

## **Smart-technologies smart-grids, smart-meter and smart-home**

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### **Abstract**

Smart technologies are one of the items which are widely discussed nowadays. There are many activities going on in the world visible through public funded research, but also rather invisible as company internal projects. Currently first demonstration sites are on the brink of emerging after the major system components have been developed. However the feasibility of smart technologies in liberalized energy markets remains only theoretically proven. Appropriate market models still have to be introduced and legally fixed.

One of the threats to smart energy is that anything likely to be smart often is called “smart grid” neglecting that it in fact refers to many different applications at a time (e.g. network surveillance, decentralized generation and demand side management). There is even no separation between transmission and distribution networks, hence enormous potential for confusion. This is especially important, since the different system areas are nowadays covered by different companies as well. The reason for this is the satisfaction of the requirements imposed by legal unbundling. Therefore especially “Smart Grids” run in danger of becoming a rather confusing term, leaving the impression of being either the world formula or just infeasible. Being aware of this fact RWE is using a more sophisticated definition of smart, generally calling it “Smart Energy”, which includes “Smart Grids” only as subcomponent.

The presentation will start off with an introduction of Smart Energy according to the RWE-definition, which separates it into Smart Grids, Smart Metering, Smart Home and decentralized or as it were smart generation. It will then continue to sketch comprehensive view of a functioning smart energy system and how legal requirements could be solved. The solution proposed will be an automated decentralized market, whose participants will be briefly introduced. The presentation will follow a red line represented by ongoing R&D projects of RWE which deal with different parts of smart energy. An overview over the different activities will be given. Finally it will give an outlook to the future challenges with regard to smart energy.