Flexibility analysis of multicarrier smart micro-grids: electrical and thermal vectors teaming for energy services provision

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Multivector smart grids try to exploit mutual support between different energy networks (power and heat in the presented case study). While connecting several nano/microgrids with different resources, connected users and loads , and main objectives to fulfill (i.e. flexibility services, loads sustainment…), the interaction must be thoroughly designed (even through tools to simulate the behavior of each component in terms of power and energy flows) to maximize the energy services provision to support the (public) power network, even involving thermal storage support to improve energy savings and efficient utilization.
After the heating and cooling subsystem flexibility assessment, the microgrids control architecture is being developed to manage the nanogrids interactions and their participation in the overall energy system