Lighting the Way: Understanding the Smart Energy Consumer
Agenda

- IBM’s Global Utility Consumer Surveys
  - Strategic directions in response to findings
  - Customer Service and the Next Best Action
  - Contacts
IBM has surveyed over 17,000 people in 17 countries since 2007 to learn more about tomorrow’s home energy consumer.
In our first two Global Utility Consumer Surveys (2007 and 2009), we assessed the future wants and needs of residential customers

The context for the questions in the prior surveys was that of a dramatically different future for energy consumers
- Better information
- More control
- Better reliability and power quality
- More participation
- Greener

Since early 2009, many other surveys have come out with a similar focus on what consumers will look for in the future

The consensus among these had been that many consumers are eager for the enhanced reliability, control, and new programs and services that these changes will bring
We developed a profiling that showed about 40% had active interest in engaging - but one-third were likely to stick with the status quo.

Two factors will determine the nature of the interface between utilities and consumers in the future:

1. The degree to which consumers take initiative in decision-making in their energy supply and usage toward meeting specific goals.

2. The consumers’ disposable income available for energy choices in supply and conservation.

By 2011, in some parts of the world, issues emerged on more immediate concerns that competed with those views of the future. Examples have been consumer confusion and uncertainty, negative press, and valid yet troubling questions about privacy, cost, and distribution of benefits.
The most recent survey focused on energy consumers’ potential sentiment drivers – positive and negative

What are their most important influences on knowledge gained, opinions, and attitudes toward behavioral change?

How do perceptions of providers and technological change shape consumers’ expectations?

What levels of knowledge do they have on critical elements that drive their perceptions and expectations?

What expectations do consumers have for energy service and providers in the future – and what sets these expectations?
We found that, in aggregate, providers’ influence on messaging for their customers is now outweighed by other sources.

Percent of respondents that listed a particular information source as the one(s) to which they are most likely to go to get information about energy cost, environmental impact, alternative suppliers, or new programs and services (grouped).

Source: IBM 2011 Global Utility Consumer Survey
In 1979, a famous movie tagline noted “In space, no one can hear you scream.”

In the past, when someone had a bad experience with a company, only the individual would experience it.

Now, the world can know about it in seconds.
Where consumers’ perceive a shortfall in attention, this presents a potentially huge problem

Source: IBM 2011 Global Utility Consumer Survey

Percent of respondents who believe that their current provider does/should focus on specified activities or attributes

- **Treats me as a valued customer**: 21% (This describes my current provider) - 50% (My provider should focus on this) - 29 point gap
- **Supplies cleaner energy**: 18% - 46% - 28 point gap
- **Helps me manage energy use**: 13% - 44% - 31 point gap
- **Invests in advanced technologies**: 16% - 37% - 21 point gap
- **Adopts new technologies and ways of doing business**: 8% - 27% - 19 point gap

Source: IBM 2011 Global Utility Consumer Survey
Consumer perceptions are a strong driver of opinions on new initiatives like smart grid and meter deployment.

Percent of respondents who approve of plans to deploy smart meters for each of five levels of privacy concern.

Reaction to statement "These technologies will put my privacy at risk."

Source: IBM 2011 Global Utility Consumer Survey
The counter to these challenges is better engagement – better communication and information to each consumer.

Percent of respondents expressing their likelihood of taking on specific behaviors or behavioral changes:

- Willing to share information on energy usage:
  - No or Minimal Knowledge: 43%
  - Moderate Knowledge: 48%
  - Strong Knowledge: 67%

- Likely to change energy usage patterns to achieve goals:
  - No or Minimal Knowledge: 42%
  - Moderate Knowledge: 52%
  - Strong Knowledge: 69%

- Likely to actively leverage new information about consumption:
  - No or Minimal Knowledge: 52%
  - Moderate Knowledge: 58%
  - Strong Knowledge: 75%

Source: IBM 2011 Global Utility Consumer Survey
Higher levels of knowledge strongly correlated with increased belief that new technologies and programs will bring benefits.

Two years after we released this data, the UK Government’s Dept. of Environment and Climate Change (DECC) also noted that “higher levels of perceived knowledge of smart meters were correlated with increased support and interest.”

Percent of respondents holding positive opinions of smart meters and smart grid deployment plans locally (underway, proposed, or hypothesized)

Consumers’ expectations for smarter energy products and services will be further shaped by their experiences with other industries...

<table>
<thead>
<tr>
<th>Television consumer</th>
<th>Electricity consumer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passive</strong></td>
<td></td>
</tr>
<tr>
<td>- Passive receipt of content</td>
<td>- Passive receipt of power</td>
</tr>
<tr>
<td>- Limited sources of content generation</td>
<td>- Limited sources of power generation</td>
</tr>
<tr>
<td>- Major media companies exclusively control content</td>
<td>- Incumbent utilities exclusively control power generators</td>
</tr>
<tr>
<td>- Provider-customer relationship one-to-many, driven by demographics and geography</td>
<td>- Provider-customer relationship one-to-many, driven by demographics and geography</td>
</tr>
<tr>
<td><strong>Active</strong></td>
<td></td>
</tr>
<tr>
<td>- Consumer interest drives new and more targeted choices in content</td>
<td>- Consumer interest drives new and more targeted choices in power supply</td>
</tr>
<tr>
<td>- More interest in and leverage of information on quality indicators for content (e.g., TV program rating systems)</td>
<td>- More interest in and leverage of information on quality indicators for content (e.g., green energy standards)</td>
</tr>
<tr>
<td>- Broader choice of providers drives more active role in provider selection</td>
<td>- Broader choice of providers drives more active role in provider selection</td>
</tr>
<tr>
<td>- Consumer does not control content, but has stronger influence via choices</td>
<td>- Consumer does not control generation, but has stronger influence via choices</td>
</tr>
<tr>
<td>- Introduction of time-shifting technologies enables more active selection and management of content at individual level</td>
<td>- Introduction of residential time-of-use programs and green power options enables more active selection and management of generation deployment at individual level</td>
</tr>
<tr>
<td><strong>Participatory</strong></td>
<td></td>
</tr>
<tr>
<td>- Interactivity and involvement with content and service providers increases</td>
<td>- Interactivity and involvement with generation and service providers increases</td>
</tr>
<tr>
<td>- Consumers active in producing content and influencing content distribution</td>
<td>- Consumers active in generating power and influencing generation planning decisions</td>
</tr>
<tr>
<td>- Rapid creation of new content types as technology change causes explosion in capabilities</td>
<td>- Rapid creation of new power supply options as technology change causes explosion in capabilities</td>
</tr>
<tr>
<td>- Dynamic, value-based pricing of content</td>
<td>- Dynamic, value-based pricing of power (e.g., time-of-use)</td>
</tr>
<tr>
<td>- Provider-customer relationship dynamic is increasingly customized to specific entertainment and information interests, with consumer analytics a key driver</td>
<td>- Provider-customer relationship dynamic is increasingly customized to specific energy management goals, with consumer analytics a key driver</td>
</tr>
</tbody>
</table>

… which are often viewed as offering more personalization and innovation around consumers’ specific needs
How consumers feel about the evolution of their providers today speaks to a need to refine, personalize, and target communications.

Their influences are still skewed toward the traditional – but increasingly these are sources that are from places where utilities have no control over the tone or accuracy of the messages.

Consumers have mixed perceptions of their current providers and what they will be able to do in the future – and where there are negative perceptions, more negative reactions are likely.

For customer buy-in to smart grid and smart meter plans, providing knowledge is an absolute necessity – the more consumers learn about what is occurring, the more favorable they are toward it.

They have been promised – explicitly or implicitly – great benefits from the smart grid revolution, and their expectations are that those promises will be fulfilled.

What can be done to keep perceptions (positive and negative) aligned with reality? How can expectations be shaped by providing more and better knowledge in the context of the most effective influences?
Agenda

- The 2011 IBM Global Utility Consumer Survey

- *Strategic directions in response to findings*

- Customer Service and the Next Best Action

- Contacts
Today’s consumers demand that we know them as more than a demographic, a zip code, or a transaction history.

At the same time, they are exhibiting a **digital body language** that gives us a look into their passions, opinions, and sentiments – but it comes in the form of millions of pieces of data from hundreds of sources.

We must be able to determine what new insights that data offers.
They demand we know more, in part, because they are telling us so much more in so many more ways.
Anticipating consumer needs has relied on segmentation approaches that are too limited to give views of individuals.

Most segmentation approaches focus on two or three dimensions.

These are typically not actionable because customers are more complex than 2 or 3 dimensions – leaving them unable to truly seize the opportunities that customer uniqueness presents.
We can move from simply reacting to a customer contact to predicting the **next best action** that meets the consumer’s need.

To do this, we need to make use of:

- **New analytics to make sense of this complex and intricate data**
- **Multi-dimensional models developed to explain or predict customer**

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**Descriptive analytics**

**Predictive analytics**

**Prescriptive analytics**
A useful approach uses Feature Vectors to give customers personalized profiles that can be meaningfully clustered.

A **Feature Vector** is a model of the customer’s response (historical or predicted) to one specific aspect of the value proposition.

Each Feature Vector is like a gene strand in DNA, describing a facet of customer behavior.

Theses building blocks that can be assembled into larger models of customer behavior.

**Action Clusters** are aggregates of customers into groups that illustrate similar behavioral propensities across many Feature Vectors.
An *Engagement Preferences* Feature Vector helps define how customers want to engage with providers.

<table>
<thead>
<tr>
<th>Attitude Cluster</th>
<th>Security-oriented individualist</th>
<th>Demanding support-seeker</th>
<th>Loyal quality-seeker</th>
<th>Price-oriented minimalist</th>
<th>Support-seeking skeptic</th>
<th>Informed optimizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of total</td>
<td>13%</td>
<td>12%</td>
<td>19%</td>
<td>18%</td>
<td>21%</td>
<td>17%</td>
</tr>
<tr>
<td>Key theme</td>
<td>&quot;I know what I want and organize myself&quot;</td>
<td>&quot;I need personal advice&quot;</td>
<td>&quot;I trust my Energy Provider and remain a loyal customer&quot;</td>
<td>&quot;I do not like Energy Providers – make it cheap and stay away&quot;</td>
<td>&quot;I need advice but prefer to keep distance from my Energy Provider&quot;</td>
<td>&quot;I take time to research to find the best&quot;</td>
</tr>
</tbody>
</table>

Source: IBM Institute for Business Value survey data 2010, n=21,740

But “attitude” is only one of what could be several key “feature vectors” that affect Energy customer behavior. For example, some Loyal Quality Seekers might prefer to use the Web while others might not, and thus “attitude” and “preferred channel” are feature vectors that might need to be estimated separately (depending on correlation between the two vectors).
Predicted Retention Risk, used in the airline industry, could be a valuable Feature Vector where competition is emerging in energy.
Further intelligence based on social media analysis leads to “360° Consumer Profiles”, which add depth and richness to the analysis.

**Personal Attributes**
- **Identifiers**: name, address, age, gender, occupation...
- **Interests**: sports, pets, cuisine...
- **Life Cycle Status**: marital, parental

**Life Events**
- **Life-changing events**: relocation, having a baby, getting married, getting divorced, buying a house...

**Products and Interests**
- **Personal preferences** of products
- **Product Purchase history**

**Relationships**
- **Personal relationships**: family, friends and roommates...
- **Business relationships**: co-workers and work/interest network...

**Timely Insights**
- **Intent to buy** various products
- **Current Location**

**Revealed intent to buy**
- I need a new digital camera for my food pictures, any recommendations around 300?
- What should I buy?? A mini laptop with Windows 7 OR a Apple MacBook!??!

**Location announcements**
- I'm at Starbucks Parque Tezontle http://4sq.com/fYReSj

**Life events**
- College: Off to Stanford for my MBA! Bbye chicago!
- Looks like we'll be moving to New Orleans sooner than I thought.

**Intent to move into/out of area**
- I'm thinking about buying a home in Buckingham Estates per a recommendation. Anyone have advice on that area? #atx #austinrealestate #austin
Understanding each customer as an individual does not happen immediately, but follows a progression path over time.

1. Instrument all the key touchpoints to gather the right data on each customer.

2. Interconnect social media data, other forms of digital data and transaction data to paint a more vivid picture of each customer.

3. Run the right analytics, at the right time, on the right customer to generate new ideas on whom to serve and how to best serve that individual.

4. Generate insights in real time that are predictive, not just historical.

5. Build the capability to do this at massive scale.

Value created

Capabilities over time
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- Contacts
Demonstration: Next Best Action in Utility Customer Service

Operations
- Speaking with the customer

Analytics
- Building predictive models
- Defining the Next Best Action
- Creating marketing offers

Information
- Establishes the Information Supply Chain
Demonstration: Next Best Action in Utility Customer Service

[Image of a Smart Call Center interface showing notifications and customer details with energy efficiency and usage graphs.]
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Consumers have been promised a lot with respect to the “new world of the smart grid”. And they want what’s been promised to them.

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