Smart Energy Services: Real Solutions in the Market Now

Utility companies are facing increasing challenges on three fronts: ever-changing regulatory requirements, demands from customers for greater control in how they consume power, and societal and political pressure to help protect the global climate. On the path to meeting these challenges, utilities are often tied down by such roadblocks as centralized distribution, constrained transmission and one-way distribution.

Capgemini offers utilities a different direction. Our solutions are real, in the market now, and already making a measurable—and lasting—difference for utilities around the world.

No other organization in the world can equal Capgemini's depth and breadth of smart energy expertise.

Using experienced professionals with a deep understanding of the global utility industry, Capgemini delivers solutions based on proven technology and a track record of collaborating with leading utility companies on successful smart energy initiatives across the world.

We have applied our knowledge to develop an unrivaled breadth of service that delivers measurable benefits to our clients and their end-users. Our insights enable our clients to build a compelling business case for their smart energy initiatives, in addition to ensuring

Our Smart Energy Services provide utility companies with more intelligent and efficient generation, transmission, and distribution capabilities.

regulatory and political compliance. We also provide a future development path guaranteed by an ongoing commitment to research and development. And we manage our clients' risk and help them deliver value for their customers and stakeholders. Capgemini's Smart Energy Services are focused on three primary areas: Smart Metering, Smart Grid and Smart Home. We share our thoughts and insights on each of these areas below.

Smart Metering: The Foundation of the Smart Grid

Capgemini understands that selling more power is no longer the key objective of energy providers. Managing supply and demand with less carbon impact is their new target.

As the foundation of the smart grid, smart meters can play a key role in hitting that target. In addition to enabling utilities to better manage supply and demand while reducing carbon emissions, smart meters help them deliver the reliable and high-efficiency energy products their customers are increasingly demanding.

Along with these benefits, smart meters deliver a wide range of advantages for both energy providers and users. As Capgemini has demonstrated in pioneering smart meter initiatives all over the world, smart meters offer:

- **Grid monitoring and control processes that improve reliability, power quality and security:** Capgemini's unique SES Platform continually monitors and analyzes the data that flows to and from customer locations. Smart meters provide regular updates, remote monitoring and remote disconnect/reconnect and alerts.

- **Enhanced tariff capabilities that enable consumers to make choices about their energy use, change behavior and ultimately, lower consumption:** Customers will have multiple options (e.g., in-home displays, internet, cell phone) to stay on top of energy usage by being delivered updated information about energy consumption. Time-of-use (TOU) pricing provides an opportunity for customers to save on their energy bills by using more energy during off-peak hours.

- **Reduced operational costs:** Smart meters eliminate the need—and labor costs—associated with manual meter reading while dramatically reducing overall meter maintenance expenses.

Repair crew time is also significantly reduced for outage detection/fault location and restoration activities through the meter knowing and communicating when power (voltage) at the meter is/isn't present.

Smart Grid: The New Standard for Utilities and Consumers

The era of traditional power grids is quickly coming to an end. The smart grid has emerged as the new standard for utilities and their customers.

Around the world, utilities have completed, begun implementing or are considering smart grid initiatives. As a result, they are not only redefining how energy is transmitted, distributed and measured, but realizing tremendous advantages for themselves—and their customers.

Unlike the local and manual operation of equipment on a traditional grid, the smart grid enables utilities to manage and monitor millions of devices and sensors. This is unleashing a wide range of new capabilities for utilities, including:

- **Asset optimization with two-way communications and advance applications management:** Capgemini helps utilities develop distribution management systems that enable extensive communication and deeper insight into grid-related issues. This permits targeted, proactive maintenance based on dynamic analytics that continually assess the health of the grid and immediately send out alerts about faults and outages, as well as notifications when power is restored.

- **Energy efficiency and reduced carbon emissions with line-loss reduction:** Through two-way energy flow and distribution, smart grids support the monitoring and managing of renewable energy systems.

- **Improved reliability with enhanced situational awareness and outage management services:** Real-time outage management ensures that as soon as power is interrupted, the two-way communication network will be able to provide a near real-time view of the distribution grid. While a mobile crew is dispatched to make the repair, energy is redistributed, and the restoration process is monitored.

Smart Home: Redefining the Customer Experience

Merging energy distribution with communications, the smart home is not only changing the role that energy plays in consumers' lives, but is also transforming the relationship between providers and users. And as Capgemini has observed in scores of successful smart energy initiatives across the world, this transformation yields tremendous benefits for everyone involved.

In fact, we continue to see how the smart home delivers:

- **Customer-controlled appliance and energy management:** By converging automated household appliances with in-home displays and customer portals, the smart home enables consumers to proactively manage their energy use in ways that are convenient, cost effective and good for the environment.

- **Flexible, efficient and cost effective utility demand response programs:** Smart homes satisfy customers through demand response programs that ensure that when they want energy, it's there.

- **Distributed and alternative generation management and dispatching programs:** Based on the continually updated information that the smart home provides on their customers' energy usage, utility companies can leverage alternative generation management and dispatching programs to deliver energy in the most reliable, efficient and sustainable way.
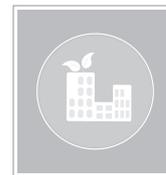
Smart Sustainable Cities: Comprehensive Planning

is Capgemini's integrated, cross-domain offer to enable cities, citizens and institutions to meet the challenges of urbanization pressured by increased need for cost, space, and resource efficiency. It provides:

- Lower energy consumption in the home as well as commercial/public buildings.

- Smart metering and smart grid programs.

- Integration of electric vehicles and renewable energy into the grid

Smart Vehicle: A Force for the Future

is Capgemini's offer to enable the adoption of smart and sustainable transport infrastructure and vehicles and integrate them into the wider smart, sustainable economy. Capgemini's Smart Vehicle solution:

- Embeds and integrates electric vehicles (EVs) into every part of the evolving Smart Grid.

- Finds new energy and working efficiencies and promotes a lifecycle approach to energy sharing and recycling between home, workplace and transportation.

- Develops a future-proof, efficient energy ecosystem including the evolution of the ancillary and support ecosystem around smart, sustainable transport solutions.

Capgemini and its Partner Ecosystem

Along with the many advantages they gain from our unmatched smart energy expertise, Capgemini's clients benefit from the strategic relationships and delivery experience of our ecosystem of technology partners. Our long-standing global partners include: Cisco, GE Energy, HP, Intel, Itron, Landis+Gyr, Oracle, SAP AG, and Trilliant.

Why are Capgemini's Smart Energy Services Unique?

Capgemini's Smart Energy Services are real, in the market now, and already making a difference for utilities around the world. We support utilities and their customers by delivering sustainable energy efficiency and environmental solutions—transforming utility operations and customer fulfillment. Our commitment is strong with more than 7,000 professionals dedicated to the utility sector.

The bottom line? Our expertise and our resources are unmatched in the industry. In fact, only Capgemini Smart Energy Services:

- Has extensive utilities industry experience with an unequaled track record for successful innovation and delivery. We offer our clients lessons learned and a growing knowledge base

- Leads the industry in the delivery of smart energy solutions in mass deployment and production

- Offers a unique, turn-key solution called Managed Business Services, which has a usage-based pricing model

- Offers strategic relationships and delivery experience from an ecosystem of long-standing global technology partners

What also makes Capgemini's Smart Energy Services different from any other organization is our long-standing commitment to working collaboratively with our clients to deliver unique—and ultimately, successful—results. In fact, collaboration is central to the Capgemini philosophy and a pillar of our service delivery. From strategy development through implementation, our clients benefit from our tailored approach.

For more information about Smart Energy Services, please visit

www.capgemini.com/smartenergy.

Smart Energy Services—Experience Reduces Risk

Capgemini's Smart Energy Services (SES) provides the full spectrum of smart metering, smart grid, smart home and smart analytics solutions through leveraging best practices developed over the last 10 years working alongside the world's leading utilities. Our team has extensive utilities industry experience with an unequaled track record for successful innovation and delivery. We are helping over 43 million utility customers by delivering sustainable energy efficiency and environmental solutions—transforming utility operations and the customer experience. Our commitment is strong with more than 8,400 professionals dedicated to the utility sector. More information is available at **www.capgemini.com/smartenergy**

About Capgemini

With around 120,000 people in 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2011 global revenues of EUR 9.7 billion. Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

Rightshore® is a trademark belonging to Capgemini

With EUR 670 million revenue in 2011 and 8,400 dedicated consultants engaged in Utilities projects across Europe, North & South America and Asia Pacific, Capgemini's Global Utilities Sector serves the business consulting and information technology needs of many of the world's largest players of this industry.

More information is available at **www.capgemini.com/energy**

Peter Harris
Smart Energy Services Europe
peter.w.harris@capgemini.com

David DuCharme
Smart Energy Services North America
david.ducharme@capgemini.com

Somnath Chatterjee
Smart Energy Services Asia
somnath.chatterjee@capgemini.com

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