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EXECUTIVE SUMMARY

This *State of the Industry Report* was prepared by the Association of Energy Services Professionals (AESP). As the leading professional development association for energy services professionals, our mission is to promote the transfer of knowledge and experience in our industry. This report was developed as a way to help AESP achieve its primary objective of serving its diverse members and sharing knowledge across the industry.

The energy services industry has seen tremendous growth and change over the past decade. AESP is pleased to provide this report to help its members proactively respond to this ever-evolving industry.

**Key Findings**

Many of the key issues and trends identified by respondents and thought leaders in the 2013 *State of the Industry Report* are consistent with findings seen in AESP’s previous 2012 and 2011 reports. For example, respondents continue to project overall growth in employment and energy efficiency/demand response activities at the state level in 2013.

New for the 2013 *State of the Industry Report* was the addition of in-depth interviews with industry thought leaders. These industry experts provided comments regarding emerging program and policy-related trends that they believed would have significant impact on the energy efficiency/demand response (EE/DR) industry this coming year.

Both thought leaders and respondents identified issues such as low avoided costs, behavioral programs, and statewide evaluation, measurement, and verification (EM&V) as having significant impacts on the industry this coming year.
Overall, the key findings for the 2013 AESP State of the Industry Report are:

- Employment continued to grow in the EE/DR sector in 2012, and this trend is expected to continue into 2013. Two-thirds of industry leaders interviewed believe this growth will continue through 2015. However, one-third of these leaders see a slower growth trajectory than in years past. Those who believe that this plateau is tied to the economy further suggest that federal initiatives, including ones related to clean air and economic recovery, could accelerate the need for energy efficiency and demand response.

- The greatest skills needed to support continued industry growth are: analytical skills for big data; energy engineering for design, implementation and evaluation; market research and management; project management, tracking, and reporting.

- The most promising trends continue to be increased energy efficiency activities at the state level, and changes in customers’ attitudes and interests about energy efficiency.

- A strong concentration of survey respondents focused on program implementation and design in their jobs, suggesting that the survey also reached out to those respondents currently on the “front lines” of energy efficiency and demand response programs.

- The large and small commercial and industrial markets remain largely untapped with the greatest potential for energy efficiency and demand response, while the residential sector continues to remain the least promising sector.

- Customer awareness of EE/DR programs and opportunities, as well as financial hurdles, are the leading barriers to deployment and customer adoption of EE/DR, followed closely by uncertain funding levels, and historically low natural gas prices.

- Saving money continues to be the major motivator for customer participation in energy efficiency programs, even with economic recovery in place.

- Thought leaders and survey respondents alike commented on the need for more sophisticated and targeted marketing to more strategically address consumer barriers, leverage key drivers for participation, and more strategically target the specific needs of unique customer segments.

- Survey respondents anticipated that behavioral programs aimed at business and residential customers, the impact of low avoided energy costs, and the opportunities created by “big data” from utility customers will have significant impacts on the industry in 2013.
INTRODUCTION

This State of the Industry Report was prepared by the Association of Energy Services Professionals (AESP). As the leading professional development association for energy services professionals, our mission is to promote the transfer of knowledge and experience in our industry. This report was developed as a way to help AESP achieve its primary objective of serving its diverse members and sharing knowledge across the industry.

AESP continues to evolve and enhance this annual report. The 2011 State of the Industry Report focused on synthesizing data from secondary sources. For its 2012 report, AESP shifted to gathering primary research from a survey of AESP members. By responding to this survey, AESP members provided insights regarding industry trends and emerging areas of focus. For 2013, in addition to the AESP member survey findings, the State of the Industry Report includes findings and excerpts from interviews with thought leaders from across the energy efficiency and demand response industry.

Report Methodology

The 2013 AESP State of the Industry Report used two primary research methods:

1. An online AESP member survey, which focused on identifying emerging trends and opportunities in the EE/DR industry, as well as providing demographic data on the survey respondents’ organizations. The AESP Publications Committee developed the survey. It was fielded December 2012 – January 2013, and a total of 146 members responded, yielding a response rate of 8 percent.

2. Interviews with thought leaders from across the EE/DR industry, which provided insight into emerging trends, and key policy/program issues in 2013 and the coming years. The AESP Publications Committee and selected AESP staff conducted interviews with 17 thought leaders in December 2012 and January 2013. Committee members conducted these in-depth interviews with leaders across a range of organizations. Utility DSM managers represented almost half of the interviews with just under one-third of responses from nonprofit regional or national energy efficiency consortia/organizations. Energy efficiency consulting firms (including evaluators and implementers) and government agencies comprised the remaining interviewees.

The 2013 State of the Industry Report represents a highly collaborative effort of the members of the AESP Publications Committee, whom we would like to thank for their generous donation of time, ideas, and enthusiasm in conducting interviews with thought leaders and contributing to the development of the survey and interview instruments, including:

• Matt Daunis, AESP Board Member, Black Hills Energy
• Katherine Johnson, AESP Board Member and Vice Chair-Education, Johnson Consulting Group
• Lark Lee, AESP Board Member, TetraTech
• Lani MacRae, Former AESP Board Member, U.S. Department of Energy
• Meg Matt, AESP President & CEO
• Tracy Narel, AESP Board Member, U.S. Environmental Protection Agency
• Elizabeth Titus, AESP Board Member, Northeast Energy Efficiency Partnerships
• Greg Wikler, AESP Board Member, EnerNOC
AESP would also like to extend a special thanks to Katherine Johnson and Corine Mahon at Johnson Consulting Group for their assistance in designing, fielding and providing quantitative analysis of the member survey, as well as Lark Lee of TetraTech, who provided qualitative analysis of the thought leader interviews.

Finally, we would like to thank the thought leaders who gave of their time to add their insights and observations to this report, and whose input greatly enhances and provides context to the survey findings. On behalf of AESP, thank you so much for your participation.

- Ken Abreu, Pacific Gas & Electric
- Kateri Callahan, Alliance to Save Energy
- Ralph Cavanagh, National Resources Defense Council
- Beth Craig, U.S. Environmental Protection Agency
- Ahmad Faruqui, The Brattle Group
- Howard Geller, Southwest Energy Efficiency Project
- Donald Gilligan, National Association of Energy Services Companies
- Chuck Goldman, Lawrence Berkeley National Laboratory
- Val Jensen, ComEd
- Sami Khawaja, Cadmus
- Mark Martinez, Southern California Edison
- Jim Parks, Sacramento Municipal Utility District
- Richard Sedano, Regulatory Assistance Project
- Michael Stockard, Oncor Electric Delivery
- Susan Stratton, Northwest Energy Efficiency Alliance
- Tilak Subrahmanian, Northeast Utilities
- Lynn Westerlind, National Grid
- Ed Wisniewski, Consortium for Energy Efficiency

Sincerely,

Laura Orfanedes, AESP Vice Chair-Publications, Cadmus
KEY FINDINGS AND IMPLICATIONS

Overall Industry Growth

The energy efficiency and demand response industry continues to be a growing field offering new opportunities for career growth and development, as well as strategies to reach and engage residential, commercial and industrial (C&I) and institutional customers in the adoption of demand-side management (DSM) technologies and behaviors. Survey responses show the number of employees working on energy efficiency and demand response (EE/DR) activities increased in 2012, and is anticipated to grow in 2013. This growth trend continues from findings reported in the 2012 State of the Industry Report.

Looking back at 2012, more than half (66%) of respondents reported an increase in the number of employees working on EE/DR activities. Only twelve percent of respondents reported a decrease of employees working on these activities.

For 2013, sixty-three percent of respondents anticipate the number of employees working on EE/DR activities will increase, as seen in Figure 1.

| Comparison of the Number of Energy Efficiency/Demand Response Employees in 2012 and Anticipated Number of Employees in 2013 |
|---|---|---|---|
| Increase | Decrease | Stay the Same |
| 2012 (n=166) | Anticipated 2013 (n= 164) |
| 66% | 12% | 22% |
| 63% | 4% | 22% |

Figure 1: Continued Growth Expected in the Energy Efficiency/Demand Response Industry

Thought Leaders Comment on Industry Growth

Similar to the member survey results, about two-thirds of thought leaders interviewed predicted increased demand-side management activity in the near future (through 2015), with about a third believing the level of activity has plateaued.

Of thought leaders who still see increased activity, some commented that the growth rate will slow down and not remain at the doubling seen in the last couple of years.

“We are starting to see a little bit of plateauing. There are several factors contributing to this change in the energy efficiency business environment, including lowered gas rates, increased federal minimum efficiency standards, high saturation of energy efficiency measures in some markets, and the overall economy itself, which at an IOU (investor owned utility), decreases revenues and puts pressure on cost reductions. Collectively, these factors lead to heightened concerns about not increasing rates.”
“More states are going to increase energy efficiency, and no state has peaked in energy efficiency potential, so quantities of workers will rise. Technology will be increasingly important, so different kinds of workers may be needed to supplement the worker types we have now.”

“I guess I see growth for 2013, but I don’t think we are going to see the same growth continue for long. In our state, the growth is leveling out. I’m wondering what will happen in the mid- to-long term. If we don’t get out of this slow growth period in the economy, I’m concerned that customers may start rumbling about paying for efficiency and not getting anything (out of it).”

“I believe energy efficiency will always be growing. We may not always be spending more money or hiring more people, but we’ll always be striving for more energy efficiency. For example, there will always be more to do in the pursuit of ‘permanent efficiency,’ in terms of establishing more stringent codes.”

**Thought Leaders Comment on Workforce and Training**

Consistent with the member survey results, many thought leaders reported an increase in positions in the industry. Those who are not seeing an increase in the number of positions still reported workforce needs, given the retirement of older, experienced staff.

There was general consensus among thought leader interviewees that the following skills are needed among the industry workforce:

- analytical skills for ‘big data’ to take advantage of the smart meter infrastructure
- energy engineers for program design, implementation and evaluation
- strong market research and implementation skills, followed by better marketing to customers
- good project management and tracking skills, as well as reporting capabilities, as regulatory needs are more complex

“The industry suffers from a lack of a skilled workforce. Colleges and technical schools will take some time to fill the demand.”

“I think there will be an increase of the workforce, and expect and hope new skills coming in. Too often we operate like a cottage industry. We need to be operating at more sophisticated levels. It’s across the board, starting with customer touch points...We have to come from a customer perspective, and that is sorely missing in this industry right now.”

“There have been a lot of strong policy folks coming into the industry, but the industry also needs a mix of strong engineering and technical skills.”

“Personally, I’m not sure how much energy efficiency is driving employment growth in overall employment in the trade industries. Energy efficiency may be creating a need for new skills, but I’m not sure new people are being hired. Whether you are installing an efficient or inefficient HVAC unit, the same number of people is needed.”

“(We need) analytical skills, coupled with good communication skills. Sometimes, those two don’t go together, but it is the best combination when they do.”
Thought leaders interviewed said they are meeting training needs through conferences and associated trainings, university/college courses, on-the-job training and learning from program and product management in other industries.

“We are working with existing organizations at the state level to support ‘boots on the ground’ training of new skills, like weatherization. Also, as we engage with vendor partners, we are doing direct one-on-one training, pushing them to make investments. They are using their technical skills, but they are short on business skills, sales and marketing, and customer relationship management. We can’t have enough of that. Also, we ourselves at the utility are making investments in necessary skills, attracting new people from outside industries, like sales/marketing, project management, etc.”

“It would be nice to have a collection of sponsors and universities get together to design a curriculum that includes marketing, business, legal, as well as some technical skills for program managers.”

“The new workers are highly skilled, but experience in the DSM field is slowly being lost due to retirements and other economic factors. As a result, more work needed by the utilities is being outsourced and that’s not a fully sustainable approach in the long run.”

“Where there is a shortage in the ESCO industry is in project development personnel. That’s really energy engineers – engineers who can sell and who can write. University programs have failed for years to produce these types of engineers....poaching of employees has continued in the ESCO industry. And the ESCO industry has done a poor job of training new employees...Firms just don’t have the ability to do that. This creates a big gap in that area.”

“There will always be a need for traditional evaluation, measurement and verification skills, as well as planning skills. I believe, however, that as smart meters become more and more the norm, the need for big data capabilities will dominate the skills needed.”

“We are still in the process of inventing the discipline. The Lawrence Berkeley National Laboratory report on training really laid out some of the key issues. We are adapting disciplines from other industries.”

“My personal observation is that most energy efficiency programs have been framed from the perspective of the supply side and engineering. I think business and marketing could be emphasized to a greater extent...for the long-term health and effectiveness of our industry, I see a need for market [expertise] and marketing skills. I’m surprised how long it has taken to create an appreciation of this. Maybe the plateauing in program growth will allow us to backfill competencies that we don’t currently have.”

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Anticipated Trends in Energy Efficiency/Demand Response

A majority of those surveyed (61%) believe that increased energy efficiency activities at the state level will be the leading industry trend in 2013, as indicated in Figure 2. Nearly half of respondents (42%) believe that changes in customer attitudes and interest in energy will be a significant trend.

**Figure 2: Increased EE/DR Activities at the State Level Will be a Leading Trend in 2013**

**Thought Leaders Comment on Leading Trends**

While thought leaders also see environmental awareness as a driver of growth as reported in the member survey, they provide insight into other drivers of growth, which include: capacity constrained generation and T&D, retiring coal plants, state legislated goals and more favorable regulatory cost recovery for utilities. Several interviewees commented that there is still a lot of cost-effective energy efficiency potential remaining.

“At the federal level, I see several things contributing to this (growth): new partners are coming into the voluntary programs, the President’s use of Executive Orders such as the recent one on industrial energy efficiency, and possible legislative efforts. We, as a nation, value clean air, and energy efficiency is an important way to get there.”

“We may have reached a tipping point in terms of the public and policy makers’ attitudes. Federal efforts are largely tied up in knots. But, at the state level, energy efficiency is emerging as the number one resource choice. In particular, when commissions are faced with large proposals for generation and transmission, there is sticker shock, and a desire to look for alternatives.”

“More states are involved in energy efficiency and that will continue to increase. Demand response is severely under-performing compared with its potential, due to lack of policy push.”

“One specific increase we have seen is in local government legislation requiring commercial building energy performance benchmarking and disclosure.”
“The energy efficiency activities in the Northwest have leveled off, but I presume that demand response interest will increase as the region deals with more intermittent resources.”

“...Connecticut is about to experience tremendous growth...Connecticut seems to be where Massachusetts was three years ago, ramping up investment in energy efficiency...but the reality is that their funding has been up and down over the years, so they will have to put more effort into sending signals to the market that they are serious about this.”

“In California, our legislators seem to have no problem pushing through a legislative agenda on energy efficiency. I think this may be different in other states. For example, legislators just passed a law saying that municipals needed to save one percent of load per year, for 10 years. (This is) similar to what is being required for IOUs.”

“Texas weathered the economic recession fairly well and they are starting to see load growth come back. This will increase their goals, as they are set as a percent of load growth. They are expecting one to two percent annual load growth going forward. There is an underlying concern on resource adequacy. This is leading to a significant increase in goals in Texas starting in 2015.”

“The Southwest is a kind of poster child...ten years ago, energy efficiency budgets were at $30 million. In 2008, they were at $175 million, and now they are at $360 million.”

Most Promising Sectors for Energy Efficiency/Demand Response Activities in 2013

According to survey respondents, the commercial and industrial (C&I) market continues to be the most promising customer sector within the EE/DR industry, in terms of the potential to see increased activities in 2013. Respondents indicated that the most promise specifically resides within both large C&I (37%) and small C&I (28%) customers, as seen in Figure 3. These findings are consistent with those of the 2012 State of the Industry Report.

![Most Promising Sectors for Advances in Energy Efficiency/Demand Response Activities in 2013](image)

**Figure 3: The C&I Markets Show Most Promise in 2013**
The Residential Sector Continues to be the Least Promising Sector

However, similar to the 2012 *State of the Industry Report* findings, the residential customer sector continues to show diminishing promise for EE/DR activity. As seen in Figure 4, one-third of those surveyed (30%) believe that the least promising sector for 2013 will be residential. Also, more than a quarter of respondents (27%) believe that institutional/government is the least promising sector for 2013.

![Figure 4: Least Promising Sectors for 2013](image)

Member Survey Respondents Comment on Sector-Specific Growth Trends

Consistent with the results from the 2012 *State of the Industry Report*, most survey respondents indicated that the greatest opportunities for energy efficiency are in the C&I customer sector, describing it as an “untapped market.” Following are comments made by AESP members in confidential surveys:

“Large C&I is least touched so far and residential has had much activity in the past. Still, there are obstacles to overcome in C&I and there is a constant push to improve residential efficiency.”

“Small C&I is struggling a lot with the down economy and (we) continue to look for more ways to improve their bottom line.”

“In our experience, we’ve found that small C&I is often the ‘forgotten class.’ Therefore, we think a lot of yet untapped potential exists with this customer segment, and from our experience, these customers are very receptive to participating in energy efficiency initiatives, especially if/when approached via the ‘right’ channel and flexible programs.”

“Many in this sector are looking for cost savings in the sluggish economy and energy can be a substantial percent of their operating costs. An increasing number of these customers are putting in place corporate sustainability or energy efficiency policies. They also tend to have relationships with their utilities, which can be leveraged into energy efficiency program participation.”
“Behavioral programs are attracting the most attention, largely in residential but also in C&I. On top of that, demand response for C&I customers is taking off all across the country. So, by a small margin, I give the edge to large C&I.”

“Behavior programs are taking traction nationwide and will make a big impact on the residential sector.”

“Large projects tend to be better for demand response, and they have more energy savings per project than residential measures. If you want a good demand response program, it makes sense to target the big folks first. If you want to push out T&D builds, it makes sense to target the biggest load customers.”

“A lot has been done recently on the residential side with customer behavior, and large C&I has been covered by utility account managers for years. Institutional/government has already taken action. Small C&I has the most untapped potential.”

“...Multifamily has historically been underserved, but I expect that to change.”

**Thought Leaders Comment on Sector-Specific Growth Trends**

Consistent with member survey results, thought leaders in general indicated that the primary opportunities for program growth will largely be in the nonresidential sector, with some interviewees specifically calling out the small nonresidential customer, as did the member survey. A few thought leaders also identified opportunity in integration of demand response and energy efficiency, behavioral programs and financing options. However, almost all interviewees recognized there are real challenges in effectively reaching all customer sectors within this mature industry, and that innovation and collaboration will be essential to achieving increasingly aggressive energy savings goals.

“Program implementers, utilities, and evaluators need to work in unison to deliver the best possible programs, reduce uncertainty, and ensure there is real-time feedback to improve delivery. Collaborative processes need to live up to their name.”

“Utilities in this industry are at the center of an ecosystem. Whether we are doing it ourselves or getting our partners to do it, we need to be more sophisticated in terms of how we engage customers, conduct sales and marketing (and the intake of customers), conduct market assessments, and how we finance. We are at the center of the system... we need to hold each other accountable.”

“I think one area that has been recognized for some time is the electronics industry. It’s very important for utilities to work with the electronics industry. It’s where all the growth in energy demand is coming from.”

“When I first joined (my utility), I thought we could change the market by getting manufacturers to make different products. Then, I realized that manufacturers make products for much larger markets and they weren’t going to change just because of (my utility)...so I’m a big believer in ENERGY STAR® and the Consortium for Energy Efficiency in that they bring people together around common standards and guidelines. These types of efforts send manufacturers a more powerful signal.”

“Utilities in this industry are at the center of an ecosystem. Whether we are doing it ourselves or getting our partners to do it, we need to be more sophisticated in terms of how we engage customers, conduct sales and marketing (and the intake of customers), conduct market assessments, and how we finance. We are at the center of the system... we need to hold each other accountable.”
“Engagement of trade allies will be critical. We need to expand the number and types of participating contractors, and keep them satisfied. We will be increasing trainings and outreach to contractors to give them the tools they need to effectively sell energy efficiency. I think the industry needs to re-think program outreach to gain broader participation of trades.”

“The market we are struggling with is the small-to-medium C&I customer. That’s still a growth opportunity for programs, and the types of workers involved in those programs. I think we may be tapping out the residential side.”

“...We believe we will continue to see growth in consumer demand for energy-efficient products, so long as we stay focused on the things consumers want in their products. We see ENERGY STAR products as addressing a demand from consumers for energy efficiency; they are getting something out of the products. We believe we have the consumer demand and that will continue to grow.”

**Barriers to Implementing Energy Efficiency/Demand Response Programs**

While survey respondents see increases in EE/DR activities for 2013, they also see significant barriers remaining in the wide-scale deployment and consumer adoption of energy efficiency and demand response activities, as seen in Figures 5 and 6. Figure 5 shows that a majority of survey respondents cited a lack of general awareness (50%) and financial hurdles (50%) as the biggest barriers to widespread deployment of EE/DR programs. The lack of consumer awareness as a barrier has increased seven percentage points from the 2012 report findings. Nearly half of respondents cited uncertain funding levels (46%) as one of the biggest barriers. One quarter (25%) cited internal corporate barriers.

![Biggest Barriers to Widespread Deployment of Energy Efficiency/Demand Response in 2013](image_url)

*Figure 5: Lack of Consumer Awareness, Financial Hurdles are Leading Barriers*
Looking specifically at the barriers to consumer adoption of EE/DR technologies and behaviors, nearly half of those surveyed (45%) believe that a lack of awareness about energy efficiency is the biggest barrier, as seen in Figure 6. The sluggish economic recovery (40%) continues to be seen by respondents as a significant barrier to consumer adoption, as do low natural gas prices (38%).

![Barriers to Consumer Adoption of Energy Efficiency/Demand Response in 2013](image)

**Figure 6: Biggest Barriers to Consumer Adoption of EE/DR**

**Member Survey Respondents Comment on Key Barriers**

**Program Design/Policy Direction**

“Program designers don’t understand very well how energy efficiency and demand response decisions are made...”

“...Difficulty retaining energy savings to fund ongoing improvements; difficulty capturing savings beyond lighting improvements.”

“Program delivery models are still clunky and do not make things easy and convenient for the customer.”

“Public funds are controlled by public officials. Most do not understand the issues and the long range need to study how to do better “marketing” of EE/DR.”

“It’s always difficult for programs when they start-stop (and then maybe start again), so the drying up of ARRA money will definitely frustrate many people who are just getting started/thinking about making energy efficiency upgrades.”

“ARRA funding has been very effective for local communities...Unclear how these communities will fare without ARRA funding...”

“Gas prices make energy efficiency programs appear less cost-effective, and tempt more short-sighted policy makers to focus more on supply than demand resources.”
Low Energy Prices/ROI/Access to Capital

“Low energy prices and the perception that new natural gas availability (contributes to the perception) that there is no reason to conserve.”

“Obviously, the bottom line of affordability and rate of return (on investment) is most important for residential and C&I customers.”

“When natural gas is cheap, it’s harder to sell customers on energy efficiency and demand response.

“The majority of energy efficiency improvements require capital that a lot of people and businesses just don’t have.”

“Low natural gas prices are negatively affecting the benefit/cost analysis of natural gas energy efficiency programs, and our state regulatory agency is aware of this.”

“Economic recovery is essential for customers to have confidence in long term energy efficiency improvements.”

Lack of Awareness/Customer Apathy

“…Consumer apathy about energy efficiency.”

“(It’s not) a priority. It is a mindset and there are a lot of businesses for whom the savings are a small piece of the pie.”

“The market doesn’t yet fully grasp the real operational benefits of energy conservation.”

“People are aware of easy things, such as CFLs and attic insulation, but are unaware or unwilling to change behavior or more complex things, such as inefficient electronics or large standby draws.”

“Lack of awareness means understanding how the energy efficiency initiative can help improve multiple facets of a business, including profitability. Our failing as an industry has been focusing too much on the technological aspects and/or the notion of saving kWh or therms, which is not the same thing from the customer perspective.”

“Consumers seem to fit in two general camps: they feel they’ve done enough, or they don’t feel they can/want to spend the money on seemingly long-term returns from energy savings.”

“Unless people are hurting on energy bills, their motivation will not be as great to make the investment in energy efficiency.”

“Consumers seem to fit in two general camps: they feel they’ve done enough, or they don’t feel they can/want to spend the money on seemingly long-term returns from energy savings.”

In Figure 7, survey respondents cited factors that they anticipate will influence consumer adoption of programs in 2013. Two-thirds (67%) of respondents believe concern about saving money remains the most important factor in influencing consumer adoption of EE/DR programs in 2013. Half (50%) believe that an increase in energy prices is the factor with the most influence. Other key factors include federal and state regulations (41%) and the continued economic downturn (39%).
**Factors Most Influencing Consumer Adoption of EE/DR Programs in 2013**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern about saving money</td>
<td>67%</td>
</tr>
<tr>
<td>Increase in energy prices</td>
<td>50%</td>
</tr>
<tr>
<td>Federal and state energy regulations</td>
<td>41%</td>
</tr>
<tr>
<td>Continued economic downturn</td>
<td>39%</td>
</tr>
<tr>
<td>Concern about climate change/environment</td>
<td>26%</td>
</tr>
<tr>
<td>Desire to be &quot;green&quot;</td>
<td>26%</td>
</tr>
<tr>
<td>Other</td>
<td>15%</td>
</tr>
</tbody>
</table>

*Figure 7: Factors Influencing Consumer Adoption of EE/DR in 2013*

**Member Survey Respondents Comment on Factors that Influence Consumer Adoption**

“...Access to low cost financing...”

“...Product availability...”

“...Better marketing and easier participation processes...”

“...Increase in awareness of options available...”

“...It’s all about the bottom line on the C&I level, anyway...”

“It seems like commercial building owners/managers are all trying to ‘out green’ their competition.”

“The economic downturn has everyone looking to cut costs and save money. A rise in energy prices (whether electricity, heating fuel, or gasoline) stimulates interest on the part of consumers to limit the impact of the increase on their pocketbooks.”

“Money seems to be a driving factor for most consumers.”

“Unless the economy sees greater growth, cheaply implemented energy efficiency measures will dominate. Financing of longer-term investments in energy efficiency measures will not greatly increase without better economic decisions.”

“...Time and again, research shows that price is the top motivator of customer energy efficiency behavior.”

“Customers always need to see a price tag before they buy something.”

“Customers want to see a payback on their decisions – especially commercial and industrial (customers). Capital dollars are tight right now for many businesses and families. Economics and economic development are big drivers, and I believe will continue to be the big drivers.”
Thought Leaders Comment on Factors Influencing Deployment and Consumer Adoption

While thought leader interview results agreed with the member surveys results that the persistent economic downturn remained a barrier for program activity, several interviewees expressed concern about the growth or sustainability of energy efficiency programs due to several other factors including: the short-term rate impact of programs, low natural gas prices leading to lower avoided costs and program cost-effectiveness, lack of financial incentives for utilities to deliver the programs, opting out of large industrial customers, and new efficiency standards that are increasing baselines, especially lighting.

Key questions that will impact future growth are:

- Will efficiency programs be part of the compliance for utilities that have to phase out their coal plants?
- Should demand response programs be implemented by utilities or independent system operators?

“Achieving energy efficiency across the industry as a procurement priority is a core part of the utility business. But, there are skeptics who don’t believe that everything done energy efficiency-wise can be believed, relative to ‘steel-in-the-ground’ equivalent on the supply side. This barrier is breaking down now.”

“DSM is a tug of war between policies and politics. The overall economic decline has changed the landscape. The current problem with DSM is not seeing the return on investment, so it’s ripe for uncertainties.”

“I see large customers complaining about their contribution to funding energy efficiency, but I don’t see that impacting 2013. Environmental advocates continue to argue for more spending, but I just don’t see our legislature as having a huge appetite for increasing funding. To them, this almost seems like a rate increase.”

“There will be concern in some states about whether the utility is the proper delivery channel for energy efficiency.”

“Relatively low level of customer demand is the single largest barrier to energy efficiency. We need to have various programs with incentives to make energy efficiency work. Financing is important, but you have to convince somebody of the value of energy efficiency first. They will find the money if they see it as being valuable.”

“I don’t see financing as a barrier. There are plenty of financing mechanisms available, especially in the C&I sector. In fact, I can’t think of one opportunity we have lost in the last three years because of financing. Energy efficiency is competing with other forms of investment for capital, but once (the C&I customer) makes the decision to invest in energy efficiency, they have plenty of access to capital – even for towns that seem to be in dire financial states. Basically, it comes down to this: how does the ROI compare? I don’t think financing is a barrier; it’s a tool.”

“For residential customers, the barrier is the lack of sophistication. We need a consumer products mindset. In this industry, we tend to talk in terms of what programs we have, as opposed to what customer segments we have....We need to understand customers and have meaningful segmentation, not behavior-based segmentation that’s esoteric and not very actionable.”

“We need a better vocabulary that can be used to identify, communicate, and recognize the values of energy efficiency. This has not been done yet. Our industry is thirty years old, but we don’t have a consistent vocabulary for talking about value.”

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“For demand response, the big barrier is cost. Unless there is a market for ancillary services, demand response is a higher price resource option. Demand response is important. We should do it, but it is expensive.”

“Changes in the lighting market are really going to take effect in the next couple of years. Lighting is huge. We don’t have a precise number on lighting savings as a percent of the total portfolio across all of our members, but what we know indicates that commercial and residential lighting is fifty percent or more of total savings. With federal standards, program baselines are going to change dramatically with respect to lighting...I would call this a new risk factor for running programs. Lighting is changing everything.”

“I’ve been thinking about this a lot, lately. The more I thought about it, the more I began to think our industry is a big barrier. For a long time, we’ve been locked into a certain mindset, only wanting to look at widgets as real efficiency. We have not been focused on how the customer thinks about this. I think this is changing...We need to understand more about how customers make decisions, and why they make decisions.”

Emerging Issues Impacting the Energy Efficiency and Demand Response Industry in 2013

AESP members were also asked about which key program and policy issues they believe will have an impact on the EE/DR industry in 2013 (Figures 8 and 9). In terms of program-related issues, nearly eighty percent of survey respondents believe that issues around consumer behavior programs (39%) and business operational/behavior programs (39%) will impact the industry in 2013, as shown in Figure 8. Respondents also cited low avoided costs (35%) and big data (35%) as key emerging issues for 2013. Nearly a quarter of respondents (24%) said that the end of ARRA funding will have a big impact on the industry in 2013.

Program-Related Issues Impacting Energy Efficiency/Demand Response Industry in 2013

<table>
<thead>
<tr>
<th>Issue</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Behavioral Programs</td>
<td>39%</td>
</tr>
<tr>
<td>Business Operational/Behavior Programs</td>
<td>39%</td>
</tr>
<tr>
<td>Emphasis on data mining/Big Data of utility customers</td>
<td>35%</td>
</tr>
<tr>
<td>Low avoided costs</td>
<td>35%</td>
</tr>
<tr>
<td>Reduction/End of ARRA Funding</td>
<td>24%</td>
</tr>
</tbody>
</table>

Figure 8: Behavioral Programs Will Have a Big Impact in 2013

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Looking specifically at the policy-related issues that will impact the EE/DR industry as shown in Figure 9, a majority of respondents (57%) believe that codes and standards will be the biggest industry issue in 2013, followed closely by economic cost benefit test requirements (50%), statewide evaluation, measurement and evaluation (EM&V) (46%), and the Standardization of deemed savings estimates (40%).

**Figure 9: Many Policy-Related Issues will Impact the Industry in 2013**

### Member Survey Respondents Comment on Emerging Industry Trends

According to these respondents, the most promising policy trends in 2012 were an increase in EM&V, energy efficiency activities at the local level, and greater emphasis on state building codes, as well as emerging technologies. Respondents also had a lot of comments to share about other program and policy issues that they believe will have strong impacts on the industry in 2013, including cost-effectiveness tests, big data, behavioral programs, and standardization of EM&V.

**Cost Effectiveness Tests**

“For gas programs, the TRC (Total Resource Cost) scores are being pushed with the low avoided costs. This will result in several measures/programs not passing in the future.”

“Utility and government-funded programs tend to be driven by cost effectiveness testing. These tests are somewhat ivory tower in nature. They presume to measure costs and benefits accurately, but seldom fully account for all benefits, nor accurately reflect incremental cost.”

“Low avoided costs mean fewer technologies are cost-effective and, therefore, fewer will be promoted.”
Big Data/Behavioral Programs

“The way utilities interact with customers is changing dramatically.”

“Focusing on actual operations and real-time energy consumption can influence behavior, help to ensure continued optimization of controls and systems and create a feedback loop that adds value for efficiency upgrades.”

“Data analytics seem to be a way to show project potential (before), as well as savings (after). That kind of data can be used to design “better” utility programs and can also be used to convince business owners (that aren’t energy experts) of the value behind energy efficiency investments. It’d be great if we could allow universities, non-profit think tanks, and others full access to bulk utility data so that it can be analyzed to find the best opportunities (by sector, measure, etc.).”

“Big data analytics through the cloud is the only way we can decrease residential energy consumption and costs. Expecting behavioral changes is naive and impractical.”

“Data rules the day. If energy efficiency stakeholders – from policymakers to advocates to ESCOs – have access to good, reliable data, then the case for expanded energy efficiency funding and savings goals is that much more solid.”

“Look at how big data helps campaigns target voters. We need to utilize data to target communication to end-users.”

“Changing behavior is the key to success in any program.”

“Ultimately, it’s all about attitudes and behavior. We’re all consumers and our personal attitudes/behavior impacts our decisions as business owners and managers. Changing attitudes is critical and extremely challenging.”

“Behavior drives results. Big data may be the most important issue for utility customers, depending on how quickly programs are rolled out.”

“Businesses want to see that savings are real.”

“With less economic reason to save energy, program administrators will need to rely on behavioral or “peer-pressure” forces to get people to save.”

“Ultimately, it’s all about attitudes and behavior. We’re all consumers and our personal attitudes/behavior impacts our decisions as business owners and managers. Changing attitudes is critical and extremely challenging.”
Standardization of EM&V

“Standardization of evaluation protocols at a nation-wide level could have huge impacts on our evaluation practice.”

“Savings estimates can vary tremendously from one contractor to the next. Standardization of these methods will help mitigate the more untrustworthy contractors.”

“EM&V is a critical tool for increasing the confidence in and transparency of savings estimates. This has become increasingly important for DSM to be on equal footing as other supply side sources. In addition, the financial incentives for programs in many states have also resulted in increased scrutiny of programs and results.”

“I believe creating standards and protocols for EM&V will allow for energy efficiency programs to show their true measure. It will provide a more accurate picture of how energy efficiency programs are really doing.”

“Technical Reference Manuals (TRMs) encompass deemed savings estimates, and may help dictate statewide EM&V protocols and benefit/cost test requirements.”

“TRMs add some stability to EE savings calculations, but they also force programs to work together in ways that they never have before.”

Codes and Standards

“Codes and standards can capture a significant amount of the technical potential reducing the achievable potential for utility and other programs.”

“Codes and standards drive baselines, and will be squeezing savings from a whole range of measures. The IECC residential code 2012 version is so stringent that it is already beginning to knock out residential new construction programs in some states, and that trend will expand.”

“There is increasing interest in promoting building codes and standards. Building systems (HVAC and lighting) are the highest energy users and would be affected by codes and standards.”

“Codes and standards will raise many baselines, causing a scramble for new measures and rethinking TRC and net-to-gross from their long-standing formulations.”
Thought Leaders Comment on Emerging Program and Policy Issues

“Low natural gas prices may disrupt energy efficiency in natural gas applications, but they should have far less of an effect on electric applications, because the fuel is a much smaller component of avoided costs. Not all utilities and regulators see it that way and may overreact to reduce electric energy efficiency, due to low natural gas prices.”

“As an industry, we’ve been riding the CFL horse forever. It’s time to look at new approaches. There has been some very interesting stuff around behavior, but then you’re starting to hear push back from our industry that behavior change is not real efficiency.”

“I think the things coming into the picture are the two-way communications with connected appliances. Behavioral programs...will factor into the two-way communications direction. And, with C&I customers, (there will be an) emphasis on on-going energy management.”

“It is becoming more difficult to get savings. The cost per savings is going up as the low hanging fruit is gone and baselines are rising. In addition, program administration needs are also increasing. This all leads to a ‘perfect storm’ to navigate through.”

“I would love to see DSM as profitable to the utility as supply side options. This is the only industry that pays its customers not to buy the product. The economics need to be such that doing that is as attractive as the traditional utility model. Otherwise, DSM will continue to be shoved down the throats of utilities, rather than be welcomed with open arms.”

“(In the long term), savings from energy efficiency of greater than two percent of annual sales will be demonstrated and will inspire other states to increase their goals and targets. At some point, the issue of the utility business model will become unavoidable in more states and will have to be addressed. Smart grid interactions between the customer and the system are subject to innovation and we can’t see exactly how that will play out...We don’t know if the public will ever come around to taking climate change seriously, but they may appreciate not wanting to promote big investments that will raise rates.”

“I’m optimistic about the future of energy efficiency, largely because of the caliber of people coming in. The young people we are hiring are highly talented. I know for many years we talked about putting ourselves out of jobs if our programs were successful and the market started delivering more energy efficiency. But, I think there will always be new opportunities, new technologies, and always more energy efficiency.”

“It is becoming more difficult to get savings. The cost per savings is going up as the low hanging fruit is gone and baselines are rising. In addition, program administration needs are also increasing. This all leads to a ‘perfect storm’ to navigate through.”
AESP Respondent Demographics
Respondents work for a wide range of organizations, as shown in Figure 10. The majority of respondents work at either a Utility (34%) or Consulting Firm (22%). Nearly half (40%) have worked in this industry for 5 years or less (a change from 2011, while forty-five percent worked in the industry 10 years or less), as seen in Figure 11.

Figure 10: Most AESP Survey Respondents Work for Utilities and Consulting Firms

Figure 11: Most of the Respondents Have Worked in this Industry Five Years or Less
As Figure 12 shows, half of respondents have 100 or less employees working on energy efficiency or demand response activities. Program implementation (51%) and program design (44%) are the two most focused on topics in EE/DR activities (Figure 13). Respondents’ locations are very widespread across the U.S. and some into Canada (Figure 14).

### Number of Employees in Organizations Working on EE/DR Activities

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Respondent Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-25</td>
<td>32%</td>
</tr>
<tr>
<td>26-100</td>
<td>33%</td>
</tr>
<tr>
<td>101-200</td>
<td>7%</td>
</tr>
<tr>
<td>201-300</td>
<td>8%</td>
</tr>
<tr>
<td>301-400</td>
<td>3%</td>
</tr>
<tr>
<td>401-1000</td>
<td>6%</td>
</tr>
<tr>
<td>1000+</td>
<td>1%</td>
</tr>
</tbody>
</table>

**Figure 12: Most Organizations have less than 100 Employees**

### Topics Most Focused on at Work

- **Program Implementation**: 51%
- **Program Design**: 44%
- **Marketing Research & Evaluation**: 36%
- **Marketing**: 32%
- **Energy Efficient Technologies**: 31%
- **Demand Response (Smart Grid)**: 15%
- **Business Policy**: 13%
- **Pricing Strategies**: 10%

**Figure 13: Program Implementation and Program Design are Key Work Areas**
"I’m optimistic about the future of energy efficiency, largely because of the caliber of people coming in. The young people we are hiring are highly talented. I know for many years we talked about putting ourselves out of jobs if our programs were successful and the market started delivering more energy efficiency. But, I think there will always be new opportunities, new technologies, and always more energy efficiency."