GrowSmarter
Transforming cities for a smart, sustainable Europe

FACTSHEET

Virtual Energy Advisor

PART OF SMART SOLUTION 3: SMART ENERGY–SAVINGS TENANTS

Figure 1: User Interface of Virtual Energy Advisor on the web or mobile app

- Enables tenants to become more efficient using their electricity consumption profile, behaviour and motivation.

- Aims to reduce electricity consumption within the residential sector by a minimum of 10%

- Aims to influence consumers' behaviour to help reduce energy consumption

LOW ENERGY DISTRICT

Barcelona

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What is the solution?

The Virtual Energy Advisor combines a user friendly front-end which can be viewed from a number of devices (e.g. laptop, mobile app) and an intelligent back-end based on algorithms that use data from smart meters (i.e. meter used to determine overall dwelling consumption on an hourly basis) and other devices and sources.

This platform aims to reduce household electricity consumption by a minimum of 10% compared year on year by encouraging behavioural change amongst tenants. In case the smart meter is not installed at the dwelling, tenants may still use the tool with monthly data from their utility bills.

How does it work?

The Virtual Energy Advisor analyses electricity consumption and provides it to tenants in real time through a Wi-Fi connection. Tenants receive user-friendly, accessible and personalised information about their electricity usage and level of efficiency via the user interface, either on the web or via the mobile app which is available for download on smartphone devices, tablets or PCs.

The platform is also used by members of the community to exchange expertise, discuss energy-related topics and work towards achieving energy efficiency goals in order to become as energy-efficient as the other tenants with similar profile. The platform works with data provided by the smart meter and other sources, such as weather forecast.

Figure 2: Details of information displayed on user Interface of Virtual Energy Advisor

Emphasis is put on the direct interaction between the user and the platform in order to observe the level of efficiency over the course of the previous year and provide a point of comparison with other tenants with a similar profile.

This allows the appropriate advice to be provided in a personalized way, so the user can become more efficient and reduce his or her electricity bill by behavioral changes on an hourly basis.

Advice on support schemes for on-site Renewable Energy installation at home will also be provided.

Business Model Used

The Virtual Energy Advisor is being developed within the Barcelona Municipality project 'Take charge of your energy', which includes a Solar Potential Map using geographic information system (GIS) technologies. It is fully funded by the Barcelona Municipality.

Integration with other smart solutions

The Virtual Energy Advisor will be eventually installed in a number of residential dwellings included in Solution 1, 'Smart Climate Shell and Equipment Refurbishment'.

It will also be linked to measure 4.2, where the platform 'Resource Advisor' to visualize the energy data will be developed.

Finally, it will be linked to measures 8.1 and 8.2, where an open data platform and semantic urban model will be created.

Expected impact

The Virtual Energy Advisor is expected to reduce electricity consumption in the residential sector by a minimum of 10% compared to the previous year.

The development of Virtual Energy Advisor for Barcelona Municipality has been awarded to the company Enerbyte and the electricity analyser is currently being installed into alredy 300 dwellings. End-users can already check their real-time consumption, compare it with historical data, compare with other users and receive personalised advices on how to reduce their electricity bills.

The expected impact on user behaviour is mainly related to the following topics: active reduction of electricity consumption during the night, awareness of the possibility to change passive elements of the house (windows, wall insulation, etc.), purchase of devices with high energy efficiency label, use of LED light bulbs, among others.

Potential for replication

Replication in other European cities is dependent on electricity tariffs as well as on more general considerations such as electrical market regulations and data protection and privacy issues. Another aspect to be considered is the increased deployment of smart meters in Europe dwellings, which will ease the replication of this kind of solutions. Data collection is of significant relevance for future urban energy planning by municipalities.