

# People in power: defining algorithms to enable consumers to actively participate in distributed energy production and consumption

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## **Abstract**

The goal of the Flexines project is to research the possibility of a transparent residential Energy Management System (EMS). A single EMS could translate comfort requirements, control domestic appliances and actively participate on local energy market(s) on behalf of its users. In turn multiple EMS's could be linked together to allow people to participate in smart grids cooperatively, resulting in more "people in power".

By harnessing the thermal and electrical buffers available within households and combining those with highly efficient energy resources like Combined Heat and Power (CHP), an EMS can perform both in-home and intra-residential energy balancing. Both IT (Information Technology) and the availability of natural gas play an important role in the formation of a real-world EMS.

Several domestic appliances can act as energy buffers either by storing heat, cold or electricity. By adding new levels of control to these appliances and enabling them to communicate over IP (Internet Protocol) charging and discharging of these buffers can be optimized for cost, efficiency or ideological goals.