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Using a consumer-segmentation approach to make energy-efficiency gains in the residential market

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Improving the performance of energy-efficiency programs is a major priority for utilities in the US residential market. Such efforts are expanding, and consumers are broadly aware of what energy efficiency can offer them. But it is becoming clearer that reaching the next level in energy savings will require an improved understanding of consumers' behavior and better ways of engaging them. However, utilities and other providers of services and equipment in the residential-power market have found it challenging to make the leap.

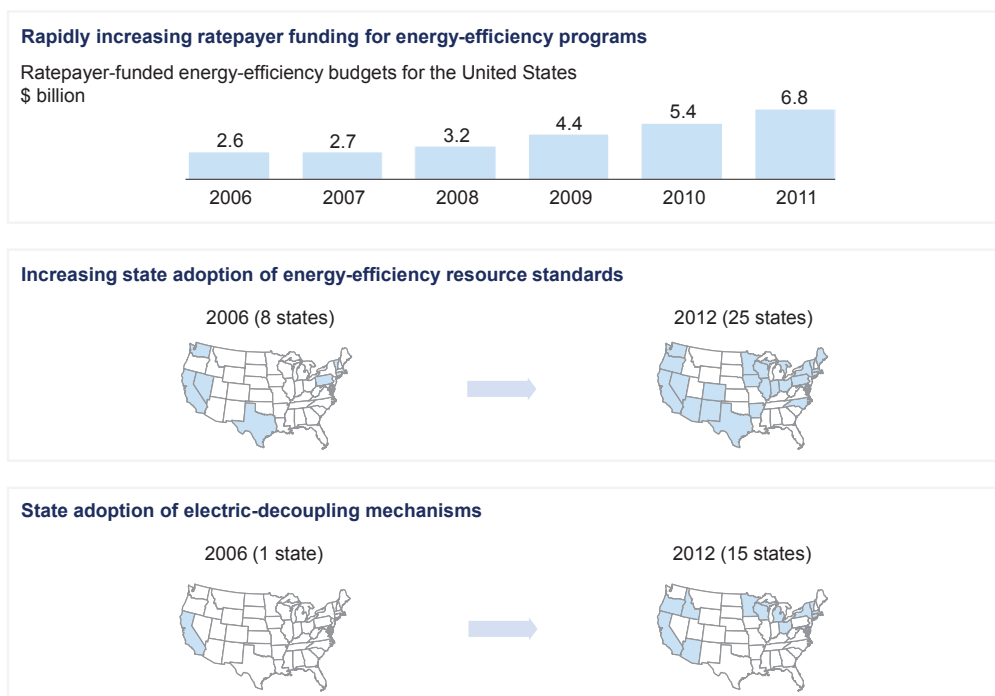
We offer a new approach that borrows from consumer industries, dividing the target audience into five segments based on attitudes and behaviors. We use this framework to enable a comprehensive rethinking of how providers can best deliver energy-efficiency opportunities to the market.

Connecting consumer priorities and energy-efficiency performance

Awareness of and interest in energy efficiency is already substantial and growing. Ratepayer-funded energy-efficiency programs expanded from \$2.6 billion in 2006 to nearly \$7 billion in 2011, a growth rate of more than 20 percent a year (Exhibit 1). States are pushing to reach more ambitious energy-efficiency goals and are increasingly adopting related regulatory mechanisms. The number of states with energy-resource standards rose from 8 in 2006 to 25 in 2012.

This growth is creating opportunities: utilities have ramped up their energy-efficiency programs, while appliance vendors and providers of demand-management hardware and control

Exhibit 1 Energy-efficiency programs have scaled up over the past few years, with rapidly increasing spend.

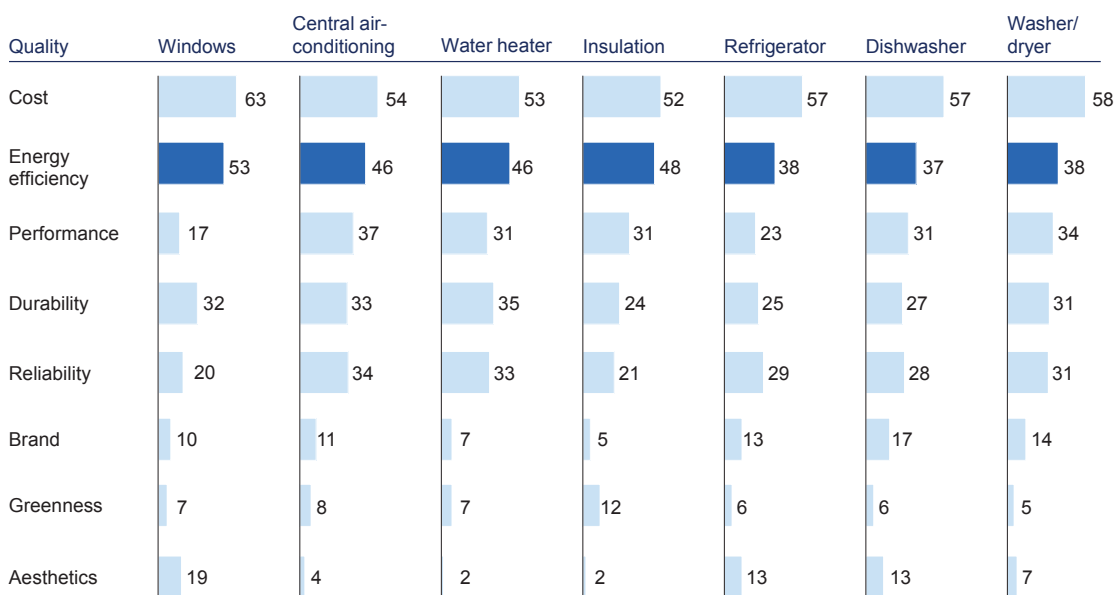


Source: American Council for an Energy-Efficient Economy; Center for Climate and Energy Solutions; Consortium for Energy Efficiency; Institute for Energy Efficiency

Exhibit 2 Energy efficiency is the second most important consideration for key home-improvement purchases.

Most important characteristics when buying or considering purchase

% of population by segment; respondents selected all that applied



systems are marketing new, more sophisticated offerings. The stakes are significant: energy savings equivalent to more than 20 percent of total demand are on the table, with more than \$1 trillion of value at stake through 2030.¹

Despite the strong interest, however, many questions remain about how to capture the opportunities. Utility costs to achieve energy-efficiency targets vary considerably.² At the consumer level, research presents a picture of untapped promise and many possibilities for enhanced communication.

Our survey data³ show that roughly 80 percent of consumers are broadly aware of energy efficiency and its benefits (and the survey shows this awareness significantly transcends

any “green minded” grouping). More than 80 percent of consumers are also aware of a broad array of energy-efficient appliances or home-modification options. And energy efficiency is the most important stated characteristic after price when buying an appliance or considering a home-improvement project (Exhibit 2).

But converting awareness and potential interest into action on energy efficiency remains a challenge. Users are typically unaware of the energy-efficiency potential of the appliances they buy and use (Exhibit 3). They also appear particularly confused about newer technologies and their relative energy-efficiency performance and typically perceive purchased appliances and devices to be more energy efficient than they actually are.

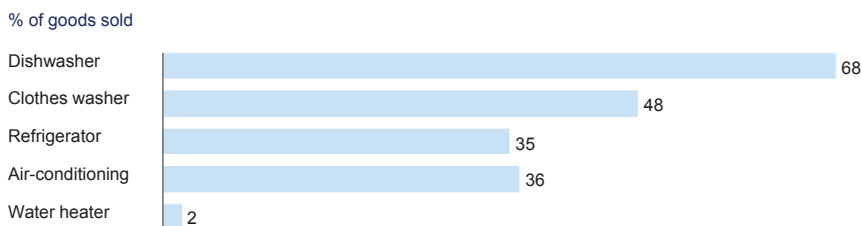
¹ See Scott Nyquist et al., *Unlocking Energy Efficiency in the US Economy*, July 2009 (mckinsey.com), a report prepared in collaboration with 13 leading US-based companies, government agencies, and environmental nongovernmental organizations.

² *Benchmarking Electric Utility Energy Efficiency Portfolios in the US*, Ceres, November 2011 (ceres.org).

³ We have conducted research in partnership with Opower to understand how consumers think about energy efficiency. The research included a number of comprehensive ethnographic in-home interviews, along with a detailed, 2,500-person national survey to quantify behavioral trends in the United States. The goal of the research was to identify practical tools to target customers and their needs, and to identify what it would take to scale up improved energy-efficiency-performance implementation.

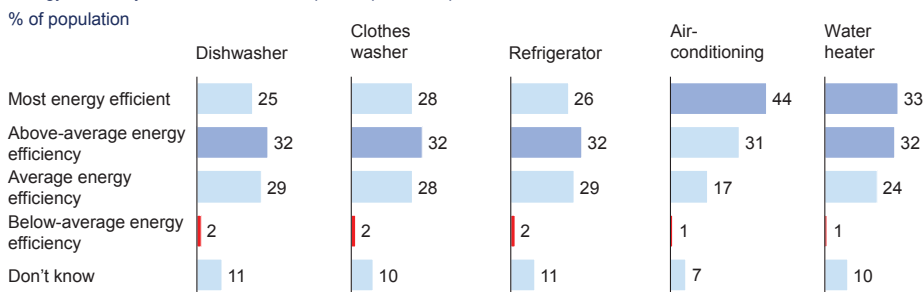
Exhibit 3 Consumers do not have a good understanding of the energy efficiency of appliances that they buy.

Market penetration of Energy Star products varies by product type



However, people perceive all of their purchases to be energy efficient

Energy-efficiency characterization of capital-expenditure purchases, 2009–11



Source: 2009 Energy Star qualified appliance retail sales data; McKinsey analysis

Consumers are also underusing rebates and incentives. While about 60 percent of dishwashers and 37 percent of clothes washers purchased by consumers in our survey were eligible for rebates, only 29 percent and 26 percent of consumers, respectively, used them.

Engaging customers on energy efficiency with a new approach

The picture presented above suggests that there is a need to better understand and communicate with consumers. Some utilities, appliance vendors, and energy-services vendors use demographic segmentation (for example, by age, home size, or zip code) to build an understanding of the customer base. But our work suggests that the information that is generated remains fairly general. For example, research shows that presence of elementary-school children corresponds with a 10 to 20 percent increase in interest in home improvement and green sentiment, while women are more likely (by 6 to 10 percent) to engage in energy-saving behavior than men. This

kind of information does not provide utilities with a clear basis on which to engage with consumers on energy-efficiency issues.

It is possible, however, to look at residential-power users in the same way that other consumer-facing industries have long addressed their markets and apply these insights to build a more effective approach that combines attitudinal, behavioral, and demographic indicators. In addition, the approach would leverage information technology so that data could be gathered from consumers with minimal effort on the consumers' part. This approach could help industry participants focus more effectively on the points that will have leverage with consumers and tailor their messages and value propositions for greater impact. In this way, industry players are much better positioned to convert a greater number of consumers to take the right energy-efficiency actions.

Based on specific attitudes and behaviors held or demonstrated by consumers, our research identified five consumer segments, all roughly equal in size. Exhibit 4 highlights these groups, which show significantly different levels of concern about energy-saving behavior.

- About 20 percent of the population are “green advocates,” who care about energy-saving behavior as a goal in its own right. This is the only segment that is motivated by perceived environmental benefits from more efficient use of energy. The segment’s profile is not just green; it also includes an interest in using new technologies.
- At the other extreme are “disengaged energy wasters,” a group (also about 20 percent of the population) that cares neither about saving energy nor saving money. They are not interested in new technologies or the environment.
- The rest of the population is primarily motivated by saving money but still comprises three distinct segments. Cost savings entirely motivate the “traditionalist cost-focused energy savers” group. The “home-focused selective energy savers” group primarily seeks home improvement, which can include a technological and cost-saving dimension; both of these can clearly link to more efficient use of energy. Members of the third segment, “nongreen selective energy savers,” are happy to save energy as long as they don’t have to think about it (in other words, capturing savings through “set and forget” actions).

Responding to energy-efficiency initiatives

Our work also explored how the five segments responded to various energy-efficiency and related initiatives (Exhibit 5). While some energy-efficiency measures such as light-emitting-diode lighting, programmable thermostats, and efficient showerheads have broad appeal, the segments vary significantly in their responses to other actions. For example, only members of the green-advocates segment show interest in tankless water heaters or ventilation-duct sealing.

We concluded that messaging to consumers in a way that includes an emotional appeal to the priorities of each of the five segments is a key success factor for increasing the adoption of energy-efficiency programs. For example, messaging that highlights the home-improvement potential of an energy-efficiency initiative or product is likely to have greater resonance and appeal for the home-focused-selective-energy-savers segment than simply stating its cost-saving potential.

Exhibit 4 We have identified five customer segments based on expressed attitudes and behaviors related to energy use.

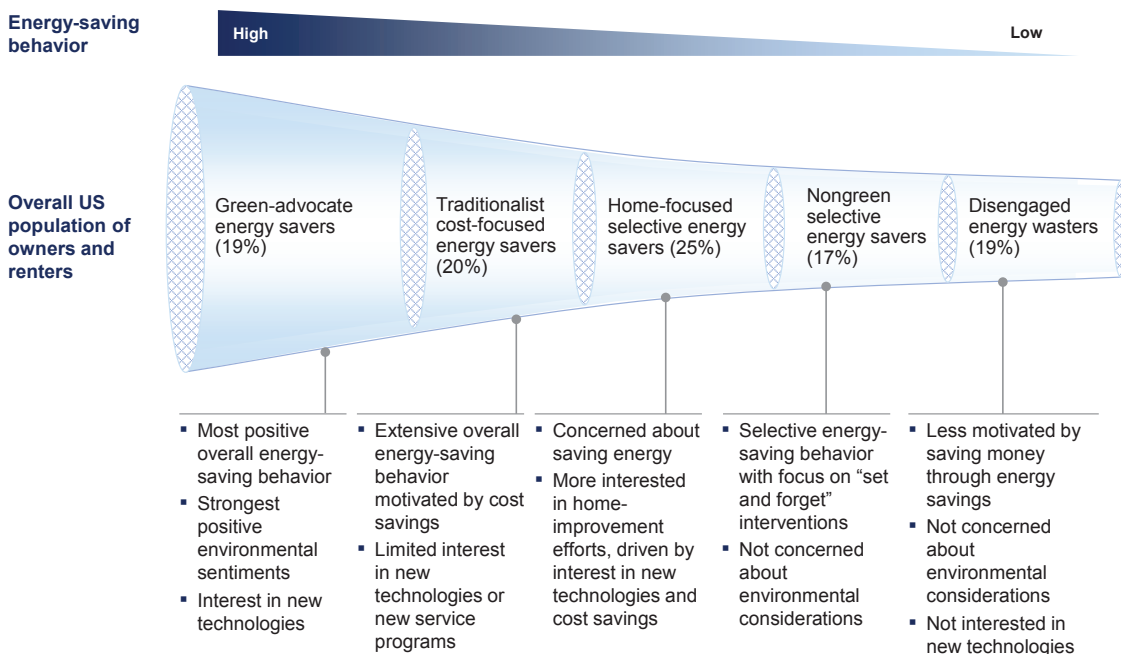
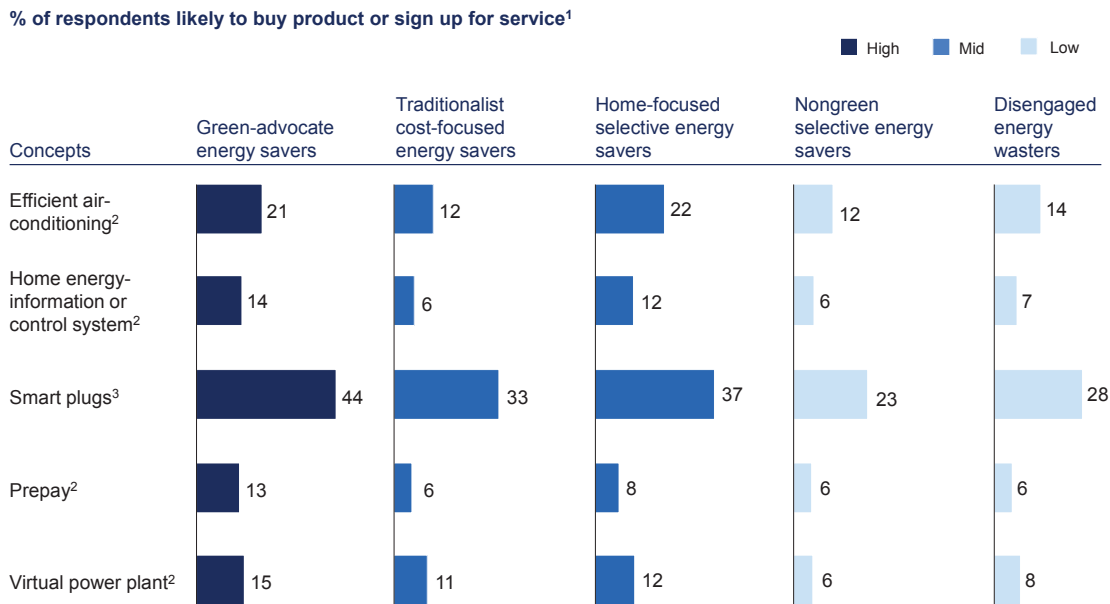


Exhibit 5 Segments vary in their response to concepts; smart plugs are the leading choice among all interventions.



¹ Responses are average across the variations for each concept.
² Assumes 55% of respondents answering "definitely" and 10% of "probably" are likely to buy products or sign up for services.
³ Assumes 70% of respondents answering "definitely" and 20% of "probably" are likely to buy smart plugs.

Of these interventions, the smart-plug concept had the broadest appeal, with 28 to 44 percent of respondents with high potential to purchase the product across all the segments. However, even with the smart-plug concept, there were two distinct messages that resonated across groups. With the green-advocates segment, the message of eliminating wasteful energy drain resonated the most. However, with the cost-focused, home-focused, and selective-energy-savers segments, messaging around the fact that there would be no perceptible lifestyle impact apart from lower energy bills was the most important consideration. Put another way, messaging that underlines how an energy-efficiency initiative will be hassle free but save the consumer money is likely to be most effective with these segments.

Highly energy-efficient heating, ventilation, and air-conditioning (HVAC) systems have significant appeal, with 12 to 20 percent of consumers with high potential to purchase this product across all segments. The green-advocates, home-focused, and selective-energy-savers segments found

messaging around improved air quality to be particularly appealing. On the other hand, the cost-focused segment found messages around product quality to be far more important.

In addition to the gains that the approach brings in energy-efficiency performance, it can also help utilities in more traditional aspects of their business. For example, the segments respond differently to messaging about direct-load-control (DLC) programs. Tailored messaging on how DLC could help reduce the country's fossil-fuel dependence had greatest resonance with green advocates and slightly higher than average resonance with selective energy savers. The prepayment-for-service concept that some utilities are promoting had traction primarily with green advocates (about 13 percent) relative to the other segments (each at about 6 percent); for the green advocates, the fact that prepayment would eliminate surprises in their energy bills resonated the most.

The research also generated insights into consumers' expectations of the roles of different market participants. While

utilities were viewed as the primary source for energy-efficiency information (about 70 percent surveyed identified utilities as the most likely source of energy-efficiency information and products or services), we observed that consumers are very open to third-party providers such as home-improvement stores (40 to 50 percent) and specialist energy-efficiency companies (66 percent).

Using the new segmentation approach to succeed in the market

Our findings point to four approaches that utilities and technology players can use to engage more effectively with consumers.

Deploying an “integrated segmentation” approach.

Traditional demographics-based segmentation may have appeal due to its ease of execution and can provide some helpful, if limited, information. But we think participants in the residential-energy market should embrace an “integrated segmentation” approach that integrates not only inputs from demographic-based data but also considers a wide range of attitudinal and emotional inputs.

Employing emotional motivation and attitudinal drivers.

For utilities and energy retailers, the emotional motivations behind the segment groups offer powerful clues to the best approaches to engage these groups on energy-efficiency initiatives.

For example, messaging around environmental friendliness will resonate with green advocates but will not engage other groups. Interestingly, across all consumer segments, enthusiasm for home improvement (representing about 25 percent of consumers) is more important than environmental friendliness.

Paradoxical though it may seem, it would therefore not make sense for a campaign seeking broader consumer engagement on energy efficiency to focus on the environment. For a broad consumer campaign, utilities should instead think about messaging on issues with broader appeal such as cost, the attractiveness of leading-edge technology, and home improvement.

Furthermore, there are significant opportunities to boost adoption of energy-efficiency products by tailoring messaging about products to specific segments. For example, in the case of energy-efficient HVAC technologies, messaging around air quality in addition to energy-savings information will have strong appeal to green advocates.

Ensuring optimal use of rebates and incentives.

Our research indicates that utilities have an opportunity to promote adoption of energy-efficiency-encouraging rebates and incentives on a much broader scale by using this segmentation approach. For example, segment-specific marketing efforts could include details of rebate mechanisms, and approaches to streamline rebates and incentive mechanisms could also be considered. The utility would message the segments in different ways and offer each segment different options, be they rebates and incentives, prepay and DLC programs, or products such as smart thermostats.

Investing in marketing and sales capabilities. Delivering successfully on the promise of attitudinal segmentation will require investing in building marketing and sales capabilities and in consumer-insights efforts. Our research shows that it is possible to place 80 percent of consumers in the appropriate segment through a quick five-to-seven-question survey that can be administered by phone or as part of an ongoing consumer-information campaign (for example, as part of a utility bill), but this will nevertheless require an addition or redeployment of resources for most utilities. It will also require launching innovative consumer-facing initiatives, including specific consumer campaigns, that leverage third-party data sets and use technology to maintain and update consumer databases.

For utilities and energy retailers, our findings imply that there is a significant opportunity to scale up energy-efficiency activities and capture savings benefits cost-effectively through smarter targeting of consumer segments. While attitudinal segmentation may be harder to execute than its demographic counterpart, there are several useful initiatives worth trying, including running energy-efficiency campaigns, developing streamlined surveys, leveraging social media, and maintaining and updating a rich consumer-data set.

Our findings can also help appliance sellers, who (as mentioned above) are facing consumers confused about the energy-efficiency benefits of their products. Since energy efficiency is an important consideration for consumers, there is an opportunity for appliance vendors to differentiate their products on performance. This could mean going beyond existing labels such as Energy Star and instead publicizing in more detail products’ performance, perhaps in a way similar to how the automobile industry publicizes miles-per-gallon fuel consumption.



As the market for energy-efficiency-related technology product offerings matures, a growing number of sophisticated and well-funded players are entering the space, and they will provide a further challenge to existing players. While utilities are at present best positioned to provide energy-efficiency-related

services and information, consumers are increasingly open to other parties. Utilities are facing significant competition from energy retailers, home-improvement and construction-materials retailers, and technology companies. In this evolving market, an integrated segmentation that recognizes and builds on underlying consumer attitudes and emotional biases can benefit both utilities and technology vendors.

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