

## Poster Abstract GI-Forum 2012

### Development of a Community-based Energy WebGIS Portal

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The topics energy efficiency and the increasing use of renewable energy due to high energy prices and the noticeable climate change have taken a significant role in our society. Current data about energy characteristics at community level are representing an important baseline for the development of strategies for efficient energy use in these communities. The project "*Development of a Community-based Energy WebGIS Portal*" is integral part of the Interreg IVA project "*AlterVis - Self-sufficiency through renewable energy sources*" with the goal to capture the renewable energy potential in the district of Hermagor in Carinthia, Austria. A central basis for the development of an energy balance (comparison of energy consumption to production) is to capture the current energy consumption data regarding electricity, heating, building characteristics in terms of insulation status and mobility) for each household in the participating municipalities and communities.

Therefore a WebGIS portal for capturing, managing, analyzing and visualizing energy characteristics based on open source technologies has been implemented. The overall goal of this web portal is to identify the potential for reducing the energy consumption for each household in different communities. The focus of this work deals with the development of a uniform and global system which allows participating owners of private households and commercial / industrial facilities (which includes also public and agricultural facilities) to participate in a standardized questionnaire- based survey regarding the energy consumption of their household/building(s). The survey results can be visualized in various forms of tables or automatically generated diagrams and maps, which provide more detailed information about the current energy consumption of the household and each building. After the user has completed the survey the WebGIS portal provides the user's personal energy characteristics as benchmark for a comparison with Austrian-wide statistics of "Statistik Austria" based on a standardized and comparable energy efficiency category graphic (range from A++ to G) for the three main categories electricity, building heat and mobility. All this collected information is stored in a database and can be exported and printed out for further analyses. Responsible authorities in each of the municipalities can evaluate and use this information to reveal weak spots and identify potential for improvement. The focus of this project is in particular the integration of the spatial aspect of all the relevant energy sampling units for analyzing and representing this information on maps using a web portal. The thematic maps visualize, depending on the user role, pre-defined queries concerning the energy data such as electricity consumption or the year of construction. The results can be visualized either for individual household/building addresses or aggregated for different planning units (e.g. municipality). This online platform demonstrates how energy data efficiently can be captured, analyzed and visualized in a standardized way by using web-based geospatial methods and technologies. This "bottom-up" approach to capture energy characteristics at community level allow the efficient comparison of planning units and provide the basis for extending and implementing this project for all communities in Carinthia.