

### Industry Sector Building Technologies Division

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**Smart grids make it possible for building operators to actively participate in the electricity market**

**In line with the focus of the exhibition – smart grid–, the Siemens Energy sector and the Siemens Building Technologies division presented a sweeping concept for intelligently distributing and using electrical energy at Metering Europe 2009 in Barcelona, underscoring Siemens' extensive technical expertise in a well-balanced and therefore sustainable interplay between electricity supply and electricity consumption.**

At this year's Metering Europe in Barcelona, Siemens revealed possible ways for operators of commercial and public buildings to become active participants in the electricity market. Solutions for the electricity supply grid of the future were also connected with products and systems for the distribution network level. "By using innovative information and communication technologies, we are capable of expanding energy distribution from traditional transmission and distribution means for electrical energy all the way to the building level to intelligent electricity supply networks, or smart grids," explained Andreas Schierenbeck, CEO of Business Unit Building Automation (BAU) of the Siemens Building Technologies division. "The goal is to one day have every building independently regulating its energy demand, storing energy and feeding energy that it has generated itself into the grid with an automated energy management system."

With the highly advanced building automation systems currently in existence, the technical foundation for the "smart" buildings of the future has long since been laid. These systems are capable of not only managing heating, ventilation and air-conditioning applications in an energy efficient way, but also improving electrical energy consumption. In the future when price signals from the electricity grid are integrated into building technology applications, the degree of energy efficiency can be significantly increased in terms of both the grid and buildings.

The interplay of electricity grids across different voltage levels in smart grids and bi-directional communication make it possible for consumers to optimize their energy costs according to the

rates being offered. As a local energy producer, they can also feed energy, usually from renewable sources, into the grid. A further advantage offered by the exchange of information that occurs in smart grids is that energy providers as well as consumers can use defined installations from connected buildings (such as cooling systems) as a local energy buffer. It is also imaginable that electric cars could be significant as a type of energy store.

In practice this could translate to "smart" buildings drawing comparatively large amounts of electricity during off-peak periods in order to cover their requirements and also fill their energy stores (such as boilers, cooling systems, electric cars). During this period they would generate very little energy themselves. In peak rate periods, however, the stored energy would be used to cover their own requirements, while at the same time a large amount of electricity would be generated and the excess amount would be fed into the grid.

For energy producers, the equilibrium achieved in electricity production and consumption would offer the advantage of reducing cost-intensive peaks in demand and the unnecessary use of primary energy could be avoided. This would also reduce the damaging effect of greenhouse gases on the environment. Furthermore, dramatic voltage fluctuations in the electricity grid, which can be caused by things like solar or wind power being fed in, could be counterbalanced to a better extent with smart grids.

"The intensified collaborative efforts between the Siemens Energy sector and the Siemens Building Technologies division optimally combines their individual strengths to benefit energy providers and consumers," explained Christoph Conrad, Head of Lifecycle Management at BAU. "Smart buildings will play a central role in smart grids in the future. By combining our expertise in the fields of energy transmission and distribution and building technologies, Siemens will make a major contribution to greater energy efficiency and lower greenhouse gas emission."

Energy efficiency and environmentally sustainable solutions for constructing smart grids are part of the Siemens environmental portfolio with which the company earned revenues of nearly EUR19 billion in fiscal 2008. That is equivalent to about a quarter of Siemens total revenue and makes Siemens the world's leading provider of eco-friendly technology.

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The **Siemens Building Technologies** Division (Zug, Switzerland), as a service provider and systems integrator and also as a manufacturer of the corresponding products, combines solutions and concepts for energy-efficient building automation, fire protection, electronic safety and electrical installation engineering. Due to this unique combination of activities, Building Technologies is a leading global player in the building automation market. The Division is an organizational unit of Siemens Schweiz AG (Zurich, Switzerland) and includes Siemens Building Technologies GmbH & Co. oHG (Erlangen, Germany), Building Technologies Inc. (Buffalo Grove, USA), their subsidiaries and holdings as well as all important Siemens activities in the field of building technologies. [www.siemens.com/buildingtechnologies](http://www.siemens.com/buildingtechnologies)