Project at a Glance

Project Acronym: SmartHG

Project Title: Energy Demand Aware Open Services for Smart Grid Intelligent Automation

Project Number: 317761

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Funding scheme: Collaborative project

Project Consortium

Sapienza University of Rome (Italy)
Coordinator

Aarhus University (Denmark)

IMDEA Energía (Spain)

A. V. Luikov Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus (Belarus)

ATANVO GmbH (Germany)

Panoramic Power (Israel)

Solintel (Spain)

SEAS-NVE (Denmark)

Kalundborg Municipality (Denmark)

Minskenergo (Belarus)

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SmartHG

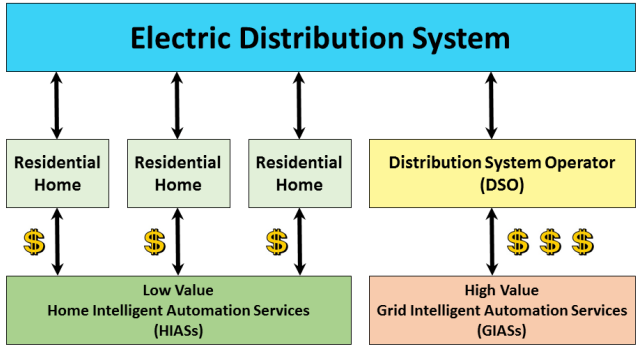
Energy Demand Aware Open Services for Smart Grid Intelligent Automation

http://smarthg.di.uniroma1.it/

EU FP7 Project
Grant Agreement 317761

MOTIVATIONS

Currently the small prosumption of residential homes does not provide an interesting business opportunity for companies working on energy saving products or services. This prevents widespread uptake of intelligent Smart Grid automation services exploiting energy usage/generation data from residential homes.

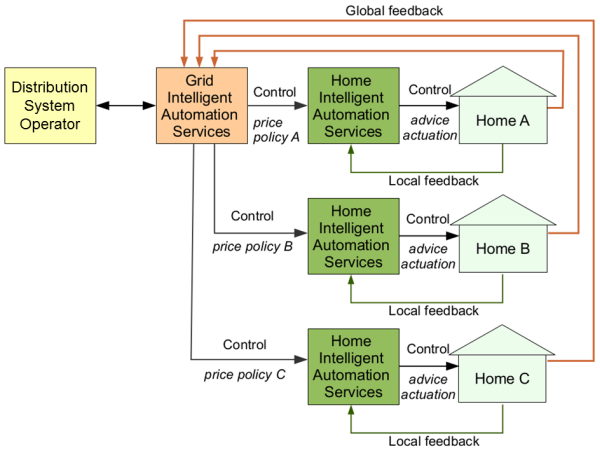


OBJECTIVES

- Develop *Grid Intelligent Automation Services* providing economic value to Distribution System Operators (DSOs) by optimising electric network operation through secure and safe control of the aggregate energy prosumption from many residential homes. This is achieved by computing a suitable demand aware price policy for each home.
- Develop *Home Intelligent Automation Services* providing economic value to residential homes by enabling them to securely and safely control their home appliances in order to follow DSO provided price policy.

APPROACH

SmartHG goals are achieved with a two-tiered control schema, whose security stems from the fact that home device data are only used locally:



- Upper tier (high value) consists of Grid Intelligent Automation Services computing a safe energy price policy for each home (global electric grid optimization).
- Lower tier (low value) consists of Home Intelligent Automation Services enabling homes to effectively follow DSO price policies (local home level optimization).
- Open communication services support data exchange between all entities involved.

IMPACT

- Economical advantages to all stakeholders.
- Automate *Autonomous Demand Response* overcoming the home data security and device safety issues involved in *Direct Load Control* schemes.
- Promote a market for energy services supporting DSOs in optimising electric network operation by computing demand aware price policies to steer aggregate energy demand.
- Promote an energy service market for residential homes.
- Improve overall energy efficiency and environment quality by supporting DSOs peak shaving and network load balancing goals.

PILOTS

Smart sensors, smart meters and *Home Energy Controlling Hub* devices will be deployed in residential homes in SmartHG test-beds in Kalundborg (Denmark) and Minsk (Belarus). This will enable thorough technical, environmental and economical evaluation of SmartHG results.