Smart Utility and Meter-to-Cash Study

EXECUTIVE SUMMARY

Sponsored by: CSC

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Significant investments in information and communications technologies, new products and services, and physical infrastructure position utilities to improve service reliability, drive bottom-line profitability, and create new revenue centers. While regional investment focus differs, utilities maintain operational efficiency and improving the customer experience as key investment drivers. However, utilities are underprepared to accomplish these smart grid goals due to challenges with project implementation and business process change. As projects move from strategic planning to smart grid implementation, it becomes evident that utilities need to place greater emphasis on enterprise architecture, data management, security assurance, and managing network communications performance.

Methodology

IDC Energy Insights conducted interviews with utility senior management who have responsibility for customer operations, smart grid, and information technologies. These interviews formed the primary research base for CSC's Smart Utility and Meter-to-Cash initiative. Interviews were conducted with 18 executives in Australia, China, the United Kingdom, and the United States. In addition, findings are also advanced through analyst knowledge and expertise, results from the 2009 Intelligent Grid multiclient study, secondary market research, and surveys of and interviews with key IT services vendors conducted in 2009 and 2010.

Country Overview

- **Australia.** The field infrastructure buildout leads the smart grid investments of utilities, while they test a full range of pilot projects from distribution automation to consumer premises technology and programs such as dynamic pricing and demand response (DR).
- **United States.** The focus is on building out the customer-facing aspects of the grid — smart metering/AMI — as well as the operational aspects of the grid — transmission and distribution (T&D) sensors and automation. Regulatory mandates and ARRA funding are drivers. However, projects that utilities consider strategic will move forward regardless of whether they have secured ARRA funding. Terms and conditions of ARRA funding could cool interest

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but have yet to emerge, though on March 10, 2010, the Treasury Department ruled in favor of allowing grant recipients to jettison any federal corporate tax liability.

- **China.** As an emerging and growing economy, China is building out the grid, making it intelligent in the process. There is less focus on the mass market consumer who conserves by habit and more focus on managing the consumption of enterprises.

- **United Kingdom.** With a history of deregulation, the major focus is on new products and services to attract and retain customers. Smart meters are also being installed for water and gas, in addition to electricity.

Findings

- Smart grid investments are strong across all regions.

    - Utilities in Australia, China, the United Kingdom, and the United States are investing heavily in the smart grid, including T&D automation and smart metering. China is investing in T&D automation exclusively. Water and gas utilities invest in smart meters too. Investment is expected regardless of whether the utility is receiving (short-term, government) stimulus funding.

- New technology significantly impacts business processes and customer interactions.

    - Utilities and retail energy providers believe that business processes and customer interactions will be significantly impacted by the introduction of new technology, such as smart meters and renewable energy, and new products and services, such as energy efficiency, demand response, and dynamic pricing. Yet, having new systems in place does not mean utilities can fully leverage the technology. For example, many utilities are finding that meter data management (MDM) is not a "wonder pill." AMI and meter data management are still relatively immature when it comes to dealing with large volumes of data. Moving data from the headend systems to a place where it can be used to inform decisions and/or create bills is a challenge.

- Data volume and access are ramping quickly, but missed opportunities are abundant.

    - Significant data will be generated with the introduction of smart meters and a diversity of T&D grid sensors. Surprisingly, utilities are not yet at a point where they are making full use of the data. Less than half of respondents are applying analytics to consumption and other customer data to understand customer consumption patterns or response to new pricing. Utilities are

finding that managing meter data is more complex than originally anticipated. Without a well-thought-out strategy based on the maturity of existing technologies, an AMI/MDM is likely to require a longer and more costly implementation just to get to basic functions of billing and presentment.

- Pilots have not necessarily advanced initiatives.
    - In addition, utilities admit that they are not ready to handle all the anticipated and unanticipated challenges presented with the introduction of technology systemwide. Areas where utilities are least ready are dynamic pricing, tamper detection, and demand response.
- Enterprise architectures are a missing link.
    - Utilities engaged in short-term planning are at risk of overspending on their implementation while not achieving their desired goals. Utilities will need to develop a comprehensive, long-term road map for an enterprise architecture that takes into account changes in business processes and customer interactions.
- Network communications planning is a step behind.
    - Utilities are creating unnecessary risks by embracing network communications point solutions rather than creating a long-term strategy. Utilities embracing a converged network strategy will benefit from scalability capabilities as new application deployments increase and data sharing spikes across historically closed systems.
- Security services is a strong opportunity area.
    - The essential yet less public face of smart grid security has utilities primarily focused on risks associated with field and consumer devices proliferation. Utilities need help securing these new distribution and consumer device technologies as well as securing consumer privacy data as third-party (retail) services become more commonplace. Security services outsourcing enjoys a positive market environment across all regions.

Recommendations

- Begin any major initiative with development of a project road map. Rely on internal resources and tap the experience of other utilities that have achieved success with their implementations.

- Use professional service firms for strategy and consulting, as well as implementation. Because these initiatives are large, there will be a need for multiple project management offices (PMOs) and multiple specialty firms. Select firms with experience in partnerships to deliver large projects.

- Do not get stuck in endless pilots. Use pilot efforts to move a comprehensive strategy forward, even if it means abandoning an approach or readjusting expectations. Build a well-developed road map with milestones to keep the plan on track.

- Understand the requirements for using interval data to support load profiling, capital investment and planning for distribution, and pricing and target marketing.

- Develop a strategic engagement plan for the customer that includes new products and services and establishes cost-effective customer service levels.