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# E@H: the project

Energy@home is a collaborative and spontaneous project between Electrolux, Enel, Indesit and Telecom Italia



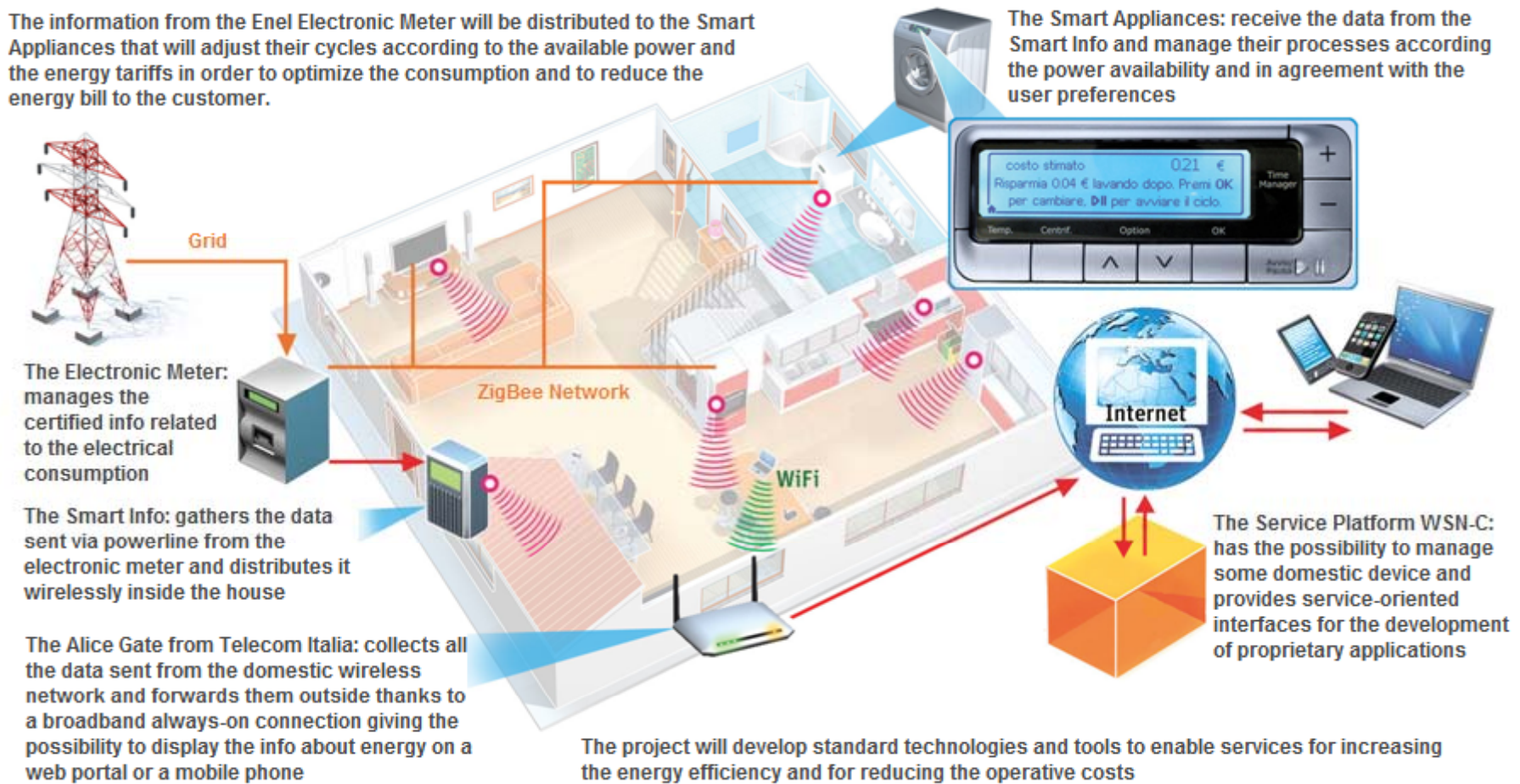
*The aim of the project is to develop a communication infrastructure that enables provision of **Value Added Services** based upon information exchange related to energy usage, energy consumption and energy tariffs in the Home Area Network (**HAN**).*

*The project envisions a **protocol** that shall be used to build an integrated platform to allow cooperation between the main devices involved in **residential energy management**.*

# E@H: Architecture

The information from the Enel Electronic Meter will be distributed to the Smart Appliances that will adjust their cycles according to the available power and the energy tariffs in order to optimize the consumption and to reduce the energy bill to the customer.

The Smart Appliances: receive the data from the Smart Info and manage their processes according to the power availability and in agreement with the user preferences



The Electronic Meter: manages the certified info related to the electrical consumption

The Smart Info: gathers the data sent via powerline from the electronic meter and distributes it wirelessly inside the house

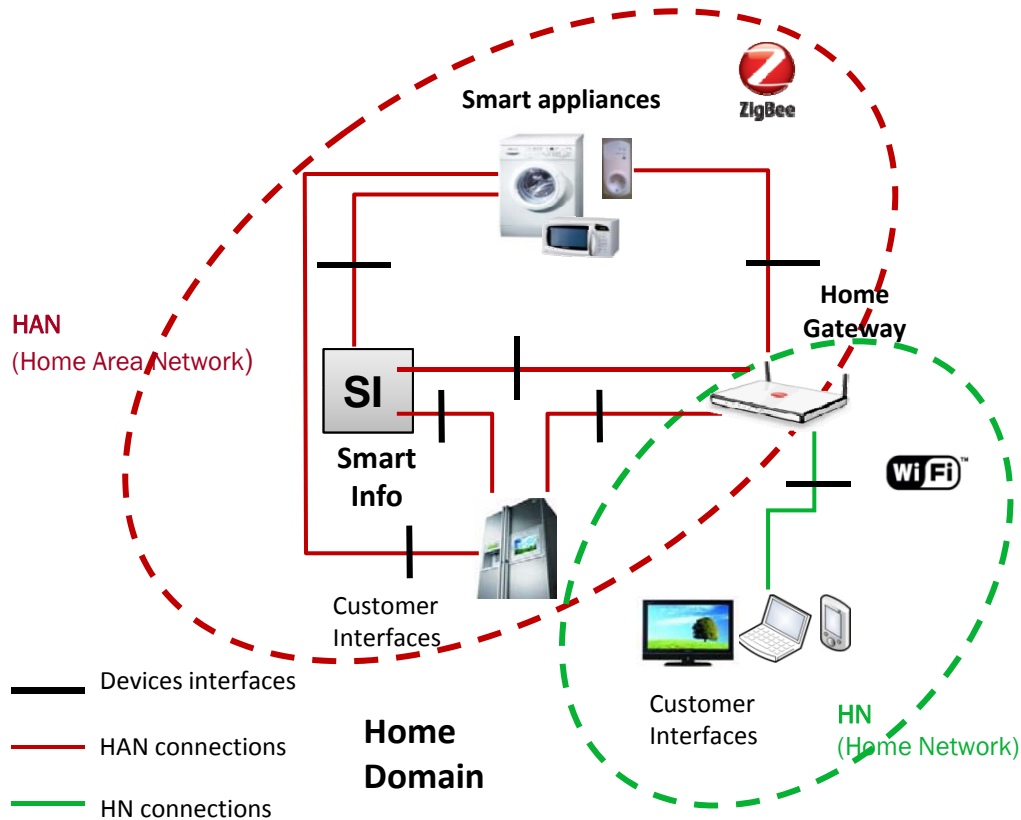
The Alice Gate from Telecom Italia: collects all the data sent from the domestic wireless network and forwards them outside thanks to a broadband always-on connection giving the possibility to display the info about energy on a web portal or a mobile phone

The project will develop standard technologies and tools to enable services for increasing the energy efficiency and for reducing the operative costs


The Service Platform WSN-C: has the possibility to manage some domestic device and provides service-oriented interfaces for the development of proprietary applications

From "Il Sole 24 ore"

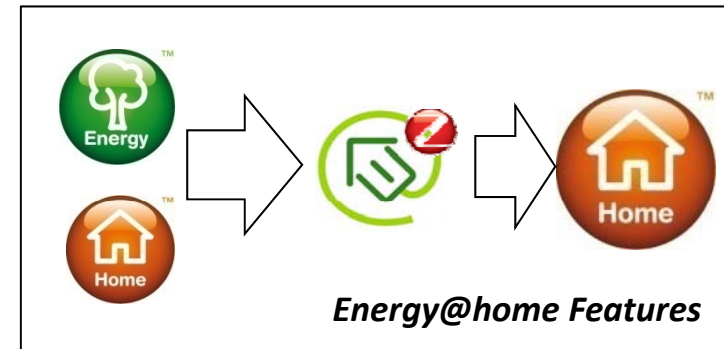
# E@H: HAN technology




*Zigbee as HAN communication technology*




ZigBee



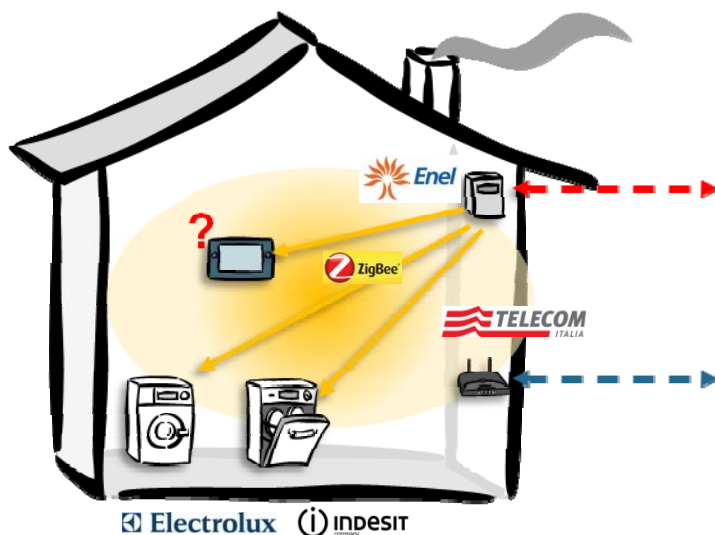
*Brand new **Smart Gateway** (HAN coordinator) bridges HAN, HN and WAN*



*Energy@home protocol is extending the existing EN50523-1 and ZigBee profiles. It will be agreed with other stakeholders in order to create a new **European HAN Standard***



## Customer awareness

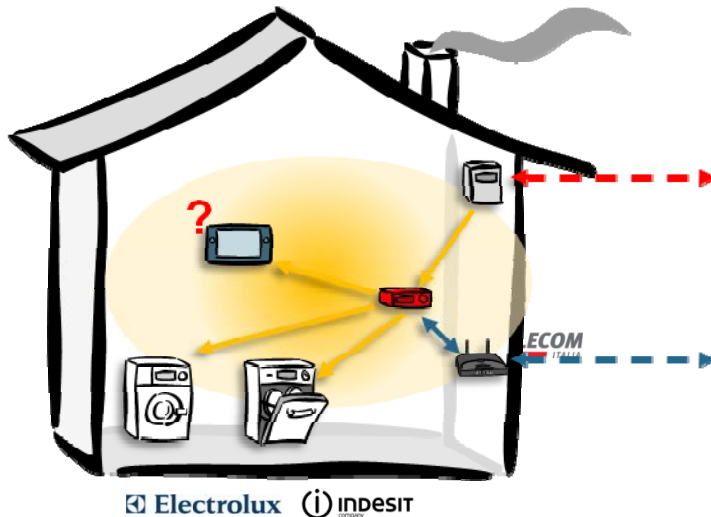
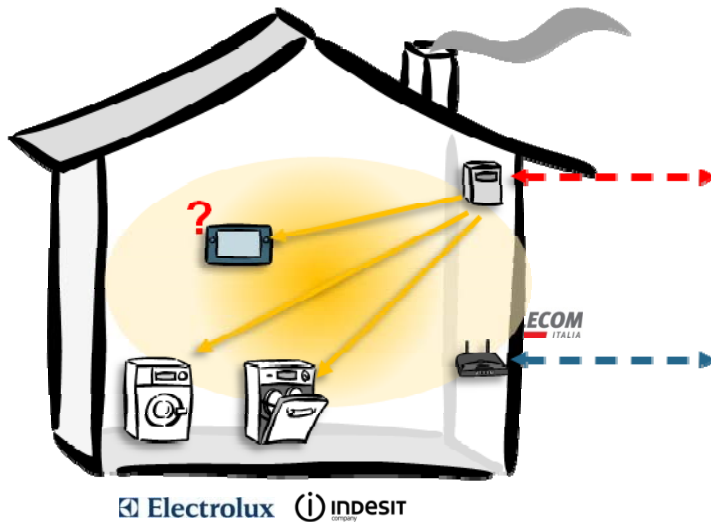


These functionalities allow the user to display information coming from the grid through the meter or from the Smart Gateway.

### Display info & warnings about:

- User and contract references
- Current power use
- Historical data
- Current tariff
- Tariff time-frames
- Alarm

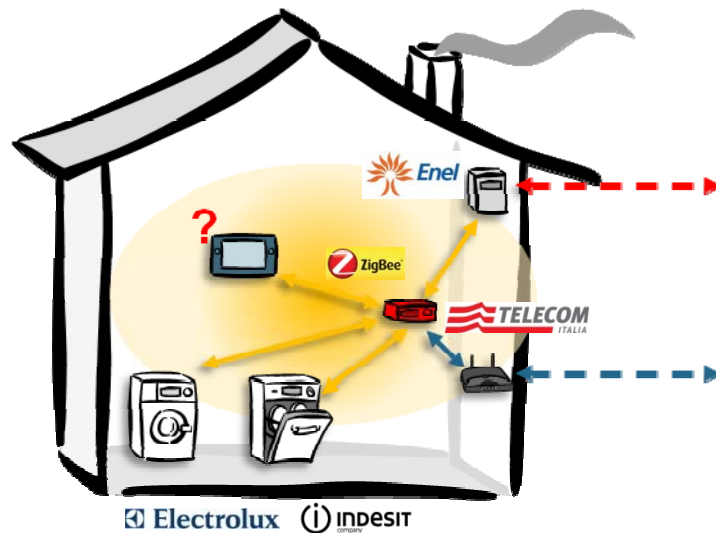
## Self management (single) appliance regulation



These functions organize the individual management of the appliances on the bases of the information coming from the grid and the needs of the user with:

- proposal to user for a delayed start of the appliance to a more convenient profile tariff or a time with enough available power
- power reduction of the appliance in process following a peak signal from the grid.

## Coordinated Management appliance regulation

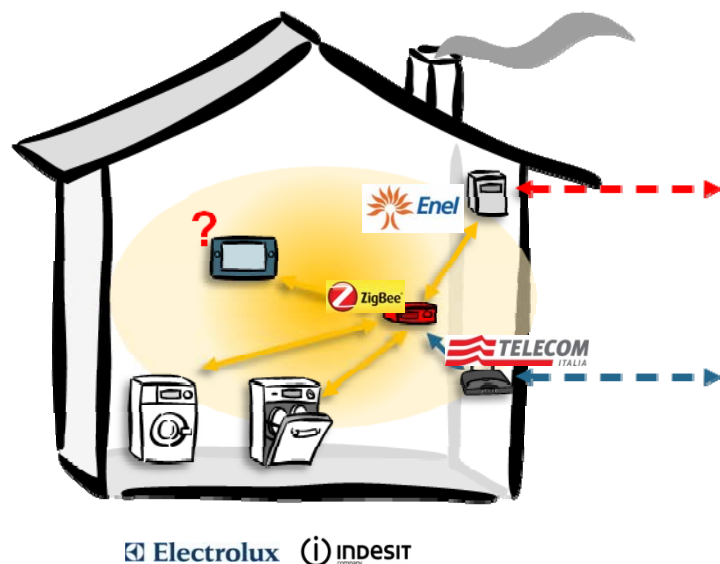


These advanced functions involve the full interaction of the home appliances with the network resulting in the possibility of **an active planning and coordination** as a result of the information coming from the meter and the needs of users.

These functions include:

- energy consumption monitoring;
- coordinated appliance planning;
- coordinated temporary reduction of power consumption;
- dialogue with the network to exchange information...





The infrastructure needed for the “Smart Grid” advanced functions allows also an extension of applications from the field of energy management to a **new set of functions** dedicated to the appliance users such as:

- remote access for monitoring and control;
- remote preventive maintenance;
- dedicated marketing services ...



For an effective use of the energy, the **Smart Sustainable Appliances** must have an **active role** in the energy management automatic systems:



- being able to **completely control the processes** as they are fully **responsible** for the final result;
- offering, thanks to an active **dialog** with the **customer** and the **energy sources**, a valuable **flexibility** in terms of **time and energy profile** (best tariff)