

General info

EnerGAware Energy Game for Awareness of energy efficiency in social housing communities

Funded under EC Horizon 2020 EE11 2014: New ICT-based solution for energy efficiency

Funding: 2 million euro

Duration: 36 months

Starting date: February 2015

Project partners:

Plymouth University (UK)

Devon and Cornwall Housing (UK)

EDF Energy (UK)

FremenCorp (France)

Instituto Superior de Engenharia do Porto (Portugal)

Advantics Sys (Spain)

Universitat Politecnica de Catalunya (Spain)





RESEARCH WITH PLYMOUTH UNIVERSITY

Multidisciplinary team

School of Architecture, Design and Environment

School of Psychology





Dr Rory Jones Senior Research Fellow in Building Energy

Dr Alba Fuertes

Management

Associate Professor in

Construction Engineering and



Dr Sabine Pahl Associate Professor (Reader) in Psychology



Prof Pieter de Wilde Chair of Building Performance Analysis







Dr Christine Boomsma Research Fellow in Psychology



The EnerGAware project aims to **decrease energy consumption and emissions** in a **social housing pilot** by increasing social housing tenants' **understanding and engagement** in energy efficiency and ultimately **change their behaviour**.

The EnerGAware project will develop and test, in 100 affordable homes, a **serious game** that will be **linked to the actual energy consumption** (smart meter data) of the game user's home and **embedded in social media and networking tools**.

- Systemic energy consumption and emissions reduction between 15% and 30%
- Accelerate wide deployment of innovative ICT solutions for energy efficiency
- Greater consumer understanding and engagement in energy efficiency
- Economic impact: Reduction in fuel poverty/percentage of household income spent on energy bills
- IT-literacy: Increase in the level of attitudes towards IT of the social tenants
- Social Inclusion: empowerment and e-inclusion

Concept

The EnerGAware serious game will:

- Educate people in the ways in which energy can be saved from installing energy-efficiency measures and changing user behaviour, whilst maintaining the comfort of their Avatar. .
- Encourage discussion of energy issues in social networking platforms.
- Be an inherently enjoyable game for a sufficiently diverse audience.
- Help people to understand how energy is used in their homes.



Pilot study

- The EnerGAware serious game will be piloted in social houses located in Plymouth and managed by Devon and Cornwall Housing (DCH).
- DCH is the biggest social housing association in the South West of the UK, with a social housing stock of 22,500 social houses. In Plymouth, DCH maintains and manages around 2,777 households.
- The EnerGAware solution will be deployed in 100 social homes:
 - Monitoring of energy consumption in 100 homes (24 months)
 - Deploy EnerGAware serious game in 50 of the 100 homes (last 12 months)



Work plan







Pre-post-comparison



Comparison with control group



Evaluation methodology

Energy savings (Gas and electricity)

Energy consumption data from smart meters

Outside temperature data to normalise for climatic effects on the energy consumption

Reduction of the energy peak demand (Electricity only)

Electricity consumption data from smart meters Identification of changes in the electrical energy consumption distribution during the day Social media activity Energy knowledge sharing IT literacy

Social inclusion

Quantitative data recorded by the Game

Qualitative data from social tenant questionnaire

Behaviour changes

Increased energy awareness

Quantitative data from social tenant questionnaire

Impact indicators in relation to other independent variables

(((•)))

Versus socio-economic status

Versus cost of energy

Usability and usefulness of the Game

Game interaction

Tenant's comfort

The project so far...

- Definition of the EnerGAware serious game requirements (content, educational approach, functionalities, and game architecture)
 - Social Housing Survey: Description of the social tenants' identity, their energy consumption habits and perceptions, and their gameplay habits and interests
 - DCH Building Stock Condition Database: Analysis of the building characteristics and energy-related features of the DCH housing stock
 - Gameplay scenarios focus groups: Discussion on game functionalities preferences and most appropriate concept for an energy-efficiency game
- First artworks of the serious game prototype
- **Design of the energy monitoring system** Deployment in Oct 15





You can follow the progress of the project in...



@EnerGAware



http://energaware.eu/



https://www.facebook.com/Energaware-1619063228309709/timeline/