

The role of smart grids to foster energy efficiency

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Abstract— The traditional electricity grid has remained the same for most of last century, without major architectural improvements. However, its requirements, guidelines and goals do have changed, especially during the last few years, driven by the sustainability in energy generation and energy efficiency principles. Thus, taking greenhouse gases emissions and CO₂ footprint reduction as key objectives and information and communications technologies as key enabler technologies, a novel and revolutionary electric grid paradigm, the so-called Smart Grid, is emerging, in which energy efficiency and renewable generation play a central role. This paper presents an overview on the main requirements and features of Smart Grids to integrate energy efficiency, on the work done and to be done, on the enabler technologies, as well as on the expected impacts and the main benefits Smart Grids will bring.

Index Terms— Smart grid; Energy efficiency; ICT; Smart meters; Energy savings

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