



Picture source: Siemens

## SMART ENERGY SYSTEMS

Focussing on innovation driven by ICT - the key enabler for Smart Grid

The Thematic Action Line “Smart Energy Systems” of EIT ICT Labs has set itself the task to develop a Europe-wide joint approach of academic and industrial resources in the ICT sector in Smart Energy Management and Green ICT Management. The Smart Grid – the application of digital technology to the electric power infrastructure - has reached a level of scientific and commercial maturity with

enormous benefits for customers, paybacks for utilities, and profits for investors.

The paradigmatic change from the fully controllable, powerful point sources in the classical power grid to the distributed area sources of alternative energy sources – such as wind and solar – as well as the bidirectional load management e.g. for E-Cars in the Smart Grid calls for new qualities in the

system-wide aggregation and processing of basic data. This concerns the technical hallmarks of the Smart Grid such as virtual power plants and adaptive balancing geographies as well as the human factor on the consumption side, the aptly named but still elusive Smart Customer. As the power grid becomes ICT-integrated, at the same time, the ubiquitous ICT networks become energy-aware.



Picture source: ETP SmartGrids; 'Vision and Strategy for European Electricity Networks'

## FOCUS AREAS

### Future Scenarios & Smart Energy Prosumer Experience

Living & Experience Labs will be established as an image-creating platform involving ICT experts and public from all European partners. This is crucial for EIT ICT Labs to be recognized as a leading European Institute transferring ICT know-how into innovation in Smart Energy Systems.

### ICT Infrastructure for Smart Grids

The European Smart Grid Test Bed is supposed to become one of the major visible results of the Action Line Smart Energy Systems. It will connect existing test beds and real world Smart Grid projects thus forming an environment for joint activities with all interested partners. The network will be the physical location for testing new technologies and applications. Potential entrepreneurs will be invited to run proof of concept experiments

within the network. Additional work on techno economics will ensure economic feasibility and bring about new business models to ultimately bring new Smart Grid applications to the market.

### Green ICT Management

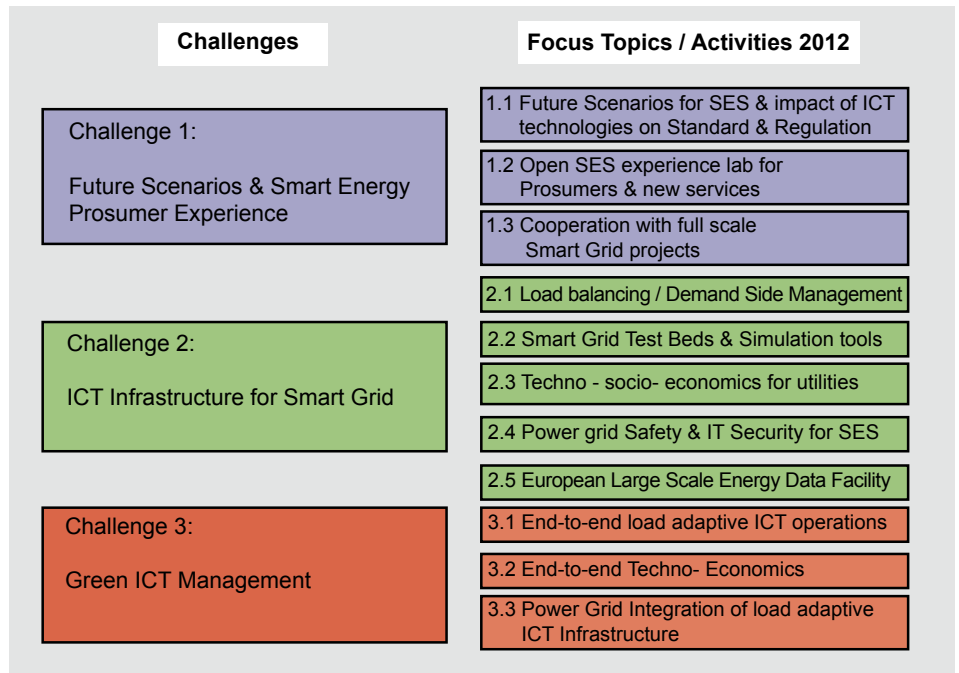
End - to - end Consumption Metrics of ICT delivery chains will be studied in detail to provide systemic insights into the structures of energy consumption. Combined with use case analyses and forecasts studies, a delta analysis will reveal the relevant research and development challenges formulated in a comprehensive project.

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Source: EIT ICT Labs; Action Line Smart Energy Systems

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