

# Capgemini Energy Control Services

**For Next Generation Energy Management**



**People matter, results count.**



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# Energy management now requires a new type of solution that can take advantage of increasingly dynamic energy ecosystems

Until now, Commercial & Industrial sector energy management solutions have been limited to providing historical trend analysis to find ways to reduce energy consumption. They are human resource intensive and they lack the real-time analytics and control required to minimize energy waste. As energy systems become more dynamic in nature – with greater use of Distributed Energy Resources and increased participation in utility Energy Efficiency programs – these energy management solutions will cease to be relevant.

The **Internet of Things (IoT)** is bringing huge growth in the number of intelligent devices at the “**edge**”. With it, comes an opportunity for a step-change improvement in energy efficiency and comfort. **Sensors**, attached to HVAC and other key systems, collect data on the energy being used and on the health of the equipment involved. The data is collected and analyzed by **gateways**, before the most relevant information is made available for more centralized applications - for example, to help visualize, in near **real-time**, how energy is being consumed. In addition, **alerts** are generated to support human or automated decisions on what action to take.

**Capgemini Energy Control Services (ECS)** have been developed to take advantage of these intelligent devices. We have been working with **Intel**, a leader in edge technologies, to help businesses simplify energy efficiency, speed up asset maintenance and save more money.

# Capgemini Energy Control Services delivers end-to-end energy management more quickly, efficiently and cost-effectively

Capgemini Energy Control Services (ECS) is an end-to-end approach to the future of energy management. It integrates next generation sensors, gateways, and controls. It supports analytics, automation, and preventive maintenance. At its core, ECS consists of three major services:

- **Energy Visualization** delivers essential, near real-time information to show how energy is consumed across the enterprise. It is the foundation for identifying opportunities to reduce usage.
- **Equipment Monitoring and Control** allows assets to be switched on/off or run at different settings. This enables customer demand management and provides the basis for participating in demand response programs.
- **Energy Systems Condition Monitoring** provides fault detection and diagnosis of HVAC equipment and other critical operating systems, such as large motors, compressors and processing equipment. This is important for identifying assets that are running outside of design parameters and need to be repaired or replaced to optimize operating costs.

Capgemini provides ECS as a service, but it is the fact that the core technologies are built for IoT, that makes it **scalable, extensible, secure, and future-proof.**



It also **ensures choice** in the applications that can be selected or developed to fulfil different services. To achieve this, we are using latest technologies from **Intel** and **Microsoft**.

We are working with **Intel** to take advantage of their advanced gateway and sensor technology to provide greater functionality, analytics and security. Gateways are ruggedized for all environments and optimize data flows to minimize data traffic costs. **Intel Energy Trend Analytics Software (E\*TAS)**<sup>TM</sup> supports advanced services, such as **Volt/VAR Optimization**.

The cloud environment is **SkySight**. Designed and built by Capgemini, and based on **Microsoft Azure**, **SkySight** simplifies the development of orchestration services and the deployment of end-user applications. It also promotes open standards and interoperability of devices, thereby simplifying implementation and service operation.

The cloud environment provides a direct interface to monitor and manage important energy systems in the enterprise. It does this via the ECS gateway that is connected to sensors and control devices. The cloud orchestration engine controls the flow of data within the system and can also deal with instructions from 3rd party applications – for example, from a utility for a Critical Peak Pricing or Demand Response event.

ECS is open. It uses a universal adaptor for Building Management Systems (BMSs) and communicates via OpenADR protocol to devices and BMSs. It integrates with other applications through APIs, for example, for energy visualization and trend analysis.

ECS sends alarms when key equipment is operating outside of design parameters. By understanding the cost of energy inefficient equipment, it is possible to prioritize asset maintenance activity to maximize savings.



# Capgemini Energy Control Services can create bottom line energy savings by as much as 15%-30%

Capgemini ECS is designed to support businesses that wish to achieve significant and dependable results. It will help them minimize their energy waste, achieve their sustainability targets, and reduce their overall energy bill. ECS delivers energy savings and reduced asset downtime through state-of-the-art technology that continuously monitors and controls critical building operations. Near real-time information and automation mean that actions to improve energy efficiency are taken rapidly.

It is integration that makes all the difference:

- **End-to-end approach** that integrates traditional and innovative energy management techniques, facility health assessments, and process controls with utility rate options and incentives
- **Expertise and smart intervention** through a 24/7 operations center, Certified Energy Manager consultation, alarms, notices, summary analysis, and control parameters for levels of automation
- **Installation of the latest technology** in remote wireless sensors and controls with open internet protocol that integrates and communicates with multiple legacy systems
- **An open platform system** built on the latest cloud software and data management technology, for safe and secure data management
- **Analytics** such as smart trending, learning systems, cross facility, and industry benchmarking
- **More efficient buildings** make the grid more efficient, resulting in more affordable, reliable, and dependable delivery of energy.

# Capgemini has the experience to help you help your customers meet their changing energy management needs

Capgemini Energy Control Services bring together our experience in smart energy and digital transformation.

Capgemini is a long-established leader in the Energy and Utilities sector.

Our Smart Energy Services practice has successfully helped deploy hundreds of millions of smart meters around the world and is managing many millions of them. While doing this, we have developed innovative processes and technologies to optimize deployment and operations. We are also innovating in areas, such as Community Energy Generation, which is allowing communities to gain the financial benefits of local generation and consumption of renewables.

Capgemini's Digital Utilities Transformation practice is helping companies take advantage of web, mobile, and social media channels to improve the customer experience and employee effectiveness – as well as utilize digital technologies to improve asset lifecycle management.

Capgemini Energy Control Services bring together our experience in smart energy and digital transformation. Incorporating latest technologies from **Intel** and **Microsoft**, ECS is designed to offer the next generation of energy management services to business customers.



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## About Capgemini

With almost 140,000 people in over 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2013 global revenues EUR 10.1 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.

Capgemini's **Global Utilities Sector** serves the top Utilities worldwide and draws on a network of more than 10,000 dedicated sector consultants. As a leader in smart grid and advanced metering infrastructure solutions, Capgemini's **Smart Energy Services** is helping Utility customers throughout the world. Our integrated **Digital Utilities Transformation** framework empowers utilities to drastically improve their customer experience, operating and business models through disruptive technologies.

More on industry specific solutions is available at  
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