Segmentation Based on Energy Attitudes and Behaviors

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Power Smart Evaluation and Research
BC Hydro
SETTING THE STAGE

SITUATIONAL ANALYSIS

- Crown corporation with 1.7 million customers (electricity).
- Historically, among lowest residential rates in North America; among the highest per capita users in the world.
- Forecast (all sectors) to grow from approximately 51,000 gigawatt hours annually to about 68,700 gigawatt hours by 2026.
- Net importer most of the last 5-8 years (15% of needs).

BOLD GOALS

- Electricity self-sufficiency by 2016.
- Acquire 50 percent of incremental resource needs through conservation by 2020.
SETTING THE STAGE

THE RESIDENTIAL CHALLENGE

- Success in meeting this target will be placed, in part, on the shoulders of residential customers in their ability to think about and use electricity differently than they have ever before.

- For BC Hydro, the target will necessitate a fundamental change in the way it tries to influence and empower residential customers to conserve.

- Marketing and advertising teams will need to expand from programs that are product and end-use centric, and relatively short term…

- …to programs and campaigns that strive to change engrained customer attitudes and behaviours over the long-term.

- Psychographic segmentation can play a key role for BC Hydro in moving its energy conservation agenda forward.
WHY PSYCHOGRAPHIC SEGMENTATION?

- Marketing programs and strategies based on conventional demographic and geographic segmentations have limitations.

- Psychographic segmentation overcomes these limitations by uncovering homogeneous groups of people in terms of how they think, feel and behave.

- Ideally, strategies and campaigns can be developed such that the unique segments receive marketing support and messaging that truly resonate with them, and reinforces the desired objective of changing the way they think about and use electricity.

- ... a bonus if there are strategies or messaging that have traction across all identified segments.

- Reveals the current conservation landscape in terms of the number of unique customer groups and their relative sizes.

- Provides a tool for measuring change in a culture of conservation.
HOW WE DID IT

DATA COLLECTION

- From BC Hydro’s June 2006 Residential End-Use Survey.
- About 60 attitudinal and behavioural dimensions.
- Self-Administered, mixed-mode completion.
- Overall sample size of 4,338 (of 14,015 mailed).

SEGMENTATION METHODOLOGY

- K-means Analysis (with about 30 of the dimensions).
- Segment models evaluated in terms of being measurable, substantial, accessible, actionable and differentiable.
SEGMENT DRIVERS

1. Attitudinal Dimensions
   - General attitudes towards electricity conservation ✓
   - Conservation attitudes relating to moral obligation, making a difference, personal action for the greater good, compromise, etc ✓
   - Not attitudes towards BC Hydro, its demand-side management programs, nor government policy ✗

2. Behavioral Dimensions (in-home)
   - Lighting habits ✓
   - Space heating/cooling habits ✓
   - Water heating habits ✓
   - Laundry, dishwashing and water habits ✓
   - Plug-in device habits (TVs, computers, printers, chargers, etc.) ✓
Example of K-means Analysis

Conservation Behaviours

Favourable & Consistent

Unfavourable & Inconsistent

Desired Conservation Attitudes

Negative

Positive
Hierarchy of the 6 Segment Model

Tuned-out & Carefree
16%
227,250 customers/households

Conscientious Moderates
37%
538,687 customers/households

Stumbling Proponents
23%
337,876 customers/households

Devoted Conservationists
35%
497,341 customers/households

Cost-Conscious Practitioners
24%
340,661 customers/households

Entrenched Libertarians
7%
101,244 customers/households

Devoted Conservationists
28%
402,776 customers/households

Entrenched Libertarians
6%
84,872 customers/households

Devoted Conservationists
26%
369,599 customers/households

Entrenched Libertarians
5%
77,469 customers/households

Tuned-out & Carefree
14%
191,515 customers/households

Conscientious Moderates
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Entrenched Libertarians
5%
77,469 customers/households

Tuned-out & Carefree
13%
183,863 customers/households

Stumbling Proponents
20%
286,558 customers/households

Comfort Seekers
9%
131,280 customers/households

Cost-Conscious Practitioners
22%
313,312 customers/households

Devoted Conservationists
26%
369,599 customers/households

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Note: 5.6 percent of customers/households are either intermediates or outliers, and go unclassified as such.
Segment Share of BC Hydro Residential Customers

- percent of customers/households -

- Positive

- Negative

- Unfavourable & Inconsistent

- Favourable & Consistent

Devoted Conservationists
26% 
Cost-Conscious Practitioners
22% 
Enterrenched Libertarians
5% 
Stumbled Proponents
20% 
Comfort Seekers
9% 
Tuned-Out & Carefree
13% 
Cost-Conscious Practitioners
22% 
Enterrenched Libertarians
5% 
Stumbled Proponents
20% 
Comfort Seekers
9% 
Tuned-Out & Carefree
13% 

Power Smart Evaluation and Research

BC Hydro

Reliable power, at low cost, for generations. Reliable power, at low cost, for generations. Reliable power, at low cost, for generations. Reliable power, at low cost, for generations.
SEGMENT PROFILERS

1. Attitudinal and Behavioural Dimensions
   - Segment drivers themselves
   - Other supplemental dimensions not directly related to energy

2. Demographics
   - Gender, age, education, household composition, income, region…

3. Home Characteristics
   - Dwelling type
   - Envelope - windows, doors, insulation
   - Space heating/cooling fuels and systems
   - Appliances, electronics, various other end-uses and plug-in devices

4. Annual Energy Consumption
Tuned-Out & Carefree (13%)

- The Tuned-Out & Carefree are the most disengaged in the way that they think about and use electricity – in turn, plotting themselves at the undesirable end of the conservation spectrum.

- Reflecting this, they consistently emerge to have the highest billed electricity consumption across various dwelling types, heating fuels and household sizes.

- Lifestyle is a greater barrier to conservation than the environment is a motivator.

- However, as much as energy and electricity issues do not appear to be pressing concerns for them, many do believe - or perhaps “buy” into the argument that energy conservation can be a worthwhile endeavour.

- Not cynical, just very apathetic.
### Extent of Thinking about Energy Issues in B.C.

- percent saying either frequently or occasionally -

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<thead>
<tr>
<th>Category</th>
<th>Frequently</th>
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<tr>
<td><strong>Total</strong></td>
<td>52%</td>
<td>28%</td>
<td>80%</td>
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<tr>
<td>Devoted Conservationists</td>
<td>55%</td>
<td>40%</td>
<td>95%</td>
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<tr>
<td>Cost-Conscious Practitioners</td>
<td>13%</td>
<td>65%</td>
<td>78%</td>
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<tr>
<td>Entrenched Libertarians</td>
<td>26%</td>
<td>56%</td>
<td>82%</td>
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<tr>
<td>Comfort Seekers</td>
<td>20%</td>
<td>54%</td>
<td>74%</td>
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<tr>
<td>Stumbling Proponents</td>
<td>30%</td>
<td>63%</td>
<td>93%</td>
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<tr>
<td>Tuned-Out &amp; Carefree</td>
<td>2%</td>
<td>42%</td>
<td>44%</td>
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Care, Reason and Apathy
- percent who either strongly disagree or somewhat disagree -

I really don’t care much about energy and see little reason to conserve

- percent

**Strongly disagree** | **Somewhat disagree**
---|---
Total | 74% | 16% | 90%
Devoted Conservationists | 93% | 99%
Cost-Conscious Practitioners | 76% | 20% | 96%
Entrenched Libertarians | 75% | 15% | 90%
Comfort Seekers | 70% | 26% | 96%
Stumbling Proponents | 84% | 15% | 99%
Tuned-Out & Carefree | 17% | 28% | 45%

There is not very much any individual can do to conserve energy that will have much effect in the long run

- percent

**Strongly disagree** | **Somewhat disagree**
---|---
Total | 64% | 23% | 87%
Devoted Conservationists | 84% | 9% | 93%
Cost-Conscious Practitioners | 65% | 26% | 91%
Entrenched Libertarians | 65% | 25% | 90%
Comfort Seekers | 61% | 29% | 90%
Stumbling Proponents | 72% | 24% | 96%
Tuned-Out & Carefree | 12% | 44% | 66%

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BChydro
Tuned-Out & Carefree (13%)

- Majority are **male** – more likely than any other segment.
- As per the population of customers, the majority are 45+ in age, but this proportion is the lowest of all segments. In other words, they are the **youngest** of the segments.
- More likely than any other segment to live in Metro Vancouver.
- Slight over-proportion of **condo/apartment** dwellers.
- Less likely than all others to own their own home.
- But, **highest household incomes**.

* This group represents the biggest challenge for BC Hydro. DSM programs and any voluntary rate programs would have to be taken to them as they won’t reach out for themselves.*
* Perhaps their attitudes and behaviors will evolve as they age.*
Stumbling Proponents (20%)

- The Stumbling Proponents are fairly conflicted in that their behaviours do not follow in-step with their very well-intentioned attitudes and opinions around conservation.

- This segment demonstrates some conservation habits, but the extent and consistency to which they exhibit the desired behaviours lag well behind most others – they are nearly always in the bottom third of the six segments, and for several categories, the worst offenders.

- Consistently emerge in the high third of the six segments in terms of their annual electricity consumption.
Only have the minimum number of lights on in a room for what I am doing

- percent who either always or usually perform the action -

- Lighting Habits

Turn off lights when no one is in the room

- percent who either always or usually perform the action -

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BChydro
Stumbling Proponents (20%)

- Second highest occupants of single detached houses, duplexes, row or townhouses.
- Most likely of any of the segments to have attended and completed university.
- Second highest household incomes.

One of the key target segments as they are the third largest group, already hold the desired attitudes, and represent significant capacity for behavioral change.

They do not need to be persuaded, but assisted, taught and shown the way.

They might show enthusiasm for TOU programs, but they likely would not be immediately successful in shifting their demand given they have so much difficulty with the basics.
Comfort Seekers (9%)

- They can be viewed as siblings to the Stumbling Proponents in that their pro-conservation views and intentions are not followed-up with the desired behaviours.

- What makes this segment of customers especially different from all others is their behaviour around space heating and space cooling in that it can be described as nothing short of lackadaisical.

- For example, the Comfort Seekers very rarely use a programmable thermostat or manually turn down the heat – either at night or when no one is home. In fact, their habits in this regard are dwarfed by even those of the Tuned-Out & Carefree.

- Consistently in the middle to high third of the six segments in terms of their annual electricity consumption.
### Space Heating Habits
- percent who either always or usually perform the action -

#### Use a programmable thermostat or manually turn down the heat at night

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<thead>
<tr>
<th>Category</th>
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<th>Usually (%)</th>
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<tbody>
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<tr>
<td>Tuned-Out &amp; Carefree</td>
<td>43%</td>
<td>27%</td>
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#### Use a programmable thermostat or manually turn down the heat when no one is home

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Comfort Seekers (9%)

- Most likely of all segments to be **young to middle-aged**: 25 - 44.
- Most likely of all segments to have **children/young adults in the household**.
- Most likely of all segments to have **3+ people in the home**.
- Most **ethnically diverse**.
- Disproportionately high percent living in **Metro Vancouver**.

**Any DSM/behavioral programs aimed at the Stumbling Proponents would be appropriate for the Comfort Seekers.**

*Despite the segment’s small size, there are substantial energy savings to be had by educating them on the impact of space heating on their home energy bill, and showing them how to reduce the related load without sacrificing comfort or lifestyle.*
Entrenched Libertarians (5%)

- The Entrenched Libertarians are so very different from all others in their opinions to warrant such differentiation.

- It is not as if this segment exhibits a flagrant disregard for the merits around conservation – most do care about energy issues, do see some reason for conserving, and believe that there are things individuals can do that will have some effect in the long-run. In fact, for most end-uses, this segment demonstrates very favourable conservation habits and behaviours.

- What makes this group profoundly unique is that most of them are generally off-side with the notion that customers have a moral obligation to conserve, that conservation efforts can be substantial, and that their homes’ use of energy impacts the environment.

- When they do conserve, they tend to do it for their own reasons or on their own terms.

- In the middle third of the six segments in their annual electricity consumption.
We could all use a lot less energy than we do and if many people conserved, we could all make a big difference overall. Regardless of whether it makes a difference, everyone has a moral obligation to do the best they can to conserve energy.
Entrenched Libertarians (5%)

- Skewed slightly female and slightly 35 – 54.
- More likely than other to live in single detached houses, as well as more likely than all others to live in duplexes, row or town houses.
- Almost exclusively English spoken as the main language in the household.
- More likely than all other segments to have an intermediate level of education.

*Although environmental issues do resonate with the Entrenched Libertarians, they are not likely to respond to conservation messaging that strictly hinges on using less electricity to save the planet.*

*Might not be pleased with mandatory TOU and other demand-response programs, but they might opt-in on a voluntary basis.*

*It all comes down to empowering them to do things their way, for their own reasons, and on their own terms.*
Cost-Conscious Practitioners (22%)

- They are fairly modest in the different ways they think of themselves as being active energy conservers – so much so that they emerge in fourth position in terms of having the desired attitudes and opinions around energy and energy conservation.

- Despite the fact that they don’t talk or think about energy conservation with the same conviction as do some of the other segments, the Cost-Conscious Practitioners report exhibiting much more favourable and consistent behaviours around space heating, water usage, lighting and other plug-in appliances and devices than most other segments.

- In fact, they hold second position behind the Devoted Conservationists in their conservation behaviours.

- All of this can be tied to the fact that they primarily conserve to save money – not the environment – though it appears they ride the bandwagon of doing things for a greater good.

- Generally have the second lowest annual electricity consumption.
Television & Computer Habits
- percent who either always or usually perform the action -

Turn off TV when no-one in the room or actively watching the program

- Total: 52% Always, 35% Usually, 87% Overall
- Devoted Conservationists: 75% Always, 22% Usually, 97% Overall
- Cost-Conscious Practitioners: 65% Always, 28% Usually, 93% Overall
- Entrenched Libertarians: 60% Always, 35% Usually, 95% Overall
- Comfort Seekers: 51% Always, 34% Usually, 85% Overall
- Stumbling Proponents: 24% Always, 53% Usually, 77% Overall
- Tuned-Out & Carefree: 25% Always, 49% Usually, 74% Overall

Turn off computer and printer when not in use

- Total: 38% Always, 25% Usually, 63% Overall
- Devoted Conservationists: 57% Always, 22% Usually, 79% Overall
- Cost-Conscious Practitioners: 52% Always, 18% Usually, 70% Overall
- Entrenched Libertarians: 46% Always, 24% Usually, 70% Overall
- Comfort Seekers: 29% Always, 24% Usually, 53% Overall
- Stumbling Proponents: 16% Always, 33% Usually, 49% Overall
- Tuned-Out & Carefree: 23% Always, 28% Usually, 51% Overall
Cost-Conscious Practitioners (22%)

- Very similar to the overall population.
- But, they are the least likely to have university degrees.

As the low-hanging or basic conservation behaviors are already being frequently taken, it may be the little and/or tedious things that have to be done that take them to the next level.

In whatever way this may be done, arguments based on environmental benefits will probably not hold much weight – “savings on your electricity bill” is what this segment needs to hear.

They may be suitable targets for time-of-use pricing programs, but the potential cost savings attribute would likely have to be the key selling point.
Devoted Conservationists (26%)

- The conservation ambassadors and leaders that the corporation would like everyone else to model and follow.

- Their attitudes toward and understanding of energy issues, electricity and conservation are unparalleled and certified as genuine, based on demonstrating persistent conservation habits to levels beyond all others and their actual billed electricity consumption.
Knowledge and Practitioner
- percent who either strongly agree or somewhat agree -

I am knowledgeable about ways to save electricity around my home

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I am an active energy conserver who looks for opportunities to save energy in everything I do

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</table>
Devoted Conservationists (26%)

- They are the oldest of the segments: 58% are 55+, including 34% 65+.
- Least likely to have children/young adults in the home.
- Smallest household occupancy.
- **Lowest household incomes** (but not necessarily financially challenged!)
- One-half do live in Metro Vancouver, but this is the lowest of all segments.

As with the Cost-Conscious Practitioners, it may be the little and/or tedious things that have to be done that take them to the next level. They may be the most willing segment to make peak capacity sacrifices in the way of time-of-use rates or critical peak pricing, and their household compositions and life stages might give them the greatest amount of flexibility to be successful.

TOU programs might be especially pleasing to them as they would be rewarded and able to save even more money – if they are successful at shifting their load.
MODEL VALIDATION

Relatively worse conservation ethic
High annual consumption

Post-hoc Analysis

Relatively better conservation ethic
Low annual consumption

13% Tuned-Out & Carefree
20% Stumbling Proponents
9% Comfort Seekers
5% Entrenched Libertarians
22% Cost-Conscious Practitioners
26% Devoted Conservationists

Note: 5.6 percent of customers/households are either intermediates or outliers, and go unclassified as such.
UNDERSTANDING OF RESIDENTIAL CUSTOMERS

- Confirms the customer group is heterogeneous
- But can be generalized into 6 homogeneous segments
- It’s now up to the marketing and communications groups to determine if there are opportunities and value in targeting programs and messaging to specific segments
- But are there cost barriers? Logistical barriers? Political barriers?

QUALITATIVE RESEARCH

- Further model validation
- Provides deeper, richer insights
- Explore, develop and refine advertising, messaging, etc.
EARLY LESSONS & IMPLEMENTATION

GEODEMOGRAPHIC ANALYSIS OF SEGMENTS

- Postal code analysis
- Birds of feather (may) flock together…
- …Same behaviors might not make neighbors

MESSAGING THAT THREADS SEGMENTS TOGETHER

- Net importer issue has traction among all segments, even for the Tuned-Out & Carefree and some of the Entrenched Libertarians

PROFILING

- Subscribers to eNewsletters and Team Power Smart programs

RECRUITING

- Ambassadors program
EARLY LESSONS & IMPLEMENTATION

2008 Residential End-Use Survey & Segmentation

- Even larger sample size
- More banks of attitudinal and behavioral dimensions to further inform social marketing efforts and behavioral change programs
- Quicker turnaround to make it earlier into the media planning cycle
- Uncover potential evolution in segments since 2006 baseline
More information on BC Hydro’s Psychographic Segmentation?
ACEEE Paper 671

More information on BC Hydro’s Behavioral Programs?
Arien.Korteland@bchydro.com
Gareth.Clarke@bchydro.com
BECC Poster Session: 5:00pm - 7:00 pm

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THANK YOU!