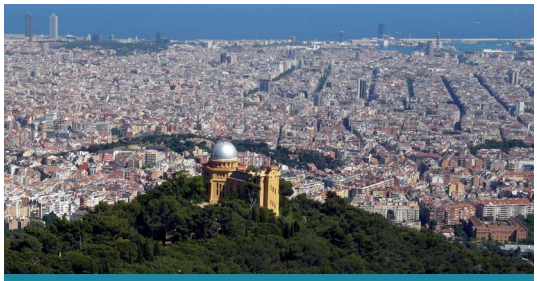
HEMS - private home energy management system in Barcelona

Smart solution 3
Smart, energy saving tenants

Measured impacts

18-27%
Electricity savings in combination with retrofitting

200
Installed prototypes



Barcelona

Technical partners

NATURGY:
Milagros Rey
mreyp@naturgy.com

City contact

Gonzalo Cabezas
gcabezasr@bcn.cat

What is it?

Deployment of a smart home solution to lower the energy demand in the residential sector through the visualization of customized individual energy data, real-time prices alerts of consumption, personalized recommendations on appliance level and control of specific appliances and indoor temperature. The solution includes a number of devices communicating to a central hub that sends data via WiFi to the corporate platform. The end user controls and sees those devices on an App. Devices include a thermostat, smart plugs and current clamps to disaggregate consumption.

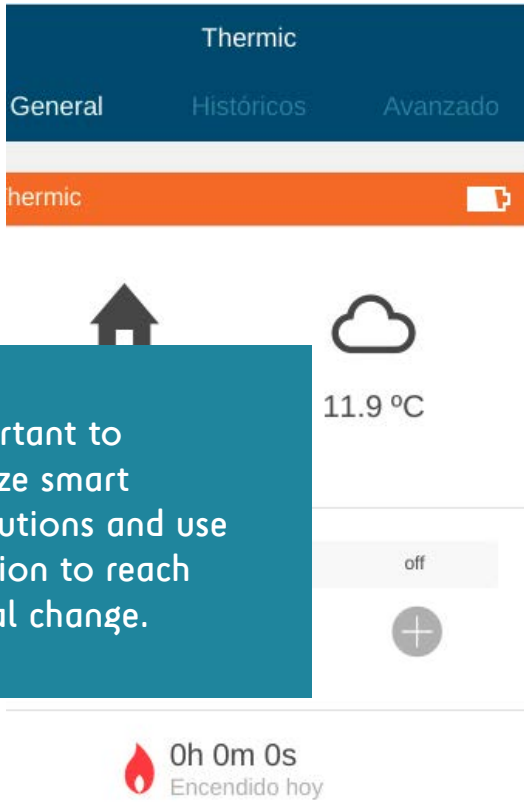
What did GrowSmarter do?

The energy company Naturgy developed a prototype a home energy management system (HEMS) for its customers in order to test the business model for allowing citizens to exploit smart services at home.

Naturgy has installed 200 prototypes in

different buildings around Barcelona that were already being retrofitted as part of GrowSmarter's efficient and smart climate shell refurbishment (see factsheet 3). The tool is managed by a tablet or smartphone, and also includes the visualization of electricity self-generation via photovoltaics.

Artificial intelligence algorithms are used to treat smart meter data in order to personalize energy advice and disaggregate end-uses of the household consumption.



> It is important to personalize smart home solutions and use gamification to reach behavioral change.

Lessons learnt

It is essential for the correct technical operation of the measure, to work on reinforcing the communication chain to avoid connectivity issues. User engagement is crucial and HEMS must be accompanied by an awareness campaign for users in order to promote use on a larger scale. More active users will lead to better results.

Lack of awareness and/or mistrust of the importance of monitoring and management of energy consumption is the main barrier alongside end-user issues for tenants without basic technological knowledge. The app and hardware should be clear, intuitive and simple to use.

Upscaling & replication potential

The fact that the company providing the smart home system is an energy utility and retailer increases the potential for upscaling due to the existing easier access to consumer data (and right to use it). In order to scale up, an interesting option is to partner with construction companies to incorporate smart home equipment into new construction.

How did the measure work?

Technical feasibility ●●●

The battery duration based on communication protocols of devices should be optimized. The interoperability of final devices and gateways could be standardized.

Economic feasibility ●○○

The open home net is becoming a more common infrastructure in apartments, offering shared sensors and actuators. By sharing the sensors needed to provide different services in apartments, it is possible to add many services at a low cost and facilitate the upscaling of smart home systems.

Replication potential ●●●

The upscaling of smart home solutions is based on market demand of home monitoring and control services that will significantly increase on coming years. Demand-response and flexibility services will also have a direct impact.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no 646456. The sole responsibility for the content of this document lies with the author and in no way reflects the views of the European Union.