Saving electricity while playing

September 1 2011

The user can go into all the rooms of the house by simply clicking the mouse. At the lower edge of the screen, information boxes provide data on energy costs and the CO2 footprint. (© Fraunhofer IDMT)

The federal government of Germany has decided to accelerate change in energy policy. But the transition will succeed only with the help of the consumers. They are called upon to use the energy from renewable resources in a more efficient fashion. A new online game shows how energy can be saved.

Do I toast my bread rolls in the oven or over the toaster? Should I heat the water on the stove or in the electric kettle? Do I start the washing machine in the afternoon or after 10 at night? How do I lower CO2 emissions by the way I use energy? Answers to such and similar questions are provided by the online game “RED“ – which is an acronym for “Renewable Energy Drama.“ Researchers from the Fraunhofer

Institute for Digital Media Technology IDMT in Erfurt, Germany, have developed the Web application in the course of the "RESIDENS" project. Together with the Ilmenau University of Technology, the Fraunhofer Application Center System Technology AST, the city utility of the City of Ilmenau as well as the Friedrich Schiller University in Jena, the researchers investigate how consumers of energy can be motivated to use the energy gained from renewable resources more efficiently. The experts see great potential in online games for teaching the subject of "saving electricity at home" in an entertaining manner and to show that one's own behavior can affect how much electricity costs. "Online games are very well suited to demonstrating situations taken from daily life. The interactive character supports learning very well, since the user receives individual feedback at all times. For this reason, we designed RED as an action-oriented, interactive 3D application," explained Ms. Imke Hoppe, research scientist at IDMT.

The software is targeted at adults and young people interested in renewable energies who want to know how they can save energy. "How much energy do individual household appliances consume, which ones are the energy robbers and are the high bills the results of price increases or are the uplights that are always on the reason for the high bills – RED supplies the answers. The user does not even have to invest a great deal of time, the game takes only about ten to 15 minutes," says Ms. Hoppe.

RED leads you through the daily life of a fictitious family of three. The screen shows all the rooms in a house. The user goes, via his avatar – one of the three members of the family – into each room and is able, via mouse click, to do the regular household chores such as baking food from the freezer or do laundry. If he, for example, clicks on the washing machine, an information box supplies him with information about CO2 generation and the electricity costs for a load of laundry when the machine is full, three quarters full or half full, and it calculates how much this would cost per year.

In a second module, the online game informs the user how he can save electricity using “Smart Meters.“ These electronic electricity meters are currently being tested by electric utilities in pilot projects throughout Germany. The German Energy Management Act mandates that as of January 2010 they must be installed in new buildings and houses that have been completely renovated. Taking the time of day into account, they measure the exact actual usage of electricity and show the current tariffs. This is how the consumer can identify the potential for savings and start his dishwasher only at night – when electricity is particularly cheap. He also finds out when energy from renewable resources, eco-electricity, is cheap.

The “Saving electricity at home“ module will go online on September 29, 2011. The researchers at IDMT will put the second RED module, “Saving electricity with Smart Meters,“ online at the end of 2011. The online game can be played at www.residens-projekt.de and is free of charge.

Provided by Fraunhofer-Gesellschaft