Quality Assurance in the New AMI World
By Rob Wilhite

Emerging Global Market Drivers
AMI and Smart Grid initiatives currently under consideration by many utilities depend upon a complex interaction of available and emerging automation, communications, and metering technologies. However, there is growing realization by proponents of this technology that the increased needs for quality and reliability of these investments will be subject to greater risks and will place new demands upon their business operations.

While other regions of the world have experience with the deployment and operation of advanced meters, the combination of advanced meters and communications technologies, in-home devices, and load control capabilities (including under-glass, remote disconnect) has only been deployed on a limited scale in the United States.

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Did You Hear?
Pertinent Market News Over the Last Month

• Landis+Gyr, a privately held company that sells Smart Grid delivery management systems, announced that it has received $1.1 billion in new financing to help fund growth. The new 5-year financing facilities will replace two previous bank facilities and were provided by a consortium of 13 banks. The financing represents the last major step in preparation for a public offering of the Switzerland-based company, a source close to the company told Reuters. That public offering would likely take place early next year on the New York Stock Exchange, according to the source, and could be worth between $2.5 billion and $3.0 billion.

• Trilliant, a company delivering intelligent networks that power the Smart Grid, reported that the company has now delivered more than 750,000 devices with integrated intelligent communications supporting advanced metering, demand response, and other Smart Grid applications.

• AEP intends to file its advanced metering and smart grid plan with the Texas Public Utility Commission late in the third quarter or early in the fourth quarter. The utility is going over different plans from metering firms, but has not selected a metering company for its Texas deployment,
Quality Assurance in the New AMI World
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In addition to the general lack of deployment and operational experience, North American utilities will face further challenges to both supply chain operations and to product quality management, as manufacturing of individual components, as well as entire assemblies, will increasingly be outsourced to off-shore markets.

Addressing these emerging challenges requires utilities to radically re-craft traditional meter quality programs, outline new protocols for communications components, and seek to partner with third-party providers with whom they may not currently have relationships. Specifically, a revamped quality initiative is required to integrate traditional metering quality validation (e.g., meter testing, certification) with additional capabilities, including vendor assessments, communication systems testing and certification, and manufacturing standards validation. As a complicating factor, there is an absence of a complete portfolio of appropriate standards against which integrated devices will be tested. Finally, any revised or newly-implemented quality program will also need to address quality controls uniquely required in an environment of rapid technology innovation, large-scale volumes, and accelerated installations of the final AMI or Smart Grid products.

Indeed, some utilities are already making strides in addressing these issues, including program managers with the Edison SmartConnect™ AMI program. Paul De Martini, VP, Southern California Edison puts it this way:

“Utility adoption of emergent technologies to realize SmartGrid and AMI opportunities requires new paradigms for successful technology management. Fortunately, best practices already exist in other business sectors. The high tech sector, for example, uses proven business models for hardware development and venture capital to manage the supply chain risks and to manage “investments” in product development with growth companies. Over the next decade, utility success will be dependent on effectively integrating these types of practices.”

Did you hear?
Continued from page 1

which will cover all 700,000 of its customers in the state. The company has advanced metering plans in the works in Indiana, Ohio and West Virginia, but has not yet finalized a plan in Texas because of the state’s restructured retail market. Because AEP does not sell power to customers in Texas — it only delivers it — the state presents more of a challenge for utilities that are looking to integrate advanced metering technology with time-of-use rates or other energy management plans. In Texas’ restructured market with retail competition, it is up to competitive retail suppliers to offer such rate plans or service options to consumers.

- Duke Energy Indiana has filed a petition with the Indiana Utility Regulatory Commission as a first step in seeking approval for the Smart Grid initiative, which includes the installation of more than 800,000 digital smart meters. Duke said the smart meters would allow two-way electronic communication between the utility and the meters, reducing the frequency of on-site meter reading. In addition to the meters, the company also would build a communications system along its thousands of miles of power lines in Indiana, and install digital automation equipment capable of detecting and preventing power line trouble before outages or other electricity delivery problems develop.

The lengthy timeline associated with the development and deployment of AMI metering technology presents unique challenges for utility supply chain management. Unlike “traditional” utility products, AMI hardware has characteristics more closely resembling those of computers and consumer electronics, such as:

- Rapidly evolving technologies that render previous generations suddenly obsolete
- Emerging features and functions that build upon lessons learned from similar applications
- The need to conform to changing customer requirements and preferences related to design and usability
- Obsolescence created by a changing application standard as a result of an evolving utility market place
- Embedded communications technology made obsolete by continuing advances in related, but external, telecommunications markets, and
- A rapidly changing market in which vendors are constantly emerging, evolving, and converging.

The rapidly evolving nature of this industry demands unique capabilities within a utility's supply chain practice that differ from today's procurement norms. Specifically, a product set evolving as quickly as AMI or Smart Grid requires the buyer to consider the opportunity cost of delayed purchasing, while balancing this against the value of buying early.

Assuming that a vendor has demonstrated that its technology is sound and meets the utility’s business requirements, the challenge is developing an appropriate due diligence effort to assess the vendor’s projected delivery capabilities - often in a situation where it has no track record or demonstrated capability. This process therefore is fundamentally an assessment of the supplier’s processes and associated results, measured against the utilities’ technical, life expectancy, and deployment schedule requirements. This information is used to establish an informed prediction of “what will be” as opposed to the more traditional due diligence approach which focuses more on “what is”. The advantage of this approach is early identification and mitigation of risks to the utility’s program.

In the past, utilities have taken for granted that trusted and well-established suppliers would provide needed equipment, materials, and services in a timely and high-quality fashion. Today, global suppliers are facing unprecedented demand not only from the United States, but also from Europe, China, Australia, and India. A number of manufacturers and service companies are, or soon will be, facing capacity constraints due to the demand bubble, and given the choice between heavy capital outlays to increase capacity, several are turning to outsourcing as a means to relieve the constraint.

The lucrative AMI and Smart Grid market has also fostered numerous startups. Much of these firms’ primary expertise is in either telecommunications or electronics, with minimal experience in metering or grid management. Placing a large order with a startup is an “investment” in that company, and provides a cash infusion that enables the process of scaling up design, manufacturing, quality assurance and delivery systems, some of which may not be fully developed at the time the order is placed. Most of these startups incorporate outsourcing as a key component of their strategy.

In summary, some of the key challenges for the global AMI and Smart Grid supply chain are:

- Rising prices and uncertain quality controls for third-party components and supplies
- Maintaining high quality levels to meet buyer expectations during production ramp-up
- Increasing risks of late or unpredictable delivery processes and channels along the entire value chain
- Managing conformance to workmanship standards for outsourced component manufacturing
- Having valid test and measurement systems that are traceable to established standards, while these standards are still emerging.

Because of the rapidly increasing rollout of AMI and Smart Grid deployments across the globe, demand from various utilities can exceed market manufacturing capacity, which will compound the effect on the supply chain. This is already resulting in longer lead times for AMI products and vendor responses. Indeed, we are already finding shortages of metering product in some markets.

In India, for instance, the Lahore Electric Supply Company and the Ludhiana Punjab State Electricity Board are both unable to meet its growing demand for electric meters. In Australia, one of the asset owners in Victoria
has been informed by its supplier that AMI meters are subject to significant delays, causing setbacks in the program rollout.

Quality Assurance Becomes an Essential Element
Given these new market realities for AMI and Smart Grid products, the focus of utility procurement efforts needs to adapt accordingly. AMI program leadership must now turn to outlining, developing, and implementing an enhanced Quality Assurance (QA) program and methodology to be applied throughout the AMI effort (from scoping through deployment). Based on typical business case expectations for long-term, life-cycle reliability and low annual failure rates, there is greater significance of taking appropriate precautions to manage the quality issues before product is delivered for installation. Additionally, most utilities should seek to install proper monitoring and controls throughout the AMI deployment, which includes meters, communications devices, field installation logistics, and final program delivery.

KEMA recommends that utilities seek to identify, assess, and mitigate the potential risks associated with candidate AMI vendors and their solutions, before and during long-term arrangements with them as supply chain partners. This is not just a quality assessment of the supplier’s capabilities or just an audit based on established quality standards (e.g., ISO 9001). Instead, utilities should seek a deeper understanding of a supplier’s capabilities at all stages of design, production, and distribution. In particular, utilities should validate whether the vendor’s processes in the early and critical stages of development and ramp-up can support their technical and business objectives.

This new focus on QA seeks to answer a number of key questions, including (but not limited to) the following:

- What methodology and processes are needed to identify and resolve key risks associated with each aspect of the AMI equipment supply chain – e.g., design, component sourcing, manufacturing, packaging, shipment, receipt, distribution, and/or installation?
- What key process indicators (both corrective and predictive) are required for both internal external performance measurement and control?
- How do these indicators need to change over the course of the program, once full-scale deployment is initiated?
- How does the utility AMI team need to incorporate changes to other program processes in response to identified supplier risks and mitigating actions?
- What detailed inspection, test, and certification procedures for test laboratories are needed to support supplier qualification and efficient implementation of the AMI program?

Vendor Quality Assessments
A key component of a well-designed QA program is an in-depth assessment of the AMI or Smart Grid vendors of choice. This is a relatively new aspect to supply chain practices within the utility industry. The assessments can be performed on-site at the design or manufacturing operation, in close collaboration with the vendor’s key engineering and management staff. Assessments identify vendor capabilities within key risk elements, as noted below, and also identify areas where improvement is needed for the vendor to ensure that a utility’s program requirements are met or exceeded.

Elements of a well-designed assessment include (but are not limited to):

- risk identification and mitigation;
- design process predictability;
- manufacturing process predictability;
- supply chain predictability;
- improvement and problem mitigation;
- configuration management / traceability;
- concurrent business activities impact and predictability;
- service and support delivery process predictability;
- management process predictability; and
- software/ firmware development, test and integration with hardware systems.

Within each element, key questions should be explored that drill down into the specific aspects of the vendor’s systems, processes, capabilities, and management approach. The output of this process not only facilitates the successful development of the QA program, but also provides direct and independent validation of the capabilities espoused by the targeted vendors in the utility’s procurement evaluation.

Periodic, follow-up assessments are conducted focusing on specific issues identified in the initial reviews, and validating core and emerging priorities established by the utility. As a utility AMI or Smart Grid program evolves,
portions of the risk elements would not require additional follow-up. In addition, the frequency of assessments would decrease from the initial assessments, particularly as consistent results are obtained and the utility gains confidence in each supplier’s capabilities and quality/risk mitigation levels. In the end, the goal is not for a utility to seek to disqualify a particular supplier from further business consideration, but instead to focus on the factors needed for success. It is in the best interests of both parties for a successful outcome and a long-lasting business partnership.

With the development of a sufficient Quality Assurance program, supported by in-depth vendor assessments, utilities will be better positioned to address the uncertainties of emerging AMI and Smart Grid technologies. Given further advancements and familiarity with the deployment and operations of these systems, these practices should become a standard for future utility supply chain practices.

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The Solution May Be In HAN
Leveraging Information and Control
By Ron Chebra

Frequently, utility business cases consider the use of a Home Area Networks (HAN) as a valuable extension of AMI functionality to provide key benefits. While the debate continues over which technology will become the winning standard, it is clear that there are some functions that have a strong dependence on the existence of a HAN independent of specific technologies.

In assessing the HAN and the peripheral devices that would be connected to this network, it is becoming more apparent that there is a growing interest in the HAN among both utilities and consumers. Because each party has specific interests and levels of control that they may wish to extend to the other, it is likely there may be more than one HAN serving the premise, rather than a sophisticated walled or partitioned master HAN.

In a recent study for a client, KEMA examined the emergence of the utility, customer, and joint HANs. Within each of these areas our team explored the following aspects:

- Controlling element of these networks,
- Typical devices that would populate each network,
- Size of communications payload that would be exchanged,
- Frequency of information exchange,
- Latency tolerance,
- Security requirements,
- Cost sensitivity of adding network connectivity and
- Suitability of RF technology to support this network.

In examining some of the key operational characteristics of elements that would likely reside on the utility HAN (uHAN), customer HAN (cHAN) and the joint HAN (jHAN), some common and unique parameters can be compared. These are shown in the chart below:

<table>
<thead>
<tr>
<th>Device</th>
<th>Native HAN</th>
<th>Payload Size</th>
<th>Latency</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Home Display</td>
<td>uHAN</td>
<td>Small</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>DLC</td>
<td>uHAN</td>
<td>Small</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Other Meters</td>
<td>uHAN</td>
<td>Small</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Distribution Asset</td>
<td>uHAN</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>Home Computer</td>
<td>cHAN</td>
<td>Large</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Media Centers</td>
<td>cHAN</td>
<td>Very Large</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Appliances</td>
<td>cHAN</td>
<td>Small</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Gaming Systems</td>
<td>cHAN</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Security Systems</td>
<td>cHAN</td>
<td>Small</td>
<td>High</td>
<td>Medium</td>
</tr>
<tr>
<td>HA/EMS</td>
<td>jHAN</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>LCS</td>
<td>jHAN</td>
<td>Small</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>PCT</td>
<td>jHAN</td>
<td>Small</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>PHEV</td>
<td>iHAN</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Within the uHAN, it is most likely that the AMI meter will be a gateway or pipeline of information. However, the meter may or may not be the controlling element of this network. The decision of the control may be dependent on a number of factors. However, regardless of the locale of the overall controlling intelligence, there clearly is a need for a user friendly device such as an energy management system or intelligent display unit. While a programmable communicating thermostat may represent a near-term proxy for this, it is likely that a larger screen, more flexible and readily accessible unit may emerge.

The devices and characteristics that would be native to the uHAN include:

- In home Display Unit
- Direct Load Control (DLC) cycle switches and
- Gas and Water Meters
- Some distribution automation assets (Transformer monitoring units, etc.)

Within the cHAN, there are a variety of devices that would likely be connected. These would include:

- Home computers and related peripherals (printers, scanners, etc.);
- Media centers such as video and audio elements (HDTV, DVR, sound systems, etc.);
- Appliances (as noted in last month’s article);
- Gaming systems (Wii, etc.); and
- Security systems

In this environment, there may be one or more controlling elements, each with its own focus of management and delivery. The primary driver for the cHAN would more likely be focused on two key functions: extension of Wide Area Network (WAN) access to the Internet for media downloads, shared gaming, security, and maintenance monitoring for interconnectivity and common use needs such as Storage Area Networks and content sharing.
jHAN
However, there is an overlap of these networks where some devices elements would be accessed and managed jointly by both the utility and the customer the jHAN. The elements that would fall into this category include:

- Lighting control systems (LCS)
- Programmable Communicating Thermostats (PCT)
- Plug-in Hybrid Vehicles (PHEV)

In this jHAN arena, the mutual needs of the customer and the utility have unique and common functional requirements. The unique requirements of the utility would be focused on energy management, load control, and demand response. Access to the elements that can provide assurance of load reduction helps the utility more accurately predict reduction potential. This capability is a significant improvement over the traditional direct load control programs (DLC) where the finest granularity of information is measuring the aggregate reaction to a command to turn off a customer group and appliance type. This finer level of detail would enable localized measurement and verification (M&V) to ensure that participants are active in the DR program.

From the customer’s perspective, this shared environment of the jHAN, allows levels of personal choice and control and development of more sophisticated scenario developments that are condition based. For example, a home automation system may be programmed to respond to a load reduction request that is based on outside temperature, time of day, and internal load forecast. As a result, the lighting may be reduced, temperature incrementally changed, and changing the charging rate for the Plug-in Electric Hybrid Vehicle to 50 percent for a given premise compliance. This scenario may be applicable for Critical Peak Pricing (CPP) events occurring between 3 and 4 pm on Monday, Wednesday and Friday where the outside temperature is between 90 and 95 degrees. However, if the security system has been set for “AWAY” the implication would be that there is no one at home, a condition that would be confirmed by the lack of PHEV load. In this case, the HVAC may be further reduced to meet the demand request.

Interactions Between These HANs
While this begins to sound more like the “Jetsons,” the realization of the collaborative and interactions of the consumer and their consumption are just now beginning to be fully realized. These HANs share some common characteristics, but they also have some unique requirements.

Generally, the uHAN will be defined by the SmartMeter and the capabilities that are supported by the hardware, firmware and communications infrastructure. The cHAN however will be defined by the customer and their choice of equipment. Within the cHAN, WiFi networks, infrared controllers and CAT5 wired system have long dominated this environment. The connection to the outside world is normally provided by a Broadband modem and router.

The intersecting jHAN, would require the development of gateway or bridging means that would need to support a firewall privilege and authorized access across these networks. Developing standards and common processes for the emerging jHAN areas requires industry and customer collaboration and adoption. This is of critical importance for the significant load elements (and potential supply elements as well) that would likely be connected to the jHAN.

PHEV’s represent one such element that has a level of complexity. While conceptually, the PHEV would be charged when the supply source is abundant and low cost and potentially could be a storage resource that could feed the grid. However, this condition would require many logistic components such as vehicle use scheduling, intended use and communications between the PHEV and the grid.

While the technical processes and interactions can be readily identified, it is the personal desire for the freedom to have unscheduled use or instant access that would require social and behavior changes. These factors are more complex to achieve than the technical device and grid interfaces.

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Conversation with Infosys
By Ron Chebra

Recently, KEMA had the opportunity to discuss systems integration and customer service with Infosys – a leading provider of services in this space. The following is a summary of this dialog with Larry J. Rubenacker Senior Principal with Infosys’ Energy, Utilities and Services Group and Bill Lewis Manager of Marketing and Alliances in Infosys’s Utilities Practice.

According to Infosys, the current status of utility customer service has room for improvement: The company’s view is that utilities recognize the importance of investing in customer service and the outcome of that investment: improved customer satisfaction. However, despite significant investment over the years, utilities still realize relatively low customer satisfaction scores; see Chartwell’s 2007 American Customer Satisfaction Index scores below:

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Infosys: Utilities are driven to increase overall customer satisfaction in many ways. Aside from increased investments in Customer Contact Centers, mobile technology, Customer Self-Service and Web Portals (all recognized “winners”), some experts recommend more attention (and investment) be made to improve the overall customer experience.

A 2005 survey of 362 firms conducted by Bain & Company found that 80 percent believed that they delivered a “superior experience” to their customers. But when Bain asked their customers about their own perceptions, they only rated 8 percent as truly delivering a superior experience.

Bain discovered that what set the “elite 8 percent” apart were those that pursue three imperatives simultaneously:

- They **design the right offers and experiences** for the right customers
- They **deliver these propositions** by focusing the entire company on them with an emphasis on cross-functional collaboration
- They **develop their capabilities** to please companies again and again

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Source: Chartwell Industry Update, May 24, 2007, Vol. 6 / No. 9

As the above data indicate, the Gas & Electric Service Average score is 71.3, which is significantly less than the industry leading score of 82 achieved by Southern Co.

**KEMA:** What is the new customer experience imperative?

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According to Rubenacker, “Infosys believes that Utilities must dramatically improve the overall Utility customer experience to significantly improve customer satisfaction ratings and correspondingly, overall Utility performance.” In fact he goes so far as to recommend that Utilities implement the “Ultimate Customer Experience” to achieve these objectives.

**KEMA**: What is the ultimate customer experience?

**Infosys**: The ultimate customer experience (UCE) is “a partnership between the Utility and its customers resulting in optimized formulation and delivery of a customized set of energy products and services based on the customer’s combined energy-business value proposition.

Delivering the UCE requires a joint strategy between the Utility and the customer to manage energy demand more closely to optimize the tradeoff between higher energy prices and customer energy benefits.

Utilities must optimize the benefits delivered to the customer with the cost required to deliver them.” However, it is also apparent that no utilities can afford to deliver all the benefits each individual customer may need or want. Therefore, utilities must jointly decide with its customers where this tradeoff occurs, based on its customers’ and its own internal value proposition, which traditionally focuses on increasing shareholder value and aligning with regulatory mandates.

**KEMA**: What is the key driver that should entice utilities to undertake an UCE?

**Infosys**: Utilities’ customer service will be undergoing a sea change; this will be driven by the significantly higher energy prices (e.g. $135/barrel oil) and regulatory mandates to manage energy demand as closely (and as stringently) as energy supply.

Utilities have some experience managing energy demand (e.g. DSM Programs), but not as actively and not as closely as they have traditionally managed energy supply. That’s about to change in a big way, and it will affect Utility customers as well as Utilities themselves.

As these drivers take effect, utility customers must decide how to manage their energy demand; this decision will be governed by the customers’ internal value proposition (i.e. what benefits are important to me and what am I willing or able to pay?) Going forward, customers will have to evaluate these tradeoffs and make conscious decisions about their energy usage. In this day of Internet Access to information, Customers will come to expect help from their local Utility in making these decisions. As a result, utilities and their customers are destined to become much more interactive in energy management decision-making. Customers will want a wide range of options to help them meet their energy management needs. Therefore, utilities will have to be much more proactive in providing these options to maintain or improve customer satisfaction and to minimize customer complaints to regulators.

Most Utilities are not organized today to manage or satisfy individual customer value propositions in a significant way. While utilities have traditionally catered to their largest customers by providing dedicated Marketing professionals who work to satisfy these customers’ particular needs and individual value propositions (e.g. power quality requirements, specialized billing services, etc.), the same level of effort, justifiably so, has not been moved to the residential market. However, rising energy prices and the mandate to manage energy demand for all customers means utilities will have to provide customized energy products and services to all its customers going forward (not just the largest).

But the means, methods and processes of providing the information and ability to understand the wide variety of offers to its smallest customers will require transformation.

**KEMA**: How can utilities support the UCE for its smaller customers?
We believe that smaller Utility customers will be able enjoy many of the same energy products and services available to larger utility customers today through the use of a Customer Portal. This is shown in the following diagram:

Through this portal, smaller customers will have important access to:

**Energy Products**
- Online access to energy usage (current, historical)
- Energy supply contracts tailored to customer usage (provided by Utility or deregulated energy Retailer)
- Special rates (designed to minimize energy cost of customer usage pattern)
- Participation in special programs (e.g. Demand Response) designed to reduce energy cost while maintaining customer energy value proposition
- Energy management (Home or Small Business)

**Energy Delivery**
- Automatic outage detection
- Minimum outage response time commitment (Service Level Agreement)
- Automatic power restoration communication (Service Level Agreement)
- Energy delivery reporting (e.g. outages, power quality issues)

**Billing Services**
- TOU rates, CPP, RTP, etc.
- Access to complex billing services with “what-if” capabilities
- Customized billing services (e.g. statement billing)
- Energy budget and bill management (e.g. bill validation)
Customer Service

- Web customer self-service (e.g. Customer care)
- Automatic payment options
- Pre-paid service
- Customized service contract (e.g. In-home energy management)
- Customer service commitments (e.g. outage response)

The level of information small customers may desire may soon approach the information currently offered to larger customers, however this must be done in a mass market mode, rather than via individual account manager provided to larger C&I Customers.

KEMA: So what is necessary to provide all customers with the UCE?

Utilities need a management framework for conceptualizing how to deliver a customized set of energy products and services to its customers that is based on key elements of their individual value propositions. Infosys’ view is that a suggested framework to achieve this goal would entail the following:

WHAT'S DELIVERED?

- Access to Energy Usage (Current/History)
- Energy Contract Tailored to Usage
- Customized Rate / Pricing
- Leverage Special Programs (Demand Response)

HOW DELIVERED?

- Customer Self-Service (UCP)
- Customized Call Response
- Customized Service Commitments
- Customized Service Contract

WHAT VALUE?

VALUE REALIZATION MANAGEMENT

HOW DELIVERED?

- AMI / Intelligent Grid
- Field Service
- T&D Asset Management
- Automatic Outage Detection
- Reliability Commitments (SLA)
- Minimum Response Time (SLA)
- Customized Energy Mgt

BILLING SERVICE

- Complex Billing
- Customized Billing Service
- Energy Budget & Bill Mgt
KEMA: Should a utility transformation include a drive toward the UCE?

Infosys: We believe that business transformation is required on a corporate-wide scale in order to build the capabilities required to formulate and deliver the Ultimate Customer Experience. This Business Transformation must be guided by a management framework for managing change and finding, designing and capturing business value (i.e. Value Realization Management).

The diagram below illustrates the highlights of this approach:

![Diagram](Image)

Clearly, in order to make transformation sustainable, there must be a focus on time-tested change management processes and proven methodologies.

KEMA: Any closing comments you would like to make?

Infosys: Utilities are pressured today by two unassailable forces: rising energy prices and a regulatory mandate to manage energy demand as rigorously as energy supply. Rising energy prices are forcing Utility customers to make difficult choices for their energy usage; these choices are guided by their internal value propositions (i.e. tradeoffs between cost and measures of value). Utilities must use these customer value propositions to formulate and deliver an Ultimate Customer Experience for all of its key customer market segments.

In order to deliver the UCE to its customers, Utilities must transform themselves to develop the required capabilities (i.e. processes, organization and technology); otherwise, their customer base will complain about high energy prices with no realistic options to manage their energy demand in a cost effective manner and regulators will punish Utilities for trying to manage energy demand without significant customer involvement and acquiescence.

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### About Automation Insight

Automation Insight is a complimentary monthly publication written specifically for the utility industry and those serving the utility industry.

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