

# POWER EXPLORER

**Project type:** Design, Game, Behaviour

**Time:** 2007-2009

**Target groups:** Young people

**Contact information:**

Carin Torstensson,  
carin.torstensson@tii.se

**Status:** Ongoing

**Budget:** SEK 3 602 908

**Funding:** Swedish Energy Agency and partners

**Partners:** Smedjebackens Energi, Handelshögskolan, Svenska Energi-gruppen and Mobile Interaction

In this project we continue to explore how teenagers can be encouraged to engage in the energy in their homes through the use of a reality expanded mobile computer game (a so called pervasive game). The advantages that this creates, is that the players will be placed in a situated learning experience and that the social situation in addition will cause the effect to spread among family and friends. In this case we specifically aim to provide a more casual game style compared to previous projects in order to encourage less short term strategies and consequently get a more persistent effect of the energy savings.

# Prototype and research



## POWER EXPLORER

In the mobile phone game Power Explorer, the habitat of your own "monster blob" is connected in real time to your home's own electricity usage. This means that practically everything you do in your home will create an echo in the game world. When playing the game the players have their own "monster blob" alter ego. Turning on an electric appliance in your home will cause nasty weed to grow in the monster habitat while turning something off, in the same manner will produce flowers. The size of the plants relates to the power consumed by the appliance. To keep your monster

blob happy and healthy you need to save electricity and turn off as many devices you can. Excess use of electricity will cause dark clouds of CO<sub>2</sub> in the sky to appear. Low CO<sub>2</sub> levels will also mean that your monster will advance in "The Pile", a king of the castle like feature, where you compete with other players.

## ENERGY METER

To be able to get realtime energy data we developed a real time energy meter, connected to the fuse box. It has the ability to read the energy data four times per second and send the information through wlan to a router. The router passes the information to an internet server that analyzes the data. The mobile phone game connects through the mobile internet to the internet server and collect the data needed for playing the game.

## RESEARCH STUDY

User studies of Power Explorer was made over a time period of six days with 15 participants in the age 12-14. After the game test attitudes towards saving energy had improved among the players. Measurements on consumption indicate average savings in the range 6 – 20% for the weeks following the game. Ten weeks after the test the player group still shows lower energy consumption than a reference group of 20 houses not participating in the test.

"I kind of told mom that she should turn off the radio and other unnecessary things... and not to do too much laundry"

One of the players

"We turned off the computer during nights, before we were a bit sloppy in that regard. But now it was like that... the computer were turned off and in fact it still is now as well, even though it's over (the game)"

A mother to one of the players

## Publications:

Bång, M., Svahn, M., and Gustafsson, A. 2009. **Persuasive design of a mobile energy conservation game with direct feedback and social cues.** In Proceedings of the 3rd International Conference of the Digital Games Research Association (DiGRA 2009).

Gustafsson, A., Bång, M. and Svahn M. 2009. **Power Explorer – a casual game style for encouraging long term behavior change among teenagers.** In Proceedings of ACE 09 (Athens, Greece, Oct 30 - Nov 1, 2009)

## Power Explorer project participants:

Project participants : Carin Torstensson (project manager), Frida Birke-löf (project assistant), Magnus Bång (senior researcher), Anton Gustafsson (Phd Student), Jonas Andersson (engineer)

More projects at [www.tii.se/energydesign](http://www.tii.se/energydesign)