

Post

Utilities and Sustainability



All you need to know about smart grids

Wednesday, 10 October 2012



What is a smart grid?

Smart grids are electricity networks that can intelligently integrate the behavior and actions of all users connected to it in order to efficiently deliver sustainable, economic and secure electricity supplies.

What are the main benefits of smart grids?

The benefits of implementing a smart grid are diverse. From an efficiency point of view, a smart grid allows to adapt the energy supply to the demand in real time, cutting costs and wasted energy.

A smart grid is able to react to the consumption of energy in a geographic area in real time. For instance, if a residential area of a city consumes less energy by day, that energy can be derived to industrial areas in the same city, or to Electric Vehicle (EV) charging points.

What is a smart meter?

Smart metering is an inherent part of a smart grid. A smart meter is an electrical meter that records consumption and communicates that information to the utility company. They can be remotely read, monitored and configured and allow flexible tariffs models based on accurate, real time reading instead of estimations.

Consumers are also able to save money by having a better insight into their consumption and even receive real time alerts to their home display in order to be warned of upcoming peak rates and be able to configure their appliances to adapt to their budget.



How much electricity can a consumer save with a smart meter?

Smart meters can reduce annual energy consumption by around 10%, but some pilot [projects](#) suggest that actual energy savings can be even higher.

What do Electric Vehicles have to do with the Smart Grid?

Electric Vehicles charging points are also a fully integrated part of a Smart Grid. EVs recharge their batteries by connecting to the grid, at home or at public charging points. Communication is required from these EV charging points to allow users to access information about their availability, to pay for their use and to derive electricity from the grid to them.

How do Smart Homes & Offices interact with the Smart Grid?

[Smart Homes](#) & Offices use energy efficiency systems to optimize energy usage. Among the regular features of a smart building there are: automated lightning and temperature systems, intelligent security and a power system that communicates with the smart grid in real time.

Consumers can adapt their consumption by managing their appliances to benefit from the lowest prices offered during the day and monitor their energy use. This information is used to further optimize energy management of the Smart Grid.

How do smart grids enable a better use of renewable energy?

Renewable energies are variable energy resources: their availability and volume depends on weather conditions. Classical electricity systems are not designed to operate with such variable resources. Thanks to "real-time" information flowing through the smart grids about consumption and weather, grid operators can better anticipate the demand and plan the integration of the renewable into the network.



Telefónica m2m team



@m2mtelefonica