
ict for sustainable homes
November 17-19, 2010 - Plaza Hotel, Nice, France
Edi Fabbro
Cross Initiative Manager
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Electrolux key facts 2009

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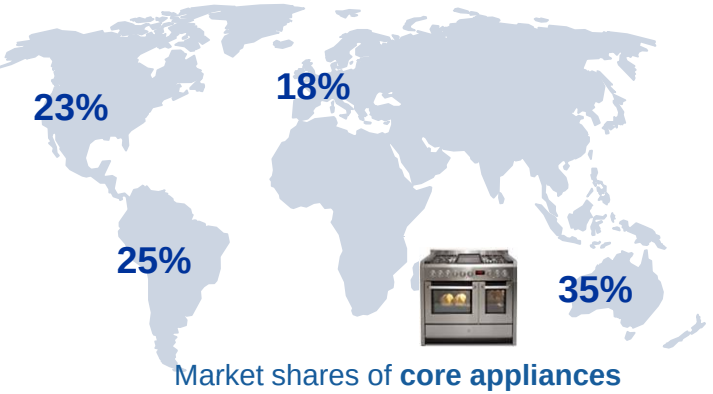
Position

- Sales SEK 109 billion (€ 12 bn)
- Sales on more than 150 markets
- A global leader in appliances



Market shares of **core appliances**

People

- 55,000 in 60 countries

Products

- More than 40 million products per year

Our business

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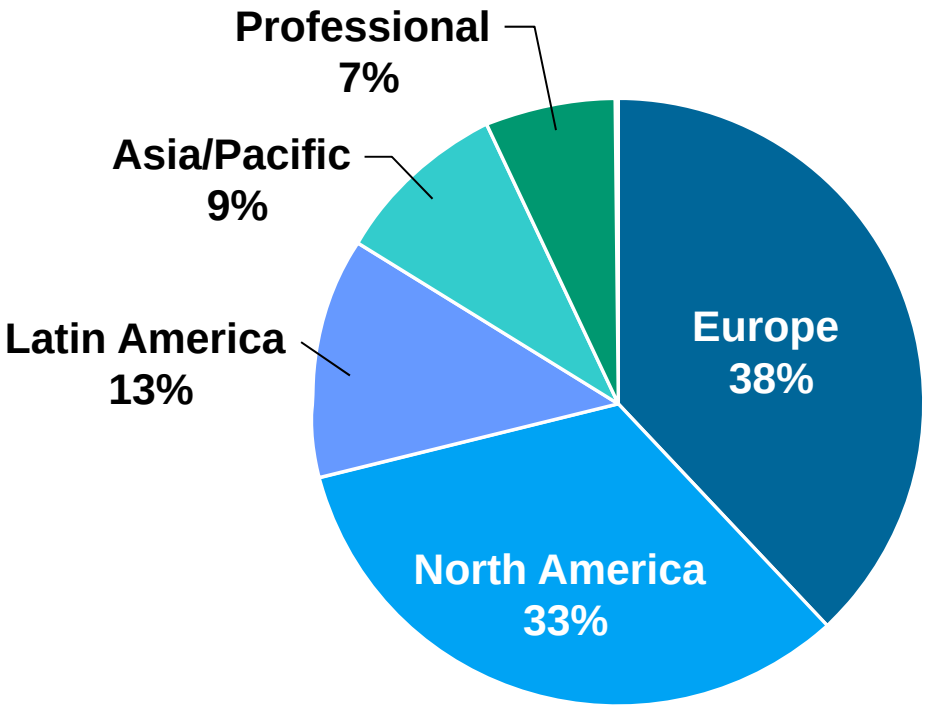
	Food preparation/ kitchen business	6.5 M units
	Food preservation	13.5 M units
	Dish care	3.3 M units
	Fabric care	5.2 M units
	Floor care	9.4 M units
	Professional - Food service - Laundry systems	0.2 M units

Sales in 2009: SEK 109 bn
Euro 12 bn



We sell household and professional appliances

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Electrolux production of cold products in Europe

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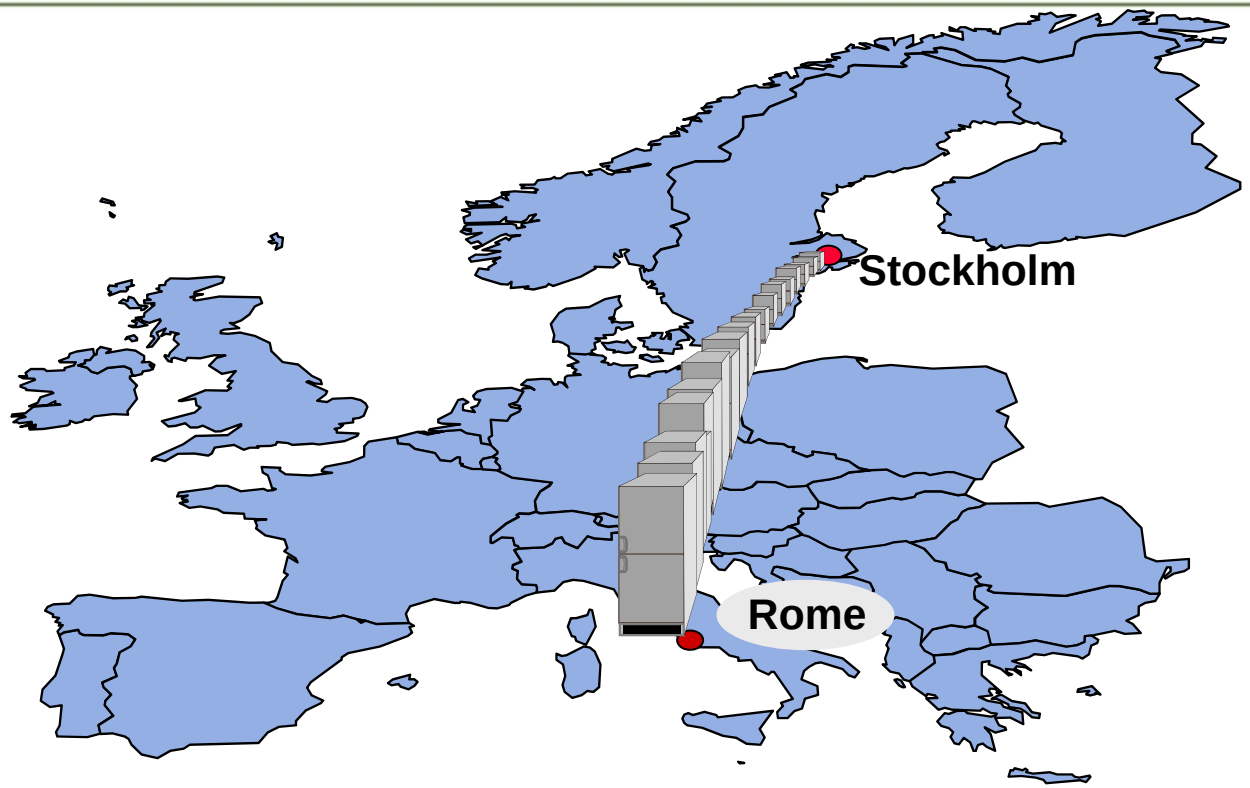

If you take all the cold products Electrolux produces during one year and put them in a row …

..... then the line would stretch from Stockholm to Rome - 2 250 km.

A global green product range

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North America

Professional products

France

Asia

Italy

Sweden

Australia

The role of energy-efficient appliances

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Today's:

- Average product - 50% better
- Best product - 70% better

compared to 15 year old product

Always more efficient?

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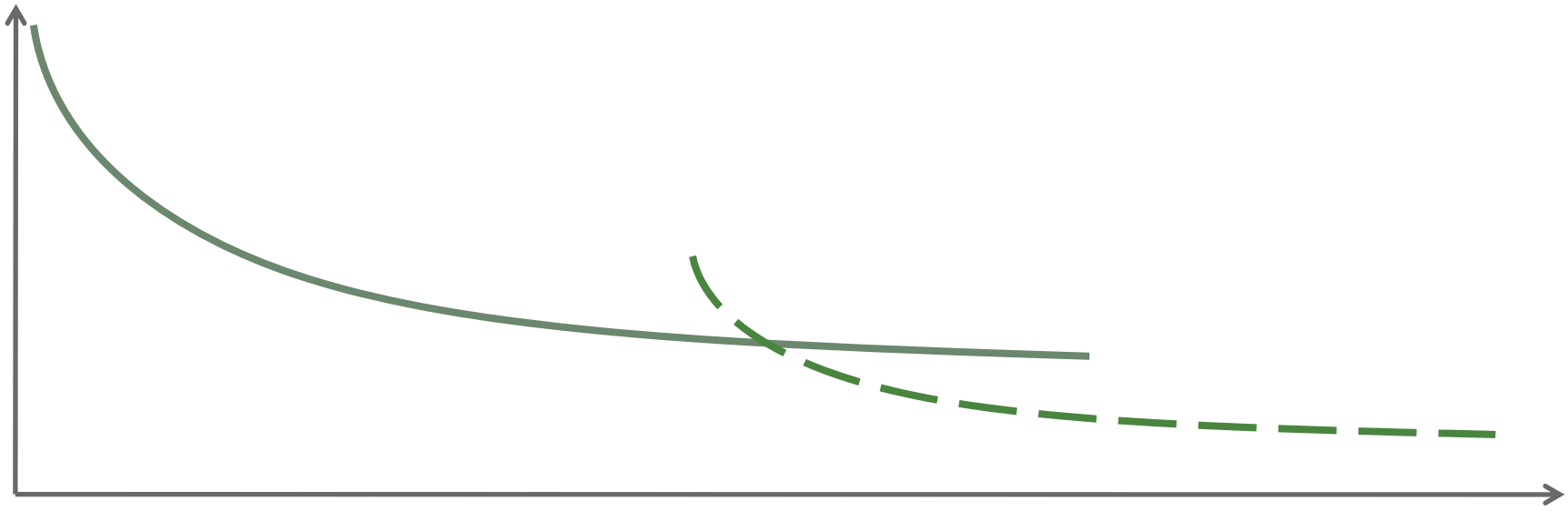
The research of more efficient products goes on but without a severe change of the involved process we can't expect improvements as the ones achieved in the past and for this reason a large part of the R&D efforts are devoted to the identification of **new processes** able to wash, cook and preserve food with a limited use of energy and resources in general.



Another way to improve the energy efficiency is to integrate the appliances in wider systems and optimize the overall performances -> i.e. SMART GRIDS.

The General Scenario of Energy

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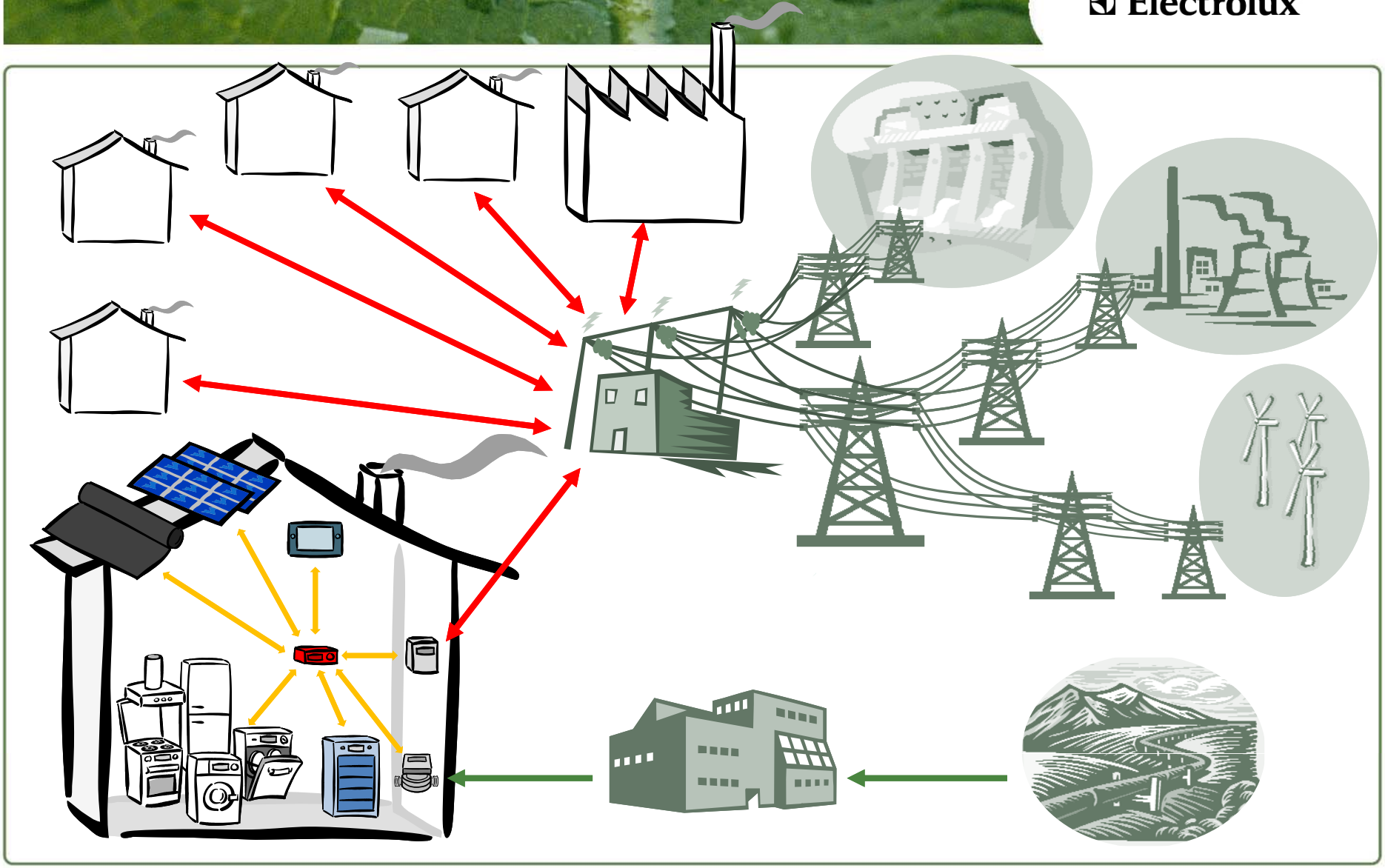

Smart Sustainable Appliances: the Connectivity

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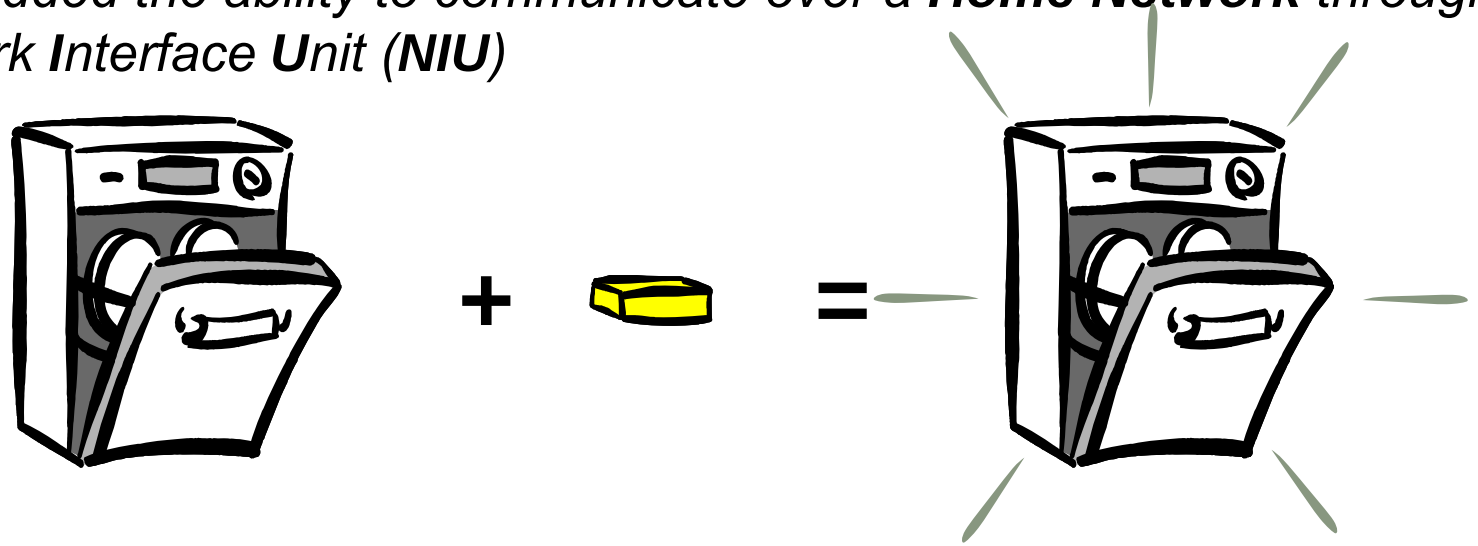
The Smart Sustainable Appliances are standard devices to which has been added the ability to communicate over a ***Home Network*** *through a* ***N****etwork* ***I****nterface* ***U****nit (****NIU****)*



Standard Appliance ***NIU*** ***Connectable Smart Sustainable Appliance***

The ***N****etwork* ***I****nterface* ***U****nit is a* ***Device*** *(combination of hardware and software) that can be connected through the* ***standard communication link*** *to the electronics of any standard household appliance to integrate the* ***connectivity functions****.*

Smart Sustainable Appliances: Possible Attitudes

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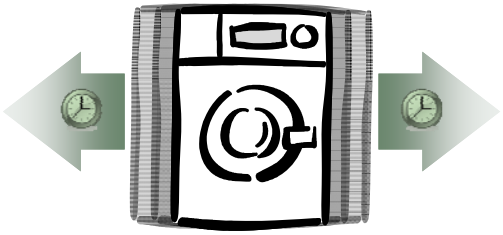
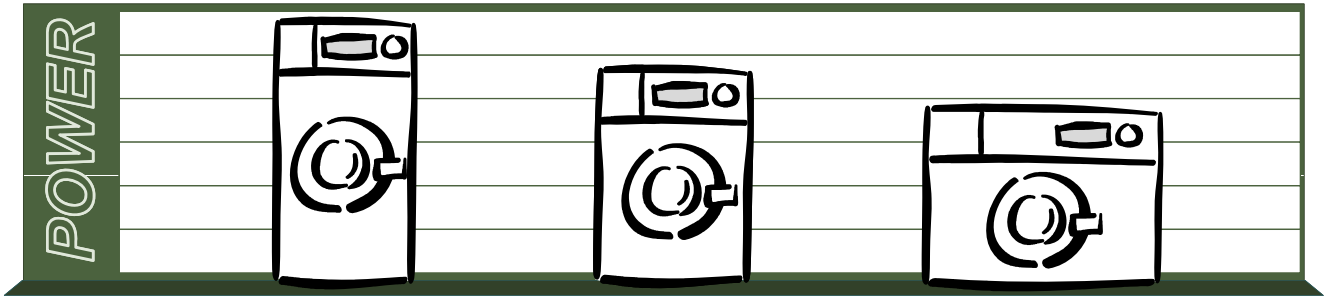
In front of the Demand Response signals, we can identify the two main ***Smart Sustainable Appliance's attitudes****:*

- ***Reactive****: ability to move the start of running when it is most cost effective → LOAD SHIFTING*



- ***Adaptive****: ability to adapt the cycle to the available resources at that time → LOAD SHEDDING*



The Scenario of Energy: electrical system single house

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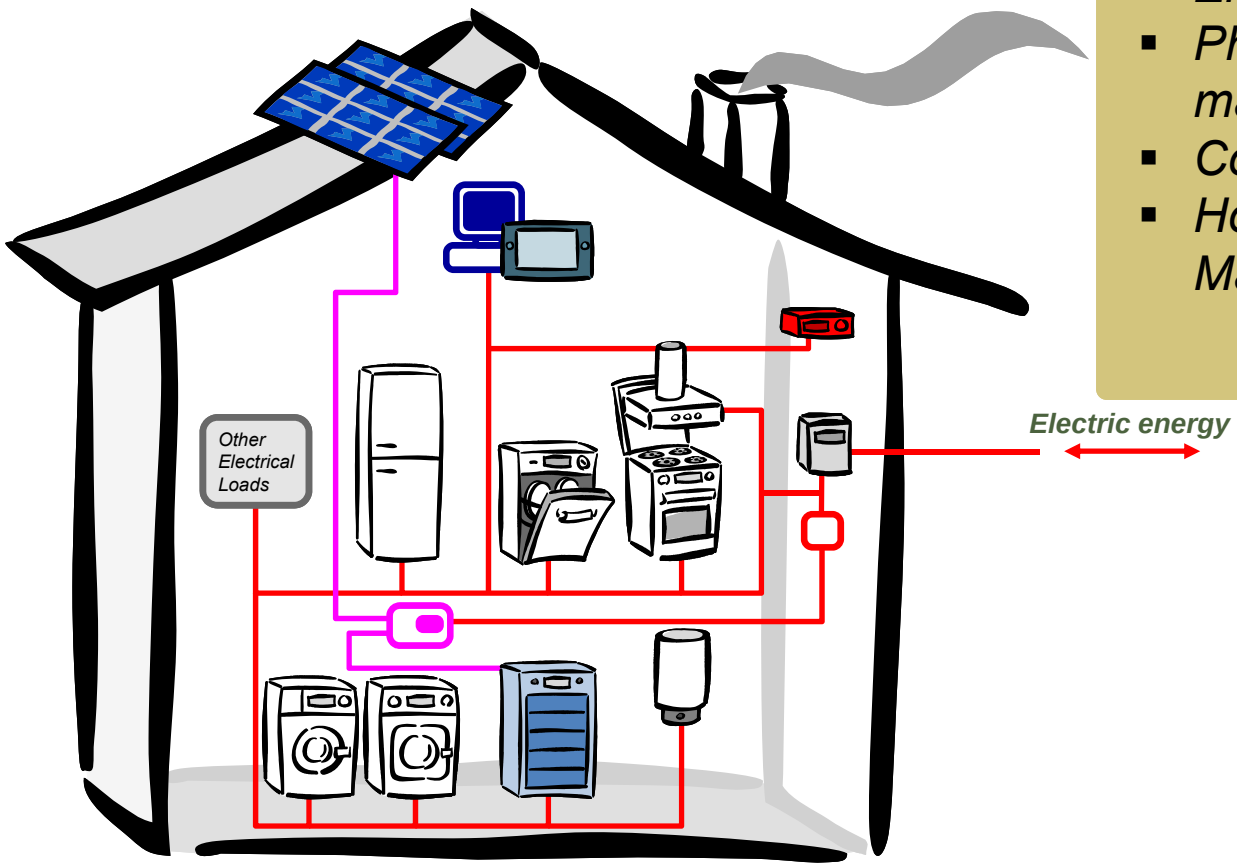

Main Actors:

- *Electric Utilities*
- *Photovoltaic panels manufacturers*
- *Cogenerators*
- *Household Appliances Manufacturers*

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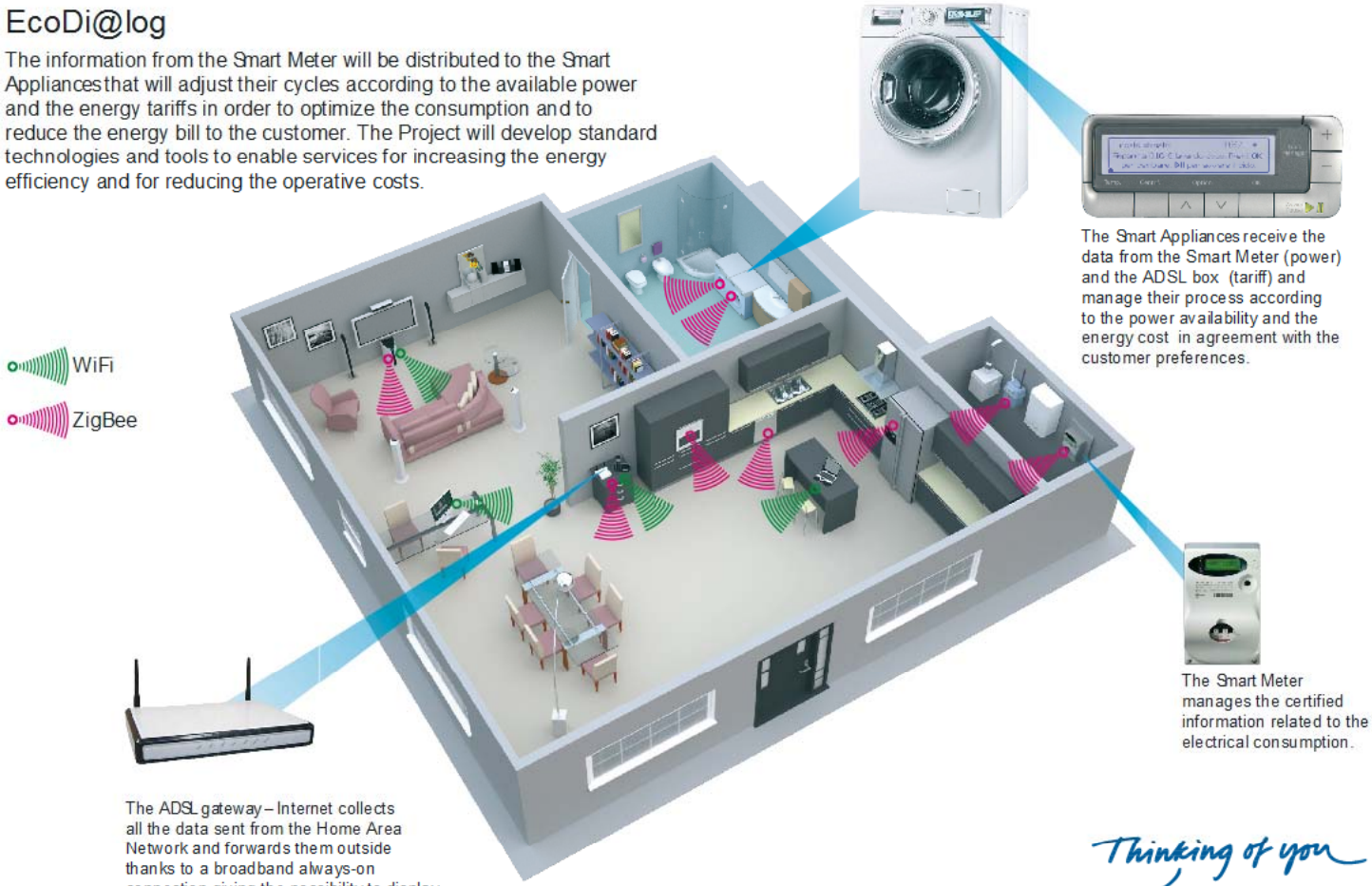
The information from the Smart Meter will be distributed to the Smart Appliances that will adjust their cycles according to the available power and the energy tariffs in order to optimize the consumption and to reduce the energy bill to the customer. The Project will develop standard technologies and tools to enable services for increasing the energy efficiency and for reducing the operative costs.



The Smart Appliances receive the data from the Smart Meter (power) and the ADSL box (tariff) and manage their process according to the power availability and the energy cost in agreement with the customer preferences.

The Smart Meter manages the certified information related to the electrical consumption.

The ADSL gateway – Internet collects all the data sent from the Home Area Network and forwards them outside thanks to a broadband always-on connection giving the possibility to display the information about energy on any web portal or a mobile phone.

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Energy@Home is a collaborative project *among different industries.*

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 .*

Energy@Home aims to ***leverage existing standards****, in particular the Zigbee wireless technology.*

The resulting ***protocol will be open*** *to any stakeholder that will be free to define its own services and supporting business models, while being assured that* ***the common communication platform will be able to ensure interoperability*** *among platform of different vendors*

Smart Appliances Scenarios in E@H

Customer energy awareness

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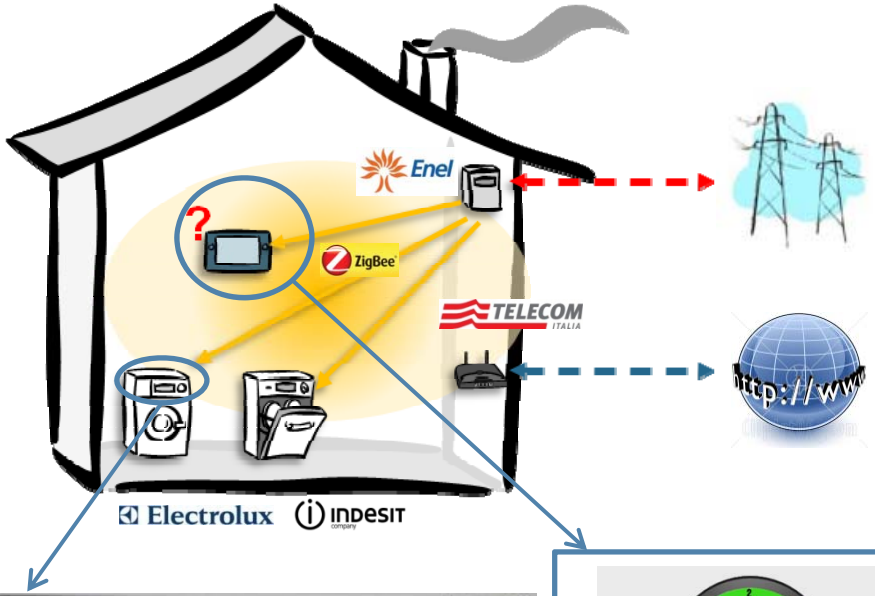
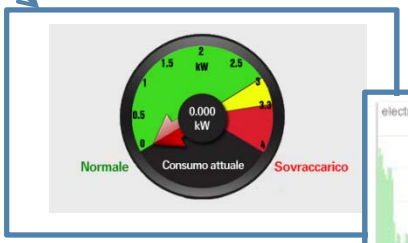
Customer energy awareness alone could reduce up to 15% energy consumption (Darby – Oxford university).

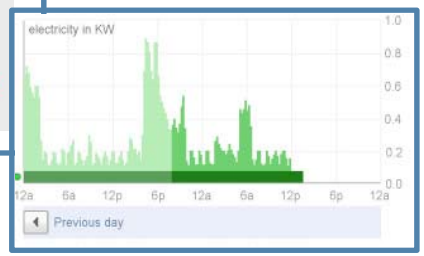


The user could improve her/his awareness on energy consumption and cost using information coming from the grid and the home itself.

Data and information refer to:

- *User and contract references*
- *Current power use*
- *Historical data*
- *Current tariff and tariff time frames*
- *Overload Alarms*





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Smart Appliances Scenarios in E@H

Self Management Appliance Regulation

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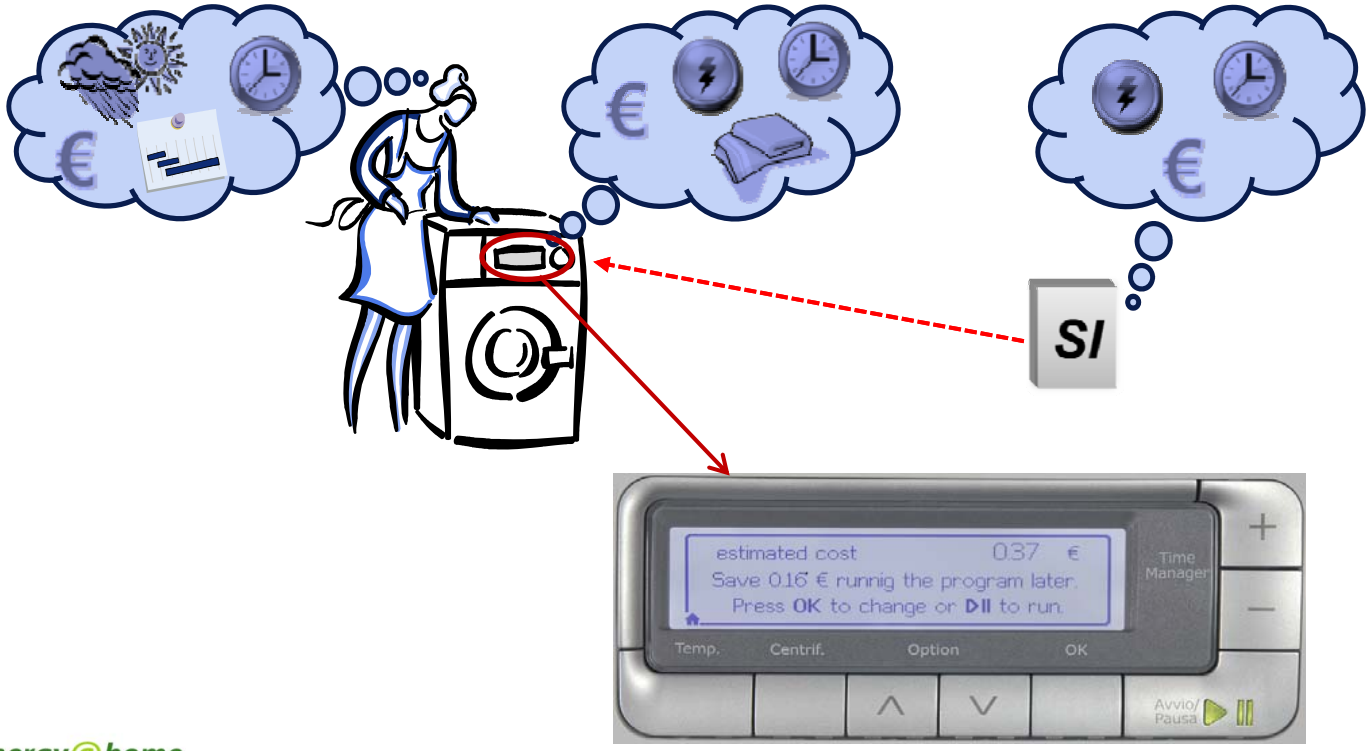
*The **Self Management Mode** is the condition where any Smart Appliance receives Price and Volume Signals from a device (Smart Info or Smart Meter or basic Home Gateway) and proposes the customer the proper **starting time** to take advantage of the most advantageous tariff. The customer could override the proposal if needed. This is made independently and without any coordination with the other devices.*



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Smart Appliances Scenarios in E@H

Coordinated Management Appliance Regulation

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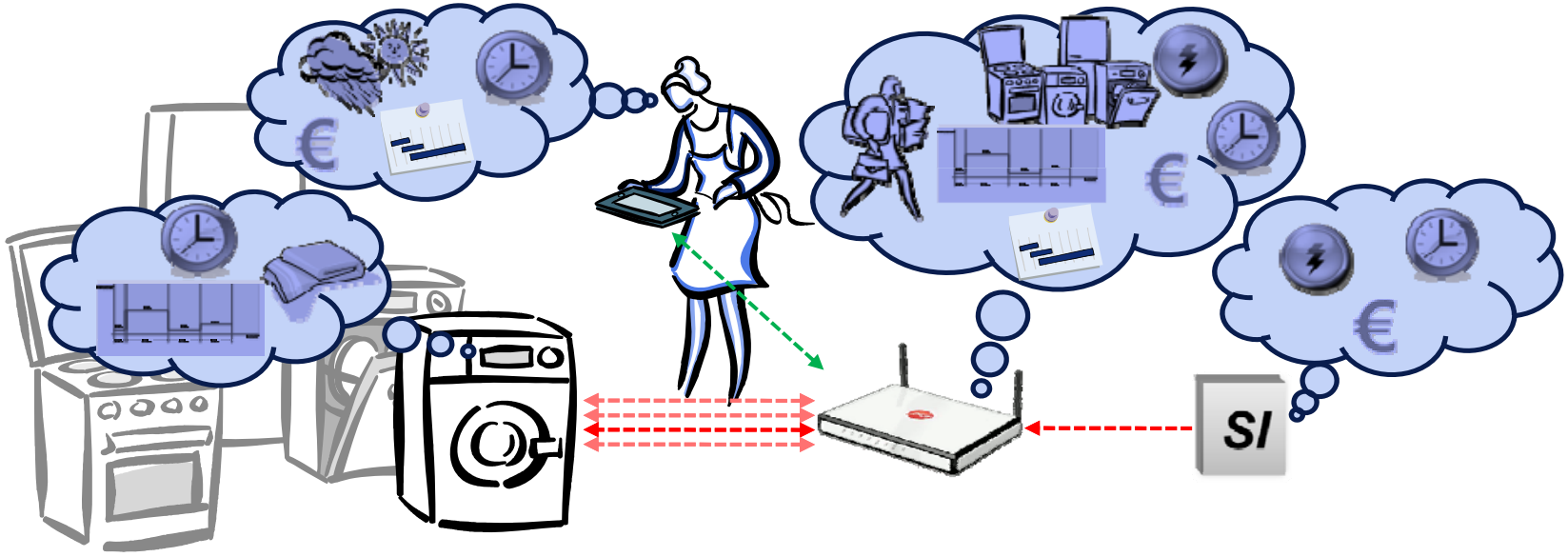
*The **Coordinated Management Mode** is the condition where any Smart Appliance coordinates its operations with the Home Gateway.*

*The Home Gateway, through a dialogue with the Smart Appliances, **plans** their operations taking into account Price and Volume Signals, selected Household Appliances programs and Customer needs and constraints.*



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Smart Appliances Scenarios

Enabler for new Value Added services

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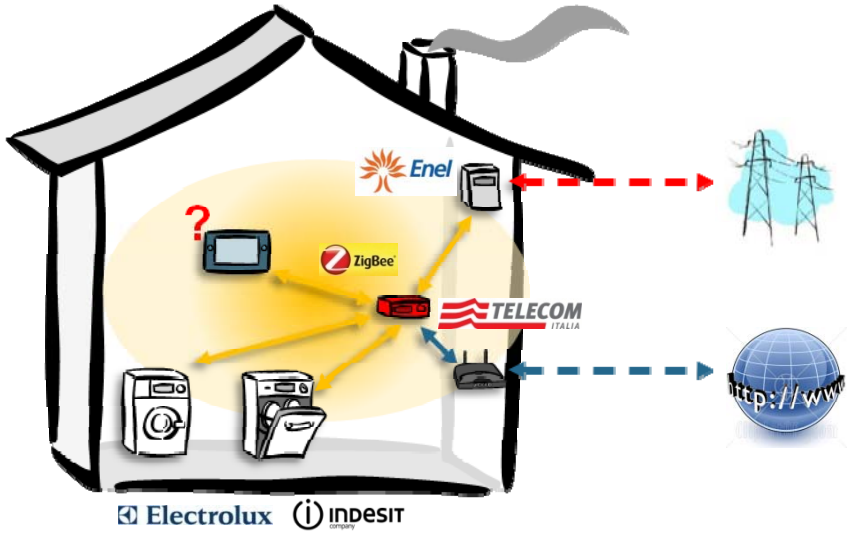

*The infrastructure for "Smart Grid" and Energy Management advanced functions enables also the extension to a **new set of services** dedicated to the appliance users as:*

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

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Thank you for your attention

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"Electrolux - Best corporate commitment", European Commission (2007)

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