $1 a month, because it's an easy way to avoid brown-outs.

- "But I could see us shifting back to mid-peak instead of off-peak rates and just be conscientious about not going to high-peak because of brownouts, if there's no financial benefits."
- "My wife and I are retired, we can use the delayed start mechanism on our appliances, and we have the time to change our usage habits. This project has shown that we can easily time-shift."

But one pointed out that if it's not saving that much and she's up until 11:30 at night folding laundry, she'd go back to doing the laundry after dinner. Another participant echoed this, saying that he gets up at 4:30 every morning and won't be doing laundry at 10 pm.

For others, the importance or possibility of saving money on TOU prices was not going to sway their behaviour.

- "I don't think money is the issue for me; doing something to avoid brownouts and blackouts is more important. My husband got me into this, but I think it's a good thing and would continue this, even though laundry on the weekend isn't my idea..."

Sponsorship and future implications of project TOU

This question was addressed in large part during the previous discussions. Participants understood that TOU prices would be implemented throughout the province and that the Ontario Smart Price Pilot project would help to design future implementation of those TOU prices.

6 participants knew that the project was sponsored by the OEB and understood that the the OEB regulates rates for the province.

- "Those who aren't on the pilot should be made aware of this as an education campaign to tell them that this is what's coming and this is what happened."
- "What if you had bonus points if you met your quota, and then got a credit on your next bill or something if you conserve enough and were within a limit?"
- Question about the wholesale market, "Do they get charged for time of day?"
- "Everyone asks me about smart meters, and everyone wants to know how to save money and how much it would affect their bills; everyone knows

our lifestyles are expensive and they want to know how to manage and help out."

- "Will we be charged to participate in smart metering?"
- "The people in this room are all energy conscious and interested in helping the environment, but a lot of the people who aren't on the pilot project, I don't think they'll be as easily swayed, and that's where I think the savings will play much more to leverage their behaviour change."
- "The Energy Board is going to set the [TOU] rates to keep people doing this, and it's an iterative process. This pilot won't make a difference, if they set it at a rate to keep the rest of the province time shifting, and it reduces the peak in a way that means enough to them financially, and the net result is that the peak is reduced…"

Focus Group Responses by Topic:

CPP (TOU + Critical Peak Price) Group

Why did they agree to participate in the pilot — CPP

This group was particularly aware of the energy industry, including public policy and sophisticated topics such as peak load management. The group included several ex-engineers, a former facility manager and an employee of Johnson Controls, which markets energy management control products. About two thirds of the participants participated in the pilot project in order to prepare themselves for the TOU prices they knew were coming. Some of these respondents were specifically interested in knowing how well they would fare under the new prices, and if their current lifestyles would tolerate a change in prices. Half the group cited conservation and reliability of supply as motivating factors. Half the group expressed an interest in the aspect of taking more control over their electricity bill, being more aware of their usage patterns, or saving money on their bills. A few participants cited the $75 incentive payment for volunteering to be on the pilot as a main reason for participation.

Consciousness of conservation and supply issues:

3 were environmentally conscious and said the project was in line with their habit of conserving and being energy conscious

1 was motivated by concern about brown-outs and energy waste

Anticipation of time-of-use prices coming:

3 wanted to learn the best times to use electricity

4 wanted a head start on TOU prices

3 wanted to know how possible it was to embrace or tolerate time-dependent electricity charges

Managing electricity bill costs:

5 wanted to save money on their electricity bills

1 wanted to have a greater awareness of the cost of electricity

Like technological solutions or controls:

1 likes technical measurements of any kind

1 was an “early adopter” type

Similarly, 1 liked the idea of smart meters

Managing electricity usage:

1 has an energy efficient house, had been monitoring usage with the old meter, and wanted to compare results between the new and the old meter

1 thought it was a good idea for people to know the price of electricity in order to conserve appropriately

Incentives to participation:

1 thought the project seemed easy to participate in, so why not do it

4 did it because they wanted the $75

Additionally, several also mentioned that they thought this would be a good way to get other members of their household, or to get their neighbors, to be more energy-conscious and less wasteful about electricity usage.

- "I'm a bit of an environmentalist, and the fact that there was someone who was willing to track my energy usage for me, I thought that was pretty neat."

Understanding of prices, bills, usage CPP

Many participants had a sophisticated knowledge of time-of-use pricing and peak load management, and the discussion sometimes veered toward wider public policy issues. Many did comment that they had expected TOU prices to be more beneficial to them than has turned out to be the case on the project; however, no one reported a negative reaction to TOU prices and the group was generally supportive of these prices as a way for individuals and communities to control consumption in a socially responsible manner.

5 had not known that electricity prices fluctuated by time of day, or that demand and the wholesale market price affected the cost of the electricity they use

About half of the group was very knowledgeable about the electricity market, because of their professions (quite a few in engineering or business management that involved knowledge of energy markets; one worked for Johnson Controls, which gave him insight into demand response and energy management systems).

A few commented that they didn't save that much on their bills by going on TOU prices; for them, the intent of participating in a TOU pilot was to achieve cost savings on their bills, and they thought that knowledge of peak and off-peak times would help them achieve more significant savings than they actually did.

Other comments included:

- "I honestly don't think we pay enough for our electricity now, given how much it really costs. We should take it off our tax dollars.
- "I was explaining time-of-use to one guy and said that it's cheaper after 10 and before 7 and he said, oh great, what am I doing sleeping??"
- "My co-workers and friends want me to bring the card in so they can start practicing."

- "There's a lot of resentment in my neighborhood because my neighbors think smart meters are a money-grab that would just increase the price of electricity; they wanted nothing to do with the pilot. It's not that they're profligate with their power, it's just that it's a change. Our neighborhood is going through a lot of change – sewer renovation, other upsetting changes in our older neighborhood."
- Another participant also overcame his initial negative reaction to smart metering as a way for businesses to make more money and realized that this would help individuals manage consumption in a way that would benefit themselves and society - not having to build more power plants.
- "It puts some control in people's lives about how to use electricity; in winter, I don't know how people are going to save as much money. You can't just turn off the heat and leave the house."
- "I hope that business and industrty, non-residential, would have the same incentives to save on peak since they contribute so much to the problem."
- "If I were you I'd change from electric heat to gas [heat] since this TOU is coming."

Feedback on recruitment and educational materials — CPP

The project materials (letters, fact sheets, and magnet) were clear, but participants recommended that a simple way to explain time-of-use prices in the future would be to replicate the refrigerator magnet and include the table from that magnet on a simpler fact sheet page for distribution to consumers. Whether it was a table or a graphic, they emphasized the importance of being able to post a summary of the prices and periods in a durable form in any place in the house where they would be scheduling the usage of major appliances. They were confused by the administration of the pilot project and having so many organizations involved in disseminating information (OEB, Hydro Ottawa and eMeter); in particular, a few participants had specific questions about their smart meters and were dissatisfied with how many different calls they had to make to get appropriate answers.

All thought that the time-of-use prices (including critical peak price periods) were not difficult to understand. Everyone referred most to the information from the magnets when they were managing their consumption. Some revised or copied this information. All emphasized that they posted this information in various places in the house, at the very least in both their kitchens and laundry areas. In terms of understanding TOU prices, everyone favored the information posted on the magnet. They commented that as long as the information was presented in some durable form like the magnet, they would use it as a constant reference.

One person thought the fridge magnet was too hard to read – “microscopic script” – so he made his own chart with colors that corresponded with the Electricity Usage Statement, and larger type; he made several and posted them on appliances around the house in an effort to educate his teenaged children and motivate the rest of his household to both shift and conserve.*

One person had received a letter with his smart meter, but the letter was not addressed to him, so there was a mix-up in the ownership/resident information for his enrollment and he was not sure that he was in the project until he called and then received the first statement.

One thought that the recruitment materials were overwhelming, too much text and information, and that if this were to be rolled out province-wide the information would need to be consolidated and simplified. The visuals (electricity usage graphs, the magnet chart) were the best way to convey the project information.

The fact sheet was a thorough way to address all their questions but some felt it was too much to look at.

About five expressed dissatisfaction with the way project information was disseminated, and were especially confused by where to call to get answers for their questions about metering and billing; they did not like that the toll free number in California and the Hydro Ottawa customer support line could not give them consistent information, and that they were getting messages from both OEB and Hydro Ottawa.

Some cut out the TOU schedule chart from their fact sheet to post in their laundry areas, and used the fridge magnet for their kitchen/living areas appliance usage.

It was almost an even split about whether the OEB’s bar graph or pie chart was easier to understand, and people were adamant about their dislike for whichever option they didn’t choose; however, consensus was to stick to the existing table on the fridge magnet. A few people pointed out that the other graphics wouldn’t fit on a fridge magnet as well as a table. One participant preferred a graphic in which he would not need to read line by line each time he looked at it.

Feedback on the Electricity Usage Statements — CPP

It was very important to participants to be able to refer to their usage statements to compare their costs on TOU prices with their costs on (tiered) flat rates and to make informed decisions about their consumption.

* He provided the moderators with a copy of his graphic to forward to the OEB. A scanned version is attached to this document.

The biggest complaint, almost unanimous from those who were also aware of their regular Hydro Ottawa bill, was that the Electricity Usage Statement did not reflect other charges (e.g. delivery, debt retirement, regulatory) and they were not able to truly compare. They would have added a comparison to the charges on tiered prices on the Electricity Usage Statements.

Two participants seemed to exhibit misunderstanding about the fact that their Electricity Usage Statements reflected one month's charges and not the two months that their regular Hydro bill covered; they perceived the two statements to be equivalent. This perception was not corrected during the course of discussion, but they did become aware that their Electricity Usage Statement was only a measure of their electrical charges and not delivery or other charges.

They liked the visual that reflected daily usage with parallel bars. They would include the daily usage bar graph on regular bills when TOU pricing is rolled out. They would prefer their regular bills and statements to come monthly instead of bi-monthly, especially if they remain on TOU pricing. Several said that daily or close to "real time" would be better.

They liked the colors chosen. One participant used the same color scheme (green for off-peak, yellow for mid-peak, orange for on-peak, and red for critical peak) to make a larger schedule chart that he posted in several places in his house for his teenage children to heed. He prefers his own chart to the magnet, which he thought was too small to be useful.

There was evenly mixed feedback about whether the savings shown on their own Electricity Usage Statements was as much as they expected. Some didn't mind that there was not a significant amount of savings, and were still satisfied, but others were dissatisfied with the amount of savings reflected in the usage statements. These participants did not think it was worth it to shift consumption for the bill savings they achieved.

One participant had already been reading his regular meter and trying to extrapolate that data to know his own usage and limits; was excited about getting a usage statement that would tell him this, and converted his wife to monitoring times and limits as well.

Other comments included:

- "I just go by kWh, because I have no influence on price." This participant paid attention to the spikes in consumption on his usage statement to analyze his own consumption behaviour.
- "I noticed that we used less kWh in the month." This person had kept his own records about previous usage.
- "Can you change the TOU prices to give us a break to have off-peak prices in the middle of the week instead of on weekends? It gets difficult to follow these hours if you have a bigger household."

Feedback on critical peak pricing CPP

Several participants understood Critical Peak events to be related to the demand on the power grid, and no one objected to the high price of the Critical Peak period. However, the Critical Peak Price was not as salient a motivator for behavioural change as the general TOU structure (on-peak, mid- and off-)

No one readily recalled the number of critical peak days or the specific days.

Four participants said that they did not do anything differently in response to a critical peak day notification.

One did not think that the Critical Peak events corresponded with what was going on with the power grid but understood that it was for purposes of experimentation.

All received phone notification with the exception of one who received emails. No one had difficulty receiving the messages in time to respond with load-shifting strategies. “I liked the day-ahead automated notification.”

A few inquired about whether mass media could be used for Critical Peak events in the future.

When asked if they would prefer only two periods [off- and on-peak], those that did respond said they preferred it the way it was with three periods with none saying they would prefer a change to just off-peak and on-peak.

Behavioural change after going on the new prices CPP

This group felt that there would always be those consumers in the community who were wasteful but that TOU pricing was potentially a good inducement for more people to be more responsible about their electricity consumption. Every participant rescheduled their usage of dishwashers and laundry machines to off-peak hours. Most felt that this load-shifting behaviour was not rewarded significantly under the TOU pricing system, but were still committed to both load shifting and energy efficiency for other reasons. While most participants felt they were already doing all that they could in response to the “on-peak” TOU price, a couple took additional actions during Critical Peak events such as going out for dinner and, relative to the TOU pricing group, it was apparent that the participants that were also on CPP had a greater awareness of the potential for brown-outs.

All participants said that they began thinking differently about their electricity consumption at the very beginning of the project (i.e., as soon as they were invited to participate).

Some participants had already been monitoring their consumption and were eager for more detailed data regarding their usage.

Behavioural changes cited:

All rescheduled usage of dishwashers and laundry machines to off-peak hours

1 consolidated laundry into a smaller number of larger loads

2 changed their dinner and breakfast to off-peak hours

1 used other means of cooking (BBQ)

All used only “basic” power in Critical Peak times (fridge/freezer, water heaters)

Some ate out on Critical Peak days

Most switched to energy-efficient bulbs (which they called “twisty bulbs”)

Some raised the level of awareness of other family members to electricity usage

Two vacuumed only on weekends

One participant works for a home improvement chain and has already been making a habit of buying energy saving enabling technologies. He and another participant would consider investing in more such technologies to make the most of TOU prices in the future.

Although most participants changed their behaviour in response to time-dependent prices, most felt that they would NOT have been able to change their behaviour any more for a critical peak day. They were all using only basic power during critical peak times.

Other comments included:

- “What we found out is that I’m the least affected, and my wife is most affected by our behavioural changes – when we do clothes, run the dishwasher, etc. As the male of the house, it was easier on me”
- “It’s easier if you’re at work all day, but if you’re retired or home with kids all day, it would be harder to do this.”
- “I’m at home right now with both kids; to not use television, it’s tough; I don’t want to be ironing shirts at 10:00 pm.”
- “Can one live with the hour brackets? I don’t think one will really save, but I wanted to know if one could live with the limits.”
- “We watched the Critical Peak Periods but didn’t pay too much attention to the on-peak times.”
- “This made us more environmentally aware, if only because we were discussing it more.”

Role of feedback in behavioural change — CPP

Participants were committed to managing their electricity usage better, and desired two additional resources: more accessible interval meter data on their recent usage (some would check this daily if it were possible) and more ways to measure or sub-meter their home appliances to see where the power consumption was occurring.

- "Until people have to pay more for electricity, they don't worry about how it's used, so I thought this project was a good idea."

The most helpful feedback for behavioural change was the Electricity Usage Statement.

Participants would have liked more resources to help them identify the sources and the amount of electricity consumption in their households. Some already referred to the Hydro Ottawa conservation tip sheets but sought resources with more specific calculations and data to help them manage their consumption. None mentioned any awareness of HO's "energy calculator" on the PowerWise website. One participant shared with the others that he had checked out a kW meter from his public library to help him measure the consumption of his own appliances.

About half the group wanted to have access to their personal electricity usage data on a daily basis so that they could adjust and control their consumption in a more timely manner:

They liked the idea of accessing the data in close to real time via a web-based interface.

Two raised concerns about Internet security but said that if security issues were addressed they would like access to such data.

One person said he would use the real time data so much it would be his screen saver.

Post-pilot expectations — CPP

The group was supportive of energy conservation and responsible electricity usage, but was not convinced that time-of-use pricing would motivate more people to reduce peak load because the pricing did not result in a significant enough bill savings.

There was a tepid response as to whether the TOU pricing was a better deal.

Although previous responses indicated that this group felt right about energy conservation, and their daily practices (especially the retired engineers) showed their commitment to controlling their own consumption, they were skeptical that a new pricing structure would motivate more of this kind of behaviour.

The more environmentally conscious participants expressed that they realized that even though their individual savings were not significant, that eventually the sum of everyone's efforts would result in benefits to society such as future price stability and reliability of supply. However, all agreed that if the motivation were merely for bill savings, one or even ten dollars a month would not make their efforts worth it.

- "I changed my lifestyle enthusiastically and only saved 8 cents. It's easy to do, and we made a concerted effort, but it's not worth 8 cents!"
- "The point is not so much saving money now, but in the future, we'll be paying more if we continue without changing our behaviour."
- "I agree. It's like the people who never recycle, you can't tell them anything, so move on. They just have to pay for their consumption"
- One participant discussed the TOU prices in relation to the price she is currently paying on flat rate. "The way it's set up right now (tiered pricing), the only less expensive time [than my 5.8 cent flat rate] is off-peak. If people were paying more on the current [tiered] rates, then shifting to accommodate the TOU prices would be more of an incentive."
- "I'd like to see more timers available for clothes or dishwashers, even external timers, so that we could sleep at night."

Sponsorship and future implications of project CPP

About half knew that OEB was the sponsor; a couple of participants knew that the OEB was the regulatory entity in charge of setting prices.

- "What happens to the smart meter program if the government changes in a year's time??"
- "I see all my other neighbors, who have 4,000, 5,000 square foot homes, and they have their air conditioning blasting and the lights on in every room of the house 24/7, and I I feel that I'm ok with the pilot part; but I hope that if we get into [TOU pricing] for real, all over Ottawa, that it will go against these guys and not against us who are trying hard to save money for our own pockets but also for the environment and everything. So that's where I have problems with the program but it seems to be going the right way."
- "I wanted to know how the meter functions. I tried calling Hydro Ottawa first, they sent me to the OEB, and they weren't completely in sync about the answers. I think that they better cross fertilize in the future."
- "Would it be possible to incorporate monitoring so that you could build a credit if you were under usage for a peak time, and have that carry over to the next period?"

Focus Group Responses by Topic:

CPR (Critical Peak Rebate) Group

Why did they agree to participate in the pilot — CPR

Most of the participants were interested in managing their electricity consumption and having more control over their electricity costs. Participants were interested in the impact that TOU prices would have on their household expenses with their unique electricity usage patterns.

Many hoped that via participation in the project they would understand their Hydro Ottawa bill, see why their bill was so high, and be able to control their electricity costs.

- "In June I called Hydro to ask how I could save on my bill; I was paying around $450 for just me and my son! When I got the info about this project I thought, Thank God, a way to save!"

6 participated because thought the project was a good idea

2 overcame initial skepticism about the project and TOU rates

5 wanted to cut costs

4 were concerned about the uncertainty of supply

3 were "early adopter" types and wanted to be part of the project

Similarly, 1 wanted to be prepared specifically for the new meters

and 1 found the experimental design to be appealing

3 liked the idea of monitoring their usage and access to statistics and data

Similarly, 2 wanted to see if they were really saving

2 wanted to have greater control over their electricity bill

1 thought the project would be a good way to educate other family members about the impact of their electricity usage

Understanding of prices, bills, usage — CPR

This group expressed that they had already been familiarized with the ideas about conservation during peak hours because of a recent Hydro Ottawa education campaign on this topic. They perceived that commercial use was the biggest contributor to peak demand on the system, and did not think that residential electricity usage patterns would be penalized under TOU prices. They did, however, believe that if enough residents responded to peak pricing, there would be a positive affect on both supply and prices.

As was the case in the TOU and CPP groups, no one thought the periods and prices were too hard to understand. One thought they needed some explanation. The others thought the pricing was easy to understand.

Responding to TOU pricing was "the right thing to do." This group has already been heavily influenced by Hydro Ottawa's campaign to educate residents about conservation and load-shifting. They were already familiar with the concept of peak hours and the need to use electricity at times when there was less demand on the grid. They were also familiar with strategies, both energy efficiency strategies and load-shifting strategies.

Some participants expressed their understanding that time-dependent prices were a way to address the problem of adequate electricity supply. Some understood the time-dependent costs as a problem of high commercial and business use during peak times, since the peak times seemed to be during times when most people were not at home, and other participants affirmed this understanding. They concluded that the peak time schedule was targeted toward businesses and industries, that commercial use was the biggest contributor to peak demand, and that the load shape of the residential sector already complies to a greater extent to the TOU peak time schedule. They also thought that the aggregate impact of more residents doing their part to shift load would have a positive affect on supply and prices.

- "I've been telling people that during certain times I've been cutting back on my dishwashing and my laundry and running the air conditioning. The benefits are that it's shown me that I can cut back and not take for granted that power will always be there."
- "I basically just say wash your dishes and clothes at night and on weekends."
- "Most people are concerned about how they're going to save money on this. I have a hard time explaining that you will; in fact I don't know that they will, since you have to make up a lot on the off-peak in order to even up the on-peak."
- "It's making me think before I turn something on, giving me the decision on my bill."
- "I think big business and manufacturing are sucking up a lot of energy during the peak hours"
- "It's the cost of firing up the big nuclear plants. I think it will be harder to get businesses to cut consumption, so it's easier to get people like us to do it."
- Re: smart metering, "I'd like to see if the savings pays for the cost, and it balances out… it's kind of like going to the bank and getting less interest charges, but there's more service charges."

Feedback on recruitment and educational materials — CPR

The table of TOU prices on the fact sheet and the graphs on the Electricity Usage Statement were most helpful in understanding the project, the TOU periods, and the TOU prices.

The magnet is the tool that participants referred to the most.

Participants unanimously preferred the information as laid out in the magnet. If the information on TOU pricing were to be on a web site or another format, their second choice would be to use the graphics supplied by the OEB; five liked the pie chart, four liked the bar chart. However, they emphasized that they preferred a table schedule like that on the magnet.

Feedback on the Electricity Usage Statements — CPR

Participants paid close attention to the Electricity Usage Statements and used them to make decisions about their electricity usage based on the perceived cost to them. They wanted to see their other regular electricity charges reflected on the Electricity Usage Statements because they felt it was important to confirm that TOU prices were not negatively impacting them, and also to confirm that they were managing their costs and consumption well. They wanted more frequent access to usage data for the same reasons.

- "It has dates on the charts, but it doesn't have times, so we have to figure that out, maybe if you had a legend reminding us of the times."
- "It took me a while to figure out that on the peak days I'll only get credited for the amount against what I would normally use. Something bigger that would help me say, 'Oh good, I'm doing what I'm supposed to do', would be good."
- "Is it worth the effort for 7 kWh for the rebate? But then I looked at the rest of it and saw the overall usage, but it wasn't that helpful because I couldn't compare with my regular bill."

They wanted to be able to better compare with their actual Hydro Ottawa bill, so suggested including the other charges (delivery, debt recovery, etc.) they would see on a regular bill.

They wanted some form of comparison as a "pat on the back" to see how they were doing; suggestions were

1. to compare to the average residential user,
2. to compare with an average residential user with similar square footage and appliance/household demographic,
3. to compare to themselves, possibly their own usage, on the tiered rate, on the same days in the previous year.

If they could add anything to their normal Hydro Ottawa bill once TOU pricing was in place, they would add the colored daily electricity usage chart and some indication of when the critical peak hours occurred in that billing period.

They suggested that billing cycles would have to change if they were to go on the TOU prices permanently.

- Specifically, they would prefer monthly feedback on electricity usage: "then you can see whether you're making a difference or not, and if you tried something different in order to reduce, you want to see if it worked.".
- More often than monthly would be better. In fact, if there were a daily read of their usage which they could access via a secure Internet service, they would check it often.
- One man wanted to be able to see the metering bar fluctuate in real time as he turned appliances on and off "(It'd be good it it were real time, you'd turn off your AC and see the bar go down…").

They suggested that if TOU prices were to be implemented province-wide, the first few months of billing should include a "shadow" bill so customers would know what they would have paid under the old pricing versus what they were actually paying on TOU pricing. One participant suggested that this would help people not to be afraid of change, that they would see that the TOU costs were not that different from the old costs and in fact could be better for the average customer.

Feedback on the critical peak pricing CPR

Critical peak notifications did not seem to be crucial to participants, as several participants had problems receiving the transmissions but were not upset at having missed notifications. Most participants received their notifications but did not necessarily feel it was important to respond with strategies (see next question). They would consider it unreasonable to extend the hours of a critical peak period past the 3 or 4 hours used in the pilot.

No one remembered definitively which days were Critical Peak. However, some did recall how many events had been called.

About half the group received notification by email, the other half received notification by phone.

Email issues: One person said that email notification and the day-ahead notice was good, since he could be more proactive about thermostat settings and other strategies. Another didn't always check her emails and missed seeing a notice in time, but understood the rationale behind a day-ahead notice. They liked that the Subject line of the email has all the information they need to know.

Phone issues: Because it's a recorded message, a few participants either screened out the calls or never received them because they would hang up on the recording. They suggested having a Caller ID that says "Critical Peak Day Notice" or something of that sort, so that they would not screen out or hang up on these calls.

They would consider it unreasonable to extend the hours of a critical peak period past the 3 or 4 hours used in the pilot.

- "Six hours would be too much [for a Critical Peak event]."
- "If critical peak happened at night, it would be harder because it would be too uncomfortable; I want to save, but not make it uncomfortable for my kids. Critical peak during the day is better."

Many understood that critically high demand was in part a factor of temperature and some were surprised that there were critical peak days called when the temperature was not very high.

The notifications themselves did not seem to stimulate a change in consumption behaviour for many participants:

- "It didn't make much difference to me whether I knew there was critical peak or not, because even before the project the thermostat is always set to a few degrees higher during the day, the dishwasher is always set to go in the evening, the laundry's always done after 7:00 at night, so we didn't really have to change much of anything."
- "Yeah there was warnings sent even before the pilot project that said when to cut down on power."

But one participant did have a category in his mind for Critical Peak notifications:

- "Critical peak [rebate], it's like the $1.99 sale, you know you're going to save; you hear 'critical peak' and you automatically change the thermostat and your fans and you know you'll save."

All thought that if Critical Peak pricing were to be province-wide then use of mass media, such as radio and television, would be the preferred method of communicating the Critical Peak times.

■ Behavioural change after going on the new prices CPR

All changed the times they ran dishwashers and laundry machines, and most implemented other measures in general energy efficiency as a result of being more conscious of their electricity usage through this project. This group of participants was also conscientious about energy conservation and used this portion of the discussion to share tips on ways to conserve more, both on and off peak. They did not change their behaviour significantly for a critical peak day because they felt they were already doing their utmost to minimize electricity usage during peak times. They also felt it was easy to implement load-shifting

strategies in response to TOU periods, and that it would be worth it to continue these practices even if it resulted in $1 savings on their bill; they felt it would benefit the province by promoting reliable electric supply.

Some participants were already aware of the need for a change in their electricity usage, both energy efficiency and during peak demand times before the pilot project started, and all had already begun energy efficiency measures in their own homes. Hydro Ottawa's light-bulb program was mentioned as one trigger.

Most were not consistent or aware about load shifting and peak times until the pilot project.

As a result of the project, not many were able to change their practices much more than they already had, but they did have a better idea of when to run their laundry machines and dishwashers in order to reduce their bill.

The discussion centered on how many kWhs various appliances used, energy vampires like microwave clocks and cell phone chargers, and how to reduce electricity consumption overall (conservation measures).

The behavioural changes cited by participants:

All changed the time they ran dishwashers and laundry machines

Turning off computers when not in use (8)

Turning thermostats up on critical peak days "because when it's that hot outside, it still feels nice even if it's set higher than 26"

Unplugging cell chargers

Turning off lights (5)

Installing timers on lights and other appliances (2) - one man had a timer on his washing machine

Changing appliances to be more energy efficient

Unplugging a freezer or an old fridge (2)

Turning furnace fans from always running to "auto" mode

Changing A/C air exchangers to intermittent mode

Changing to energy efficient lighting

Role of feedback in behavioural change CPR

Participants paid close attention to their electricity usage data and applied that information to make decisions about times of electricity use and appliance purchases. They were interested in more informative resources that would help them further understand their usage, for example the electricity consumption of specific appliances and how one appliance would impact their total load. If there

were a way for them to access their usage data more often than once a month, they would do so.

All found it easy to effect the changes in behaviour mentioned above.

Participants would have liked more resources to help them identify the sources and the amount of electricity consumption in their households; they already referred to the Hydro Ottawa conservation tip sheets. They would like more detailed information on how much electricity various appliances use, and would like this information to consider specific makes and models of appliances.They would use this kind of information to manage their home energy consumption. This would affect their purchasing decisions about electric appliances as well. None mentioned any awareness of Hydro Ottawa's "energy calculator" on the PowerWise website or the fact that they could check out a kW meter from their public library.

- "I felt that I tried to cut back on some of these things, but that it didn't make much of a difference. Does one really need to go around unplugging the computer at night? Does it make a difference? Hydro has been good about giving tips, but I want to know what kind of a draw these have and if it makes a difference."

As mentioned before, if there were a way to check hourly or periodic electricity consumption more often than once a month (every day would be preferable), most of the group would use this to actively manage their electricity usage.

Post-pilot expectations CPR

This group felt that they could advocate TOU pricing as a result of their participation in the pilot project. Most would continue practicing these strategies, and would definitely keep conserving and load shifting even if the savings were only $1 a month on their electricity bills.

They would tell their friends and neighbors that TOU prices are easy to adapt to and a good way to address the supply problems faced by the province.

- "I would tell people not to fear change. People will be skeptical, they'll be looking at the new format of the bill versus the old and saying, am I really saving, so maybe in the first bulk bills you could send out information on what they're saving, because people will get lost in the stats and there will always be skeptics."
- "I curl, so I had a captive audience the other night and I was telling them about this project. One of the skeptics said, 'What if you only save three bucks over a few months?' and I replied, 'But if all eight of us saved, that would mean something!' It doesn't matter to me that it's just a dollar, you're doing something right and important."

- "I remember coming to Ottawa six years ago and being impressed because people had signs on their doors saying 'No Flyers' because they wanted to save trees; so helping the environment is very important here."
- "I think people just don't know how much their appliances are using…if people are more conscious about certain things, they'll know to check, for example when people would let an AC unit constantly run until it was dry and a hazard."
- One participant asked "How will we handle the winter, when it's harder to shift?" (Response from the group included numerous suggestions of switching to gas ovens and heaters, and to use crock pots and other time-delay devices)

Sponsorship and future implications of project CPR

About a third of the group knew that the OEB was the project sponsor and that the OEB sets rates for the province.

Most knew that smart metering was in store for everyone in the province.

Even though they felt that individual contributions to electricity savings were small, they believed in the appropriateness of asking all residents to save in order to help the entire province.

They felt that big business should be called upon to do their share.

- "I tell my neighbors that you're in control of your usage. It puts the power back in your hands."
- "There will be people who end up spending more, and maybe they'll call to complain, but they're going to be paying the right price and it will be up to them to manage it. Dual bills in the beginning to assure people that they're saving would be good."